Program/Course Specific Outcomes : ECONOMICS				
Semester	Subject	Course Code	Outcome	
Ι	Micro Economics	BASECC 131	 Understand the Micro economics scope ,uses, limitations, mathematical techniques, Linear and nonlinear functions Analyze the concept of Consumptions, Utility, Consumer surplus, indifference curve Understand Demand, Law of Demand, elasticity of demand Understand and Compare the Cost ,Revenue Concepts and its relations Understand the Concept of Supply, Law of supply and identify its practical significance Analyze the concept of market and demonstrate its strategies 	
	Fiscal Economics	BASECE181 (Elective, II, PAPER)	 Understand Nature and scope of Fiscal economics, Public Finance Discuss the concept of Public revenue and expenditure Discuss Fiscal Policy , understand the preparation of Government Budget 	

Π	Macro Economics	BASECC181	 Understand scope ,uses, limitations of Macro economics And discuss the concept of National income and compute the national income accounting Discuss the Employment Theory, Understand wage cut policy, analyze the Consumption function and concept of multiplier Discuss Unemployment, demonstrate the types, Business cycles Study concept of monetary and fiscal policy and discuss the preparation and impact of budget Evaluate the Post Keynesian developments, ISLM model
Π	Monetary Economics	BASECC231	 Understand the Concept of Money and discuss its Functions and demonstrate the Circular flow of money Understand The value of money, compute the index number Discuss the concept of Inflation, Types, causes ,effects Understand the Commercial banking, discuss balance sheet, evaluate the investment policy and modern banking instruments Explain the Central bank analyze the Credit control policy Discuss the International Financial institution

IV	International	BASECC281	• Discuss the theories
	Economics and		of international trade
	Public Finance		Analyze the Commercial
			policies
			 Discuss and Demonstrate
			The balance of payment
			• Explain the
			International capital
			movement
			• Evaluate the Trade
			Barriers

V	Economic thought	ECO501	 Understand Classical economists Understand Marxism and Marginalize Understand Neo classical economist Understand Keynesian and post Keynesian economics Discuss the Indian economic thought
	Development Economics	ECO 502(A)	 Discuss the Meaning, The measurement of economic development and Know the concepts like HDI, PQLI, GDI Discuss and critically evaluate the Theories of Economic Development Understand the concept of Capital formation and economic development Analyze the Human resources development Discuss The role of state and economic planning
VI	Indian Economics	ECO 601	 Understand the problems of Population Discuss the Poverty and unemployment India Understand the Indian Agriculture Understand the Indian Industry Discuss the Reforms in tertiary sectors since 1991 Demonstrate the Centre state financial relations

Environmental	ECO 602	• Discuss the Nature of
Economics	(A)	environment economics
		• Understand the
		environmental
		Pollutions, Causes
		and consequences
		Discuss the Local
		environmental
		issues
		Understand
		Global
		environmental
		problem
		Discuss
		Environmentalism
		in India

PROGRAM OUTCOME: ENGLISH OPTIONAL

B.A. with Combination: EJP

English Optional is a 3-year undergraduate course studied along with Journalism and Psychology. It is a course which helps student to get excellent preparation for careers in teaching, media, advertising, writing, and publishing. The subject deals in literary analysis, prose, poetry, written and oral communication skills and related disciplines.

Program Specific Outcome: ENGLISH OPTIONAL

The study of Optional English aims to introduce a wide range of Literatures in English. This course has the aim to offer the opportunity for students to be able to respond and read novels of the large spectrum. They also study drama, fiction and poetry belonging to different genres. There is scope for the students to get exposed to wider socio-cultural and political issues in relation to contemporary English. This program in English will be serving as an excellent foundation for students who want to do a very deep study in Literature.

Course Outcome:

Semester	Subject	Subject Code	Outcome
Ι	Early Romantic Literature Paper – I	ENCC 101	 Understanding of the basic concepts in English literature. To know the strong senses, emotions, and feelings of the Romantic writers. It encompasses awe of nature of the Romantic writers and the effect of industrialisation is felt. To know the Influence of Renaissance on English literature.
Π	Later Romantic Literature Paper – II	ENCC 102	 To know the sensitive and broader vision of the Later Romantic Literature. To celebrate the individual as seen by the Romantic writers. It encompasses the study of the importance of imagination.
III	Victorian Literature Paper – III	ENCC 201	• To study the role of science on the people of the Victorian Era.

			 To know the expanding horizons of education, religion and politics. Students get to know how democracy enabled many authors to easily share their work with the public and helped launch the careers of prominent Victorian writers.
IV	Seventeenth Century	ENCC 202	 To gain knowledge of the 17th
	Literature Paper – IV		 century unceasing disturbance and violent storms in literature To know how the Renaissance had prepared to the dissemination of the ideas of the new science and philosophy. The paper concentrates on the questioning attitude that characterized the period as seen in the works of the period's great scientists, Metaphysical poets and philosophers.
V	Shakespeare – Paper V	ENCC 301	 Shakespeare's themes are still resonate today. They raise questions of morality, politics, war, wealth, and death. Understand the uniqueness of Shakespeare's sonnets and insight into characters' feelings and motives, and cleverer handling of light and dark, change of pace, and the weighing up of right and wrong.
	The Twentieth Century Paper -VI	ENCC 302	 To understand the major literary movements like Modernism and Postmodernism and various genres such as detectives or science fiction. To highlight the effect of two world wars, worldwide economic

			depression, the dissolution of the British Empire, increasing democratization of society, and the advent of new technologies.
VI	Indian Writing in English Paper – VII	ENCC 303	 To understand Industrialisation, urbanization, globalization, modernization and feminism and women's empowerment and the changing social dynamics constitute the major themes of the modern Indian English writers. The writings of Indian Writers in English were influenced by literary movements that took place in the West such as Symbolism, Surrealism, Existentialism, and Confessional Poetry. To depict a blend of Indian and Western cultures.
	American Literature Paper - VIII	ENCC 304	 Studying American literature encompasses understanding society The writers who figuratively came with them included Shakespeare, Milton, Marlowe, Pope and many others. American literature began then as an extension of English literature. To gain knowledge on the American Dream, Loss of Innocence, relationship with Nature, relationship with Society, relationship with Science, alienation and Isolation and survival of the fittest.

Program Outcomes and Course Outcomes

PROGRAM OUTCOME: B.A.

B.A. Programme enables the students to gain a thorough knowledge and skills in the disciplines of Arts stream. This will equip the students to analyse the past, present and plan for the future with a better understanding of the society. Good understanding of History enable students to understand the current affairs with historical perspective. This in turn help them to perform well in all competitive examinations. A good understanding of History is pre-requisite for developing leadership quality. A correct perspective of History equip leaders with problem solving quality.

Program Specific Outcome: History

- I. Students shall be able to have understanding periods of History: Pre-history, Proto-History, Medieval History, Modern History, and Contemporary History with reference to sources for authentication of past events.
- II. Students shall be able to have knowledge about evolution of religions, customs, social and political institutions.
- III. Developing mental attitude towards analyzing, synthesizing, and evaluating historical sources, through which proper understanding of the social, political, religious and economic conditions of the people of the past.
- V. Compare and Contrast the relationship between the past and the present
- V. Developing practical skills for identifying geopolitical importance through the study of Historical maps.
- VI. Equip the students with sound knowledge on History for all competitive examinations.
- VII. To promote spirit of nationalism by understanding the composite culture of India.

Course Outcome: History				
Semester	Subject	Subject Code	Outcome	

Ι	India in the Early Historical Period (to A.D.300)core Historical method(elective)	BASHTC – 131 BASHTCE-131	 Students will gain knowledge about sources of history, historiography and geographical features Gain understanding the origin of Human activities, evolution of Indian civilization starting from pre- historic period, up to Post- Mauryan India.
Π	India in the Early Medieval Period (A.D. 300-1300) Debates in Indian History(Elective)	BASHTC – 181 BASHTCE– 181	 Understanding about the Age of the Guptas Chalukyas, Pallavas and Cholas Familiarising about the age of Rajputs and Muslim Invasion in India.
III	Medieval India (A.D. 1206-1556)	BASHTC - 231	 Gaining knowledge about Delhi Sultanate, Economy, Society, and Polity Have better understanding about Vijayanagar Empire and South India in Early 14th Century A.D.

	Tourism in India(elective)	BASHTCE-231	• Information about Afghan Mughal Struggle and consolidation of the Mughal Empire
IV	Early Modern India (A.D. 1605- 1856)	BASHTC – 281	 Identify the condition of India under the Mughal domination Explain the Polity, Society, Culture, Literature, Music, art and architecture
	Current issues & their Historical perspective(electiv e)	BASHTCE-281	 Analyse about the rise of the Marathas Examine the early phase of European Domination and consolidation of the British Empire
V	Colonial India (A.D. 1856-1885)	BASHTC – 304	 Understand about Colonialism, Government under East India Company, Society and Culture Gain a thorough knowledge about the 1857 movement, genesis of Indian Nationalism and colonial policy in the post mutiny India
VI	History of Europe (A.D. 1789-1990)	BASHTC – 305	 Understand causes and results of French Revolution, Rise of Napoleon, Unification of Italy and Germany Examine the World Wars I &II, League of Nations and UNO
	Making of the Indian Nation (A.D. 1885-1964) History of	BASHTC – 355	 Understanding three phases of the Indian National Movement, Gandhi and Struggle for Swaraj Understanding the role of Shubhas Chandra Bose and INA Examine the social cultural aspects and legacy of freedom movement Understanding of Karnataka in 16th C, Karnataka after Vijayanagara, Karnataka towards colonial Domination and British rule
	Karnataka (A.D. 1565-1956)	BASHTC – 356	 Understanding about rendition of Mysore, Social, Cultural and Political Developments in Mysore Understanding the unification of Karnataka

PROGRAM OUTCOME: JOURNALISM

B.A. with Combinations: EJP

Journalism is studied as a part Journalism, and group for B.A. degree. The study of Journalism enables the students to have better understanding of Mass Communication, Various Media, History of Journalism, Reporting, Editing practice, Advertising, Public Relations, Feature Writing and Media Law.

Program Specific Outcome: Journalism

- 1. Students will be able to write a variety of mass media products, including news stories, press releases, and advertising copy, following accepted journalistic standards, including Associated Press style.
- 2. Students will demonstrate knowledge of the principles of journalistic industry standards in publication layout and design.
- 3. Students will demonstrate an understanding of the components of a various journalistic stories and styles.
- 4. Students will demonstrate understanding of the impact of the press on society.
- 5. Students will write stories for publication across multiple platforms and industries.
- 6. Students will understand and be able to apply relevant law involving journalism, ethics and other mass media issues.

Course Ou	Course Outcome:				
Semester	Subject	Subject Code	Outcome		
Ι	Introduction to Mass Communication and Journalism	BASJRC 131	 Understanding of the basic concepts and their divergent views Having a sensitive and broader vision of Journalism Students are capable of learn the entry level media work Students will able to discuss journalism's history and importance. Students holding steadfast confidence in Journalism's role as an integral part of a functioning representative democracy 		
Π	Audio Visual Media	BASJRC 181	 Students gain the knowledge about the history of media. Students will able to grasp the nature of different electronic medias 		

III	Reporting	BASJRC	 and their limitations. Students will able to develop curiosity. Analyze knowledge from
		231	 communities, current events, public affairs to interpret and express the context for the publications Gather, analyse and create
			 ournansm on contemporary issues for print, broadcast and other digital media. Write and edit clear, graceful, grammatically correct prose.
			 Gain the knowledge about the values, elements and sources of news. Competency to write news report and conduct interviews
IV	Editing	BASJRC 281	• Gain knowledge about editing, news room setup and editorials.
			• Knowledge on Page design, Photo editing and Translation is gained
			• Development of writing skills
			• Gain knowledge on writing features, articles, profiles, technical writing.
			• Students able to search for the truth, examining all sides of an

			 issue with objectivity and openness to the ideas through the editorial, articles, op-ed page, letters to the editor writings. Students will able to edit, proof read, and produce the major elements of the newspaper.
V	Advertising – Paper V	BASJRC 331	 Describe and analyze/measure/assess the relevant theories, practice, digital ads, legal issues, ethical challenges, faith, and diversity in the fields of advertising and Public Relations. Create and defend the strategy and execution of an
	Public Relations- Paper VI	BASJRC 332	 Develop media buying and planning strategies in advertising and P.R. Design effective visuals communication for various advertising and P.R approaches that combine the use of print, online/digital and other multimedia communication.

VI	Media Law- Paper VII	BASJRC 381	 Students will demonstrate an understanding of ethical and legal aspects of media. Students will understand the traditional role of journalism as society's watchdog, and the rights and responsibilities of journalists.
	Media management – Paper VIII s	BASJRC 382	 Gain the knowledge about media management styles and evaluate their effectiveness in enterprises within the creative industries. Students will understand the economic structure, principles, working conditions, business strategies, marketing, ratings and even exploitation.

PROGRAM OUTCOME: B.A.

B.A. with Combinations: HEP & HSP

Political Science is studied as a part of History, Economics, and Political Science group, as well as with History, Sociology, and Political Science group for B.A. degree. The study of Political Science enables the students to have better understanding of Politics, Political Theory, Political Systems, Constitution, Government, Governance, Public Administration, Human Rights and International Relations.

Program Specific Outcome: Political Science

The Political Science as a discipline enables the students to understand the basic principles of Politics and Governance including governing institutions and their bodies at various levels, political wings and organizations, including political behavior. It helps the students to understand the working of various administrative bodies through Public Administration and Management. It also helps in understanding government and politics in a global context through Comparative Politics and International Relations. In totality, Political Science equips a student to pursue Civil Services Examinations and other Competitive Exams. Student will be able to pursue their career in teaching and research.

Course Outcome:				
Semester	Subject	Subject Code	Outcome	
Ι	Introduction to Political Science	BASPSC 131	 Understanding of the basic concepts and their divergent views Having a sensitive and broader vision of politics 	
Π	Indian Political System	BASPSC 181	 Students gain awareness on Indian Political System Develop understanding and a sense of respect towards the Constitution of India Students gain awareness on Fundamental Rights and Duties 	
III	Modern Political System	BASPSC 231	 Introduce students to few modern government to develop ability to compare and contrast various political system. Explicating the principles governing political system . Highlighting the factors that helps political change. Evaluating the operational pattern of selected modern government. 	

IV	Indian Political Thinkers	BASPSC 281	 Students gain understanding about Indian political tradition existed in the past. Helps to develop interest in students to read ancient and modern texts dealing with power governance. Develop the ability to read and reflect upon the major contribution of identified thinker. Make the students derive inspiration from the thinkers and preserve the value that integrates and help them to build
V	Public Aministration (Paper V)	BASPSC303	 • Understanding the basics of public Administration • Understanding the working of public institutions, civil services and organisational structure

	Introduction to International Relations (Paper VI)	BASPSC304	•	Acquire knowledge about planning and budget making processes Familiarity about nature, working, and need of International Relations Gain awareness about International Peace and Security and UN. Gain knowledge about trends in International Relations and
VI	Contemporary Issues and Trends in International Relations (Paper VII)	BASPSC 353	•	Global issues. Acquint the basic aspects of Indian foreign policy and India's external relations . Familiarise the students with nature and operation of major global institutions and processes.
	Theory and Practice of Management (Paper VIII)	BASPSC 354	•	Development of Management skills and techniques Understanding of new developments in management Understanding recent trends in management.

PROGRAM OUTCOME: PSYCHOLOGY

B.A. with Combinations: EJP

Psychology is a part of study for B.A. degree. The study of Psychology enables the students to have better understanding of human behavior by studying various paper as General Psychology, Child, Lifespan development, Social, Abnormal, Organizational behaviour and Health Psychology.

Program Specific Outcome: Psychology

Course Outcome

Psychology is not just an academic subject that exists only in classrooms, research labs and mental health institutions. It is a scientific field that aims at understanding human nature and behavior. Knowledge of Psychology helps understand one's own strengths and weaknesses by giving practical experiences. It gives awareness about social and psychological problems faced in general and prepares the student to face everyday challenges by exposing him/her to coping strategies. Moreover makes the student realize that an aim is attainable. It is a powerful force that influences all our activities in every walk of our life.

Semester	Subject	Subject Code	Outcome
Ι	Foundations of Behaviour I (Theory) Practical	BASPYC13 1 BASPYP 132	 To impart knowledge of the basic concepts and various perspectives in psychology. To understand the biological basis of human behaviour. To understand the basic perceptual process.
II	Foundations of Behaviour II	BASPYC181	 4. To acquaint the students with the dynamics of human behaviour. 1. To understand the process of memory and techniques
	(Theory) Practical	BASPYP182	 to improve in everyday life situation. 2. To understand the process of acquisition of skills and information which brings changes in behaviour.
			 To gain knowledge about individual differences and assessment of Intelligence. To understand the components of Personality and assessment of personality

III	Life Span Development – I (Theory) Practical	BASPYC231 BASPYP232	 To understand the stages of life span development. To have an overview of research designs in the field of child development. To gain knowledge about the role of heredity and environment on Growth and Development. To sensitize students about childhood disorders and possible ways of handling them.
IV	Life Span Development –II (Theory) Practical	BASPYC281 BASPYP282	 To understand growth and development from Adolescence to old age. To sensitize the students about issues related to developmental stages. To understand the age related physical and psychological health issues. To focus on psycho social support.
V	Social Psychology (Theory) Practical V	BASPYC331 BASPYP 333	 To know the significance of Interpersonal Relationship. To understand the concept of prosocial behaviour and related aspects. To understand the various social issues like attitude, prejudice and discrimination. To acquire knowledge about role of aggression on Behaviour

VI	Abnormal Psychology (Theory) Practical VI	BASPYC332 BASPYP334	 To impart knowledge about the difference between normality and abnormality. To have an overview of criteria of abnormality and overcome misconceptions of abnormal behavior. To familiarize students with symptoms and causes of prevailing mental disorders as per International classifications of mental disorders. To bring awareness about rehabilitation and therapies available
VII	Health Psychology (Theory) Practical VII	BASPYC 381 BASPYP 383	 To acquaint the students about the need of health psychology and the health related behaviors. To understand the impact of stress on health. To have awareness about health damaging and health promoting life styles. To attain and maintain ones health by means of coping strategies.
VIII	Organizational Behaviour (Theory) Practical VIII	BASPYC382 BASPYP 384	 To introduce the students to the field of industrial/ organizational Psychology. To know the importance of Psychology at workplace. To apply the knowledge gained about Industrial Psychology in the work place. To understand the role of leadership and motivation at work place

PROGRAM OUTCOME B.A.: SOCIOLOGY

BA with Combination HSP (History, Sociology, Political Science):

Sociology is studies as a part of History and Political Science group for BA Degree. The study of sociology enables the students to have better understanding of society, social actions and interactions their conditions and consequences, social stratification and mobility, social process, Indians villages, family system, social problems, Welfare and Development of various communities.

Programme Specific Outcome:

Sociology as a discipline enables the students to understand the basic principles, social behavior, social processes, social controls etc. It helps the students to understand the working of various administrative bodies, production systems and problems etc. through Industrial sociology, social problems in India and political sociology. In brief sociology equips a students to pursue civil service examinations and other competitive Examination. Student will be able to pursue their career in teaching and research.

