



SSR MEMORIAL TRUST'S
SSR COLLEGE OF ARTS, COMMERCE AND SCIENCE
Sayli-Silvassa Road, Silvassa – 396 230 (UT of Dadra and Nagar Haveli)



PROGRAM OUTCOME

PROGRAM SPECIFIC OUTCOME

COURSE OUTCOME

AY 2019-20

Prgram outcomes,Program specific outcomes and Course outcomes	
Department of ENGLISH	
Programme Outcomes: B. A., B. COM, B.SC. & BCS ENGLISH	
After successful completion of three year degree program in English a student is able to;	
Programme Outcomes	PO-1. Students will be able to discover best examples of prose and poetry in English so that they realize the beauty and communicative power of English
	PO-2. To develop the ability to appreciate ideas and think critically
	PO-3.Studnets will be able to understand the basics of literature and language and develop an integrated view about language and literature in them
	PO-4.To be acquainted with the minor forms of literature in English and will appreciate the creative use of language in literature
	PO-5. To know the basics of phonology of English so that they can pronounce better and speak English correctly
	PO-6.Student can describe morphological & reproductive characters of plant and also identified different plant families and classification.
	PO-7. To Develop competence for self learning
	PO-8. To understand the native cultuiral experiences and situations in order to develop human values and scoial awareness
	PO-9.To learn the advanced units of language so that they become aware of the technical aspects and their practical use
Course	Course Outcomes FYBA English
	Semester- I & II
	Outcomes
	After completion of these courses students should be able to;
PROSE, POETRY, LANGUAGE STUDIES & GRAMMAR AND COMMUNICATION SKILLS	CO-1 To expose students to the best examples of prose and poetry in English so that they realize the beauty and communicative power of English
	CO-2 To instill human values and develop the character of students
	CO- 3. To develop the ability to appreciate ideas and think critically
	CO-4. To enhance employability of the students by developing their linguistic competence and communicative skills
	CO-5. To acquaint them with minor forms of literature in English and help them to appreciate the creative use of language in literature
	CO-6 To introduce them to the basics of phonology of English so that they can pronounce better and speak English correctly.
Prose, Poetry, Communication and Life Skills	Course Outcomes FYBCOM English
	Semester- I & II
	Outcomes
	CO-1 To introduce students to helpful pieces of prose and poetry to students
	CO-2 To develop oral and written communication skills of the students so that their employability enhances
CO-3 To expose students to a good blend of old and new literary	

	extracts having various themes .
	CO-4 To develop literary sensibilities and communicative abilities among students
Prose, Poetry, language Componants, Drama, Linguistics, Short Stories	Course Outcomes SYBA English
	CO-1 To develop students' interest in reading literary pieces
	CO-2 To expose students to the basics of short story, one of the literary forms
	CO- 3 To introduce some advanced units of language so that they become aware of the technical aspects and their practical usage
	CO-4 To develop interest among the students to appreciate and analyze drama independently
	CO- 5 To enhance students awareness in the aesthetics of poetry and to empower them to read, appreciate and critically evaluate the poetry independently
	Course Outcomes SYBSC & BCS English
Prose, Poetry, Lanugage Componants, Communication Skills	CO-1 To introduce students to prose pieces relevant science and technology
	CO-2 To introduce to some beautiful pieces of poetry and appreciate them
	CO-2 To make them aware of the language componants that are used in practical purposes
	CO-4 To develop students communicative competence
Poetry, Short Stories, Linguistics, Novel, Criticism	Course Outcomes TYBA English
	CO-1.To introduce students to the best uses of language in literature
	CO-2 To contribute to their overall personality development by improving their communicative and soft skills
	CO-3 To make the students see how Indian English poetry expresses the ethos and culture of India
	CO-4 To introduce students to some advanced areas of language study
	CO-5 To introduce students to the basics of novel as a literary form
	CO-6 To expose students to the historical development and nature of novel
	CO-7 To introduce students to the basics of literary criticism
	CO-8 To make them familiar with the significant critical approaches and terms
	CO-9 To develop aptitude for critical analysis

Program outcomes, Program specific outcomes and Course outcomes	
Department of Political Science	
Program Outcomes: B.A Political Science	
Program Outcomes	PO-1 To develop Knowledge of specific theories, concepts and methods of subject.
	PO-2 To Give Responsibility as an individual and team leader for effective functioning with good skills.
	PO-3 Enable to think critically, follow innovations and developments in political science and technology.
Program Specific Outcome	PSO-1 To Understand changes in patterns of political behavior, ideas, and structures.
	PSO-2 To develop the ability to make logical inferences about social and political issues on the basis of historical knowledge.
	PSO-3 To know about National, Global, and Regional developments in society.
After successful completion of three-year degree program in Political Science a student is able to;	
Course Outcomes B.A FY Political Science	
<u>Semester-I</u>	
Course	Outcomes
	After completion of these courses students should be able to;
INTRODUCTION TO INDIAN CONSTITUTION-I	CO-1. To acquaint Students with the important features of the constitution of India and with the basic framework of Indian govt.
	CO-2. To Familiarize Students with the working of the Indian Constitution
	CO-3. To Give knowledge of basic Fundamental rights, Duties & Directive Principles with Constitutional provisions.
<u>Semester-II</u>	
INTRODUCTION TO INDIAN CONSTITUTION- II	CO-1. To Analyze Functioning of legislative, Executive, Judiciary (Different Organs of Govt).
	CO-2. Gain knowledge about Power's Functions & Role of President, Prime Minister, Chief Minister.
	CO-3. Comprehend the basic structures and processes of judiciary system of Supreme court, High Court, & Judicial Review.
Course Outcomes B.A SY Political Science	
1. GEN 2- GOVERNMENT AND POLITICS OF U.K., U.S.	CO-1 To enable approach of comparative perspective of the major constitutions of the World.
	CO-2. To analyze and evaluate the Historical backgrounds to the individual constitution.
	CO-3 Analyze Political problems & events of their time and solutions

<p>2. SPL I- WESTERN POLITICAL THOUGHT 3.SPL II- POLITICAL SOCIOLOGY</p>	<p>CO-4The texts are to be interpreted both in the Historical and philosophical perspectives to understand the political theories.the limitation of classical tradition,namely its neglect of women's concern and issues and the non-European world are critically examined.</p>
	<p>CO-5 to know about the legacy of the thinkers is explained with the view to establish the continuity and change within the western political tradition.</p>
Course Outcomes B.A TY Political Science	
<p>1. GEN 3- POLITICAL IDEOLOGIES 2. SPL III- PUBLIC ADMINISTRATION 3.SPL IV- INTERNATIONAL POLITICS</p>	<p>CO-1. To introduce student to the essence of public administration lies in its effectiveness in translating the governing philosophy into Programs,policies,and activities and making it a part of community living.</p>
	<p>CO-2.Understand the personal public administration in its historical context thereby proceeding to highlight several of its categories.</p>
	<p>CO-3.To deal with concept and dimensions of International relations and makes an analysis of different theories highlighting the major debates and differences within the different theoretical paradigm..</p>
	<p>CO-4. Familiarity with various aspects of conflicts,and resolution,collective security and specificity in long period of post second world war phase.</p>
	<p>CO-5.To bring knowledge about the role of different political ideologies and their impact in politics.</p>
	<p>CO-6.Know the changes and continuities in ideologies and its relevance to contemporary times are highlighted.The legacy of all the major ideologies is to be critically assessed.</p>

Program Outcomes, Program specific outcomes and Course outcomes
Department of Psychology
Programme : B.A Psychology
Programme Outcomes
PO-1. The B.A program in Psychology develops a knowledge base of human behaviour across the broad areas of psychology.
PO-2. Students become aware of the applications of psychology in the professions associated with psychology.
PO-3. The course prepares the students for higher studies like M.A, M.BA or B.ed.
PO-4. Students become efficient in administering and scoring psychological tests and interpreting the scores.
PO-5. Helps prepare students for various Competitive Examinations.
PO-6. After completion of the course students can work not only in the educational sector, they also get opportunities to work in other public and private sectors like Hospitals, and Industries etc.
Programme Specific Outcomes
PSO-1. The students can undertake an independent small scale research project in psychology.
PSO-2. The course helps developing ability to deal with problems and find solutions for various psychological problems in the applied fields.
PSO-3 During the course students study many branches of psychology which help them in attaining knowledge in different context like, clinical, social, industrial etc.
PSO-4. By the time students will graduate, they will develop an overview of the applications of psychology.
Course Outcomes
After completion of these courses students should be able to;
FYBA: G1-General Psychology (1227)
CO-1. The course helps students in developing foundation for basic principles of psychology.
CO-2. It familiarizes them with the historical and modern trends in psychology, major concepts, theoretical perspectives and empirical findings.
3. Students develop knowledge for topics like: Emotion, Sensation, motivation, personality, learning, memory, intelligence and thinking.
SYBA: G2-Social psychology (2227)
CO-1. Students will become familiarized with group behaviour.
2. Students will gain knowledge about the importance of close relationships and pro-social behaviour. They studied about Aggression, its causes and also how it can be controlled.
3. They will also learn how to communicate effectively.
SYBA: SPL1- Abnormal psychology (2228)
CO-1. The students get acquainted with the recent classification of abnormality.
2. Will acquire knowledge about the causes, symptoms and treatments of various types of psychological disorders.