Semester	Subject	Subject Code	Outcome
I Sem	Principles of Sociology Paper I	BASSOC 131	 To understand the basic concepts in sociology To study the relationship between sociology and other social sciences To study the different branches of sociology To understand the process of socialization and its importance.
II Sem	Social Institutions and Social Change Paper – II	BASSOC 181	 To understand basic of social institutions and relevance To study the concepts of social change
III Sem	Indian society – Rural and Urban Paper - III	BASSOC 231	 Understand the system of social stratification in India The learner gets a broader view on the existence of different types of family Gets a clear picture of Indian villages through the ages Understand the causes of urbanisation and its problems.

Course Outcome:

IV Sem	Social problems in Indian Paper – IV	BASSOC 281	 Understands the nature of Indian populations Realizes the social threats to the Nationalism Learns to respect the Elders To study major social problems in India To study the causes leading to social problems.
			• To understand the remedial measures to social pathology in India
V Sem	Methods in Social Research (Compulsory) Paper - V	BASSOC 301	 Understand the nature of social phenomena and the issues involved in social research Study of research methods as a means of understanding social reality Learn the methods of Data collection, analysis and report writing Acquaintance with the quantitative and qualitative strategies of research Develop logical thinking and critical analysis
V Sem	Indian society - welfare and development Paper - VI	BASSOC 302	 Understands the real conditions of the vulnerable classes. Students learns to respect the tribal community scheduled caste and women. Understands self-help groups of women Empowerment and microfinance Analyses the development measures taken for the upliftment of the conditions of scheduled caste, scheduled tribes women & Minorities.
VI 'A' Sem	Sociological Thought (compulsory) Paper VII	BASSOC 351	 Makes the students derive inspiration from the thinkers and preserve the value that integrate and help them in build healthy society Develop the ability to read and reflect upon the major contributions of identified sociologists To familiarize with the social, political and intellectual contents of the emergence of sociology To gain an understanding of some of the classical contributions in sociology To know the theoretical foundation of sociology To develop critical thinking, analytical ability to interpreted the social scenario

VI 'B'	Gender Dynamics Paper	BASSOC	 To know the theoretical foundation of gende issues To understand the real conditions of the women Analyze the causes and effects of major problem faced by women
Sem	VIII	352	
			 To understand the real conditions of the wome. Analyze the causes and effects of major probler faced by women

Department of Biotechnology

PROGRAM OUTCOME: B.Sc

- 1) To provide graduates with a sound knowledge of the fundamental principles and practices of Biotechnology.
- 2) To understand the basic concepts, fundamental principles and its applications related to various biological fields and their relevance in day to day life.
- 3) To understand the foundational concepts of Biotechnology and its impact on research and development in diverse fields that can span healthcare and agriculture as well.
- 4) To provide good laboratory skills and techniques to the students to help them meet with the growing demands in research.
- 5) To empower students with the ability to think and solve problems in the field of biotechnology.
- 6) To provide broad based training in technical skills in the methods of biotechnology.
- 7) To exhibit an ability to work independently and collaboratively.
- 8) To equip the students to pursue higher education and research in reputed institutes at national and international level.
- 9) To develop a working knowledge of biotechnology product and processes.

Program Specific Outcome

Biotechnology, Biochemistry, Zoology :-

- ✓ Students will be able to acquire knowledge on the fundamental concepts of biotechnology which enable them to understand the emerging and advanced concept in life sciences.
- ✓ Students can also acquire knowledge in domain of biotechnology enabling their applications in industries and research field.
- ✓ To empower the students to acquire technological knowledge by connecting disciplinary and interdisciplinary aspects of biotechnology.

Course Outcome					
Semester	Subject	Subject	Outcome		
		Code			
Ι	Biochemistry and Biophysics	BT 131	 Students will be expected to Study the aims and scope of biochemistry and biophysics. Understand structure, classification, properties and function of biomolecules like carbohydrates, proteins, lipids and nucleic acids. Study history, properties, nomenclature, classification and active sites of enzymes. Study application of enzymes in genetic engineering, clinical significance. Study the structure and function of water Study the concept of thermodynamics. Understand the mechanism of U.V.,visible an infraredspectrophotometry,Fluorescence, phosphorescence and spectroflurometry. Study the construction, working and application of different types of microscope. Study the mechanism, principle and types of chromatography and centrifuge. 		
Ι	Practical	BT 132	 Students will be able to Handle Microscope and familiar with the adjustments if needed. Study qualitative tests for carbohydrates, proteins and lipids. Analyse the salivary amylase and Urease activity. Estimate the reducing sugar, proteins colorimetrically. Demonstrate Beer- Lamberts law. Aanlyse absorption maxima of a solution. Carryout experiments regarding paper and thin layer chromatography. Perform electrophoresis techniques and Differential centrifugation techniques. 		

II	Cell Biology and	BT 181	The student will be
	Genetics		 Able to understand the main aspects of cell and its types. Structure and functions of Cell organenells Able to understand the concept of cell division in both plants and animals. Able to understand the structure and function of chromosomes. Able to study the structure, function and defects of gene. Able to study about types and causes of mutations Able to understand the evolution of crops. Able to study the hereditary defects and its complication in day to day life.
II	Practical	BT 182	Student is able to understand the concept of
		-	1) Hematology- WBC and RBC counting.
			2) Mitosis and Meiosis
			3) Histology- Tissue processing and slide
			preparation by using microtomy
			4) Separation of pigments in plants and animals
			by using ascending chromatography technique.
			5) Measurement of cells by using micrometry.
			6) Study on Drosophila genetics.
			7) Karyotyping and genetic problems.

III	Microbiology and	BT 231	Students will be
111	Immunology	D 1 251	1) Able to understand the history of
	minunoiogy		Microbiology And discovery of
			Microbiologist
			2) Able to study the concept of sterilization and
			disinfection.
			3) Able to study types and mode of action of
			antibiotics
			4) Studying general classification of microbial kingdom
			5) Able to study introductive concepts of virology,
			archaebacteria, eubacteria and eukaryotes.
			6) Studying the structure and function of microbial
			cell. 7) Able to study isolation techniques and various
			media preparation
			8) Able to study the microbial nutrition and growth
			kinetics
			9) Able to study the microbes in extreme
			environment - thermophiles, halophiles,
			psychrophiles, barophiles and alkaliphiles.
			10) Able to study microbial interactions with
			microbes, plants and animals.
			11) Able to study the historical perspectives of
			immunology. Classification of immunity,
			concept of immune system.
			12) Able to study MHC molecules-types, structure
			and their functions.
			13) Study bacterial conjugation, transduction, and
			14) Able to study the structure function and types
			of antibodies antigen antigen antibody
			reactions
			15) Able to study immunological disorders,
			16) Able to study about hypersensitivity and
			allergy, vaccination and immunization.
III	Practical	BT 232	Students will be able to
			1) Study the instruments in detail of specified
			subject.
			2) Differentiate the microbes by staining method
			3) Follow the asceptic techniques used in lab.
			4) Culturing and characterization of
			5) Study antibiotic sensitivity of microbes
			6) Study the effect of pH and temperature on
			bacterial growth.
			7) Determine blood group and Rh factor.
			8) Study the different types of leucocytes.
			9) Understand immunodiffusion studies in detail.

IV/	Molecular Dieless	DT 201	Students will get the knowledge shout
1 V	Notecular Biology	DI 201	1) The discourse structure and transformed to by the
	and Recombinant		1) The discovery, structure and types of DNA.
	technology		2) The process of replication, transcription and
			translation processes in both prokaryotes and
			eukaryotes.
			3) The mechanism of genetic recombination in
			both prokaryotes and eukaryotes.
			4) The discovery and types of transposons in
			prokaryotes and eukaryotes.
			5) The process of prokaryotic gene expression
			(Lac and tryp) and eukaryotic expression,
			Transcription factors
			6) Aim, objective and scope of gene cloning
			Yeast and rDNA technology.
			7) Study isolation and purification of DA from
			bacteria, plant and animal cell.
			8) Detail concept of genetic engineering
			9) The genomic and cDNA library-features,
			construction and application.
			10) Screening and selection of recombinants.
			11) PCR. Western, Northern and Southern
			blotting and DNA fingerprinting.
			12) The hazards and biosafety measures of rDNA
			technology.
			13) Genetically modified organisms in detail.
IV	Practical	BT 282	Students will get practical knowledge about the
			1) Separation of cell organelles and their
			studies.
			2) Isolation, analysis, and estimation of DNA,
			RNA and protein
			3) Separation of biomolecules by Agarose gel
			electrophoresis and SDS- PAGE.
			4) DNA ligation.
			5) Restriction digestion.
			6) Preparation of competent cells.
			/) Bacterial transformation.
			8) Western blotting technique.
			9) Plasmid isolation.

V	Plant Biotechnology	BT 331	Student will be expected
	(Paper V)		1) To know about the history of plant tissue
			culture and its technical terms.
			2) To understand the designing and
			construction of the plant tissue culture
			laboratory
			3) To understand the importance of
			sanitization techniques
			micropropogation and culturing different
			parts of the plant
			1) To study embryo culture, embryo rescue
			4) 10 study emoryo culture, emoryo rescue,
			ambruogenesis
			5) To understand the machanism of
			5) 10 understand the mechanism of
			artificial seeds and its preparation and
			storage.
			6) To analyse the somaciones in a culture,
			and factors effecting it. Applications.
			7) To study about the Cell suspension
			secondary metabolites, cryopreservation
			8) To study in detailed aspect of protoplast
			culture and somatic hybridization,
			9) To study the genetic manipulations in
			plant cell and its applications.
			10) Study on genetic transformation by using
			Agrobacterium
			11) To study edible vaccines and transgenic
			crops- cotton and brinjal.
			12) To study the disease development in
			plants due to bacteria, fungi, viroids and
			virus.
			13) To study the immunity of plant –
			Systemic acquired resistance.
V	Practical - Paper V	BT 333	Students are expected to
			1) To study the plant tissue culture lab setup.
			2) To study the different culture media used
			in plant tissue culture laboratory.
			3) To understand the technique of
			sterilization of glasswares, media and
			explants.
			4) To study to establish callus, seed, embryo,
			anther, axillary, anther, pollen, single cell,
			protoplast culture.
			5) To establish synthetic seeds and storage for
			further application.
			6) To undergo the studies on organogenesis
			of callus and hardening of plantlets.
			7) To isolate the <i>Agrobacterium</i> from soil and
			cocultivate into the plant of our interest.
			8) To study the mechanism of
			cryopreservation technique.

V	Animal	BT 332	Studen	ts will be expected to study
	Biotechnology		1)	The history and development of cell
	(Paper VI)			culture.
			2)	Hanging droplet and watch glass
				technique.
			3)	The equipments and different media used
				in lab.
			4)	Basic techniques to culture the animal
				cell – primary culture technique and its
			_	advantage and disadvantage.
			5)	Disaggregation and measurement of
			~	cells.
			6)	Density gradient centrifugation,
				immunopanning, MACS, centrifugal
			7)	elution, FACS.
			1)	change: subsulturing factors offecting
				culture, monolayer and suspension
			8)	The cell line, cell synchronization and
			0)	the growth kinetics of cells in medium
			9)	The selection of hybrids- HAT selection
			-)	Cell cloning- types: dilution and
				suspension.
			10)	The Stem cell culture, Cryopreservation
			,	technique, Animal cloning and the gene
				transfer methods
			11)	The reporter genes, method and
				applications DNA micro array.
			12)	The gene therapy and its application in
				cancer treatment
			13)	The symptoms, disease diagnosis and
				treatment of animal disease.
			14)	The Genetic Engineering, organ culture,
				tissue engineering, transgenic animals
			15)	The silkworm and animals as
				bioreactors.
V	Practical (Paper VI)	BT 334	 Students will be expected to Study the establishment of animal biotechnology lab. Study the preparation and sterilization of media. Undergo primary explants culture, Chick embryo culture (Spratt culture) Isolate the bone marrow cells and culturing it in specified media. Culture the lymphocytes. Determine the cell viability. To undergo buffy coat preparation of WBC. Count mammalian cells by using Hemocytometer. Perform cell viability test by trypan blue dye exclusion method. To perform staining of monolayer culture and suspension culture. Study cryopreservation technique. 	
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VI	Environmental Biotechnology (Paper VII)	BT 381	 Students are able to Understand the principles of Environmental Biotechnology and its relevance. Study the various pollutions happening in the surroundings, its effects, causes and preventions. Understand the microbial treatment by using various methods like composting, vermicomposting, land farming.Biological treatment of liquid waste. Study the aspects of Bioremediation, Biomining. Study the degradation of hazardous materials in nature like paints, industrial effluents, and radioactive wastes. Study about renewable and non-renewable resources. Conventional and non- conventional sources. Study on biomass energy, Biogas production, Bioethanol production. Study about bioindicators like Pongamia, Jatropa and its application in day to day life. Study microbial degradation of xenobiotics- Pesticides, detergents, plastics. Study the economically valuable products- Textiles, paper, leather, wood. To understand the importance of biocontrol agents, Biofertilizers. Utilization of Rhizobia, Cyanobacteria, Arbuscular 	

			 mycorrhizae and ectomycorhizzae. 14) Study the importance of Costal regulatory zone, Marine resources, and environmental issues of freshwater and marine aquaculture. 15) Study the aspects of a genetically manipulated organisms - Biopesticides. 16) Study on Genetically modified food and its ethical issues.
VI	Practicals – Paper VII	BT 382	 Students will be expected to Estimate the alkalinity and salinity from water, soil and sewage. To study about water microbiology and sewage water analysis. Determine BOD and COD. Estimate the hardness of water. Estimate total solids, dissolved and suspended solids. Estimate the inorganic phosphate and nitrogen in soil, sewage water. Undergo soil analysis - classification, water holding capacity and bulk density. Estimate dissolved oxygen and carbon dioxide, organic carbon. Produce Biogas. Isolate xenobiotic degrading microorganisms. Perform vermicomposting and bio fertilizers. Undergo studies on animals, plants and microbes in extreme habitat. To undergo analysis of polluted water. Go through the field trips to different biomass. Solve Biostatistics and Bioinformatics problems.
VI	Biostatistics and Bioinformatics (Paper VIII)	BT 382	 Students will be expected to Study the basic concept of Mathematics - Set theory, Binomial theorem, Logarithm, Differentiation and Integration. Study and understand the concept of Biostatistics- mean median and mode. Study the measures of dispersion, range, quartile deviation, mean deviation, standard deviation. Study probability, correlation and regression in detail. Understand and study about computers

			 and its application in Biotechnology. 6) Expose into a new area of biological science- Bioinformatics and its applications. 7) Study the structure of biomolecules, DNA, RNA, genetic code, protein structure, folding by using various tools of bioinformatics. 8) Study Biological data bases and data tools, database softwares, tools for genomics, proteomics, genome data visualization tools, annotation, genome comparision, analysis and submission. 9) Study the application of bioinformatics in agriculture, aquaculture and pharmacogenomics
VI	Project Work	BT 384	 Students will be 1) Exposed to the field study. 2) Encouraged to visit different sites of interrand review the research articles of the interest.
			 3) Able to design a project and collect the review of literature. 4) Exposed to various biotech industries for training in handling the various instrumer and undergoing the project.

Department of Biochemistry

PROGRAM OUTCOME: BSc

1)To understand the basic concepts of organic, inorganic, bio-physical, medicinal and pharmaceutical chemistry and their role in biochemical processes.

2)To apply the nutritional, immunological and Microbiological knowledge in day to day life.

3)To know about different types of biological toxicity and diseases and to aware about the safety measures.

4)To know the importance of Enzymes, Hormones, Antibodies and other Biological Defense systems.

5)To acquire skills in handling scientific instruments, chemicals, safety measures and performing Biochemical techniques in laboratory experiments.

6)To acquire basic knowledge for Research, Diagnostics, and clinical trials and also for higher studies.

Program Specific Outcome

Biotechnology, Biochemistry, Zoology- Students can understand Cellular and Molecular biology, Biotechnological applications, Reproduction, Biodiversity and Ecology and other biology related concepts with this combinations

Course Ou	itcome		
Semester	Subject	Subject Code	Outcome
Ι	Bio-inorganic and Bio- physical chemistry	BCC131	 Students are expected, 1) To learn the basics of acid, bases and buffers and theories related to this. 2) To understand the concept of electrodes, pH meter and other scientific equipments and their applications. 3) To know about the concept of photochemistry, stoichiometry and Metal ions in the biological system. 4) To understand the effects of different types of pollution and heavy metal toxicity on Biological system. 5) To gain the knowledge about the concepts of Radioactivity and its safety measures.
Ι	Practical -I	BCP 132	 Students are able to understand the concept of Analytical balance Acid-Base titrations Titration curve of an aminoacid BOD and COD estimation of water. Conductometric titrations of strong acid and strong base. Preparation and pH determination of buffers
Π	Bio-organic chemistry I	BCC181	 The Students are expected, To learn the classifications of organic compound and IUPAC nomenclature system. To understand the concepts of Stereochemistry. To study the structure and applications of aliphatic hydrocarbons and arenes. To learn the mechanisms of different organic reaction and Polymerizations processes. To understand the concepts of hydroxy and Dicarboxy acids. To study the biological importance of pharmaceutical chemistry.

II	Practical -II	BCP 182	Students will gain knowledge about
			 Qualitative analysis of organic compounds by using different parameters such as physical appearance, odor, solubility and by using different chemical tests. Determination of boiling and melting point of different organic compounds.

Ш	Bio-Organic chemistry II	BCC 231	 Students will be expected 17) To understand the basic concepts amines and heterocyclic compounds. 18) To understand the importance of water and fat soluble Vitamins and to aware of their respective deficiency diseases. 19) To gain the knowledge about the physiological importance of terpenoids steroids and natural pigments. 20) To understand the concepts of alkaloids and its mode of actions. 21) To learn about different types of Spectroscopy techniques its principles, working mechanisms and applications.
III	Practical III	BCP 232	 Students get practical exposure in Organic preparations by acetylating, reduction and oxidative processes. Qualitative analysis of Biomolecules and proteins. Estimation of Ascorbic and keto compound by using DNPH method. Extraction of Caffeine, Starch, casein and oil from different sources.

IV	Biomolecules and Biochemical techniques.	BCC 281	 Students will be expected, To understand the structure, classification, nomenclature and biological importance of Carbohydrates, Lipids and Proteins To understand the structure and importance of amino acids and peptides in day to day life. To study the sequencing techniques and color reactions of proteins. To learn about the isolation and purification methods of DNA and RNA To study the techniques and applications of different types of chromatography To understand the principles, working mechanisms and significance of Centrifugation techniques.
IV	Practical IV	BCP 282	 Students are able to understand the concept of, Qualitative analysis of carbohydrates and Proteins by using different biochemical tests. Separation and Identification of amino acids and carbohydrates by different chromatographic techniques. Separation of plant pigments and to study different solvent ratio for chromatography.

V	Enzymology and	BCC 331	Students will be expected
	Metabolism		
			14) To understand the concepts of enzymes, its
			kinetics inhibitory mechanisms and
			applications in day to day life.
			15) To understand the concepts of optimum pH,
			temperature, substrate and enzyme
			concentration for the rate of reactions.
			16) To study the schematic pathways and different metabolic processes of linide
			carbohydrates and proteins
			17) To learn about the process of photosynthesis
			and its apparatus with the help of different
			Biochemical pathways.
			18) To study the different complexes of ETC its
			19) To know about different laws of
			thermodynamics and other Bioenergetics
			concepts.
V	Molecular	BCC 332	Student will be expected to
V	Molecular Biology and	BCC 332	Student will be expected to
V	Molecular Biology and Genetic Engineering	BCC 332	Student will be expected to 16) To understand the concept of central dogma
V	Molecular Biology and Genetic Engineering.	BCC 332	Student will be expected to 16) To understand the concept of central dogma of molecular biology and its role in the biological system.
V	Molecular Biology and Genetic Engineering.	BCC 332	 Student will be expected to 16) To understand the concept of central dogma of molecular biology and its role in the biological system. 17) To study the basic concepts of molecular
V	Molecular Biology and Genetic Engineering.	BCC 332	 Student will be expected to 16) To understand the concept of central dogma of molecular biology and its role in the biological system. 17) To study the basic concepts of molecular biology like replication, transcription and
V	Molecular Biology and Genetic Engineering.	BCC 332	 Student will be expected to 16) To understand the concept of central dogma of molecular biology and its role in the biological system. 17) To study the basic concepts of molecular biology like replication, transcription and translation. 10) The basic basic concepts of molecular biology like replication.
V	Molecular Biology and Genetic Engineering.	BCC 332	 Student will be expected to 16) To understand the concept of central dogma of molecular biology and its role in the biological system. 17) To study the basic concepts of molecular biology like replication, transcription and translation. 18) To learn about the concepts of gene, genetic code mutations and DNA repair
V	Molecular Biology and Genetic Engineering.	BCC 332	 Student will be expected to 16) To understand the concept of central dogma of molecular biology and its role in the biological system. 17) To study the basic concepts of molecular biology like replication, transcription and translation. 18) To learn about the concepts of gene, genetic code, mutations and DNA repair mechanisms.
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V	Molecular Biology and Genetic Engineering.	BCC 332	 Student will be expected to 16) To understand the concept of central dogma of molecular biology and its role in the biological system. 17) To study the basic concepts of molecular biology like replication, transcription and translation. 18) To learn about the concepts of gene, genetic code, mutations and DNA repair mechanisms. 19) To understand the principles and applications of r DNA technology and wide applications
V	Molecular Biology and Genetic Engineering.	BCC 332	 Student will be expected to 16) To understand the concept of central dogma of molecular biology and its role in the biological system. 17) To study the basic concepts of molecular biology like replication, transcription and translation. 18) To learn about the concepts of gene, genetic code, mutations and DNA repair mechanisms. 19) To understand the principles and applications of r DNA technology and wide applications of Genetic Engineering process.
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V	Molecular Biology and Genetic Engineering.	BCC 332	 Student will be expected to 16) To understand the concept of central dogma of molecular biology and its role in the biological system. 17) To study the basic concepts of molecular biology like replication, transcription and translation. 18) To learn about the concepts of gene, genetic code, mutations and DNA repair mechanisms. 19) To understand the principles and applications of r DNA technology and wide applications of Genetic Engineering process.
V	Molecular Biology and Genetic Engineering.	BCC 332	 Student will be expected to 16) To understand the concept of central dogma of molecular biology and its role in the biological system. 17) To study the basic concepts of molecular biology like replication, transcription and translation. 18) To learn about the concepts of gene, genetic code, mutations and DNA repair mechanisms. 19) To understand the principles and applications of r DNA technology and wide applications of Genetic Engineering process.

V	Practical V	BCP 333	Student will be expected to,
			 Determine the activity and specific activity of the enzyme by monitoring different biological conditions. Determine the optimum pH, temperature and calculations of Vmax and Km with the help of L-B plot. Estimate the Glucose, and Proteins Colorimetrically. Extract and estimate the amount of DNA and RNA from plant source. Perform electrophoresis techniques
VI	Human Physiology and	BCC 381	Students are able to,
	ennical biochennistry		 Have a deep knowledge about nervous system, muscular system and excretory system. Understand the concepts of body fluids, acid- base balance and physiological roles of liver and kidney. Become familiar with Endocrinology, Endocrine glands, Mechanism of hormones and the concept of secondary messengers. To gain the knowledge about metabolic disorders, Diagnostic enzymes and its clinical significance.
VI	Nutrition, Microbiology and Immunology.	BCC 382	 Student will be expected to Understand the concepts of nutrition, BMR, calorific value and other components of energy expenditure. Be familiar with Dietary sources, Nutritional values and biological importance of carbohydrates, proteins and lipids. Have knowledge on micro and macronutrients, its physiological actions and disorders. Learn about the digestion process and the concepts of malnutrition. Study the principles of staining techniques to identify the microorganisms and Industrial applications of Microbes. Understand the concepts of viruses, antigens and Antibodies. Gain knowledge about immunity system and antigen-antibody reactions.

VI	Practical VI	BCP 383	Students will gain the practical knowledge about
			 Qualitative analysis of organic, inorganic and abnormal constituents of Urine. Determination of Titrable acidity of urine and to estimate the urea, uric acid, creatinine and sugar by different biochemical techniques. Titrimetric determination of Iron and calcium from different plant sources. Isolation and identification of Microorganisms Determination of Saphonification, iodine and Acid value of different oil samples by titration method.

Department of Microbiology

PROGRAM OUTCOME: BSc

- 1) To understand the existence and importance the tiny creatures of the world.
- 2) To gain scientific knowledge of day to day life activities of mankind.
- 3) To acquire knowledge about utilization of microorganisms in industries.
- 4) To develop skills in handling Scientific instruments, planning and performing in laboratory experiments
- 5) To motivate student in research area related to life sciences.
- 6) To understand the role of microrganisms in human health, diet, agriculture and environment
- 7) To apply knowledge of Microbiology for the betterment of society.
- 8) To gain basic knowledge for their Higher studies.

Program Specific Outcome

Microbiology, Chemistry, Zoology: Students can understand microbiology with the study of animals and chemical aspects.

Course	ourse Outcome				
Seme	Subject	Subject	Outcome		
ster		Code			
Ι	General Microbiology I	MBC 131	 Students are expected 1) To learn the history of microbiology, contributions different scientist in the field of microbiology. Types of microbes and their beneficial and harmful effects. 2) To become familiar with construction working and applications of different types of microscopes 3) To study the mechanism and techniques of sterilization and disinfection. 4) To study the morphology and cytology of microorganisms using staining techniques 		
Ι	Practical -I	MBP132	 Students are able to understand and learn the concept of 1) Safety measures in laboratory 2) Microscopes and other instruments 3) Aseptic techniques 4) Different staining techniques 5) Bacterial motility and 6) Microbial permanent slide preparation 		
Π	Microbial Taxonomy and culture technique II	MBC181	 The students are expected to gain knowledge about Morphology, characteristics, lifecycle and importance of bacteria cyanobacteria, fungi, protozoa and viruses The basic concept of culture media, their types and preparation. Microbial culturing techniques. The nutritional requirements and types, factors affecting the growth of microorganisms. The growth curve of bacteria and measurement of microbial growth. 		
Π	Practical -II	MBP182	 Students will get practical knowledge about 1) Preparation of culture media 2) Isolation of microorganisms 3) Study of colony morphology 4) Measurement of size of cells by micrometry 5) Enumeration of microorganisms by Haemocytometer. 6) Study of bacterial growth curve 7) Study of effect of pH and temperature on bacterial growth. 8) Type study of fungi, protozoa and blue green alga. 		

ш	Basic Biochemistry Microbial physiology and Microbial Genetics	MBC231	 Student will be expected To understand the basic concepts of biomolecules, enzymes and bioenergetics. To understand the basic concepts of microbial Respiration, fermentation. Bacterial photosynthesis and its types. To gain elaborated knowledge about fundamental of genetics. Genomics organizations, genetic material and its composition, types, models and structures. To study the detail aspects of DNA replications and mechanisms To learn about genetic recombination and mutation
III	Practical III	MBP232	 Students are able to 1) Estimate of the concentration of biomolecules like reducing sugar and protein colorimetrically 2) Test the biochemical characteristics of microorganisms.

IV	Molecular Biology,	MBC281	Student will get good knowledge about
	recombination		1) Central dogma of Molecular biology,
	DNA technology,		prokaryotic transcription and translation
	Biostatistics and		in detail. Regulation of gene expression.
	Bioinformatics		Reverse transcription.
			2) Techniques, Applications, Hazards and
			safe guards of Recombinant DNA
			technology.
			3) Molecular techniques like
			chromatography, electrophoresis and
			centrifugation.
			4) Basics of biostatistics.
			5) The history of bioinformatics,
			databases, search engines, search
			tools, human genome projects.
IV	Practical IV	MBP 282	Students are able to
			1) Estimate DNA and RNA.
			2) Prepare of buffers
			3) Separate biomolecules by Chromatography
			and Electrophoresis
			4) Isolate DNA from yeast.
			5) Study the effect of UV radiation on bacteria
			6) Study the vectors of rDNA technology, gene
			cloning, replica plate technique.
			6) Study the vectors of rDNA technology, gen cloning, replica plate technique.

V	Agriculture	MBC331	Studer	its will be expected
	Microbiology and plant		1)	To become familiar with soil
	pathology		,	microbiology- soil composition.
	1 05			physico- chemical properties of soil.
				Soil microorganisms, biochemical cycle.
			2)	To gain a clear knowledge about plant
			_/	microbe interactions interactions between the
				microbes
			3)	To study the detail aspects of
			,	agricultural microbiology, scope,
				microorganisms in agriculture,
				degradation of organic matter.
			4)	To be capable of understanding the plant
			,	diseases, plant disease management and
				host parasite interactions,
V	Immunology and	MBC332	Studer	ts will be studying
	Medical		1)	Basic concepts immunology-
	Microbiology			immune systems, immune cells.
				Immunity and its types. Antigen
				and its properties. Structure and
				properties of Antibody
			2)	The concept of medical microbiology-
				introduction, history, development
				and scopes. Microbial infections-
				mode of transmission, types of
				infection.
			3)	About infectious diseases caused by viruses,
				bacteria, fungi. Emergent diseases.
			4)	Types, Mode of action and Applications of
				Antibiotics

V	Practical V	MBP 333	Student will be expected to perform and learn
			1)Estimation of organic carbon
			2) Isolation of microorganisms from soil.
			3) Isolation and identification of <i>Rhizobium</i> from
			root nodules.
			4) The ammonification of soil test.
			5)To check soil moisture content
			6)To estimate the foliar infection
			percentage.
			7) To estimate inorganic phosphate.
			8)To determine blood grouping
			9) To perform Synders test for dental caries
			10) Isolation of microorganisms from skin, mouth
			and wounds
			11) Demonstration of immune diffusion techniques
			and ELISA
			12)To visit agriculture research institute and
x / x	T	100001	diagnostic labs and to submit reports.
VI	Food and industrial	MBC381	Students are able to
	microbiology		1) Understand the basic concept of food
			microbiology, Spoilage and preservation of
			food. General account of HCCP and GMP.
			2) Gain a clear picture of dairy microbiology-
			Microbial spoilage, preservation, examination of
			milk. Preparation of fermented dairy products.
			3) Understand the construction and working of
			industrial fermenter
			4) Become familiar with industrial
			microorganisms, strain improvement, media
			for industrial fermenter.
			5) To know about different industrial
			production and metabolites.

VI	Environmental Microbiology	MBC382	Students are expected to 1) Have a basic knowledge of air microbiology- air microflora, factors affecting air microflora, air as a medium for transmission of diseases. 2) Acquire knowledge about aquatic microbiology- distribution of microbes. Water
			 pollution, water treatment, sewage treatment, assessment of quality of water bio indicators, water as medium for transmission of diseases. 3) Know about extremophiles in detail. Space microbiology- history, scope, evidence of life 4)Study geomicrobiology: Understand the concept of bioremediation bioleaching with examples, degradation of xenobiotics.
VI	Practical VI	MBC 383	 Students will get practical exposure to Isolate and identify the microbes from spoiled vegetables. 2)Estimate of DO, BOD and carbon dioxide concentration of water. To isolate microbes from air. To assess of quality of milk by MBRT & phosphate test. Assess the microbial quality of water. Estimate the lactose and lactic acid content of milk. Prepare wine from fruit juices Estimate alcoholic percentage in beverages Estimate the amylases by DNS method. Assess the quality of milk by SPC.

PROGRAM OUTCOME: BOTANY

- 1. Think logically and organize tasks into a structured form. Assimilate knowledge and ideas based on wide reading and through the internet. Transfer of appropriate knowledge and methods from one topic to another within the subject. Understandthe evolving state of knowledge in a rapidly developing field. Construct and test hypothesis. Plan, conduct and write a report on an independent termproject.
- 2. Students learn to carry out practical work, in the field and in the laboratory, with minimal risk. They gain introductory experience in applying each of the following skills and gain greater proficiency in a selection of them depending on their choiceof optional modules. Analyze data using appropriate statistical methods and computer packages.

Program Specific Outcome

Knowledge and understanding of: 1. The role of flora and fauna in the functioning of the global ecosystem. Sustainable development of the ecosystem and production of biomass. In food crop improvement to have food security.

Intellectual skills – able to: Assimilate knowledge and ideas based on wide reading and through the internet. Transfer of appropriate knowledge and methods from one topic to another within the subject. Understand the evolving state of knowledge in a rapidly developing field. Plan, conduct and write a report on an independent term project.

Practical skills: Students learn to carry out practical work, in the field and in the laboratory, with minimal risk. They gain introductory experience in applying each of the following skills and gain greater proficiency in a selection of them depending on their choice of optional modules.

Transferable skills: Use of IT (word-processing, use of internet). Communication of scientific ideas in writing and orally. Ability to work as part of a team. Ability to use library resources. Career planning. Group discussion.

Scientific Knowledge: Apply the knowledge of basic science, life sciences and fundamental process of plants to study and analyze any plant form. Phytochemical analysis of ethno medicine and development of new plant based pharmaceutical production.

Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and development of the information to provide valid conclusions.

.**Modern tool usage**: Create, select, and apply appropriate techniques, resources, and modern instruments and equipments.

Environment and sustainability: Understand the impact of the plant diversity in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

Ethics: Apply ethical principles and commit to environmental ethics and responsibilities and norms of the biodiversity conservation.

Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

Course Outcome			
Semester	Subject	Subject Code	Outcome
Ι	Protophyta & Phycology	BSCBOC101	 Understand the diversity among Algae, Viruses and Bacteria Know the systematic, morphology and structure, of Algae and microbes Understand the life cycle pattern of Algae and microbes Understand the useful and harmful activities of Algae and microbes.
II	Mycology, Plant Pathology & Bryophyta	BSCBOC151	 Understand the Biodiversity of Fungi & Economic Importance, Mushroom culture Understand diversity of Bryophytes & economic importance of theBryophytes. To learn about the causes, symptoms and control measures of some plant diseases.
III	Pteridophyta, Gymnosperms, Histology and Anatomy	BSCBOC201	 Know the scope and importance of the discipline. To study about non flowering plants and their economic importance To learn about the plant tissues and internal structure.

IV	Cell Biology, Molecular Biology and Genetics	BSCBOS251	 Gain knowledge about "CellScience". Learn the scope and importanceof molecular biology & genetics. Acquire knowledge about mitosis and meiosis To understand the principles of mutation, anvantages and disadvantages. Role of mutation in plant breeding and evolution
V	Plant Physiology-I & Ecology - I	BSCBOC301	 Learn and understand about mineral nutrition in plants. Understand the growth and processes such as plant water relations, Transpiration, Ascent of sap etc. Understanding plant metabolism. Learn about various climatic factors, edaphic factors . Study about soil erosion, causes and conservation methods.
V	Angiosperm Morphology,	BSCBOC302	1.Know the vegetative &

	Biotechnology &		reproductivecharacte
	Microbiology		ristics, plant
	wherebolology		morphology and
			horphology and
			Understand the
			concept, principle
			and types of
			sterilization methods.
			3. Understand the
			fundamentals of
			Recombinant DNA
			Technology, Genetic
			Engineering & Plant
			Tissue Culture.
			4. Application of
			microbes in food
			industry, production
			of antibiotics.
			brewing industry
			5 Learn about
			principles of Food
			spoilage and food
			preservation Biorem
			ediation Biomining
VI	Diant Dhysiology II	PSCPOC251	1 Understand the
V I	Plant Physiology –II	DSCDUC551	1. Understand the
	æEcology - II		growin and
			developmental
			processes in
			plants like
			photosynyhesi
			s, respiration,
			photoperiodis
			m, dormancy.
			2. Study of
			phytogeography.
			3. Learning about
			environmental
			poluution,
			causes.control
			measures.
			4.Understand plant
			succession.
			5. Coseravation of
			flora and fauna
			nora and radia.
VI	Taxonomy &	BSCBOC352	1. Understand the
	Economic Botany	220200002	plant morphology
	Leononne Dotany		hasic taxonomy
			7 Plant
			2.1 Ian
			and
1	1		classification.

	3.Economic
	importance of
	timber
	yielding,
	medicinal, oil
	yielding
	plants.
	æ.

Program Specific Outcome: Chemistry

Specific Outcome: The Study of Chemistry provides global opportunities, understanding and progress in almost every sector of science. Also in technologies of Textiles and other industries too. It also makes the vital contribution to the economy through industrial growth. Chemistry helps to

It also makes the vital contribution to the economy through industrial growth. Chemistry helps to develop analytical skills.

The knowledge of Chemistry is the key thing behind the fulfillment of our daily need starting from simple things like toothpaste, soap to life saving medicines, ranging through the controlling parts of electronic accessories, fertilizers and construction materials.

In the recent days, Chemistry is not just confined for the preparation of medicines or fertilizers. Pharmacy is one of the fastest growing field in Science, which is ruled by Medicinal Chemistry. The foundation of organic chemistry can give you an opportunity to discover novel drugs too. The applied knowledge of Chemistry is relevant in almost all fields of science. Thus one can explore the real world of Science by studying Chemistry, including Rocket Science, Satellite Technology and Nano-Science.