SYBA: SPL2-Positive Psychology (2229)
CO-1. Students learn about the emerging field of positive psychology.
2. Students understand importance of well-being at different stages of life.
3. They also get acquainted with concepts of happiness and positive traits of personality.
TYBA: G3 - Industrial and organisational psychology (3227)
CO-1. The course helps the students acquainted with the emergence of industrial and organisational psychology.
2. The work done in Industrial and organisational psychology.
3. The significance of training, performance appraisal, leadership models.
4. Use of engineering psychology.
TYBA: S3-Scientific Research and Experimental Psychology (3228)
CO-1. This course helps in learning the basic concepts of experimental psychology and research methodology.
2. It helps them to generate ideas for research, to develop hypothesis and operational definitions for variables.
3. The students understand the basic steps in scientific research.
TYBA: S4-Psychology Practical: Tests and Experiments (3229)
CO-1. Acquaint them with the basic procedure and design of psychology experiments.
2. Equip the students with the basic information and knowledge about test-administration and scoring, and interpretation of obtained results.
3. To acquaint the students with the basic statistical concepts.
4. To encourage students to learn practical application through study tour and visit.

	<p>Program outcomes, program specific outcomes and course outcomes</p> <p>Department of ECONOMICS</p> <p>B.A. Economics</p>
Program Outcomes	PO1 To help students know the fundamental Economics Theories and Concepts
	PO2 To help develop critical thinking and analytical reasoning
	PO3 To help understand the subject from real life perspective.
Program specific outcomes	PO1 To understand changes in Economic ideas, policies and systems
	PO2 To make logical inferences about economic issues against the backdrop of empirical evidences
	PO3 To gauge the changes in global, national and regional economic set-ups
	After successful completion of three year degree program in Economics ,a student should be able to
	Course outcomes B.A.FY Economics(Economic Environment)
	Semester1
Course	<p>Course Outcomes:</p> <p>After completion of the course ,the student should be able to</p>
Economic Environment: General,Agricultural& Industrial	<p>CO1 Understand the recent developments in Indian Economy.</p> <p>CO2 Understand contemporary economic issues</p> <p>CO3 compare and contrast Indian Economy with the rest of the world in terms of Agriculture and industry.</p> <p>Co4 Understand and comprehend the current business scenario</p>
	Semester 2
Service sector environment & banking environment. An overview of the Indian Economy	<p>Co1 understand the structural changes in country's economic set-up</p> <p>CO2 Understand the recent development in service and banking sector</p> <p>CO3 Compare and contrast Indian Economy with rest of the the world in terms of service based activities and banking sector</p>
	<p>B.A. SY Economics(Modern Banking in India ,Micro and Macro Economics)</p> <p>Course Outcomes</p> <p>After completion of the course ,students should be able to understand and comprehend</p>
Course	
Structure of Indian	the current banking scenario and latest developments occurred there in

banking system	
Functioning of deposit accounts	day to day banking operations and their practical implications
Commercial Banking: the crucial aspects	the fundamental concepts used in commercial banking sector in India
Credit creation in an economy and its limitation,	Credit creation and its crucial role playing in an economy's development
Modern banking operations	Usage of modern banking amenities
Working of the RBI	How the central bank functions and what are its sovereign rights
CO Operative Banking Sector	Crucial role of co- operative banking sector in rural sector
Micro and macro economics	Understand and comprehend the fundamental economic concepts from Micro and Macro economic perspective
COURSE	TYBA(Economic Development and Planning ;International Trade and Public Finance) OUTCOMES
Characteristics of less developed economies	Understand the very features of the less developed countries and also reveals the factors which tie the growth of the country down
Constraints confronted by LDCs	Explore the major hurdles the countries get subjected to
Theories of economic development	To find solution to economic problems from historical perspective
Planning and Foreign Direct Investment	To channelize resources to the optimum through purposive efforts by the governmental agencies
International trade and its benefits	Explore the benefits arising out of international trade
Balance of payments analysis	To probe into the causes that lead to adverse balance of payment situation in developing countries
Terms of trade	Terms and conditions governing international trade
International agencies governing international trade 's rulebooks	SAARC,BRICS,ECC and their functioning
Government revenue, expenditure and debt	Various sources of income to the government and various heads the government the government incurs expenditure on
Finance commission	Working of the finance commission and the process of its constitution
Macro economic policies	Explores various strategies the government adopts for the smooth functioning of the economy

Program outcomes, Program specific outcomes and Course outcomes	
Department of History	
Program Outcomes: B.A History	
Program Outcomes	PO-1 To develop Knowledge of specific theories, concepts and methods of subject.
	PO-2 Develop interests in the study of history and activities relating to history
Program Specific Outcome	PO-3 Understand background of our religion, customs institutions, administration and so on.
	PO-1 To Develop practical skills helpful in the study and understanding of historical events.
	PSO-2 Understand the present existing social, political, religious and economic conditions of the people.
	PSO-3 Analyze relationship between the past and the present as is lively presented in the history.
After successful completion of three year degree program in Political Science a student is able to;	

Course Outcomes B.A FY History	
<u>Semester-I</u>	
Course	Outcomes
	After completion of these courses students should be able to;
Early History Harappan Culture, Vedic Culture, Religious Protest, Emergence of the Mahajanpadas Age of the Mauryas	CO-1.To understand the history of early India from the prehistoric times to the age of the Mauryas
	CO-2 To understand the contribution of Early Indians to polity, art, literature, philosophy, religion and science and technology
	CO-3. to foster the spirit of enquiry among the students by studying the major developments in early Indian history
Central Asian Contacts, Early History of South India, Gupta and Harshvardhan, Regional Kingdoms	<u>Semester-II</u>
	CO-1.To understand the developments in early India after the Mauryas
	CO-2.the developments in different parts of India through a brief study of regional kingdoms up to the tenth century C.E
Modern- India, Ancient India, Medieval India	CO-3 the consequences of the foreign invasions, particularly on the polity, economy, society and art and architecture
	Course Outcomes B.A SY History
	CO-1 to help the student to know- History of freedom movement of India, aims, objectives problems and progress of Independent India
	CO-2.to acquaint student with fundamental aspects of Modern Indian History.
	CO-3 to provide an Understanding of the social, economic, religious and institutional bases of Ancient India
	CO-4To study the development of the concept of Nation- State background of political history
CO-To survey the sources of History of medieval India.	

	CO- To provide an understanding of the social, economic, religious bases of medieval India.
History of the World in 20th Century, Introduction to History, History of Asia in 20th Century	Course Outcomes B.A TY History
	CO-1.To orient the students with political history of Modern World.
	CO-2.To acquaint Students about the main developments in theContemporary World
	CO-3.To orient students about how history is studied, written and understood
	CO-4. To explain methods and tools of data collection
	CO-5.To orient the students with political history of Asia
	CO-6.Understand the important developments in the 20th century Asia in aThematic approach

Prgram outcomes,Program specific outcomes and Course outcomes	
Department of COMMERCE	
Programme Outcomes: M.COM (Business Policy & Administration)	
After successful completion of two year master degree program in Commerce a student is able to	
Programme Outcomes	PO-1. Students of commerce professional is able to gain specialised skills and applied competencies in theoretical and practical knowledge of Busiess Plocy and Administrtraion to the Contemorary needs of the Industry.
	PO-2. The students will be able to discuss principles of Business Administration for Business Decision making.
	PO-3. The students will be able to understand the different company policies and regulations and its influence on the Company performances.
	PO-4. The Students will also be able to anlyze and review various risk that is being associated with the Investment decisions and mechanisms of company.
	PO-5. The student will be able to Demonstrate a significant understanding of the fundamental concepts of accounting, business law, economics, finance, management science, management and organizational behavior, and marketing.
	PO-6. The students will gain the skills to evaluate business problems from the perspective of multiple business disciplines and then formulate, communicate, and defend recommendations to decision-makers based on those evaluations.
	PO-7. A student will Produce clearly written, concise analyses, and deliver clear, well organized, persuasive oral presentations.
	PO-8. The students will be able to gain in Analyzing business situations in keeping with professional standards and moral values and recommend appropriate courses of action.
	PO-9. The Programme will also enable the students to Demonstrate a commitment to civic engagement by applying business knowledge in a service project.
Programme Specific Outcomes	PSO-1. Impart the students with higher level knowledge and understanding contemporary trends in commerce and business administration.
	PSO-2. Prepare the students towards developing more research oriented skills and making them aware about the thechiques in proficient use of tools for analysis of business data.
	PSO-3. Prepare students to appraise the structure and operations of banking system
	PSO-4. Develop competency in the students about the laws and regulations and startergic decision making process of the business.
	PSO-5 To apply problem-solving and decision-making techniques to business situations.
	PSO-6. To Demonstrate an understanding of the general nature, structure, resources, and operations of business organizations.
	PSO-7 To Demonstrate knowledge and understanding of the ethical, legal and social obligations and responsibilities of business.