Course Ou	Course Outcomes: Chemistry				
Semester	Subject	Subject Code	Outcome		
I	Chemistry Core Subject	BSCCHC 131	 After completion of the course students will be having the knowledge of Solid State: Different types of crystal system, laws of symmetry and different symmetry elements; X-Ray diffraction and Bragg's equation. Determination of Different crystal structures and Avagadro Number. Liquid Crystals: liquid crystals; Applications of liquid crystals in LCD and Thermal sensors. Gaseous State: Maxwell distribution, RMS velocity, Collision Number. Also learn different types of isotherms and Continuity of States. Chemical Bonding: Concept of Bonding theory, VSEPR theory, comparative study of structures, MOT, Lattice energy, Fajans rule,Born Lande equationand Band Theory Nature of Bonding In Organic Molecules: Covalent Bonding, delocalization concept, aromaticity, different types of bond breaking,types of reactions, reaction intermediates. Mechanism of Organic Reactions:Notations used in reaction mechanisms, Friedel-Craft's reaction, Hofmann rearrangement and few examples. Chromatography: Chromatographic methods for the separation, concentration and identification of organic compounds, Rf vlue and its significance, Thin layer, paper and column chromatography. Methods of Analysis: Qualitative analysis - Sample size and technique, 		
			volumeny, Gravimeny and instrumental analytical		

			 methods. Solvent extraction-basic principles and applications. Errors in quantitative analysis, types of errors- determinate and indeterminate, methods of minimising errors. Periodic Properties: Methods of determination of atomic properties, Lande's method, Born-Haber cycle, Pauling and Mulliken scales, Slater's rule and its applications.
	Chemistry Elective	BSC CHCE 133	 Laboratory Safety: Good Lab Practices, Chemical Hazards and SoP, PPEs. Precaution and safety measures during reagent preparation. Serendipity: The role of Chance in making Scientific Discoveries, Inventions in Chemistry that enabled the modern world. Domestic Chemicals: Preparation Chemical composition of Soaps. Safety matches, Wax candles, shoe polish, mosquito coils, household germicides and pesticides, Talcum powder, nail polish, thinners, skin care, hair care, Lipsticks, sun protection lotions and creams, eye shadow and eyebrow pencils, antiperspirants, perfumes and deodorants-their chemical composition.
	Chemistry Practicals	BSCCHP132	 sPreparation of standard solutions and handling of reagents. Standardization of reagents Estimation of a mixture of oxalic acid and sulphuric acid in a solution using standard Potassium permanganate solution and standard sodium hydroxide solution. Estimation of hardness of water by EDTA method Determination of acetic acid in commercial vinegar using NaOH. Determination of Vitamin C.
Π	Chemistry Core Subject	BSCCHC 181	 After completion of the course students will be able to understand, Chemical Kinetics: differential rate laws of simple chemical reactions, Zero, First, Second, nth and pseudo first order reaction. Derivation of rate constants for second order and nth order reactions, Transition state theory- Derivation of relationship between rate constant and equilibrium constant. Thermodynamic aspects of activation. Surface Chemistry: Adsorption of gases on solids: Freundlich and Langmuir adsorption isotherms. Multilayer adsorption-BET equation. Determination of surface area and area of cross section of a molecule. Adsorption from solution-Gibb's Adsorption isotherm.

	\succ	Solvents: Physical properties of a solvent, Types of
		solvents, Reactions in aqueous and non-aqueous
		solvents. Examples.
	\succ	s-Block Elements : Hydrides-types, preparation,
		properties and applications. Structure of NaH and
		BeH2, Preparation and applications. Comparative
		study of lattice energy, enthalpy of formation,
		enthalpy of hydration and solubilities of alkali
		metal and alkaline earth metal halides, hydroxides
		and sulphates, Complexation tendencies of alkali
		metals with crown ether, Cryptates.
		p-Block Elements: Comparative study of p-Block
		elements and their compounds-comparison between
	~	Boron and other members of the group.
		Diborane- Preparation, properties, structure and
		bonding, Preparation and structure, Styx number,
	~	Wade's fulle-Closo, indo and Aranno boranes.
		Noble gases- Structure and bonding in: Clauntales,
		ACF2, ACF4, ACF0 and ACO3.
	-	Generation stability and mechanism of reactions.
		i) carbocations – Dienonenhenol rearrangement ii)
		carbanions – Perkin reaction Aldol condensation
		and Claisen condensation. iii) Free radicals –
		Sandmeyer's reaction, iv) Nitrenes- Hofmann
		rearrangement, Curtius rearrangement, v) carbenes-
		Reimer - Tieman reaction, vi) Arynes- Benzyne
		mechanism for the conversion of Bromobenzene to
		aniline. Methods of determination of reaction
		mechanism-Product analysis, intermediates, isotope
		effects, kinetic and stereo chemical studies.
	\succ	Mechanism of SN1 and SN2 reactions with
		suitable examples and energy profile diagrams.
		Stereochemistry and factors affecting SN1 and SN2
		reactions.
		Mechanism of E1 and E2 - explanation with
		suitable examples, evidences, orientation and
	~	stereochemistry. Hoffmann and Saytzeff rules.
		Aromatic electrophilic substitution-mechanism with
		energy profile diagram. Role of σ and π -complexes.
		influence, ortho para ratio. Nucleophilic gromatic
		substitution reactions. Addition elimination and
		Elimination addition mechanism
		Industrial Chemistry: Composition production and
		applications of natural gas, water gas, producer gas
		LPG and bio gas., Types of glasses: composition
		and uses of - hard, soft, Pyrex, jena. flint, safety.
		optical, fibre, coloured and Crooke's glasses.
		manufacture of cement, mechanism of setting of
		cement RCC –composition and uses Raw

	 materials used in modern ceramics, stages in ceramic making, glazing, applications of porcelain. Constituents of paints and their functions with examples. Manufacture of white lead and lithopone. Chemical fertilizers: Primary nutrients, Different types of fertilizers, importance, production of urea, CAN and superphosphate of lime
BSCCHP182 Chemistry Practicals	 Systematic qualitative analysis of mono and bifunctional organic compounds Determination of melting point/boiling point, preparation of suitable solid derivative and identification compound from literature.

	Chemistry Elective Paper	BSCCHCE-183	 Computers for Chemists: Basic structure and functioning of computer with a PC as an illustrative example. Computer languages, Operating systems, Demonstration, writing and drawing of chemical formulae and structure through chem sketch. Plotting the various graphs such as pressure-volume (PV), pressure-temperature (PT), potentiometric, conductometric and colorimetric plots through Excel Buffer Solution: Definition, Types, Buffer Action, Mechanism of Buffer Action, Henderson's Equation Chemotherapy:Introduction, Classification of antibiotic drugs. Biomolecules::Vitamins, Proteins and lipids.Synthesis and examples. Photosynthesis of carbohydrate, mechanism of light phase reaction,.
III	Chemistry Core Subject	BSCCHC 231	 After completion of the course students will be able to understand, Laws of Thermodynamics, Heat Capacity Joul Thomson Coefficient and inversion temperature. Bond dissociation energy,Kirchoff Equation Carnot Cycle, Carnot Theorem Entropy, Entropy as a state function. Variation of Gibbs Free energy. General characteristics of transitional elements, general electronic configuration, stabilities of oxidation states, complexing ability, colour, magnetic property. Lanthanide contraction, causes of lanthanide contraction, occurrence, Isolation of lanthanides by ion-exchange method, similarities and comparison between lanthanides and actinides. Nano Chemistry:Introduction, General methods of synthesis, characterization techniques, Scanning Electron Microscopy (SEM)-principle and method of determination, advantages over other microscopes, Fullerenes, Preparation of nanoparticle by chemical method, Application of nanomaterials. Comparison of acidic properties of phenols with carboxylic acids, alcohols and carbonic acid. Molecular rearrangements- Fries rearrangement, Claisen rearrangement, Synthesis of aryloxy acetic acids. Structure of carbonyl group, Nucleophilic additions to carbonyl group, relative reactivities of aldehydes and ketones-explanation, Mechanism of reactions involving-Hydride shift Chemical reactions of ethers-Cleavage and autooxidation with examples. Zeisel's method. Synthesis

		 of epoxides, Acid and Base catalyzed Ring opening of epoxides, Orientation of epoxide ring opening with energy profile diagram Lewis concepts of acids and bases. Modern concepts of acids and bases. Usanovich concept, Lux-Flood concept. Hard and Soft Acids and Bases (HSAB): Classification of acids and bases as hard and soft. Pearson's HSAB concept and its applications.
Chemistry Elective Paper	BSCCHCE233	 Causes of different types of corrosion. Corrosion rate, definition, Factors affecting on corrosion rate. Metallic factor-Purity, Electrode Potential of metal, hydrogen over voltage, nature of corrosion product Environmental factorsTemperature, pH of the medium, humidity, presence of impurities, electrical conductivity of the medium, velocity of the medium, concentration of the medium Prevention of corrosion: Material selection-Metals and alloys, metal purification, non-metallic, Alteration of environment-Changing media, inhibitors, Design-wall thickness, design rules, Coating-Metallic and other inorganic coatings, organic coating. Definition of pure water, sources responsible for contaminating water, water sampling methods, water purification methods. atom-economy, Prevention of waste, by products, hazardous products/chemicals, water as a solvent for organic reactions, ionic liquids, solidstate-solventless reactions, use of microwaves, careful use of protecting and deprotecting agents, use of catalytic reagents, Phase transfer catalysts and its synthetic applications. Examples of Green synthesis: Synthesis of adipic acid, catechol, disodium iminodiacetate, Boots synthesis of brufen, Microwave assisted reactions in waterHofmann elimination, Methyl benzoate to benzoic acid, oxidation of toluene and alcohols
Chemistry Practicals	BSCCHP232	Systematic qualitative analysis of mixture of two simple inorganic salts. Grouping the ions into different Groups, identifying the simple salt mixture in a given saple.

IV	Chemistry	BSCCHC 281	After completion of the course students will be able to learn
	y		 Ideal and non-ideal solutions, Methods of expressing
			concentrations- Activity and Activity coefficients.
			Colligative properties; Raoult's law of relative lowering of
			vapour pressure. Osmosis and laws of Osmotic pressure.
			Elevation in boining point and depression in freezing point.
			equation), orientation of dipoles in
			an electric field, dipole moment, measurement of dipole
			moment-temperature method and refractivity method, dipole
			moment and structure of molecules, magnetic properties-
			applications of Refractometry.
			Coordination Compounds: Nomenclature, geometrical
			and optical isomers, bridging ligands. Isomerism in
			coordination compounds - ionization isomerism, hydrate
			isomerism, coordinate isomerism, linkage isomerism. Geometrical isomerism and optical isomerism
			> Postulates of Valence Bond Theory, Different types of
			hybridizations, Limitations of VBT, CFSE, Jan-Teller theory. Limitations of CFT.
			Keto-enol tautomerism. Synthetic applications of
			reactive methylene compounds.
			Different reagents used for the synthesis of organic
			compounds, -Oxidation of alkenes to vicinal diols, Baeyer-
			Viniger Oxidation
			Structure and Reactions of Carboxylic Acids and Their Derivatives
			Derivation of relationship between equilibrium constant
			and free energy, Phase rule, component and degrees of
			freedom, eutectic system, phase diagram and explanation.
			\blacktriangleright Radiolysis of water (using γ rays), radiation dosimetry,
			dosimeter, applications in organic and inorganic reactions.
			mechanism medicine and soil fertility. Industrial
			applications
	Chemistry	BSCCHOE283	Food as source of energy and structural material.
	Elective		Components of food – Carbohydrates, Proteins, Oils
			and Fats. Micronutrients-Vitamins, minerals. Chemical
			substances used in food preparation - water, common
			salt, baking powder, vinegar. Food Processing. Food
			additives, preservatives and flavours.
			Definition, common narmini effects, detection of adultoration. Provention. Food adultoration act.
			artificial ripening of fruits - explanation with examples'
			 Alternative sources of energy: Need for the search of
			renewable sources of energy.
			Solar energy, wind energy, hydropower
			 Hydrogen energy: Production and applications.
			 Ocean energy- Principles of ocean thermal energy, conversion system Principles of wave and tidal energy.
			conversion
			 Transformation of biomass energy. Applications of

			biomass.
		CH: 282	Specific reaction rate for the acid catalyzed
			hydrolysis
			Comparison of the catalytic strengths of HCl
			and H2SO4 by studying the kinetics of
			hydrolysis of methyl acetate.
			Density and viscosity of the given liquid
			Percentage composition of a given mixture of
			glycerol and water
			Molecular weight of a non-volatile solute by
			Walker - Lumsden method
			surface tension of a liquid.
V	Chemistry	BSCCHC 331	After completion of the course students will be able to
			understand,
			Strong and Weak electrolytes, Specific
			conductance, Equivalent conductance and its
			determination, Debye-Huckel theory, Debye-
			Huckel-Onsager's equation for strong
			electrolytes. Kohlrausch's law and its
			applications
			Interaction of radiation with matter, difference
			between thermal and photochemical processes.
			primary and secondary processes of a
			photochemical reaction, Laws of
			photochemistry: Grotthuss - Draper law, Stark -
			Einstein law, Jablonski diagram
			Applications of complexes and complex
			formation in metallurgy, Qualitative analysis-
			test for ferrous and ferric ions, nitrate and
			ammonium ions, Gravimetric analysis-
			Precipitation of nickel, magnesium and
			aluminum ions.
			Definition, basics of Supra molecular
			chemistry, Classification of Supra molecules,
			Host and guest compounds, Driving forces for
			the formation of supramolecular structures,
			Applications
			Nitroarenes- reduction in acidic, neutral and
			alkaline media. Mechanism of nucleophilic
			substitution in nitroarenes. Amines-Separation

	À	of mixture of primary, secondary and tertiary amines (Hinsberg and Hofmann's method). Mechanism of electrophilic aromatic substitution in aryl amines. Configurational isomerism, elements of symmetry, molecular chirality, Diastereomers- definition & examples
	\rightarrow	sequence rules, D&L, R& S systems of nomenclature
		Rotational Spectroscopy 4Hours Derivation of equation for moment of intertia of diatomic molecule, Diatomic molecule as rigid rotor ; derivation of equation for moment of Inertia of diatomic molecule, energy levels of a rigid rotor, selection rules, spectral intensity, determination of bond length, qualitative description of non-rigid rotor, isotope effect.
		Molecular vibrations, vibrational degrees of freedom, Hooke's law, Energy levels of a simple harmonic oscillator, selection rules, Instrumentation and measurement of IR spectrum
		Molecular vibrations, vibrational degrees of freedom, Hooke's law, Energy levels of a simple harmonic oscillator, selection rules, Instrumentation and measurement of IR spectrum

	BSCCHC 332	After complete understand,	ion of the course students will be able to
			Black-body radiation, Planck's radiation law, photoelectric effect, Compton effect. De Broglie hypothesis, Heisenberg's uncertainty principle, Sinusoidal wave equation, Hamiltonian operator, Schrodinger wave equation and its importance
		>	Classical and Quantum theory of Raman effect. Concept of polarisability. Rotational and Vibrational Raman Spectra. Selection Rules.
		>	Russel –Saunder's coupling, microstates, Spectroscopic ground state for dn system, Terms generated by ligands, Types of electronic spectra, Selection rules for d-d transitions
		>	Orgel-energy level diagram for d1 and d9 systems, discussion of the electronic spectra of [Ti(H2O)6]3+ and [Cu(H2O)6] +2complex ions.
			Definition, nomenclature and classification of organometallic compounds. Preparation, properties, bonding and applications of alkyls and aryls of Li and Hg, mononuclear carbonyls and the nature of bonding in metal carbonyls, evidences in support of back bonding, Industrial applications of organometallic compoundsHydrogenation of alkenes- Wilkinson's catalyst, Fischer Tropsch synthesis.
			Heterocyclic Chemistry 8Hours Classification and nomenclature, Molecular orbital pictures and explanation for the aromatic characteristics of pyrrole, furan, thiophene, pyridine, pyrazole, oxazole and thiazole.
		A	Synthesis of heterocycles, Mechanism of
		\checkmark	Components of Nucleic acids: Adenine,
			guanine, thymine and Cytosine
		\rightarrow	Structure of polynucleotides; Structure of DNA (Watson-Crick model) and RNA
		*	Flame photometry: General principles, Instrumentation, Interference and applications
		\checkmark	Bioinorganic chemistry: Essential and trace

		 elements in biological processes, Biological role of metals Symmetry elements and associated symmetry operations. Types of symmetry elements-axis of symmetry, plane of symmetry, centre of symmetry, identity, rotation reflection axes
	BSC CHP 333 Chemistry practicals	 Gravimetric estimation of different inorganic compounds Solvent extraction techniques Colorimetric estimations Determination of adulteration in food stuffs. Analysis of effluent water
Chemistry	BSCCHC 381	 After completion of the course students will be able to understand, Application of conductivity measurements: determination of degree of dissociation, determination of Ka of acids, Reference electrodes : Calomel electrode quinhydrone electrode and Ag/AgCl electrode Computation of cell EMF. Relation between G and K for a cell reaction. potentiometric titrations. Determination of pH using hydrogen, quinhydrone and glass electrodes by potentiometric methods. Importance, Working of Hydrogen Oxygen fuel cell and Methanol-oxygen fuel cell Preparation, properties, structure and applications of Silicones, Fluorocarbons and Phosphonitrilic halides Introduction, general classes of synthetic polymers-Addition and condensation with examples, Types of polymerization (i)Free radical polymerization (ii) Cationic polymerization and (iii) Anionic polymerization of vinyl polymers with one example each , Zeigler-Natta polymerization. Synthetic methods.
	Chemistry	BSC CHP 333 Chemistry practicals BSC CHP 333 Chemistry BSCCHC 381 Chemistry
		advantages of synthetic rubbers over natural rubbers.
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	\triangleright	Introduction, role of matrix in composites, types of
		matrix, different matrix materials, reinforcement,
		composites in industry
	\triangleright	Classification with examples–Pyridine, piperidine,
		Quinoline, Isoquinoline and indole alkaloids. General properties–formation of salts and exhaustive
		methylation, physical properties and physiological activity. Structural elucidation of nicotine including
		synthesis. Structural formulae of atropine and cocaine.
	\triangleright	Classification of terpenes, Isolation from plant sources.
		Structural formulae of geranicial menthol, g-ninene and
		camphor ,Industrial synthesis of camphor
	\triangleright	Introduction to the Structure and properties of
		Pesticides, Malathion, Parathion, Endosulphan, Malathion, Parathion, Endosulphan
		Principle and instrumentation of mass spectrometer
		Applications in the determination of molecular mass and
		isotopic abundance. Nitrogen rule, even electron rule,
		Meclafferty rearrangement.
	\triangleright	Composition of Petroleum, Petroleum refining,
		of Petroleum-Thermal and catalytic
	\succ	Synthetic petrol and its production by Bergius process.
		Knocking, Octane number and Cetane number. Catalytic
		their applications
	\triangleright	Conducting polymers: Introduction. definition and
		examples-polyaniline, polyacetylene. Mechanism of
		conduction. Qualitative treatment of doping, Properties-
		elasticity with high electrical conductivities, Engineering
		Biodegradable polymers: Introduction Structure and
		Properties, Mechanism of breakdown, Applications and
		uses

BSCCHC 382	 After completion of the course students will be able to understand, Introduction, theory of colorimetry and spectrophotometry. Beer-Lambert's law. Instrumentation and applications of colorimetry and spectrophotometry. Concept of molar absorptivity, energy level, types of electronic excitations, Frank-Condon principle(explanation about red shift and blue shift), presentation and analysis of UV spectra, types of electronic transitions, effect of conjugation Concept of chromophore and auxochrome. Bathochromic, hypsochromic, hyperchromic and hypochromic shifts Introduction, origin of spectra, instrumentation of PMR spectrometer, solvents used, scales, nuclear shielding and deshielding, number of signals obtained from the sample, position of signals and chemical shift and molecular structure, spinspin splitting, spin notation and coupling constants, area of signals, interpretation of PMR spectra of simple organic molecules. Monosaccharides: interconversions of glucose and fructose, chain lengthening of aldoses, Epimerisation, Strecker synthesis and Gabriel synthesis. Reactions due to -COOH and -NH2 groups, Peptides and proteins. Definition, Classification with example and their importance. Synthesis of vitamin A from β-ionone. Synthesis of Adrenaline form catechol . Synthesis of thyroxine from p-nitroanilin. Retrosynthesis: Introduction, general terms, synthon, synthetic equivalent, target molecule, general guidelines for disconnection. Retro analysis and synthesis of benzocaine, 4-methoxy acetophenone, saccharin Lipids: Introduction, Classification. Fatty acids–definition, classification as saturated and unsaturated with examples and structure Essential fatty acids, Cholesterol – definition, types (HDL, LDL and VLDL) Sphingolipids–structure and biological significance of ceramide Drugs and Chemotherapeutic agents: Classification with examples and suphanilamide<
	 Organo Sulphur Compounds: Thiols, Thioethers, Sulphonic Acids

	BSCCHP383 Practicals	A	Preparation of different simple organic molecules using the techniques like Nitration, Halogenation, oxidation, reduction etc.
		\triangleright	Conductometric and Potentiometric titrations.
			Determination of Equivalence Conductance of Given Solution
		\mathbf{A}	Colorimetric Estimations

P01: More Employability

P02: Companies prefer computer science students

P03: When they are in post-graduation, students are able to apply their knowledge during their internship

P04: Industries prefer computer literate employees.

P05: To develop the foundation for higher studies in the field of computer Science

P06: Focuses on preparing student for roles pertaining to computer Science and IT industry

Program Specific Outcome

PS01: Students will able to understand, analyze and implement computer programs in the areas related to web design and other high level languages

PS02: Apply standard software engineering strategies and practices in software project development

PS03: Students will able to solve different issues, to know new trends in technologies and thereby applying innovative ideas and solutions to existing problems

PS04:Able to analyse the given problem and find appropriate solution to solve the problem PS05: Students are able to apply appropriate techniques, resources and modern IT tools PS06: function effectively as an individual and as a member or leader or project manager in project team

Course Outcome: (Specify outcome of Each subject in each semester)				
Semester	Subject	Subject Code	Outcome	
Ι	Digital Computer Fundamentals	BSCCSC 131	 To study the numbers systems, Boolean algebra, combinational and sequential circuits To study the fundamentals of computer and peripherals Understand the usage of number system and Boolean algebra in computers. Upon successful completion of the course the student will be able to: To impart the knowledge about the evolution of computers, classification, various peripherals of computers , types of softwares etc. 	
I	Digital Logic and MS Office Lab	BSCCSP 131	 To implement sequential and combinational circuits. To acquire knowledge on editor, spread sheet and presentation software To develop skills in : Text Manipulation, Tables and manipulation, Data sorting 	
I	Computer Network and Security	BSCCSCE133- E1	 Course Objective : 1. To introduce basics of computer network, internet concepts, information security and cyber security. Course outcomes: Acquire knowledge about: 1. Concepts of information security, cyber 	

Ι	Open Source Software	BSCCSCE133- E2	 security and Overview of Emerging Technologies 2. Basics of Internet technology, such as http and the World Wide Web and internet applications. 3. Basics of components of Network and Internet. Course Objective : To introduce the concepts, strategies, and methodologies related to open source software development. Course outcomes: Upon successful completion of the course the student will: Familiar with open source software products and development tools currently available in the market. Be able to utilize open source software for developing a variety of software applications.
Π	Problem Solving using C Language	BSCCSC 181	Course Objectives: 1. To learn the programming skills using C programming language. Course outcomes:
			 Upon successful completion of the course the student will be able to: To learn the algorithms and flowcharts for solving a specific problem. Write the C programs for a particular problem. Write the algorithm and flowcharts to solve a problem.
Π	C Programming Lab	BSCCSP 182	 After Completion of the course student should able to know concepts in problem solving . 1. To do simple Cprograms. 2. different type of functions andString manipulation 3. Control structures like if, switch, while, dowhile andfor. 4. Sorting and Searching : to arrange and find element in anarray. 5. Matrices andStrings 6. Opening and closing a file, writing data to file, declaring and usage of pointeroperations are beingcovered 6. Importance ofpointers 7. Usage ofstructures
Π	Cloud Computing	BSCCSCE 183 – E1	Course Objective: 1. To introduce the concept of cloud computing, its applications and architecture. Course outcomes: Upon successful completion of the course the

			ctudent will be able to:
			student will be able to:
			 Know the concept of cloud computing, historical development of cloud computing, advantages and disadvantages of Cloud Computing. Know the areas of Cloud applications and its architecture.
Π	Data Mining with R	BSCCSCE 184 – E2:	 Course Objectives: Help the students to Learn the basic concepts of R: the data frame and data manipulation Discover powerful tools for data preparation and data cleansing Visually find patterns in data Work with complex data sets and understand how to process data sets Get to know how object-oriented programming is done in R Explore graphs and the statistical measure in graphs Course outcomes: Upon successful completion of the course the student will gain: Ability to identify the characteristics of datasets Ability to select and implement data mining techniques in R suitable for the applications under consideration. Ability to recognize and implement various ways of selecting suitable model parameter for different machine learning techniques.
Ш	Data Structures	BSCCSC 231	 Course Objective To understand the basic data structures and algorithms. Course outcome: Upon successful completion of the course the student will be able to: To solve the problems using data structures such as stacks, queues, trees, linked lists and graphs and writing programs for these using C language.
III	Data structures Lab	BSCCSP 232	 Students will gain practical experience with designing and implementing concepts of operating systems such as system calls, CPU scheduling, process management, memory management, file systems and deadlock handling using C language in Linux environment. The course is designed to develop skills to design and analyze simple linear and non linear data structures.

III	System	BSCCSCE 233 –	Course Objectives:
	Administration and Maintenance	E1	1. To make the students to learn and understand the system administration tools of windows operating system.
			2. To make the students to learn about Linux operating system
			Upon successful completion of the course the
			student will:
			 Be able to install the windows operating systems, to setup network and to use the tools of control panel. Be able to install and manage the Linux operating systems.
			Course Objectives:
III	Desktop Publishing	BSCCSCE 234 – E2	 To make the students to learn and understand the Desktop publishing tools like Page Maker and CorelDraw.
			Course outcomes: Upon successful completion of the course the
			student will: 1 Be able to create and format the document
			using the PageMaker and CorelDraw.
IV	Operating	BSCCSC 281	Course Objectives:
	Systems and		1. To learn the management of resources like
	LINUX		processor, memory, device and information
			2. To learn the basics of operating systems.
			Course outcomes:
			Upon successful completion of the course the
			student will be able to:
			1. Understand the concepts of operating system resources of operating system
			2. Understand the management of memory,
			processor and devices and files.
			3. Understand Linux environment, commands and shell programming.
IV	LINUX Lab	BSCCSP 282	1. Students will gain practical experience with designing and implementing concepts of operating systems such as system calls, CPU scheduling, process management, memory management, file systems and deadlock handling using C language in Linux environment
V	DATABASE	BSCCSC 331	Course Objectives:
	CONCEPTS AND ORACLE		 To learn the basics concepts of database systems. To learn the oracle commands and PL/SQL programming
			Course outcomes:
			1. Understand the concepts of database, its models, relational model, relational algebra

			 and design theory of relational database. 2. Upon successful completion of the course the student will be able to: Create tables, joining the tables, writing SQL queries and writing PL/SQL programs.
			Course Objectives :
V	MICROPROCES	BSCCSC 332-	1 To learn the basics concents of
	SOR	E1	microprocessors and structure of 8086
	ARCHITECTUR		processor
	E AND 8086		2 To learn the instructions of 8086 and write
	PROGRAMMIN		the 8086 programming
	G		Course outcomes:
			Upon successful completion of the course the
			student will be able to:
			1. Understand the architecture of 8086
			processor, addressing modes.
			2. Understand the directives and instructions
			of 8086, interrupts and its services.
			3. Write the 8086 programs
	XX7 1		
V	Web	BSCCSC 333-E2	Learning Objectives:
	Using DUD		1. To understand the usage of PHP and
			MySQL in web development.
			2. To familiarize PHP language data types,
			logic controls, built-in and user-defined
			functions.
			3. To develop database application using PHP
			4. To build a simple, yet functional web
			application using PHP/MySQL.
			Learning Outcome : At the end of the course the
			students will be able to
			1. Design and publish static and dynamic web
			pages
			2. Develop database application using PHP
			5. Build a simple, yet functional web
			application using PHP/MySQL.
V	Oracle and 8086		1 To provide knowledge about RDBMS
v	Programming Lab	BSCCSP 334:E1	Concepts SOL Concepts and PL/SOL
			Programming
			2. To provide knowledge about database
			normalisation and to learn theory behind
			data models and query Languages.
			3. The student will be able: To describe data
			models and schemas in DBMS
			4. To understand the features of database
			management systems and Relational
			database.
			5.To Demonstrate an understanding of the
			relational data model and use SQL.
			6.To understand the functional dependencies
			and use SQL solutions to a broad range of
			query and data update problems.
			7.10 understand and write assembly level
			programming.

				8.10 understand macros.
	V	Oracle and Web design Lab	BSCCSP 335:E2	 To provide knowledge about RDBMS Concepts ,SQL Concepts and PL/SQL Programming. To provide knowledge about database normalisation and to learn theory behind data models and query Languages. The student will be able: To describe data models and schemas in DBMS To understand the features of database management systems and Relational database. To Demonstrate an understanding of the relational data model and use SQL. To understand the functional dependencies and use SQL solutions to a broad range of query and data update problems. Have a sound knowledge of Web Application Terminologies, Internet Tools, Select and apply markup languages for processing, identifying, and presenting information in web pages. Use scripting languages and web services to add interactive components to web pages. Design and implement websites with good aesthetic sense of designing Design to be reusable the software components in a variety of different environments.
N	νı	Object Oriented Programming with JAVA	BSCCSC 381	 Course Objectives: To learn the concepts of Object Oriented Programming. To learn the Object oriented programming using Java. Course outcomes: Upon successful completion of the course the student will be able to: Understand the concepts of OOP and Java fundamentals. Write the Java programs using the concepts of inheritance, interfaces, packages, multithreading and applets.
N	7I	VISUAL BASIC.NET PROGRAMMIN G	BSCCSC 382- E1	Course Objectives: To learn programming with graphical interface using object oriented concept. Course Outcome: To develop skill in VB.NET framework, tools, programming and connectivity with databases.
٦	ΛI	Computer Graphics and Animation	BSCCSC 383- E2:	 Course Objectives 1. To learn the concepts of Computer graphics and animation 2. To learn the Object oriented programming

			using Java. Course outcomes: Upon successful completion of the course the student will be able to: 1. Understand the concept of animation and multimedia. 2. Understand geometric transformation and its implementation. 3. Understand the basic algorithms for line drawing, circle drawing.
VI	Java Programming and Visual Basic Lab		 Understand the fundamentals of object- oriented programming in Java, including defining classes, objects, invoking methods etc and exception handling mechanisms. Understand the principles of inheritance, packages and interfaces. To build software development skills using java programming for real world applications. To implement frontend and backend of an application To implement classical problems using java programming. To learn programming with graphical interface using object oriented concept . To develop skill in VB .NET framework, tools, programming and connectivity with databases.
VI	Java Programming and Computer Graphics lab	BSCCSP 385- E2	 Understand the fundamentals of object- oriented programming in Java, including defining classes, objects, invoking methods etc and exception handling mechanisms. Understand the principles of inheritance, packages and interfaces. To build software development skills using java programming for real world applications. To implement frontend and backend of an application To implement classical problems using java programming To learn about various technologies in computer graphics, animation and virtual reality system. Students are able to draw primitive graphical shapes and perform transformation techniques programatically.

Program/ course outcome of B.Sc. Mathematics

- After completing the three years B.Sc. course, students will be able to get a good job or they can start some business of their own.
- Ability to analyze problems properly and find out sustained solutions to them using the basic principles of science.

Program specific outcome:

- Students will know to apply rigorous analytic, highly numerate approach to analysis which will help to execute tasks and solve problems in daily life and that work.
- Apply ethical principles to the professional ethics and norms which is really a positive matter.
- Students will be in a position to work independently and also to collaborate effectively and perfectly in team work and team building.
- Recognize the need to learn lifelong through advanced studies and research.
- Program will lead to the overall development of the students as an individual and will enable them to lead a successful life.

Program specific outcome of B.Sc Mathematics:

Semester wis	e Course Outcome		
Semester	Subject Code	Subject	Outcome
First Semester	BSCMTC131	Calculus	 To understand the concept of Mean value theorem and Rolle's theorem. Gets knowledge about sketching of graphs. Able to apply maximum and minimum values in day to day life To understand the techniques of integration and reduction formulas. Gets knowledge about Conic sections.
		Analytical Geometry	 Be familiar with functions of several variables, limits and continuity. To understand level curves, contours and ideas about n- dimensional spaces. To acquire knowledge in

	BSCMTP132	Practical (Scilab & Maxima)	 partial derivatives, chain rule. 4. To understand the fundamental theorem of arithmetic. 1. Gets knowledge to plot the curve using few commands. 2. Integration,Differentiation, Continuity, Limit of a function can be obtained using this software easily.
	BSCMTCE133	Core Elective A (Functions and applications)	
Second Semester	BSCMTC181	Number theory	 To understand division algorithm, the greatest common divisor. To solve Diophantine equation. Able to apply Diophantine equations in real life situations. To learn about theory of congruence. To understand linear congruence and its properties. Be familiar with Chinese Remainder theorem and Fermat[*]s theorem. To have thorough Knowledge about Euler[*]s Phi- functions. To know about representation of integers and decimal as finite continued fractions.
		Calculus	 Be familiar in tracing curves in polar coordinates To have knowledge in L' Hospitals rule. To get the knowledge about directional derivatives and gradients. To understand tangent planes, normal lines and linearization of function. To solve double integral of function in Cartesian form and polar form.

			6. To get the knowledge about area in the plane, area between curves, length of a polar curve.
	BSCMTP182	Practical (Maxima)	 GCD, LCM of big numbers can be found easily. Gets knowledge of solving Diophantine equation. Local extreme points of functions in the figure can be located precisely. Volume of the solid can be found.
	BSCMTCE183	Core Elective B (Vector Calculus)	
Third Semester	BSCMTC231	Sequences and series	 To understand Sequences and its convergences and divergence. To find Limits of sequences. To acquire knowledge about Upper and Lower bounds of sequences. Able to test the convergence of series using different methods. To analyze absolute conditional convergence of alternating series.
		Differential equation	 To be exposed in solving First order First Degree Equations. Able to apply in velocity of escape from the earth, Newton's law of cooling. To understand Orthogonal trajectories in rectangle and polar coordinates. To understand Linear Differential Equation of nth order and complimentary functions. To find General and

			 particular solutions of linear equations. 6. To acquire knowledge about homogenous and non- homogenous sequations. 7. Able to find Solutions of second order linear equations using different methods. 8. To understand Laplace transform of elementary functions. 9. To know about the applications of Laplacetrans forms.
	BSCMTP232	Practical (Maxima)	 Gets knowledge to find the convergent and divergent sequences and series using computer programming. To solve the differential equation and to plot the solution.
	BSCMTCE233	Core Elective C	
Fourth Semester	BSCMTC281	Group Theory	 To illustrate Groups with examples. To describe Group homomorphism. To have knowledge about Isomorphism and Auto morphism. To analyze the concept of normal subgroup.
		Complex Analysis	 To understand Polar and exponential form of complex numbers. To understand functions complex variables. To know about limits, continuity, of complex functions. To acquire knowledge about analytic and entire functions. To describe Harmonic functions.

	BSCMTP282	Practical (Maxima)	 6. To understand exponential functions and trigonometric functions. 7. To illustrate Integration of complex functions. 1. Helpful to find the inverse and identity element of a group. 2. Gets knowledge to solve Cauchy Riemann equation. 3. Lagrange's theorem can be verified using examples
	BSCMTOE283	Open Elective D	
Fifth semester	BSCMTC308	Differential Equation	 To understand Linear Differential Equation of nth order and complimentary functions. To find General and particular solutions of linear equations. To acquire knowledge about homogenous and non- homogenous equations. Able to find Solutions of second order linear equations using different methods. To understand Laplace transform of elementary functions. To know about the applications of Laplace transforms.
		Ring theory	 Able to give examples of Rings. To understand integral domain and field. To understand ring homomorphism and quotient rings. To acquire knowledge about prime and maximal ideals. To know about Euclidean domain and polynomial rings.

	BSCMTC310	Numerical	1. To find roots of algebraic and
		Analysis	transcedential equations by
		5	different methods.
			2. To select suitable
			method to find
			solution of
			homogeneous
			equations
			3 To understand Operations on
			matrices
			4 To find rank of matrices
			5 To find differences of
			polynomials
			6. Able to interpolate given set of
			values.
			7. To select appropriate formula to
			find interpolation.
			8. To understand Numerical
			differentiation.
			9. To solve ordinary differential
			equations by numerical
			methods.
Sixth semester	BSCMTC358	Partial	1. Able to form total Differential
		Differential	Equations.
		Equation	2. To solve total differential
		1	equations.
			3. To form partial differential
			equations.
			4. To understand methods of solving
			linear equations.
		Fourier Series	1. To understand Fourier Series
			expansion of functions.
			2. To acquire knowledge
			about half range series
			expansions.
			3. To understand complex Fourier
			coefficients.
			4. To understand finite fourier
			transforms.
		Linear	1. To understand vector spaces and
		Algebra	inner product spaces.
			2. To understand Linear
			transformation and its
			associated matrices.
			3. To find rank of a matrix.
			4. To solve linear equations.
			5. To understand minimal and

		Characteristics polynomials.
BSCMTC359	Graph theory	1. To understand finite and infinite
		graph.
		2. To know about walk, path,
		circuits.
		3. To acquire
		knowledge about
		connected and
		disconnected
		graphs.
		4. To know about operation on
		graphs.
		5. To have knowledge about trees
		and its properties.
		6. To understand cut-set, planar
		graphs.
		7. Able to find different
		representations of planar graphs.
		8. To represent graphs in Matrix.
		9. To find Chromatic number of a
		graph.

Department of Physics

PROGRAM OUT COME: BSc(PCM, MPCs, MSP)

Physics Chemistry Mathematics :Students understand material science better with this combination

Physics Math's Statistics: Students can gain more knowledge about mathematical physics and statistical physics so that understanding theoretical physics is made easy.

Physics Math's Computer Science: Students will gain basic working principle of digital electronics and simulations experiments in Physics.

- Ability to communicate effectively in both oral and written contexts in the form of technical papers, project reports, design documents and seminar presentations.
- Demonstrate knowledge and understanding of essential facts, concepts, principles and theories relating to subject areas.
- Apply ethical principles and commit to professional ethics, responsibilities and norms.
- Develop critical thinking with scientific temper.
- Enhance the research culture in the field of Physical sciences and uphold the scientific integrity and objectivity.