PSO-8 To Apply the knowledge of business concepts and function in an integrated manner.

Semester I (Pattern 2013)

Course	Outcomes
M.Com 1.1 MANAGEMENT ACCOUNTING (Core Compulsory)	After completion of these courses students should be able to;
	CO-1. To learn the concept of management accounting and its significance in the business.
	CO-2. To learn to analyze the financial statements.
	CO- 3.To understand, develop and apply the techniques of management accounting in the financial decision making in the business corporates. CO-4. To develop competence with their usage in managerial decision making and control.
M.Com 1.2 STRATERGIC MANAGEMENT (Core Compulsory)	CO-1 To learn the emerging changes in the modern business environment.
	CO-2. To develop the analytical , technical and managerial skills in the various areas of Business Administration
	CO-3. To empower with necessary skill to become effective future managers and leaders
	CO-4. To learn to develop Technical skills used for designing and developing effective Functional strategies for growth and sustainability of business
M.Com 1.3 PRODUCTION AND OPERATION MANAGEMENT (Special Paper-1)	CO-1. To understand and develop deep insight of Production & Operation Management.
	CO-2. To understand & identity business problems involving operational function, planning and control, design development and quality management
	CO-3. To Demonstrate awareness and importance of application, operation and supply chain management
	CO-4. To develop skills necessary to effectively analyze and synthesize the many inter relationship inherent in complex socio-economic productive systems.
	CO-5. To increase the knowledge and perspective to gain from emerging trends in production and operation management.
M.Com 1.4 FINANCIAL MANAGEMENT (Special Paper-II)	CO-1. To acquaint knowledge of various Financial Management terminologies (Investment ,Credit Planning , Working Capital Management.)
	CO-2. To understand the concepts relating to Financing & Financial Statement Analysis
	CO-3. To utilize the information gathered to reach an optimum conclusion by a process of reasoning
	CO-4. To learn to evaluate , make decisions and provide recommendations Depth of the program – Fundamental Knowledge
M.Com 1.5 HUMAN RIGHTS-1	CO-1.Search for, identify and assess primary sources as well scholarly literature about human rights
	CO-2 Identify, contextualise and use information about the human rights situation in a given country,
	CO-3 Critically appraise source material, including cases from human rights committees and tribunals and reports and summary records from treaty bodies

	CO-4 Analyse a country's situation or an international situation in terms of human rights and formulate human rights-based initiatives and policies
	CO-5 Promote human rights through legal as well as non-legal means
	CO-6 Participate in legal, political and other debates involving human rights in a knowledgeable and constructive way
M.Com 1.6 CYBER SECURITY- 1	CO-1. To learn with technical knowledge and skills needed to protect and defend computer systems and networks.
	CO-2. To identify ,analyze and remediate computer security breaches
	CO-3. To understand and find solutions cyber attacks to the information system
	CO-4. To find ways to recover from cyber incidents and attacks through timely information sharing, collaboration and action
	CO-5 To Learn to monitor and detect outside threats from a computer networks.
	CO-6. To 6. Comprehend information security in context of the mission of a business
	CO-7. To Understand pre-requisites in information and network security
Semester-II (Pattern 2013)	
M.Com 2.1 FINANCIAL ANALYSIS AND CONTROL (Core Compulsory)	CO-1 Acquire sound knowledge of Financial concepts.
	CO-2 Learn new methods and techniques of Management accounting.
	CO-3 Develop competence with their usage in managerial decision making and control
	CO-4 Learn different techniques of analyzing financial statements
	CO-5 Understand various techniques to compare and analyze investment projects
	CO-6 Be well equipped with tools of financial planning and forecasting
	CO-7 To have complete knowledge of cost of different sources of finance
M.Com 2.2 INDUSTRIAL ECONOMICS (Core Compulsory)	CO-1 To study the basic concepts of Industrial Economics.
	CO-2 To study the significance and problems of Industrialization.
	CO-3 To study the impact of Industrialization on Indian Economy.
M.Com 2.3 BUSINESS ETHICS & PROFESSIONAL VALUES (Special paper-III)	CO-1 Understands the ethical values in their life.
	CO-2 Help to create a stable society.
	CO-3 To have good work life balance.
	CO-4 Get an insight about to handle different social Issues.
	CO-5 Able to achieve success in their life in more meaningful ways.
M.Com 2.4 ELEMENTS OF KNOWLEDGE MANAGEMENT (Special paper-IV)	CO-1 To understand the fundamentals of Knowledge Management process.
	CO-2 Understand the Various types of Organisational learning.
	CO-3 Know different Knowledge management tools being used and understand the Change management strategies.
	CO-4 Get an Insight about the Knowledge management culture along with knowing the importance of values, beliefs, attitudes and Organisational Culture types.
M.Com 2.5 HUMAN RIGHTS-2	CO-1. Search for, identify and assess primary sources as well scholarly literature about human rights

	CO-2 Identify, contextualise and use information about the human rights situation in a given country,
	CO-3 Critically appraise source material, including cases from human rights committees and tribunals and reports and summary records from treaty bodies
	CO-4 Analyse a country's situation or an international situation in terms of human rights and formulate human rights-based initiatives and policies
	CO-5 Promote human rights through legal as well as non-legal means
	CO-6 Participate in legal, political and other debates involving human rights in a knowledgeable and constructive way
M.Com 2.6 CYBER SECURITY- 2	CO-1. To learn with technical knowledge and skills needed to protect and defend computer systems and networks.
	CO-2. To identify ,analyze and remediate computer security breaches
	CO-3. To understand and find solutions cyber attacks to the information system
	CO-4. To find ways to recover from cyber incidents and attacks through timely information sharing, collaboration and action
	CO-5 To Learn to monitor and detect outside threats from a computer networks.
	CO-6. To 6. Comprehend information security in context of the mission of a business
	CO-7. To Understand pre-requisites in information and network security
Semester-III (Pattern 2013)	
M.Com 3.1 BUSINESS FINANCE (Core Compulsory)	CO-1 Acquire sound knowledge of concepts, nature and structure of business finance.
	CO-2 Understand strategic Financial planning and the effect of under and over capitalisation.
	CO-3 Acquire Knowledge about the type of corporate securities and sources of short term and long term finance.
M.Com 3.2 RESEARCH METHODOLOGY FOR BUSINESS (Core Compulsory)	CO-1 Acquaint the areas of Business Research Activities.
	CO-2 Enhance their capabilities to conduct the research in the field of business and social sciences.
	CO-3 Developing the most appropriate methodology for their research studies
	CO-4 Get familiar with the art of using different research methods and techniques.
M.Com 3.3 HUMAN RESOURCE MANAGEMENT (Special paper-V)	CO-1 Identify Role Of Human Resource Management In Corporate And Practice Life
	CO-2 Know Depth Of HRM In Management Development Field
	CO-3 How HRM Help Management To Enhancing Their Employee Worth?
M.Com .3.4 ORGANISATION BEHAVIOUR (Special paper-VI)	CO-1 Understand about the organisation behaviour theory used by executives and human relations professionals to better understand a business's culture, how that culture may facilitate or hinder productivity and employee retention, and how to best evaluate candidates skill set and personality during the hiring process ?
	CO-2 Apply theory and knowledge from the field of organizational behaviour that can be broken down into sections of personality, job satisfaction and reward management, leadership, authority, power, and politics
M.Com 3.5 SKILL	CO-1 Develop and nurture a deep understanding of personal motivation and practice personal and professional responsibility

DEVELOPMENT-1	CO-2 Demonstrate knowledge of personal beliefs and values and a commitment to continuing personal reflection and reassessment
	CO-3 Learn to balance confidence with humility
	CO-4 Assert strengthened personal character and further, an enhanced ethical sense
	CO-5 To Apply the comprehensive set of skills and knowledge for life success (of self and others)
	CO-6. To Learn to evaluate and improve upon personal leadership strengths and weaknesses
	CO-7 Take responsibility, Think critically and Practice creativity
	CO-8 Appreciate the relationship between human diversity effective teambuilding and Learn social responsibility
	M.Com 3.6 CYBER SECURITY- 3
CO-2. To identify ,analyze and remediate computer security breaches	
CO-3. To understand and find solutions cyber attacks to the information system	
CO-4. To find ways to recover from cyber incidents and attacks through timely information sharing, collaboration and action	
CO-5 To Learn to monitor and detect outside threats from a computer networks.	
CO-6. To 6. Comprehend information security in context of the mission of a business	
CO-7. To Understand pre-requisites in information and network security	
Semester-IV (Pattern 2013)	
M.Com 4.1 CAPITAL MARKET & FINANCIAL SERVICES (Core Compulsory)	CO-1 Acquire sound knowledge, concept and structure of capital market and financial services.
	CO-2 Understand new developments in capital market and financial services
	CO-3 Abreast with the innovative practices introduced in day to day area of capital market and financial services.
M.Com 4.2 GLOBAL ECONOMIC DEVELOPMENT (Core Compulsory)	CO-1 Study the basic concepts of Industrial Finance.
	CO-2 Study the effects of New Economic Policy.
	CO-3 Study the impact of Labor reforms on Industries.
M.Com 4.3 RECENT ADVANCES IN BUSINESS ADMINISTRATION (Special paper- VII)	CO-1 Get a better insight about the latest trends occurring in the field of business administration.
	CO-2 Know about the latest technological and management tools that are being used by the modern managers in managing the organization.
	CO-3 Gain the knowledge needed to reach professional and personal goals.
	CO-4 Inculcate the recent trends followed in the organization and the same to be imbibed among the students in reaching their overall goals.

M.Com 4.4 PROJECT WORK (Special paper- VIII)	CO-1 Know the theoretical bases for statistical analyses of results from empirical studies: the logical and Philosophical bases of empirical research; probability; operationalization of psychological variables.
	CO-2 Know basic statistical methods used to describe variables, describe relationships between variables, and to verify research hypotheses through inferential statistics.
	CO-3 Understand the scientific method in the context of empirical sciences, its advantages and limitations.
	CO-4 Is acquainted with specific scientific psychological terminology, distinguishes theoretical from operational concepts.
	CO-5 Know the methods of measurement of mental properties of humans, including various social situations, and of identification of principles governing mental processes.
	CO-6 Know the basic concepts of intellectual property and uses them in academic life.
M.Com 4.5 SKILL DEVELOPMENT-II	CO-1 Develop and nurture a deep understanding of personal motivation and practice personal and professional responsibility
	CO-2 Demonstrate knowledge of personal beliefs and values and a commitment to continuing personal reflection and reassessment
	CO-3 Learn to balance confidence with humility
	CO-4 Assert strengthened personal character and further, an enhanced ethical sense
	CO-5 To Apply the comprehensive set of skills and knowledge for life success (of self and others)
	CO-6. To Learn to evaluate and improve upon personal leadership strengths and weaknesses
	CO-7 Take responsibility, Think critically and Practice creativity
	CO-8 Appreciate the relationship between human diversity effective teambuilding and Learn social responsibility
M.Com 4.6 CYBER SECURITY-IV	CO-1. To learn with technical knowledge and skills needed to protect and defend computer systems and networks.
	CO-2. To identify ,analyze and remediate computer security breaches
	CO-3. To understand and find solutions cyber attacks to the information system
	CO-4. To find ways to recover from cyber incidents and attacks through timely information sharing, collaboration and action
	CO-5 To Learn to monitor and detect outside threats from a computer networks.
	CO-6. To 6. Comprehend information security in context of the mission of a business
	CO-7. To Understand pre-requisites in information and network security

Prgram outcomes,Program specific outcomes and Course outcomes	
Department of COMMERCE	
Programme Outcomes: B.com	
After successful completion of three year degree program in B.COM a student is able to;	
Programme Outcomes	The B.Com. graduates can pursue Post Graduate Studies like M.Com., MBA, MCA, ICWA, ISCI, etc. After their Post Graduation, they may do M.Phil or Ph.D. and take teaching as their career in higher education institutions like Degree colleges and Universities. Other Career Options: Chartered Accountancy, Banking Services, Insurance Sectors, Marketing, Company Secretaryship, Stock Exchange Services, Tax Consultancy, Management & Planning, Entrepreneurship, Law etc.
Program Specific Outcomes	After Completing Bachelor of Commerce (B.Com) course, students are able to: 1. To build a strong foundation of knowledge in different areas of Commerce. 2. To develop the skill of applying concepts and techniques used in Commerce. 3. To develop an attitude for working effectively and efficiently in a business environment. 4. To integrate knowledge, skill and attitude that will sustain an environment of learning and creativity among the students. 5. To expose students about entrepreneurship. 6. To enable a student to be capable of making decisions at personal and professional level.
Course Outcomes B.Com	
<u>FYB.COM</u>	
Course	Outcomes
	After completion of these courses students should be able to;
BUSINESS ENVIORNMENT	The paper Entrepreneurship development provides students with cutting- edge knowledge and skills on how to successfully develop captivating products
	and services to solve challenging problems in a highly uncertain environment, often under considerable time constraints with very limited resources.
	You will be able to apply these skills in the context of both new ventures as well as in established companies.
MICRO ECONOMICS	Learn economics in terms of business.
	• Describe the nature of economics in dealing with the issue of scarcity
	• Perform supply and demand analysis to analyze the impact of economic events on Markets
	• Analyze the behaviour of consumers in terms of the demand for products
	• Evaluate the factors affecting firm behaviour, such as production and costs
	• Analyze the performance of firms under different market structures,
• Recognize market failure and the role of government in dealing with those	

	failures
FUNCTIONAL ENGLISH	Functional English is usage of the English language required to perform a specific function.
	This is typically taught as a foundation subject as a good command of English is often required
	for academic study and career progression.
	In some cases, a particular form of technical English may be required for a particular vocation
	such as Aviation English.
	Such specialised usage is known and taught as English for Specific Purposes (ESP).
	English for specific purposes (ESP) is a subset of English as a second or foreign language.
	It usually refers to teaching the English language to university students or people already in
	employment, with reference to the particular vocabulary and skills they need.
ADDITIONAL ENGLISH	Methods of learning English are highly variable depending on the student's level
	of English proficiency and the manner and setting in which they are taught, which
	can range from required classes in school to self-directed study at home.
	In some programs, educational materials (including spoken lectures and written assignments)
	are provided in a mixture of English and the student's native language.
	In other programs, educational materials are always in English, but the vocabulary, grammar,
	and context clues may be modified to be more easily understood by students with varying levels
of comprehension	
BANKING	After studying this text the learner should / should be able to:
	1. Describe the context of banking: the financial system.
	2. Explain the principles of banking.
	3. Elucidate the broad functions of banks.
	4. Analyze and explain the basic raison d'etre for banks.
MATHS & STATS	The objective of this paper is to provide an understanding for the graduate business student on statistical concepts to include measurements of location and dispersion, probability, probability distributions, sampling, estimation, hypothesis testing, regression, and correlation analysis, multiple regression and business / economic forecasting.
ACCOUNT	Acquire conceptual knowledge of basics of accounting.