Program Specific Outcome: PHYSICS

- 1) To understand the basic concept, fundamental principles and the scientific theories related to various scientific phenomena and their relevancies in day to day life.
- 2) To acquire skills in handling scientific instruments, planning and performing in laboratory experiment.
- 3) To enhance the knowledge in all branches of Physics with exposure to recent developments in Physics
- 4) To analyze any Scientific data critically and systematically and the ability to draw the objective conclusion
- 5) Understand set of physical laws, describing the motion of bodies under the influence of system of forces.
- 6) Able to relate the structure of atom and subatomic particle,
- 7) Apply conceptual understanding of the physics to general real-world situations.
- 8) Apply suitable mathematics to understand the laws of Physics

To acquire the basic knowledge needed for higher studies.

Course	Outcome		
Seme	Subject	Subject	Outcome
ster		Code	
Ι	General Physics I	PHC 103	 Student are expected to 1) To learn the conservation laws of energy and linear and angular momentum and apply them to solve problem. 2) Become familiar with various thermodynamic process and work done in each of these processes. 3) To learn the fundamentals of thermodynamics and laws of thermodynamics. 4) Gain the knowledge of Low temperature and pressure. 5) Basics of vector Physics for the study of mechanics
I	Practical -I	PHC104	 Student is able to understand the concept of Surface tension ofwater Acceleration due to gravity usingspiral spring and barpendulum Young's modulus of the bar Terminal velocity and coefficient of viscosity of the given liquid, to find the density of the unknown liquid. Verification of parallel axes theorem and MI of the table
Π	General Physics II	PHC153	 The student will be Able to understand the basics properties of matter, how Young's modulus and rigidity modulus defined Able to grasp the basic ideas of special theory of relativity such as length contraction, time dilations and mass energy invariance Able to understand the concepts in Astrophysics. Able to study the fundamentals of simple harmonic motions, damped and forced oscillations and grasps the significance of quality factor and damping coefficients. Able to analyze the wave patterns using Fourier Theorem.
Π	Practical -II	PHC154	 Student is able to understand the concept of Interfacial tension between two different Liquids Linear and material densities of a wire using Sonometer. Verification of perpendicular axestheorem and determination of rigidity modulus of Wire. Radius of gyration and equivalent length. Vertical oscillations of spiral spring Uniform bending and Koenig's experiment

Ш	Optics	PHC203	Student will be expected	
	optics	1110205	1) To understand the basic concepts of wave	
			optics and an ability to compute basic	
			quantities in optics	
			2) To use the principles of wave motion	
			and superposition to explain the physics	
			of polarization, interference and	
			diffraction.	
			3) To gain confidence in their ability to apply	
			mathematical methods to understand	
			electromagnetic problems to real-life	
			situations.	
			4) Have gained elaborated knowledge about	
			electrostatics and laws governing the charge	
			distribution.	
			5) To solve a variety of problems related to	
			Faraday's law of induction and Maxwell's	
			equations.	
			6) To understand the relevance of displacement	
			current in the context of electromagnetic wave	
			propagation.	
			7) To learn about black body, radiation pressure,	
			solar constant, estimation of surface tensionof	
			Sun, LASER and its applications, holography.	
III	Practical III	PHC204	Student is able to understand the concept of	
			1) Interference and diffraction experimentally	
			2) Black body radiation through	
			Stefan- Boltzmannlaw	
			3) Moment of inertia of irregular body	
			4) Melting point of solid using thermocouple	
			5) Specific rotation of sugar solution	
			using polarimeter.	
			6) Frequency of a tuning fork using Helmholtz	
			Resonator.	

IV	Electricity & X-ray Crystallography	PHC 253	 Student will be expected to Study in depth the transient current response of LR , CR and LCR circuits , which is essential in designing as well as understanding the working of electronic circuits Understand the basic methods of solving electrical dc network using network theorem Learn the different types offilters. study the Force acting on a moving charge and torque on a current loop in a magnetic field Understand the electrical and magnetic measurements Study the X-ray crystallography,Miller indices and Structure of NaCl and KCl Learn the Superconductivity,Meissner effect and applications of Superconductivity.
IV	Practical IV	PHC 254	 Student is able to understand the concept of Interference through Newton's ring Charge sensitivity of a BG Bandwidth, quality factor and self- inductance using Series resonance circuit Charging of a capacitor Verification of Maximum powertransfer theorem.

V	Modern Physics	PHC 307	Student will be expected		
•			1) To become familiar with Blackbody		
			radiation. Ultraviolet catastrophe.		
			Photoelectric effect and Compton Effect		
			and hence be aware how quantum theory		
			emerged		
			2) Have gained a clear knowledge about		
			wave properties of particles. De Broglie		
			waves and its implications on the		
			uncertainty principle.		
			3) Study the Bohr Atom model in detail and		
			understand about atomic excitations		
			4) To be capable of analyzing and solving		
			problems using oral and written		
			reasoning skills based on the concepts of		
			modern physics		
			5) Have grasped the idea of Wave Mechanics		
			and gain the concept of Eigen values,		
			Eigen functions and learn the basic		
			postulates of quantum mechanics		
			6) To find solution to Schrödinger's equation		
			for many systems such as particle in a box,		
			Hydrogen Atom and familiarize with		
			different quantum numbers.		
			7) Become familiar with molecular		
			spectroscopy and have gained basic		
			ideas regarding microwave spectroscopy,		
			infrared spectroscopy and Raman		
			Spectroscopy.		
V	Condensed Matter	PHC 308	Student will be expected to		
	Physics		1) Understand basic concepts and		
			mathematical methods of solid state		
			physics.		
			2) Understand how statistics of the		
			microscopic world can be used to		
			explain the thermal features of the		
			macroscopic world.		
			3) Learn Einstein's and Debye's theory of		
			specific heat of solid		
			4) Learn about Nanomaterials and		
			its applications		
			5) Understand Hall effect and its applications		
			6) Study the concept of Fermi energy		
			and Boltzmann tail		
			7) Learn about LEDs, Solarcells		
			8) Electrical conductivity of a metal		
			9) Transistor, amplifier, hybrid model of the		
			transistor		

V	Practical V	PHC 309	Student will be expected to
			1) Study the characteristics of pn diode,
			Zener diode and LED
			2) Study the transistor characteristics
			3) Learn the measurement of self-inductance
			using Andersons Bridge
			() Understand the concept of energy gap of a
			Thermistor
			5) Learn the hand width Quality factorising
			parallel LCR circuit
VI	Nuclear Physics	PHC 357	Students are able to
			1)Relate the structure of atom and
			subatomic particle
			2) Gain a clear picture of nuclear composition and
			various nuclear models.
			3) Have a deep knowledge about Radio activity.
			nuclear Fission and Nuclear Fusion. the
			relevance of nuclear transformation
			4) Understand the working of nuclear detectors
			and counters and mass spectrographs
			5) Realize the importance of Cosmic rays its
			origin and its effects on earth
			6) Become familier with fundamental
			b) become familiar with fundamental
			particles and unreferit particle
VI	Flectronics	DHC358	Student will be expected to
V I	Electionics	FIIC556	1) Have a basic knowledge of
			1) Have a basic knowledge of
			2) A squire impoulates shout how a
			2) Acquire knowledge about now a
			semiconductor diode rectifies an input ac
			signal
			3) Learn how to construct a transistor
			amplifier and how its gain varies with
			frequency
			4) Know about various number systems and
			their applications, flip flops and counters
			5) Familiar with electronic devices and
			functioning
			6) Learn the principles of analog modulation and
			demodulation
			7) Understand basic pulse, digital and
			advanced communication systems.
			8) Understand the theory and applications
			of satellite communications.
			9) Learn the basics of mobile communication
			10) Study of Op-Amp parameters and design of
			inverting and non-inverting amplifier.

VI	Practical VI	PHC359	 Student is able to understand the concept of 1) Capacitance of capacitor and mutual inductance of a coil using B.G and Carey–Foster methods 2) Construction of OR, AND and NOT gate using diode and transistor. 3) Study of Wein Bridge Oscillator 4) Construction of Full wave Bridge rectifier and Common Emitter Amplifier
			5) Construction of inverting and non inverting amplifiers using IC741

Program Specific Outcome: STATISTICS

BSc(MSP):

Introduction:

Statistics as a subject at the degree level is vigorously gaining importance and recognition in today's society.

Statistics was identified solely with the display of data and charts pertaining to socio, economic, demographic, political situations etc. prevailing in a Country.

Gigantic advances in the twenty-first century, particularly in the field of information technology have enabled Statistics as a scientific discipline, to move beyond the confines of data and display.

Statistics primarily deals with collecting informative data, its analysis, interpretation and drawing reliable conclusions about a phenomena under study.

The scope of this subject naturally extends to all process of acquiring knowledge that involve fact finding through collection and examination of data.

Statistics plays a vital role in Big data & Analytics, which is now an emerging field (has already become one) in all spheres of human activity.

Big data &Analytics, Statistics has become the most sought after subject in Exploring career opportunity in the field of Deep learning, Machine learning, reinforcement learning etc.

The attractive career opportunities, a student with a good knowledge of Statistics at the degree level is relatively in a better position to qualify in almost all the competitive examinations due to his better numerical ability compared to his peers.

Every Company has a quality control department and a student with B.Sc. with Statistics as a subject would be preferred to other students for the post of quality control officer as SQC is one of the main topics taught in the B.Sc Statistics course.

Course Outcome B.Sc							
Semester	Subject	Subject Code	Outcome				
Ι	Descriptive Statistics Elective paper: Official Statistics	BSCSTC131	Students learn basic tools of Statistics such measures of central tendency, dispersion, moments, skewness and Kurtosis. Statistical computing (R software). Installing R software, Students learn R preliminaries, data inputting methods, data accessing, Graphics in R. Learn about built in functions, saving, storing and retrieving work. In the elective paper the students get a thorough idea about the various statistical organizations in India				

Course Outcome B.Sc

	and their functions.

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Π	Probability Theory Elective paper; Statistical Analysis of experimental data	BSCSTC181	Students learn about Probability theory, Random variables, Mathematical Expectations, Standard discrete and continuation distributions with lot of examples. The students get a strong foothold in understanding the topics to be discussed in the subsequent semesters. Errors in measurement. Students learn about simple linear regression, Correlation, principles of least squares. Random numbers, random
III	Sampling Theory Elective Paper:BSCSTC233	BSCSTC231	number generation, generation of random of specific distributions Students learn basics of sampling. Difference between census and sampling. Also sampling methods like Simple Random Sampling (with and without replacement), Stratified sampling, Systematic sampling, Sampling for
			attributes etc. Real life problems related to these are solved practically. Students learn how to find the distributions of functions of random variables, learn about various sampling distributions which

			form the base for the subsequent semesters. Students get an insight into Big data and Data Analytics. Exploring Data in R and Machine learning. Applications.
IV	Statistical Inference-I	BSCSTC281	Students learn about criteria of a good estimators. How to choose a good estimator, how to find an estimator. Learn about the concept of testing of Hypotheses, p value, size and power of a test, methods of finding a best test procedure, Likelihood ratio test along with statistical computing.
V	Regression Analysis	BSCSTC331	Students learn about sources of error in measurement and tests of measurement scaling-Important scaling techniques. Correlation, regression fitting of curves by least square methods. Multivariate analysis- students also learn about Factor analysis, structural equation modelling, Cluster Analysis and Discriminant Analysis, Conjoint Analysis and Correspondence Analysis.

	Operations Research	BSCSTC332	Students learn about the origin, scope definition and phases of O.R. Learn about linear programming problem, formulation and solving linear programming problems by graphical method and Simplex method, learn about Transportation problem and its solution, Assignment problem and its solution, Game theory. Students also learn Inventory problems, its meaning need of maintaining inventory, different types of inventory costs along with simple inventory models both deterministic and probabilistic models
VI	Statistical Inference –II and design of experiment.	BSCSTC381	Students learn about the need of SPRT, Non parametric methods, its applications under Statistical inference- 11. Under design of Experiments they learn about the importance and meaning of analysis of variance. Students also learn various designs, their relative merits and demerits. Factorial experiments, and its applications.
	r applied Statistics	BSCSTC382	Students learn about the concepts of quality, quality

	control, process control and product control, process control tools and product control tools, control charts and their interpretations, various sampling plans , application through examples Index numbers, different types of index numbers. Students also learn about demography, vital statistics, its sources, mortality and fertility rates, life tables. Students learn various concepts of time series, meaning, components, measurement of components through examples etc.

I Sem BCom	Quantitative Techniques-1	BCMCMC108	Descriptive Statistics- measures of central tendency and measures of dispersion. Index numbers like- CPI, and formulation using various methods. Percentages, profits and loss, discounts , cash discounts and trade discounts, simple interest, compound interest also effective rate of interest.
II Sem BCom	Quantitative Techniques-11	BCMCMC158	Students learn about the meaning of correlation, learn how to find correlation coefficient, rank correlation coefficient its interpretations, Students also learn about the concept and meaning of Regression, Regression, Analysis its meaning, regression coefficients. Time Series.

PROGRAM OUTCOME: B.Sc. (BZC/BBZ/MCZ)

- Ability to communicate effectively in both oral and written contexts in the form of technical papers, project reports, design documents and seminar presentations.
- Demonstrate knowledge and understanding of essential facts, concepts, principles and theories relating to subject areas.
- Apply ethical principles and commit to professional ethics, responsibilities and norms.
- Develop critical thinking with scientific temper.
- Enhance the research culture in the field of life sciences and uphold the scientific integrity and objectivity.
- Understand the biodiversity and to apply the knowledge to conserve endangered species.
- Acquire basic skills in the observation and study of nature, biological techniques, experimental skills and scientific investigation.

Program Specific Outcome: ZOOLOGY

At the end of three year B.Sc. Programme in Zoology the students will be able to:

- Understand and analyze relationships between structure and function at different levels of biological organization for the various groups of animals.
- Develop deeper understanding of key concepts of zoology such as ethology, physiology, embryology, etc. at organism, cellular, and molecular level.
- Describe the role of taxonomy and systematics in animal studies and gain in-depth knowledge of animals.
- Understand the unity of life with the rich diversity of organisms and their ecological and evolutionary significance.
- Correlate between the various animal habitats and their behavior.
- Generate awareness about the conservation of the biosphere.
- Explore various applied fields of Zoology such as apiculture, fisheries, poultry, vermiculture, dairy farming, etc. and gain in-depth knowledge which enables self-employment.
- Acquire basic skills in the observation and study of nature, biological techniques, experimental skills and scientific investigation.
- Organize and deliver the acquired knowledge through effective written, verbal, graphical/ virtual communications and interact productively with people from diverse backgrounds.
- Use concepts, tools and techniques related to chemistry and botany to acquire knowledge and its application in zoology.

Course Outcome			
Semester	Subject	Subject code	Outcome
			At the end of the course the students will be able to:
Ι	Animal diversity - I	BSCZOC 131 BSCZOP 132	 Understand the basic principles of animal taxonomy. Appreciate the vast biodiversity of local and global level and get an insight about the need for conservation. Identify the invertebrates and classify them up to the class level with the basis of systematics. Discuss human health and diseases caused by various parasites by understanding their mode of transmission, treatment and preventive measures. Create the awareness of the economic importance and significance of invertebrates.

Π	Animal diversity - II	BSCZOC 181 BSCZOP 182	 Describe the diversity in form, structure and habits of protochordates and vertebrates. Explain general characteristics and classification of different classes of vertebrates. Identify and distinguish between poisonous and non-poisonous snakes by observing characteristic features. Understand the basic anatomy of vertebrate body.
III	Physiology, Biochemistry and Immunology	BSCZO202 BSCZO203	 Understand the functions of various systems, and apply the knowledge to lead a healthy life. Understand the importance of Bio molecules, and familiar with various biochemical pathways. Explain the role of immune system in maintaining health, immunological response and the way it is triggered and regulated.
IV	Histology, Animal Behaviour, Applied Zoology and Toxicology	BSCZO252 BSCZO253	 Explain the gross anatomical structure of different organ systems and histological details of different organs in mammals in general and in humans in specific. Apply skill-based knowledge of histological techniques. Gain fundamental knowledge in the concepts of animal behavior which enable the student to conceptualize learning behaviour, communication, migration and biological rhythms in animals. Identify various methodologies and perspectives of applied branches of zoology for the possibilities of self- employment. Understand the effects of pesticides and toxins on the humans, animals and environment.
V	Cell Biology and Biotechnology	BSCZO304 BSCZO306	 Understand the structure of cells and cell organelles in relation to the functional aspects and understanding of the working principles and applications of microscopes. Understand the structure and functions of chromosomes; the process of cell division and its significance. Gain fundamental knowledge of protein synthesis. Understand the basic aspects of cancer biology. Understand the applications of Biotechnology and be familiar with the tools and techniques of
			Biotechnology.
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	Genetics, Biostatistics, Evolution and Palaeontology	BSCZO305 BSCZO307	 Appreciate the contribution of great scientists, distinguish Classical Genetics and Molecular Genetics. Describe the concepts of heredity, chromosomal aberrations, gene regulation and genetic diseases, its inheritance and importance of genetic counseling. Critically analyse, think logically and reason, through solving genetic problems. Able to manage the statistical data in biological studies. Understand the concept of evolution through Lamarkism, Darwinism and Neo- Darwinism. Understand the Geological time scale, fossils and their significance.
	Reproductive Biology and Developmental Biology	BSCZO354 BSCZO356	 Understand the structure and functions of the reproductive systems. Familiar with various stages involved in embryonic development of different organisms including man. Understand the principles of IVF-ET and the importance of it. Familiar with different techniques involved in embryonic studies.
VI	Environmental Biology and Wildlife biology	BSCZO355 BSCZO357	 Understand the structural and functional components of ecosystems and the complex mechanisms involved in the functioning of ecosystems. Understand the concept of environmental pollution, effects and means of prevention. Appreciate the fauna of the world, in general by studying the zoogeographic realms, of India in particular, by studying distribution of animals. Understand various threats for wildlife, role of different agencies and wildlife acts and policies in preventing wildlife depletion. Gain basic knowledge of collecting information about biodiversity through field visits and surveys and contribute to the understanding of local biological diversity.

B.COM Program Outcome

- 1. The course focuses mainly on enhancing the employability skills of the commerce students.
- 2. It make a student employable and at the same time confident in his/her day to day transactions.
- 3. The course also meets the requirement of the young and enterprising Indians to nurture their dreams of entrepreneurship.
- 4. The course enables the students to pursue higher education in the respective stream.
- 5. The course helps the student to take up professional courses like CA/CS/ICWA/ICMA.

Program Specific Outcome

- B.Com Vocational
- 1. The course focuses mainly on enhancing the employability skills of the commerce students.
- 2. Gives the knowledge of Direct Tax and Indirect Tax.
- 3. Gives practical knowledge of e-filing of returns.
- 4. The course enables the students to pursue higher education in the respective stream.
- 5. The course helps the student to take up professional courses like CA/CS/ICWA/ ICMA.