	<ul style="list-style-type: none"> • Identify events that need to be recorded in the accounting records • Develop the skill of recording financial transactions and preparation of reports in accordance with GAAP • Describe the role of accounting information and its limitations • Equip with the knowledge of accounting process and preparation of final accounts of sole trader • Recognize circumstances providing for increased exposure to errors and frauds • Determine the useful life and value of the depreciable asset • Perform computerized accounting using Tally package
MARKETING	<p>By studying Marketing Management paper the students acquire good knowledge on retail operations. This will enable the students to become a good retail planners and decision makers and help focus on change and adoption to the change.</p> <p>To develop their conceptual and analytical skills to be able to manage marketing operations.</p>
COMPUTER	<p>This paper teaches the students to use standard software programs found in the workplace.</p> <p>Students learn to input, review, design, and present information in a productive and efficient manner.</p>
SYB.COM	
CORPORATE ACCOUNT	<p>Understand the various types of capital structure of the company and their representation in the balance sheet.</p> <ul style="list-style-type: none"> • Evaluate the different situations of capital issue to company. • Demonstrate an understanding about the profits of the company and their division. • Understand the regulatory environment in which the companies are formed and operate • Have a solid foundation in accounting and reporting requirements of the Companies Act • Have a comprehensive understanding of the advanced issues in accounting for assets, liabilities and owner's equity • Account for mergers and amalgamations <ul style="list-style-type: none"> • Value goodwill and shares under various methods • Understand the valuation of shares .
MACRO	The student learn:

ECONOMICS	The main functions of macroeconomics are the collection, organising, and analysis of data; determining national income; and formulating appropriate economic policies to maintain economic growth and full employment in a developing country.
	The scope of macroeconomics include the following theories:
	National income
	Money
	Economic growth
	Employment
	Price levels
	The studies of problem of balance of payment, unemployment, general price level are the parts of macroeconomics, as these relate to the economy as a whole.
BUSINESS MANAGEMENT	Understand the importance of Administration & Management.
	<ul style="list-style-type: none"> • Understand the Principles of Management in traditional & modern scientific way.
	<ul style="list-style-type: none"> • Understand the details about Planning and MBO
	<ul style="list-style-type: none"> • Learn about Principles of Organization & various types of Organizations.
	<ul style="list-style-type: none"> • Explain Span of Management.
	<ul style="list-style-type: none"> • Describe Delegation and Decentralization types of delegation.
	<ul style="list-style-type: none"> • Learn about Co-ordination and Control, Principles and techniques
	<ul style="list-style-type: none"> • View management techniques to be adopted to run the Organization effectively by using Principles of Management.
BUSINESS COMMUNICATION	To develop the ability of the students to communicate clearly and correctly in English
	and regional languages on the matters relevant to day to day business operation with
	emphases on quality of presentation. To help the students for general understanding
	of the various aspects of business communication and business environment of the country.
COSTING	<ul style="list-style-type: none"> • Imbibe conceptual knowledge of cost accounting.
	<ul style="list-style-type: none"> • Understand the significance of cost accounting in the modern economic environment
	<ul style="list-style-type: none"> • Select the costs according to their impact on business
	<ul style="list-style-type: none"> • Differentiate methods of schedule costs per unit of production
	<ul style="list-style-type: none"> • Differentiate methods of calculating stock consumption
	<ul style="list-style-type: none"> • Identify the specifics of different costing methods
	<ul style="list-style-type: none"> • Interpret the impact of the selected costs method
	<ul style="list-style-type: none"> • Apply cost accounting methods to evaluate and project business performance

BUSINESS ADMINISTRATION	successful businesses boast a sustainable competitive advantage to be able to survive in a healthy manner. Savvy business administrators (which is a very broad term) try to understand the internal, external, natural and synthetic forces affecting their business / industry and utilize the resources within their control (among the most scarce resources of information and time) to make decisions to create this value.
BANKING	The student learn:
	role of RBI
	Value and importance Nationalised bank,SBI
	Function of NABARD and Co-Operative Society
	Banking committee and their role in indian banking system
TYB.COM	
ADVANCED ACCOUNT	The student learn:
	. Analysis of financial statement of organization and its accounting with respect to company annual report
	• Understand the regulatory environment in which the companies are formed and operate
	• Have a solid foundation in accounting and reporting of single entry and its analysis
	Ratio analysis and its application
	• Draft Final Accounts for Manufacturing concerns, Banks and Insurance Companies
AUDIT & TAXATION	• Acquire the complete knowledge of basic concepts of income tax
	• Understand the concept of exempted incomes.
	• Understand the provisions of agricultural income
	• Calculate Residential status of a person.
	• Identify and comply with the relevant provisions of the Income Tax Act as it relates to the income tax of individuals
	• Compute the income under the head "Income from Salary" , Compute income under the head "Income from House Property"
	• Compute income under the head "Income from Business or Profession
	• Computation of total Income
	Understand the environment and types relating to the auditing function
	• Identify the steps needed to prepare for an audit
	• Understand general audit terminology
	• Plan an audit taking into account concepts of evidence, risk and materiality
	• Know the steps for performing an audit
	• Know how to prepare and use working papers, such as checklists
BUSINESS LAW	Demonstrate an understanding of the Legal Environment of Business.

	<ul style="list-style-type: none"> • Communicate effectively using standard business and legal terminology. • Demonstrate recognition of the requirements of the contract agreement • Demonstrate understanding of contract consideration and capacity • Demonstrate recognition of the genuineness of assent in contract formation. • Demonstrate understanding of legality and Statute of Frauds in contracts • Identify contract remedies • Demonstrate recognition of transactions involving the Sales of Goods Act • Demonstrate recognition of consumer protection and intellectual property rights
GLOBAL ECONOMICS	<p>To expose students to a new approach to the study of the Indian Economy, student learn:.</p> <ol style="list-style-type: none"> 1) To help the students in analyzing the present status of the Indian Economy. 2) To enable students to understand the process of integration of the Indian Economy with other economics of the world. 3) To acquaint students with the emerging issues in policies of India's foreign trade
COSTING	<p>The students understand clearly to reduce and control the cost during the course of production</p> <p>because cost is a vital aspect in the modern business. Applicable tools are marginal costing, standard costing and budget analysis.</p> <p>To provide knowledge about the ascertainment the profitability of each of the products and advise the management to maximize its profits.</p>
BANKING	<p>The student learn:</p> <ol style="list-style-type: none"> 1. Advised clients on all aspects related to banking law, including banking regulations, secured commercial lending, and raising of loan finance 2. Provided advisory services to domestic and international clients on the foreign exchange regulations pertaining to investments/transactions in the banking sector 3. Drafted and reviewed term loan documentation and negotiable instruments for various banks and financial institutions 4. Structured mechanisms and advised on the regulatory regime on guarantees for providing corporate guarantees by domestic and foreign companies, parent companies on behalf of wholly-owned subsidiaries in conducting business 5. Advised clients on adopting appropriate risk management models, especially in the context of internet banking solutions provided by banks to their customers 6. Advised NBFCs on issues related to investment norms, applicable FDI and FEMA regulations and overall structuring of investments

**BUSINESS
ADMINISTRATION**

The student learn:

1.Scope for improving business knowledge and skills

2.Opportunities to meet peers and build a network

3.Acquaintance with practical knowledge

4.An ample number of good job opportunities

Learning Teamwork

Managing people

Qualities gained after doing Business Management Studies-

Leadership,Teamwork,Marketing skills,

business management as a career option

<u>Program Outcomes, Program Specific Outcomes and Course Outcomes</u>	
DEPARTMENT OF COMMERCE	
Course: Bachelor Of Business Administration	
After successful completion of three years degree program in BBA a student is able to	
Program Outcome	PO-1. Apply knowledge of management theories and practices to solve business problems.
	PO-2. Foster analytical and critical thinking abilities for data-based decision making.
	PO-3. Be abreast with the e-business solutions in the current environment led by technology disruption.
	PO-4. Ability to develop ethical and value-based leadership ability.
	PO-5. Ability to understand,analyse and communicate regional, national, global economic , legal and ethical aspects of business.
	PO-6. Ability to lead themselves and others in the achievement of organisational goals, contributing effectively to a team environment.
PROGRAMME SPECIFIC OUTCOMES	PSO-1. Be proficient in the financial accounting system with specialised practical knowledge.
	PSO-2. Be capable of marketing a product or a service including digital marketing.
	PSO-3. Exposure to industries in order to inculcate the practicality of business.
	PSO-4. To hone-in ability to understand consumer behaviour, preferences and consumer satisfaction and consumer engagement.
	PSO-5. Ability to understand the business laws used in the day today life.
<u>COURSE OUTCOME</u>	
<u>SEM I</u>	
<u>COURSE</u>	<u>OUTCOME</u>
101 BUSINESS ORGANISATION & System	CO1 - Students will be able to possess the skills set required by today's global business
	CO2 - Students will apply the theoretical business concepts to the practical situation
	CO3 - Students will demonstrate the ability to carry out a competitive business project
	CO4 - Students will be able to construct interactive presentations
	CO5 - Students will employ analytical skills in solving complex problems of business
	CO6 - Students will identify and explain different objectives of private and public sector
	CO7 - Students will be able to precisely interpret the classification of external and internal trade
	CO8 - Students will be able to describe the basic structure and key features of various forms of business organization

102	BUSINESS COMMUNICATION SKILLS	CO1 - Effective business writing.
		CO2 - Effective business communications.
		CO3 - Research approaches and information collection.
		CO4 - Developing and delivering effective presentations
		CO5 - Effective interpersonal communications.
		CO6 - Skills that maximise team effectiveness.
		CO7 - Good time management.
		CO8 - Effective problem solving
103	BUSINESS ACCOUNTING	CO1 - Integrate the principles of ethics and social responsibility in business decision-making.
		CO2 - Identify the complexity of business operations in a global environment.
		CO3 - Analyze a revenue stream using revised revenue recognition standards.
		CO4 - Analyze and interpret selected financial statements.
		CO5 - Demonstrate an understanding the assignment of direct and indirect coststo aproduct, department, product line, or service.
		CO6 - They will be able to integrate these functional areas to solve problems and address ethical issues in the business environment.
		CO7 - Students will be able to identify and assess business opportunities and threatsand develop action plans to address the issues for a competitive advantage in the marketplace.
		CO8 - Students will apply quantitative analysis and critical thinking skills toanalyzebusinessproblems within and across functional business disciplines topositivelyaffect financialperformance
104	BUSINESS ECONOMICS(MICRO)	CO1 - Student will develop the ability to explain core economic terms, concepts and theories
		CO2 - Students will identify various market structure and explain functions of market
		CO3 - Students will compare the different forms of market structure
		CO4 - Students will apply the concept of equilibrium in different forms of market
		CO5 - Students will be able to present an economic argument in quantitative terms
		CO6 - Students will be able to conduct economic analysis using equations and graphs
		CO7 - Students will get an understanding of determination of pricing in factor market
		CO8 - Students will be able to demonstrate knowledge of laws of supply and demand and will develop an economic thinking to explain choice in the world of scarcity
105	BUSINESS MATHEMATICS	CO1 - Students will demonstrate the ability to think critically, research, and reason. (Ethical Leadership)
		CO2 - Students will recognize and differentiate among diverse cultures through the history of mathematics. (Cultural Competence)

		CO3 - Students will engage in activities directly benefitting the broader community. (Community Engagement)
		CO4 - Students will demonstrate an understanding of the common body of knowledge in mathematics.
		CO5 - Students will demonstrate the ability to apply analytical and theoretical skills to model and solve mathematical problems.
		CO6 - Students will demonstrate the ability to analyze data and draw appropriate statistical conclusions.
		CO7 - Students will demonstrate the ability to effectively utilize a variety of teaching techniques and classroom strategies to positively influence student learning.
106	BUSINESS DEMOGRAPHY & Environmental Studies	CO1 - Student learns the basics of business demography and environment.
		CO2 - Students increases their knowledge based on demographic and environmental factors which affects the business.
		CO3 - Student gets aware of environmental problems related to the business and commerce.
		CO4 - It inculcate the values of environmental ethics amongst the students.
		CO5 - To achieve knowledge about the size, composition, organization and distribution of the population.
		CO6 - To describe the past evolution present distribution and future changes in the population of an area.
		CO7 - To enquire the trends of population and its relationships with the different aspects of social organization in an area.
		CO8 - To protect the future demographic evaluation and its probable consequences.
<u>SEM II</u>		
201	PRINCIPALS OF MANAGEMENT	CO1 - This subject provided conceptual knowledge to the students regarding nature, complexity and various functions of management
		CO2 - Learned historical perspective of management
		CO3 - Students gained some basic knowledge on recent trends and international aspects of management
202	PRINCIPALS OF MARKETING	CO1 - Be familiar with the basic elements of the marketing mix and to provide a framework to evaluate marketing decisions and initiatives.
		CO2 - Demonstrate understanding of marketing terminology and concepts.
		CO3 - Identify wants and environmental factors that shape marketing activities for certain target markets.
		CO4 - Demonstrate knowledge of the individual components of a marketing mix.
		CO5 - Demonstrate knowledge of key business communication strategies within the marketing field.
		CO6 - Identify the organizational processes involved in the planning, implementation and control of marketing activities.

		CO7 - Demonstrate knowledge of regulatory and ethical factors considered essential to make marketing decision.
		CO8 - Understand how marketing is related to other business function and its importance to the success of the business entity.
		CO9 - Understand the importance of consumer behaviour as it relates to buying behaviour.
		CO10 - Be able to identify, analyze, and use sources of marketing research information.
203	PRINCIPLES OF FINANCE	CO1 - Students will get an understanding of financial goal of firm.
		CO2 - Students will be able to apply various principles to evaluate investment Opportunities.
		CO3 - Students will be able to apply various capital budgeting techniques to evaluate business projects.
		CO4 - Students will be able to determine and compare the various sources of Business finance.
		CO5 - Students will analyze the role of finance manager.
		CO6 - Students will be able to illustrate how structure of corporation affects financial decision of a firm.
		CO7 - Students will be able to identify different components of Company's Capital Structure.
		CO8 - Students will focus on recent trends in business finance.
204	BASICS OF COST ACCOUNTING	CO1 - Student will be able to reduce expenses by identifying the areas where they can save cost.
		CO2 - It will help student to become rational regarding the decision of buying raw material and using labors and other overheads in production process. With cost accounting, they can reduce misuse of resources of company.
		CO3 - Students will be able to find out the variances and find out the treatment. They will prepare budget of overheads and after this they can calculate variance of overheads. By checking under-absorbed overheads, they can treat it correctly.
		CO4 - Students will be in a position to determine the price of the product.
		CO5 - The study of this subject will have knowledge to control the cost.
		CO6 - Students will throw light upon those activities which bring profits and those activities which result in losses. This will be done only if the cost of each product or each job is ascertained and compared with the price obtained.
		CO7 - Students will be in a position to prepare proper system of Costing, it is necessary to have detailed information about the facilities available about machine and labour capacity. This helps in proper planning of work so that no section is overworked and no section remains idle.
		CO8 - Students will become that capable to decide whether production of one product or the other is to be increased.
205	BUSINESS STATISTICS	CO1 - Provides basic knowledge for application of statistics to business disciplines.
		CO2 - Develops the ability to analyze and interpret data to provide meaningful information to assist in making management decision.

		CO3 - Develops ability to apply modern quantitative tools.
		CO4 - Produce appropriate and graphical and numerical statistics for different types of data
		CO5 - Apply probability rules and concepts relating to discrete and continuous random variables to answer questions within a business context.
		CO6 - Demonstrate knowledge of formulas and its application.
		CO7 - Conduct and interpret a variety of hypothesis test to aid decision making in business context.
		CO8 - Use simple or multiple regression models to analyze the underlying relationship between the variables through various test
		CO9 - Analyze practical and statistical data with various techniques in order to increase accuracy and reliability in data.

206	BUSINESS INFORMATICS	CO1 - This subject helps students to enhance their computing skills.
		CO2 - Students learn the basic concepts of computer i.e basic computer terminology, hardware and software.
		CO3 - Students learn the evolution of computer and latest trends and technology used in computer or in mobile devices and types of programming languages used in computer.
		CO4 - Students understand the operating system and different types of operating system used in computer and what is the use of operating system. How each of the operating system is differs from other. Students can also learn how to use DOS.
		CO5 - Students understand the basics of word processor and Editors.
		CO6 - How to use MS- Word, MS-Excel, MS-Powerpoint and MS-Access.
		CO7 - Student understands the basics of networking, topology, WWW, The internet and how it works.
		CO8 - It enhances the knowledge of the student related to internet, website, application development etc.
		CO9 - It helps the student to understand data, database and database management system. i.e how to create table, store data and apply filter on data.
		CO10 - Overall it helps to apply business informatics tactics in day to day business life for the students.

SEM III

301	PERSONALITY DEVELOPMENT	CO1 - Develop and exhibit and accurate sense of self.
		CO2 - Develop and nurture a deep understanding of personal motivation.
		CO3 - Develop an understanding of and practice personal and professional responsibility.
		CO4 - Demonstrate knowledge of personal beliefs and values and a commitment to continuing personal reflection and reassessment.
		CO5 - Learn to balance confidence with humility.
		CO6 - Assert strengthened personal character and further, an enhanced ethical sense.
		CO7 - Applying the comprehensive set of skills and knowledge for life success.