B.COM (VOCATIONAL) COURSE OUTCOME

Seme	Subject	Subject Code	Outcome
ster			
	Language: Kannada		
	Language: Hindi		
Ι	Language: Sanskrit		
Ι	English		
Ι	Financial Accounting I	BCMCMC 132	 Record business activity in the ledger Methodological approach to describe the activities of business Learn accounting standards and concepts To enhance the knowledge of Accounting for professionals Financial reporting process Rectification of errors in recording business transactions
Ι	Statistics and Mathematics		
Ι	Tax Procedure And Practice I - Income Tax Law I	BCMTPV 131	 Learn about the fundamentals of income tax and the scope. Learning important definitions under Income tax Act Learn about deductions under chapter VI A Computing the gross income and total income

I	Tax Procedure And Practice II Goods And Service Tax Act- I Tax Procedure Practical –I	BCMTPV 132 BCMTPV 133	 Understanding basis concepts under GST. Learning various definitions under GST. Understanding GST council, administration and structure Learning about levy and collection of GST. To have a practical knowledge
	Income tax and Indirect Tax		about income tax. 2. To practical knowledge about GST with reference to various forms like GST form REG-01, 14,16 etc
II	Language: Hindi		
	Language: Sanskrit		
	English Financial Accounting II	BCMCMC 182	 Dealing in joint venture Preparation of financial statements Reconciliation of errors in recording business transactions To get the knowledge about fire insurance claims. Educate the students in hire purchase , installment and consignment system
II	Business Statistics and Mathematics		
П	Tax Procedure And Practice III - Income Tax Law –II	BCMTPV 181	 Learning about the different heads of income with its components. To study about depreciation under income tax act. Calculations of allowances and perquisites Computing income under the heads of capital gains. Computation of total income as applicable to individual assesse.
II	Tax Procedure And Practice IV - Goods And Service Tax Act- II	BCMTPV 182	 Learning about computation of GST payable Understanding the importance of time of supply of service send goods Computing place of supply of service Computing value of taxable goods Knowing about E-Way Bill and its implications.
II	Tax Procedure Practical –II Income tax and Indirect Tax	BCMTPV 183	 To have a practical knowledge of problems on computation of GST; CGST, SGST, UTGST and IGST. To get a practical knowledge on computation of income from salary,

			capital gains and other sources.
	Language: Kannada		
III	Language: Hindi		
	Language: Sanskrit		
III	English		
III	Direct Tax- I	BCMCMC 231	 The objective of this paper is to familiarize the student with the legal provision and procedural aspects of Income Tax It helps the student to prepare Income statements. It helps to file the returns Compute the deductions and allowances Helps to assess the residential status.
	Financial Accounting - III	BCMCMC 232	 How to calculate sacrifice ratio, new profit sharing ratio and gain ratio. Treatment of goodwill-accounting standard 10 How to calculate the amount paid to executors account in case of death of a partner. To understand the procedure of Sale of Partnership firm and dissolution.
III	Tax Procedure and Practice-V Income Tax Law and Practice III	BCMTPV 231	 To know the computation of tax on total income. To know the Tax deduction at source, tax collection at source. Computation of estimated income, exemption, due date to remit etc. To have a knowledge about income tax authorities
III	Tax Procedure and Practice-VI Goods and Service Tax Act III	BCMTPV 232	 Understanding the concepts of input tax credit under GST. Computing Input Tax Credit under various circumstances, allowing credits and conditions for allowing credit under GST. To know the accounts and records maintained in GST.
III	Tax Procedure and Practice Practical- III Income tax and GST III	BCMTPV 233	 To have a practical knowledge on filling application form to obtained tax deduction, filling of tax declaration form, filling of certificates of collection tax at source, filling challan for deposit of tax etc. To have practical knowledge on computation of input tax credit.
	Language: Kannada		
TT 7	Language: Hindi		
IV	Language: Sanskrit		
IV	English		

IV	Direct Tax II	BCMCMC 281	1. To study income under various
			heads
			2 To study how to compute
			2. To study now to compute
			house property, Capital
			Gains and Income from other
			source
			3. To familiarizes the student
			with the legal provisions and
			procedural aspects of income
			tax
IV	Financial Accounting IV	BCMCMC 282	1 Preparation of branch account
1,		Demente 202	2 Propagation of departmental
			3. To get the knowledge in the
			area of Royalty accounts.
			4. Calculation of Profit prior to
			incorporation.
IV	Tax Procedure and Practice- VII	BCMTPV 281	1. Filling of return of income.
	Income Tax Law and Practice IV		2. To know the assessment procedure,
			assessment of firms.
			3. Calculation of interest, self-assessment tax.
IV	Tax Procedure and Practice- VIII	BCMTPV 282	1. Knowing and learning account and
	Goods and Service tax IV		documents under GST
			2. Computation of interest tax
			penalty fines under various
			circumstances
			2 Lightlity to tay under CST in
			5. Liability to tax under OST in
			special cases
			4. Understanding Appeals and
			Revisions procedures.
IV	Tax Procedure and Practice	BCMTPV 283	1. To get the practical filling application
	Practical		for the allotment of Permanent Account
	Income tax and GST IV		Number, calculation of total income
			and tax liability of firms and company
			etc
			2. To get the practical idea about
			computation of interest on GST and
			interest on GST refund etc
V	Financial	BCMCMC 333	1 To adjugate about the basis pro
v	Management I		1. To educate about the basic pre-
			requisites needed to get started
			career in finance
			2. Educates students about how to
			help clients managing finance
			3. Understand specific
			responsibilities of financial
			professionals
			professionals
			4. Tracking investment activities
			5. Knowledge of stock exchange of India
V	Cost and Management	BCMCMC 334	1. To know the Accounting Standard - 3
	Accounting III		in cash flow statement
			2. To know how to prepare the
			different budgets.

			3. To know the techniques of Cost
			Accounting- Marginal Costing,
			Standard Costing and Variance
			analysis
V	Business Law	BCMCMC 335	1. To have knowledge about law of the
			country.
			2. It demonstrate a basic understanding
			of the laws relating to contract
			Information Technology and
			intellectual property right
			3 To know the basic knowledge to be
			applied to business transactions in
			their carrier ahead
V	Modern Marketing	BCMCMC 336	1 To have knowledge about
·	Wodern Warketing	Demente 550	consumer behavior
			2 To know about advertising and
			2. TO know about advertising and
			2 To study about direct marketing
			5. To study about direct marketing,
			online and digital marketing, green
			marketing.
V	Tax Procedure and Practice-IX		1. To know the assessment of
	Income Tax Law and Practice V	BCMTPV 331	charitable institution.
			2. To know the assessment of
			association of persons,
			assessment of cooperative
			society.
			3. To know the special provision
			under the income tax law to
			avoidance of tax.
			4 To penalties under the income
			tax act
V	Tax Procedure and Practice	BCMTPV 333	1 To have a practical knowledge on
v	Practical	DCIVITI V 555	computation of total income of
	Income Tax I aw		charitable trust associations of persons
			partnership firms ate
VI	Corporate Accounting II	PCMCMC 282	1 To ophance the knowledge of
V I	Corporate Accounting – II	DCIVICIVIC 362	1. To enhance the knowledge of
			2 Maintanance and propagation of
			2. Maintenance and preparation of
			amplagemention external and internal
			analgamation, external and internal
			2 Calculation of ratio for external and
			5. Calculation of factoring toyation
			honking
1/1	Eineneiel Mersserrert U	DCMCMC 202	Dalikilig.
VI	rinancial Management II	DUNIUNIU 383	1. Developing cash management
			strategies
			2. Knowledge about investment in
			Mutual funds
			3. Learn how to become decision
			makers for stock holders and
			financial organizations
			4. How to evaluate price and

			different types of securities
VI	Indian corporate Law	BCMCMC 385	 To demonstrate a comprehensive and accurate knowledge of laws relating to the formation, administration and operations of a company. To develop an understanding of current policy trend and developments in corporate law. To demonstrate an in-depth understanding of companies act 2013 along with its amendments.
VI	Auditing	BCMCMC 386	 To study about Company, Corporate Governance and Social Audit. To study about audit of computerized accounts. To know about Vouching and Verification
VI	Tax Procedure and Practice- X Customs Duty	BCMTPV 381	 To learn about evaluation and development of customs law. To know about classification of goods under customs tariffs act. To know the valuation of custom duty, methods of valuations for customs. To know the import procedure under custom, export provisions schemes.

Program Outcome B.COM

- 1. The course focuses mainly on enhancing the employability skills of the commerce students.
- 2. It make a student employable and at the same time confident in his/her day to day transactions.
- 3. The course also meets the requirement of the young and enterprising Indians to nurture their dreams of entrepreneurship.
- 4. The course enables the students to pursue higher education in the respective stream.
- 5. The course helps the student to take up professional courses like CA/CS/ICWA/ICMA.

B.Com General	B.Com Vocational
1. The course focuses mainly on	1. The course focuses mainly on
enhancing the employabilityskills	enhancing the employability skills of
of the commercestudents.	the commercestudents.
2. It make a student employable and	2. Gives the knowledge of Direct Taxand
at the same time confident in	IndirectTax.
his/her day to daytransactions.	3. Gives practical knowledge of e-filing of
3. The course also meets the	returns.
requirement of the young and	4. The course enables the studentsto
enterprising Indians to nurturetheir	pursue higher education in the
dreams of entrepreneurship.	respective stream.
4. The course enables the studentsto pursue higher education in the respective stream.	5. The course helps the student to take up professional courses like CA/CS/ICWA/ ICMA.

Course Outcome: B.COM (General)

Program Specific Outcome

Semester	Subject	Subject Code	Outcome
	Language: Kannada	_	
	Language: Hindi		
Ι	Language: Sanskrit		
Ι	English		
Ι	Economics		
Ι	Financial Accounting I	BCMCMC 132	 Record business activity in the ledger Methodological approach to describe the activities of business Learn accounting standards and concepts To enhance the knowledge of Accounting for professionals Financial reporting process Rectification of errors in recording business

Ι	Strategic	BCMCMC	1.	To study about
	Management	133		organization functions and
	and			organization structure.
	Organization		2.	To study various Theoriesof
	al Behavior			Management.
			3.	To know about selection
				and recruitment process
			4.	To study about training and

			Development procedure.
I	Quantitative Techniques I	BCMCMC131	Descriptive Statistics- measures of central tendency and measures of dispersion. Index numbers like- CPI, and formulation using various methods. Matrices and determinants. Matrix algebra and solving simultaneous equations using matrices.
	Language: Kannada	BCMCMC	
II	Language: Hindi		
	Language: Sanskrit		
II	English		
II	Economics		
II	Financial	BCMCMC	- Dealing in joint venture
II	Accounting II Human Resource	182 BCMCMC	 Preparation of financial statements Reconciliation of errors in recording business transactions To get the knowledge about fire insurance claims. Educate the students in hire purchase , installment and consignment system To familiarizes the students
	Management	183	 about the concept of human resource management 2. The subject enables them to understand core areas of HRM- HR planning, process and sources of employee recruitment, selection procedure, wage and salary administration, motivation and leadership.
II	Quantitative Techniques II	BCMCMC181	Correlation and Regression Analysis. Time Series. Basics of banking arithmetic like – Simple and Compound Interest, Discount etc.
	Language: Kannada		
III	Language: Hindi		
	Language: Sanskrit		
III	English		
III	Direct Tax I	BCMCMC 231	 The objective of this paper is to familiarize the student with the legal provision and procedural aspects of Income Tax It helps the student to prepare Income statements. It helps to file the returns

			4. Compute the deductions and allowances5. Helps to assess the residential status.
III	Economics		
III	Financial Accounting III	BCMCMC 232	 How to calculate sacrifice ratio, new profit sharing ratio and gain ratio. Treatment of goodwill-accounting

III	Cost and management Accounting I	BCMCMC 234	 standard 10 3. How to calculate the amount paid to executors account in case of death of a partner. 4. To understand the procedure of Sale of Partnership firm and dissolution. 1. Understanding the concept of cost and financial accounting. 2. Preparation of cost sheet 3. Knowing different methods of pricing the materials. 4. Calculation of remuneration plans. 5. To enhance the knowledge on the element of cost where cost control and cost reduction techniques are used
	Language: Kannada		useu.
	Language: Hindi		
IV	Language: Sanskrit		
IV	English		
IV	Direct Tax II	BCMCMC 281	 To study income under various heads To study how to compute depreciation, income from house property, Capital Gains and Income from other source To familiarizes the student with the legal provisions and procedural aspects of income tax.
IV	Economics		
	Cost and Management Accounting II	BCMCMC 284	 Knowing different overheads and distribution of overheads. Computing machine hour and labour hour rate in factory. Understanding integrated accounting systems. Preparing non integrated accounts and reconciliation statement.
IV	Financial Accounting IV	BCMCMC 282	 Preparation of branch account Preparation of departmental accounts To get the knowledge in the area of Royalty accounts. Calculation of Profit prior to incorporation.

	Corporate		
V	Accounting I	BCMCMC 332	 To know the objectives of International financial reporting standards(IFRS) Gives practical knowledge of underwriting of shares Calculation of various accounts and statement of Holding, banking and Companies account.
V	Cost and Management Accounting III	BCMCMC 334	 To study the cost of each job and each batch. To ascertain the value of abnormal loss, abnormal gain and normal loss. To find out the Notional profit, reserves profit & loss under contract account To know the calculations of By product and Operating costing.

V	Modern Marketing	BCMCMC	1. To have knowledge about
		336	consumer behaviour
			2. To know about advertising
			and sales management
			3. To study about direct
			marketing, online and
			digital marketing, green
			marketing.
V	Direct Tax III	BCMCMC	1. To know the legal provision relating
		331	to computation of total income.
			2. Assessment of Individual, Co-
			Operative Societies, Partnership
			Firm and Companies
			3. To get the theoretical knowledge of
			international taxation
V	Business Law	BCMCMC	1. To have knowledge about law
		335	of the country
			2. It demonstrate a basic
			understanding of the laws
			relating to contract
			Information Technology
			and intellectual property
			right.
			3. To know the basic
			knowledge to be applied to
			business transactions in
			their carrier ahead.
V	Financial	BCMCMC	- To educate about the basic pre-
	Management I	333	requisites needed to get started
	0		career in finance
			- Educates students about how to
			help clients managing finance
			Linderstand specific
			- Understand specific
			responsibilities of
			financial professionals
			- Tracking investment activities
			- Knowledge of stock exchange of
			India
VI	Cost and	BCMCMC	1. To know the accounting
	Management	384	standard R3 in cash flow
	Accounting IV		statement
			2. To know how to prepare the
			different budgets.
			3. To know the techniques of
			Cost Accounting- Marginal
			Costing, Standard Costing
			and Variance analysis

VI	Auditing	BCMCMC 386	1. To study about Company, Corporate Governance and Social Audit.
			2. To study about audit of computerized accounts.
			3. To know about Vouching and Verification
VI	Financial	BCMCMC	- Developing cash
	Management II	383	management strategies
			- Knowledge about investment in
			Mutual funds
			- Learn how to become decision
			makers for stock holders and
			financialorganizations
			- How to evaluate price and
			different types of
			securities

	GST and Customs	BCMCMC	1.	Understanding goods and services
VI	Duty	381		tax Act provisions, rules, and
				regulations.
			2.	Registration procedure under GST.
			3.	Computation of taxes under GST.
			4.	Understandings custom provisions
				and payment of taxes.
VI	Corporate Accounting	BCMCMC	1.	To enhance the knowledge of
	II	382		liquidators final statements.
			2.	Maintenance and preparation of
				final accounts at the time of
				amalgamation, external and
				internal reconstruction.
			3.	Calculation of ratio for external
				and internal purpose of
				accounting, taxation, banking.
VI	Indian Corporate		1.	To demonstrate a
	Law			comprehensive and accurate
				knowledge of laws relating
				to the formation,
				administration and
				operations of a company.
			2.	To develop an
				understanding of current
				policy trend and
				developments in corporate
				law.
			3.	To demonstrate an in-depth
				understanding of companies
				act 2013 along with its
				amendments.

		BBA Program O	utcome			
1. 7	The course focuses mainly o	n enhancing the employabi	ility skills of the management students.			
2. I	It make a student employable and at the same time confident in his/her day to day dealings.					
3. 1	3. The course also meets the requirement of the young and enterprising Indians to nurture their dreams of					
e	ntrepreneurship.					
4. 1	The course enables the stude	ents to pursue higher educat	tion in the respective creek.			
5. 1	The course helps the student	to take up professional cou	urses like MBA/CA/CS/ICWA/ICMA.			
		Course Outcome	: BBA			
Semester	Subject	Subject Code	Outcome			
	Language: Kannada					
	Language: Hindi					
Ι	Language: Sanskrit					
T	English					
T	Economics					
T	Accounting I	BBABMC 135	Decord business estivity in the			
1	Accounting I	BBABINE 135	- Record business activity in the			
			ledger			
			- Methodological approach of			
			depreciation.			
			- Learn accounting standards and concepts			
			- To enhance the knowledge of			
			Accounting for professionals			
			- To analysis Bills and Promissory			
			note.			
			- To prepare final accounts of Sole			
			Trading.			
			- To familiarize the Fundamentals Of			
			Book Keeping			
Ι	Business	BBABMC 133	1. To introduce the concepts of			
	Organization		business, trade, industries and			
			commerce			
			2. To study about elements of			
			insurance and business finance.			
			3. To study various types of			
			Business Combination			
Ι	Principles of	BBABMC 134	1. To introduce the concepts of management			
	Management		and its principles and functions.			
			2. To study various theories of management.			
**	Language: Kannada					
11	Language: Hindi					
	Language: Sanskrit					
II	English					
II	Economics					
II	Accounting II	BBABMC184	- Dealing in Non trading concern			
	-		- Preparation of financial statements			
			- To get the knowledge about			
			Partnershin admission retirement			
			death dissolution niece meal			
			distribution			
			- Educate the students in hiro			
			nurchase installment and			
			consignment system			

П	Managerial Communication	BBABMC183	 To familiarizes the students about the skills of communication The subject enables them to understand about business communication, management report, and communicational letters.
Π	Business Environment	BBABMC185	 To study the challenges in economic, legal and social environment of business. To study about business environment, operative section of public and private company Tom familiarize with corporate social responsibility, consumerism and entrepreneurship
	Language: Kannada		
111	Language: Hindi		
	Language: Sanskrit		
III	English		
III	Organizational Behavior	BBABMC232	 The objective of this paper is to familiarize the student with the factors that influence the personality. It know the organizational behavior. To understand personality, perception, attitude, motivational and group dynamics. It helps to know about the stress and the conflicts.
III	Economics		
	Accounting I	BBABMC236	 To acquire the conceptual knowledge of corporate accounting. Lear the techniques of preparing financial statement. To understand issue of shares, preference shares, redemption of debentures, underwriting. To compute pre and prior incorporation. To prepare final accounts of company.