302	BUSINESS ETHICS	CO1 - The theoretical foundations of business ethics.
		CO2 - Re-examine their knowledge of business and economic concepts from an ethical perspective.
		CO3 - Explain and illustrate the importance, for business and the community, of ethical conduct.
		CO4 - Recognize and resolve ethical issues in business.
		CO5 - Reflect on and critically examine their own values and the importance of the ethical dimension in business and workplace decision making
		CO6 - Confidently apply systematic ethical reasoning to business dilemmas and communicate effectively in oral and written forms these, using the concepts, logic and rhetorical conventions of business ethics.
		CO7 - Promote understanding of the importance, for business and the community, of ethical conduct.
		CO8 - Provide the skills with which to recognize and resolve ethical issues in business.
		CO9 - Enhance awareness and critical self- examination of one's own values and to appreciate the relevance of personal values in the business/workplace setting.
		CO10 - Encourage reflection on the ethical dimension of your own decision making in workplace and other setting.
303	HUMAN RESOURCE MANAGEMENT & ORGANISATIONAL BEHAVIOUR	CO1 - Contribute to the development, implementation, and evaluation of employee recruitment, selection, and retention plans and processes.
		CO2 - Administer and contribute to the design and evaluation of the performance management program.
		CO3 - Develop, implement, and evaluate employee orientation, training, and development programs.
		CO4 - Facilitate and support effective employee and labour relations in both non-union and union environments.
		CO5 - Research and support the development and communication of the organization's total compensation plan.
		CO6 - Collaborate with others, in the development, implementation, and evaluation of organizational and health and safety policies and practices.
		CO7 - Research and analyze information needs and apply current and emerging information technologies to support the human resources function.
		CO8 - Develop, implement, and evaluate organizational development strategies aimed at promoting organizational effectiveness.
		CO9 - Present and evaluate communication messages and processes related to the human resources function of the organization.
		CO10 - Manage own professional development and provide leadership to others in the achievement of ongoing competence in human resources professional practice.
		CO11 - Facilitate and communicate the human resources component of the organization's business plan.
		CO12 - Conduct research, produce reports, and recommend changes in human resources practices.

304	MANAGEMENT ACCOUNTING	CO1 - Student learn to present the accounting data in more understandable manner
		CO2 - Students learn different technics to analyze accounting data
		CO3 - Students learn different techniques of financial forecasting
		CO4 - Students learn to prepare different types of budgets
		CO5 - Students learn to take financial decisions
305	BUSINESS ECONOMICS (MACRO)	CO1 - Will develop Critical Thinking among the students on - Reasoned approach to problem solving,Critical evaluation of economic problems,Integration of domestic and international economic thought
		CO2- Will develop Research activities
		CO3 - Will develop Communication - Explaining economic phenomena, Writing effectively, Conveying complex information & Speaking to groups
306	INFORMATION TECHNOLOGY IN MANAGEMENT	CO1 - Students know the information technology concepts.
		CO2 - Students learn to manage hardware and software assets used in any organization.
		CO3 - It helps the student to understand and manage data resources and data trends used in the current market.
		CO4 - It provides the information about the communication channel works in networking and how to utilize social networking and ICT enabled application in management
		CO5 - How to understand and design the requirement of IT infrastructure in management in business.
		CO6 - Students understand the role of IT infrastructure in digital firm.
		CO7 - It helps to understand the business values and system and manage changes.
		CO8 - Students use IT tools to prepare, analyze and design management reports.
		CO9 - Students apply technological changes as management shifting.
		CO10 - Students use to read about information system in management.
401	PRODUCTIONS & OPERATION MANAGEMENT	CO1 - Explain the major concepts in the functional areas of accounting, marketing, finance, and management.
		CO2 - Evaluate the legal, social, and economic environments of business.
		CO3 - Describe the global environment of business.
		CO4 - Describe and explain the ethical obligations and responsibilities of business.
		CO5 - Apply decision-support tools to business decision making.
		CO6 - Construct and present effective oral and written forms of professional communication.
		CO7 - Apply knowledge of business concepts and functions in an integrated manner.
		CO8 - Use specialized knowledge in Operations Management to solve business processes.
		CO9 - Apply knowledge of fundamental concepts of operations management.
		CO10 - Apply knowledge of approaches to operational performance improvement.

		CO11 - To gain an understanding and appreciation of the principles and applications relevant to the planning, design, and operations of manufacturing/service firms.
		CO12 - To develop skills necessary to effectively analyze and synthesize the many inter-relationships inherent in complex socio-economic productive systems.
		CO13 - To reinforce analytical skills already learned, and build on these skills to further increase your "portfolio" of useful analytical tools for operations tasks.
		CO14 - To gain some ability to recognize situations in a production system environment that suggests the use of certain quantitative methods to assist in decision making on operations management and strategy.
		CO15 - To understand how Enterprise Resource Planning and MRPII systems are used in managing operations.
		CO16 - To increase the knowledge, and broaden the perspective of the world in which you will contribute your talents and leadership in business operations.
		CO17 - To understand the managerial responsibility for Operations, even when production is outsourced, or performed in regions far from corporate headquarters.
402	INDUSTRIAL RELATION & LABOUR LAW	CO1 - Students will be enabled to have a good base in Labour Laws.
		CO2 - Students will learn the Salient features of welfare and wage legislations.
		CO3 - Students will learn the laws relating to industrial relation, social security and working condition.
		CO4 - Students will get an understanding of development and judicial setup of labour laws.
		CO5 - Student will explore the role of laws in ordering industrial relation in India.
		CO6 - Students will gain an understanding of factors in industrial relation.
		CO7 - Students will be able to investigate solution to industrial relation problem based on research and assessment of current practices.
		CO8 - Students will become aware of Maharashtra Recognition Trade Practices and Prevention of Labour Unfair Practices Act.
403	BUSINESS TAXATION	CO1 - Student learn about difference section of income tax act 1961.
		CO2 - Students also learn the different heads of income chargeable to tax.
		CO3 - They are able to calculate taxable income from different heads of income.
		CO4 - The students learn about exempt income.
		CO5 - They also learn different types of deduction allowed.
		CO6 - They are able to calculate tax liability of different assesses.
		CO7 - The students can make their career as tax consultant.
		CO8 - Career as tax consultant.
404	INTERNATIONAL BUSINESS	CO1 - To present international factors affecting domestic concerns.
		CO2 - Explain regional economic integration and economic and political integration.
		CO3 - Explain the main institutions that shape the global marketplace.
		CO4 - Explain businesses expansion abroad.

		CO5 - Explain the key legal issues related to businesses operating in other countries.
		CO6 - Students are expected to enhance their cognitive knowledge of global issues.
405	MANAGEMENT INFORMATION SYSTEM	CO1 - Improved Decision-Making
		CO2 - Central Information System - The goal of an MIS is to be able to correlate multiple data points in order to strategize ways to improve operations.
		CO3 - Will be able to collect up-to-date Information
		CO4 - INCREASE ACCURACY AND EFFICENCY
		CO5 - INFORMATION ABOUT MARKET
		CO6 - WILL BE ABLE TO DETERMINE DIFFERENT SOURCES OF INFORMATION
406	BUSINESS EXPOSURE EXPOSURE	CO1 - Demonstrate an understanding of the forces that shape the business and economic structure of the business.
		CO2 - Demonstrate an understanding of the major functions of business including Management, Accounting/Finance, Marketing, Investments, and Information Technology.
		CO3 - Explain why business ethics is an integral part of every business organization
		CO4 - To give practical knowledge about functioning of industries to students.
<u>SEM V</u>		
501	SUPPLY CHAIN & LOGISTIC MANAGEMENT	CO1 - Master the main objectives of a successful supply chain manager Learn how to develop a more effective supply chain to improve profitability
		CO2 - Foster an understanding of supply chain management's major challenges and trends.
		CO3 - Learn how to use logistics when you're making decisions Become comfortable with the main supply chain manager systems for proper implementation.
		CO4 - students gain a comprehensive understanding of how businesses operate.
		CO5 - Students will learn about the processes within an organization and between them.
502	ENTREPRENEURSHIP DEVELOPMENT	CO1 - Developed advanced knowledge on how to assess business opportunities and an in-depth understanding of what typically characterize successes and failures.
		CO2 - Developed advanced knowledge about key processes necessary to bring new products and services to market and key challenges facing the entrepreneur at different stages of the entrepreneurial voyage.
		CO3 - To be able to assess the commercial viability of new technologies, business opportunities and existing companies.