III	Marketing	BBABMC233	1. To know about marketing concepts and
	Management		emerging issues in marketing.
			2. To understand the fundamentals of marketing-
			product, price, place, promotion, digital and
			green marketing.
III	Income Tax	BBABMC 235	1. To familiarize with income tax law of India and
			to know about latest amendments.
			2. To know about agricultural income and
			residential statutory income exception about
			salary.
			3. To understand heads of income- income from
			salary, house property and profit and gains from
			business and professional and capital gains.
IV	Language:Kannada		
	Language: Hindi		
	Language: Sanskrit		
IV	English		
IV	Human Resource	BBABMC284	1. To study HRM HR planning job analysis job
	Management		design job evaluation.
			2. To familiarize the student with recruitment
			process transfer promotion employee
			compensation.
IV	Financial	BBABMC285	1. Acquire the knowledge of fundamental of FM.
	Management		2. Understanding the concepts and measurement of cost of capital.
			3. To familiarize the student in capital budgeting
			financing and dividend decisions.
IV	Corporate	BBABMC286	1. To acquire the conceptual knowledge of
	Accounting II		corporate accounting.
			2. To know the objectives of amalgamation,
			absorption.
			3. Gives practical knowledge of liquidation of
			companies and reconstruction.
			4. Calculation of various accounts and statement of holding company
V	Export Management	BRABMC334	1 To bring overeness shout event husiness
v	Export Management	DDADWC334	1. To bring awareness about export business
			2 To have the knowledge about International
			2. To have the knowledge about international
			Trade, Export Promotion, Measures and
			Institutional setup.
			3. To study about Export Management,
			International market and Export pricing.
V	Commercial Law	BBABMC331	1. To have knowledge about law of the country.
			2. To demonstrate a basic understanding of the
			laws relating to contract, information
			technology and intellectual property right.
			3. To know the basic knowledge to be applied to
			Negotiable Instrument Act.

V	Financial Management	BBABMCE335	 To educate about the basic prerequisite needed to get started carrier in Finance. Educate the student about how to analysis Working Capital Management, Inventory Management, lease, Management of cash & marketable Securities. Financing knowledge of receivable and payable Management.
V	Cost and Management Accounting I	BBABMC332	 To know the costing technology, principles and applications and techniques in business. To know how to prepare the LIFO, FIFO and cost sheet. To know the techniques of Material Pricing, Labour and Overhead cost.
V	Event Management and Public Relations	BBABMC333	 To promote a deep theoretical insight about Event Management and Public Relations. To study about Event Management Procedure, Conduct of an Event, corporate public relations and event
V	Marketing Management	BBABMC336	 To study the concept of retail and service marketing. To know about retail locations, operations customer relationship, service marketing and marketing of services.
VI	Cost and Management Accounting II	BBABMC383	 To expose student about Cost and Management accounting. To know about methods and techniques, management accounting, budgets and standard costing.
VI	Auditing	BBABMC384	 To acquaint students with intricacies of students. To make the students to understand about internal control, vouching, verification of assets and liabilities, appointment of company auditor.
VI	Financial Management	BBABMCE 386	 To familiarize the students with different techniques of FM. How to analysis financial statement, flow of funds and flow of cash. To calculate ration analysis and creating the wealth.
VI	Investment Management	BBABMC 382	 To give general idea regarding nature & types of trust, opportunities in India. To know how to analysis investment, financial markets, mutual funds, portfolio management.

VI	Company Law	BBABMC 381	 To demonstrate a comprehensive and accurate knowledge of laws relating to the formation administration and operations of a company. To develop an understanding of current policy trend about formation of company. To demonstrate an in-depth understanding of Companies Act 2013 along with its amendments.
VI	Marketing Management	BBABMCE 387	 To acquaint students about the concepts of advertising and sales management. To familiarize the students about advertising budget, media planning, copy development, advertising Agency, Sales management and sales force management.
VI	Project Report	BBABMCE385	• Field work

BACHELOR OF COMPUTER APPLICATION PROGRAM OUTCOME

P01: More Employability

P02: Companies prefer BCA students

P03: When they are in post graduation, students are able to apply their knowledge during their internship

P04: Industries prefer computer literate employees, So BCA is more preferable

P05: To develop the foundation for higher studies in the field of computer application P06: Focuses on preparing student for roles pertaining to computer application and IT

industry

Program Specific Outcome

PS01: Students will able to understand, analyze and implement computer programs in the areas related to web design and other high level languages

PS02: Apply standard software engineering strategies and practices in software project development

PS03: Students will able to solve different issues, to know new trends in technologies and thereby applying innovative ideas and solutions to existing problems

PS04:Able to analyse the given problem and find appropriate solution to solve the problem PS05: Students are able to apply appropriate techniques, resources and modern IT tools PS06: function effectively as an individual and as a member or leader or project manager in project team

Course Ou	tcome: (Specify out	come of Each su	bject in each semester)
Semester	Subject	Subject Code	Outcome
Ι	Fundamentals of	BCAC131 :	1. To impart the knowledge about the
	Information		evolution of computers, classification,
	Technology		various peripherals of computers, types of
			softwares etc.
			2. Able to identify various devices and their working principles
			3. Basic Anatomy of Computer System,
			Primary & Secondary Memory, ProcessingUnit
			4. Design programs connecting decision structures, loops and functions.
			5. Logic, reasoning ability
I	Problem Solving Using C	BCAC132	 To develop skills in solving problems, to obtain knowledge about the structure of the programming language C and to develop the program writing and logical thinking skill. To apply programming knowledge to create solutions to challenging problems, including specifying, designing, implementing and validating solutions for
			solutions to challenging problems including specifying, designing implementing and validating solutions fo

new problems

3. Creating structures

Working with files

and

using

them

Ι	COMPUTER ORGANISATI ON	BCAC133	 The objective of this subject is to introduce the number system and Boolean algebra. The course will also enable the student to understand the design components of a digital subsystem that required realizing various components such as Register, Counter .and etc. At the end of this course students will learn various number systems , Boolean algebra concepts ,various design Components of Computer System like logical gates m registers, counters. Able to do arithmetic operations on different numberingsystems
Ι	Office Automation Lab	BCAP134	 To acquire knowledge on editor, spread sheet and presentation software To develop skills in : Text Manipulation, Tables and manipulation, Data sorting
I	C Programming Lab	BCAP135	 After Completion of the course student should able to know concepts in problem solving . 1. To do simple Cprograms. 2. different type of functions andString manipulation 3. Control structures like if, switch, while, dowhile andfor. 4. Sorting and Searching : to arrange and find element in anarray. 5. Matrices andStrings 6. Opening and closing a file, writing data to file, declaring and usage of pointeroperations are beingcovered 6. Importance ofpointers 7. Usage ofstructures

T			
1	METML	BCACE150	 To provides knowledge about basic concepts of internet and its applications and about various Internet tools available. Also to learn HTML instructions to develop simple web pages At the end of the course the students will be able to Understand features of Internet and email Develop Simple web pages using HTML & Style Sheets.
Ι	Cloud Computing	BCACE137	 Introducing Cloud Computing, Provides knowledge about basic concepts of cloud types, services and Deployment models. To provide knowledge about cloud data storage. Analyze the Cloud computing setup with its vulnerabilities and applications &Assess cloud Storage systems and Cloud security, the risks involved, its impact and develop cloud application
Π	Basic Mathematics	BCAC181	 To study Foundation of mathematics like Algebra , Trigonometry ,Calculus ,Set Theory , Logical Statements , Relations and Matrix Algebra Students will understanding of the foundations of mathematics, Perform computations in mathematics Develop problem-solving skills required for Computer Applications.
Π	Object Oriented Programming using C++	BCAC182	 To understand concept of Object Oriented Programming and Create Software applications using OOPs Concept. On Completion of Course students will understand how to apply the major object- oriented concepts to implement object oriented programs in C++.

Π	Database Concepts and Oracle	BCAC183	 To provide knowledge about RDBMS Concepts ,SQL Concepts and PL/SQL Programming. To provide knowledge about database normalisation and to learn theory behind data models and query Languages. The student will be able: To describe data models and schemas in DBMS To understand the features of database management systems and Relational database. To Demonstrate an understanding of the relational data model and use SQL. To understand the functional dependencies and use SQL solutions to a broad range of query and data update problems.
Π	C++ Lab	BCAP184	 To understand how C++ improves C with object-oriented features. To learn how to write inline functions for efficiency and performance. To learn the syntax and semantics of the C++ programming language. To learn how to design C++ classes for code reuse.
Π	DBMS Lab	BCAP185	 The major objective of this lab is to provide a strong formal foundation in database concepts, technology. to give a good formal foundation on the relational model of data to present SQL and procedural interfaces to SQL comprehensively to give an introduction to systematic database design approaches coveringconceptual design, logical design and an overview of physical design
Π	Internet of Things	BCACE186	 To learn Basic concepts behind IoT and to study design principles for Connected devices, IoT communication protocols, internet based connectivity, Sensor technologies and Sensor data Communication protocols Students will be fully aware of Technology behind IoT, Design Principles for Connected devices, IoT communication protocols and internet based communication.

	1		
	Big Data Analysis	BCACE186	 To provides an overview of approaches facilitating data analytics on huge datasets. To Introduce various Technologies for Handling Big Data At the end of the course the students will be understand: Basic Concept of Big Data, Hoop Ecosystem, Role of Hbase and MapReduce Frame work
II	Artificial Intelligence	BCACE188	 To provide a strong foundation of fundamental concepts in Artificial Intelligence To enable the student to apply these techniques in applications which involve perception, reasoning and learning At the end of the course the students will Aware various searching techniques, constraint satisfaction problem and example problems Able to apply these techniques in applications which involve perception, reasoning and learning Knowledge of real world Knowledge representation.
III	Operating Systems & Linux	BCAC231	 To make students understand the purpose, role, structure, functions, application of operating systems , Understand services provided by operating systems and to study Linux file system and commands. At the end of the course students will able to Analyze the structure of OS and basic architectural components involved in design Analyze the various resource management techniques conceptualize the components involved in designing a contemporary OS Learn Linux Operating system basics
III	Data Structures	BCAC232	 To choose the appropriate data structure and algorithm design method for a specified application. To learn the systematic way of solving problems, various methods of organizing large amounts of data. To describe the usage of various data structures To choose the appropriate data structure to solve a programming problem

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			5.To demonstrate various methods of organizing large amounts of data.
Ш	Visual Basic .NET Programming	BCAC233	 To learn programming with graphical interface using object oriented concept. To develop skill in VB .NET framework, tools, programming and connectivity with databases.
Ш	Operating Systems and Data Structures lab	BCAP234	 Students will gain practical experience with designing and implementing concepts of operating systems such as system calls, CPU scheduling, process management, memory management, file systems and deadlock handling using C language in Linux environment. The course is designed to develop skills to design and analyze simple linear and non linear data structures.
Ш	VB.Net Lab	BCAP235	 The student will use Visual Basic.Net to build Windows applications using structured and object-based programming techniques. Students will be exposed to the following concepts and/or skills Analyze program requirements Design/develop programs with GUI interfaces Code programs and develop interface using Visual Basic .Net Perform tests, resolve defects and revise existing code

III	Hardware & PC Maintenance	BCACE236	 To build and maintain computer systems, desktops, and peripherals. To learn installing, diagnosing, repairing, maintaining, and upgrading Softwares At the end of the course students will fully aware of – Assembling Computer Systems Installing Various Operating Systems and other softwares Trouble suiting Computer Systems
Π	Desktop Publishing	BCACE237	 To understand Documentation using DTP software tools like Page Make, CorelDRAW At the end of the course the students will be able to produce documentation with combination of Text, Audio, Video and Images in in standard format
III	Excel Programming with VBA	BCACE238	 To understand programming in Excel To familiarize Excel Macros To create Excel UserForms At the end of the course the students will be able to Create WorkBooks with customized Macro, Implement UserForms with different classes of controls, Design WorkBook with different functionality
IV	Computer Graphics and Animation	BCAC28	 To learn about various technologies in computer graphics, animation and virtual reality system. Students are able to draw primitive graphical shapes and perform transformation techniques programatically. They are also learning about various new technologies developed and their applications.
IV	Java Programming	BCAC282	 To understand pure object-oriented programming paradigm To familiarize with the fundamentals of Java features To introduce console and GUI based applications using Java To know the basic approaches to the design of software applications. At the end of the course the students will

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			 be able to know the structure and model of the Java programming language Use the Java programming language for various programming technologies Develop software using the Java programming language Choose an engineering approach to solving problems, starting from the acquired knowledge of programming and knowledge of operating systems
IV	Data Mining	BCAC283	 To introduce students to the basic concepts and techniques of Data Mining To study the methodology of engineering legacy databases for data warehousing and data mining to derive business rules for decision support systems Develop and apply critical thinking, problem-solving, and decision-making skills On Successful completion of subject students will learn - Various Data Mining concepts , Association rules and Clustering techniques , Web mining Concepts & Decision tress. Ability to select and implement data mining techniques suitable for the applications under consideration
IV	CONA	BCAC284	 To provide conceptual understanding of various numerical methods, in particular, with reference to numerical solution of non linear equations and system of linear equations, interpolation, numerical differentiation and integration and numerical solution of ordinary differential equations At the end of the course students will be able to solve an algebraic or transcendental equation using an appropriate numerical method solve a differential equation using an appropriate numerical method solve a linear system of equations using an appropriate numerical method Apply Numerical Concepts in Coding

I	ĪV	Business Statistics & Mathematics	BCAC285	 Students will learn basic mathematical concepts like Set Theory & Vector Algebra and calculus and basic concepts on Statistics & Probability. This foundation will help students in understanding analytical procedures used in Business Analytics.
I		Computer Graphics and Animation Lab	BCAP286	 Understand the need of developing graphics application Learn algorithmic development of graphics primitives like: line, circle, polygon etc. Learn the representation and transformation and clipping of graphical images and pictures. Concepts of 2D object representation.
Ι	V	Java Lab	BCAP287	 Understand the fundamentals of object-oriented programming in Java, including defining classes, objects, invoking methods etc and exception handling mechanisms. Understand the principles of inheritance, packages and interfaces. To build software development skills using java programming for real world applications. 2. To implement frontend and backend of an application 4. To implement classical problems using java programming.
I		Fundamentals of ICT	BCAOE288	 To make the students understand and learn the basics of computer for its effective use in day to day life. Be able to apply knowledge of computing analyze a problem, and identify and define the computing requirements appropriate to its solution Be able to design, implement, and evaluate a computer based system, process, component, or program to meet desired needs
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IV	E-Commerce	BCAUE289	 Introduce concepts and principles E- commerce, modern technologies used to simplify business and banking processes through e- commerce, provision of E-commerce services. At the end of the course the students will be fully aware of: the principles and practice of Electronic Commerce the components, functions and roles of the Electronic Commerce environment E-Commerce payment systems.
V	Software Engineering	BCAC331	 To prepare students for successful careers in software engineering and graduate education with a thorough understanding of software engineering. To develop skills in software development so as to enable to take up self. Be successful professionals in the field with fundamental knowledge of software engineering. Analyze and resolve information technology problems through the application of systematic approaches and diagnostic tools
V	Computer & Communication Network	BCAC332	 At the end of the course the students will be able to Understand the architectural principles of computer networking and compare different approaches to organising networks Able to Identify key networking protocols and their hierarchical relationship in the context of a conceptual model such as the OSI and TCP/IP framework Able to Identify core networking and infrastructure components and the roles they serve.
V	Distributed Computin	BCAC333	 At the end of the course the students will be able to Understand Concepts behind Distributed Systems Design and build application programs on distributed systems. Develop, test and debug RPC based client- server programs To study concurrent, Client Server, distributed paradigms To learn Interposes Communication and Remote procedure calls.

V	Web Technology	BCAC334	 Have a sound knowledge of Web Application Terminologies, Internet Tools, Select and apply markup languages for processing, identifying, and presenting information in web pages. Use scripting languages and web services to add interactive components to web pages. Design and implement websites with good aesthetic sense of designing Design to be reusable the software components in a variety of different environments.
V	Python Programming	BCAC335	 To Study Python Fundamentals to advanced concepts like OOPS, Exception handling, multi-threading, Networking, Database Connectivity and Graphical User Interface Be skilled at creating, debugging and testing a software application using the Python programming language.
V	Accounting & Financial Management	BCAC336	 Apply skills in Computerized Accounting for maintaining accounting records, making management decisions, and processing common business applications To provide Basic knowledge of Accounting , competency to enter accounting transactions in the accounting software and generate different accounting reports/documents. Abilities to make cost analysis reports, profit & loss accounts, balance sheets, and cash flow statements etc.
V	Android Application Development	BCAC337	 To provide the basic knowledge about mobile application development in Android platform. Apply the skills for creating, deploying Android applications, with particular emphasis on software engineering topics including software architecture, software process, usability, and deployment. To use the knowledge of android architecture and the tools for developing android applications
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V	SciLab Programming	BCAC338	 On successful completion of the course, the students should be able to understand the need for simulation/implementation for the verification of mathematical functions. Able to understand the main features of the SCILAB program development environment to enable their usage in the higher learning Analyze the program for correctness and determine/estimate/predict the output and verify it under simulation environment using /SCILAB tools.
V	Web Applications Lab	BCAP339	 Students will learn about HTML5 tags to build web pages. Students will be able to design web applications using ASP.NET Students will be able to use ASP.NET controls in web applications Students will be able to debug and deploy ASP.NET web applications Students will be able to create database driven ASP.NET web applications and web services
V	Python Programming Lab	BCAP340	 Describe the Python language syntax including control statements, loops and functions to write programs for a wide variety problem in mathematics and science. Examine the core data structures like lists, dictionaries, tuples and sets in Python to store, process and sort the data. Interpret the concepts of Object- oriented programming as used in Python using encapsulation, polymorphism and inheritance. Discover the capabilities of Python regular expression for data verification and utilize matrices for building performance efficient Python programs. Identify the external modules for creating and writing data to excel files and inspect the file operations to navigate the file systems.

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VI	E-Commerce	BCAC381	1. Learning Objectives Introduce concepts and principles E-commerce, modern technologies used to simplify business and banking processes through e- commerce, provision of E-commerce services, infrastructure, frameworks of web based and mobile systems for E-Commerce applications
			 At the end of the course the students will be fully aware of: the principles and practice of Electronic Commerce the components, functions and roles of the Electronic Commerce environment E-Commerce payment systems.
VI	Network Security & Management	BCAC382	 To provide in-depth knowledge of network Security, Database Security, information Security and Security laws. Provide knowledge Basic cryptography Concepts. To provide knowledge of Network Security Management At the end of the course, students will be
			 S. At the end of the course, students will be aware of Various factors driving the need for network , Database and information security Physical points of vulnerability in a networks Various laws related to Information Security
VI	Software Testing	BCAC383	 To understand the necessity of software testing To analyze risks associated with software testing To familiarize with different tools available for software testing At the end of the course the students will be able to Understand the importance of software
			testing, different testing techniques and use of various test tools
VI	Programming for Analytics	BCAC384	 Obtain, clean/process and transform data Analyze and interpret data using an ethically responsible approach. Use appropriate models of analysis, assess the quality of input, derive insight from results, and investigate potential issues. Formulate and use appropriate models of data analysis to solve hidden solutions to business related challenges

VI	Business Statistics with R	BCAC385	 At the end of the course the students will be able to Obtain, clean/process and transform data Able to Analyze and interpret data using an ethically responsible approach. Use appropriate models of analysis, assess the quality of input, derive insight from results, and investigate potential issues. Formulate and use appropriate models of data analysis to solve hidden solutions to business related challenges.
VI	Multivariate Data Analysis	BCAC386	 This course will enable students to exercise Multivariate Techniques in R environment in different Business Cases. They will know the different techniques covered under the scope of Multivariate Analysis and will be able to apply and build select Predictive Models in the context of Binary Classification and Time Series.
VI	Project Work	BCAC387	 Giving exposure to the students to the real world project management Creativity and innovative ideas will be supported with the knowledge in software development of last five semesters. Helps to acquire insights on Team management and professionalism which will help in their carrier.