		CO4 - Effectively combine understanding of technology and entrepreneurship in a cross-disciplinary fashion to identify and develop attractive opportunities within your field of experience.
		CO5 - Write scientific reports and communicate the results in a professional manner
		CO6 - Understand the nature of entrepreneurship
		CO7 - Understand the function of the entrepreneur in the successful, commercial application of innovations
		CO8 - Confirm an entrepreneurial business idea
		CO9 - Identify personal attributes that enable best use of entrepreneurial opportunities
		CO10 - Explore entrepreneurial leadership and management style.
503	BUSINESS LAW	CO1 - Students will gain practical legal knowledge of general business law issues.
		CO2 - It aims at providing a rich fund of contemporary knowledge , time tested, principles, basic concepts, emerging ideas, evolving theories, latest technique , ever changing procedures & practices in the field of Law.
		CO3 - The purposes and functions of business law include maintaining order, protecting rights and liberties, establishing standards, and resolving disputes when it comes to businesses and their interactions with individuals, government agencies, and other businesses.
		CO4 - The function and operation of the courts, business crimes, torts, contract law, intellectual property, the application of the Uniform Commercial Code to business activities and recent developments in business law, such as cyber law and electronic commerce.
504	RESEARCH METHODOLOGY	CO1 - Assess critically the following methods: literature study, case study, structured surveys, interviews, focus groups, participatory approaches, narrative analysis, cost-benefit analysis, and scenario methodology and technology foresight.
		CO2 - Critically assess research methods pertinent to technology innovation research.
		CO3 - Students should understand a general definition of research design.
		CO4 - Students should know why educational research is undertaken, and the audiences that profit from research studies.
		CO5 - Students should be able to identify the overall process of designing a research study from its inception to its report.
		CO6 - Students should be familiar with ethical issues in educational research, including those issues that arise in using quantitative and qualitative research.
		CO7 - Students should know the primary characteristics of quantitative research and qualitative research.
		CO8 - Students should be able to identify a research problem stated in a study.
		CO9 - Students should be familiar with how to write a good introduction to an educational research study and the components that comprise such an introduction.
505	HRM I - PRINCIPALS & FUNCTION	CO1 - Students got to understand concept, principles and practices of H.R.M.
		CO2 - Students understood the HR Planning

		CO3 - Students are exposed to Recruitment and Selection Process through Practice work.
		CO4 - Students practiced cases with applicability of Training and Development Personnel records reports and audit
		CO5 - Explain the importance of human resources and their effective management in organizations
		CO6 - Demonstrate a basic understanding of different tools used in forecasting and planning human resource needs
		CO7 - Describe the meanings of terminology and tools used in managing employees effectively
		CO8 - Record governmental regulations affecting employees and employers
		CO9 - Analyze the key issues related to administering the human elements such as motivation, compensation, appraisal, career planning, diversity, ethics, and training
506	HRM II - HUMAN RESOURCE PRACTGICE	CO1 - Understand the meaning and nature of strategic HRM.
		CO2 - Appreciate how HR strategies are related to business strategies.
		CO3 - Describe how HR strategies can be informed by knowledge of markets.
		CO4 - To have an understanding of the basic concepts, functions and processes of human resource management.
		CO5 - To be aware of the role, functions and functioning of Human Resource Department of the organizations.
		CO6 - To design and formulate various HRM processes such as Recruitment, Selection, Training, Development, Performance Appraisal and Reward System, Compensation Plans and ethical Behaviour.
		CO7 - Develop ways in which human resource management might diagnose a business strategy and then facilitate the internal change necessary to accomplish the strategy.
		CO8 - Evaluate the developing role of human resource in global arena.
		CO9 - Examine current issues, trends, practices, and processes in HRM.
		CO10 - Contribute to employee performance management and organizational effectiveness.
		<u>SEM VI</u>
601	BUSINESS PLANNING AND PROJECT MANAGEMENT	CO1 - Students got acquainted with the planning process in business and familiarize them with the function and techniques of project management
		CO2 - Students understood the Concepts Network Techniques
		CO3 - Students got familiarized with Project Audit and Life Cycle of Project
		CO4 - Develop plans with relevant people to achieve the project's goals
		CO5 - Break work down into tasks and determine handover procedures
		CO6 - Identify links and dependencies, and schedule to achieve deliverables
		CO7 - Estimate and cost the human and physical resources required, and make plans to obtain the necessary resources
		CO8 - Allocate roles with clear lines of responsibility and accountability.
602	EVENT	CO1 - Have a passion for planning, enjoy putting plans into action and

	MANAGEMENT	organizing events.
		CO2 - Able to meet tight and evolving deadlines, through the use of strong organizational and time management skills.
		CO3 - Are able to manage and prioritize personal and professional responsibilities.
		CO4 - Possess exceptional teamwork skills and the ability to motivate others
		CO5 -Thrive in high-energy, challenging environments.
603	MANAGEMENT CONTROL SYSTEM	CO1 - A way managers can document their organization's objectives
		CO2 - A way managers can document their organizational strategies or policies
		CO3 - A way to assess the performance of internal corporate processes
		CO4 - A way to show performance in relation to declared objectives and policies
		CO5 - More corporate control, An evaluation of operational performance, A way to keep their organization on track towards its objectives
		CO6 - Effective management of risks and internal controls, Strategic information based on internal control monitoring & Proof of executive accountability
604	E-COMMERCE	CO1 - Overview of the E-Commerce landscape in India and the world Component of a basic E-Commerce business
		CO2 - E-Commerce business models & E-commerce and E-Business
		CO3 - Technical fundamentals required for E-Commerce
		CO4 - E-Commerce marketing concepts and communications
		CO5 - Security and Payment systems, Role of Social Networks, M-Commerce – mobile E-Commerce Ethical and other issues involved in E-Commerce, To know the concept of electronic commerce . To Know what is Internet and Extranet . To know Internet marketing techniques
605	LABOUR LAWS	CO1 - To recognize the different industrial relations systems
		CO2 - To distinguish the procedure concerning worker participation and participatory institutions and instruments of trade union representation
		CO3 - To classify the authorized services and agencies for employment
		CO4 - To distinguish employee rights and obligations according to the scope of employment
		CO5 - To defend employ rights before supervisory and control institutions.
		CO6 - To analyze the field of labor relations in an interdisciplinary manner.
		CO7 - To synthesize proposals for legislative initiatives.
606	CASES IN HRM	CO1 - Students will get an understanding of basic concepts of Human Resource Management.
		CO2 - Students will be able to evaluate developing role of Human Resource in global era.
		CO3 - Case study exercise aims to help students form a comprehensive understanding of Human Resource Management functions and their interconnections.

		CO4 - Case study present students with problem situation that express experiences of business.
		CO5 - Students will be able to analyze the different types of Case study.
		CO6 - Students will be able to compare the merit and demerit of Case Study
		CO7 - Students will understand the procedure of Case study in Human resource.
		CO8 - Case study in HRM will enable students to investigate and solve various personnel problems and will facilitate evaluation of HR policies and Programmes.

Program outcomes, Program specific outcomes and Course outcomes	
Department of Computer Applications	
Programme Outcomes: B.B.A.(CA)	
After successful completion of three year degree program in Computer Science, a student can obtain knowledge;	
Programme Outcomes	PO-1.To attract young minds to the potentially rich & employable field of computer applications
	PO-2.To be a foundation graduate Programme. This will act as a feeder course for higher studies in the area of Computer Science/Applications
	PO-3. To provide sound academic base from which an advanced career in Computer Application can be developed. Conceptual grounding in computer usage as well as its practical business application will be provided.
	PO-4. To train & equip the students to meet the requirements of the Software industry within and outside the country.
Programme Specific Outcomes	PSO-1. To develop problem solving abilities using a computer
	PSO-2. To build the necessary skill set and analytical abilities for developing computer based solutions for real life problems.
	PSO-3. To imbibe quality software development practices.
	PSO-4. To prepare necessary knowledge base for research and development in Computer Applications
	PSO-5. To help students build-up a successful career in Computer Applications

Course Outcomes of B.B.A.(CA)	
103 : Principles of Programming and Algorithms	CO-1.To develop Analytical / Logical Thinking and Problem Solving capabilities
	CO-2. Understand appropriate use of data types and array structures
	CO-3. Understand use of appropriate control structures
201 : Procedure Oriented Programming Using 'C'	CO-1. To develop Analytical / Logical Thinking and Problem Solving capabilities
	CO-2. To teach basic principles of programming
	CO- 3.To develop skills for writing programs using 'C'
202 : Database Management Systems	CO-1.To understand data processing using computers
	CO-2. To teach basic organization of data using files
	CO-3. To understand creations, manipulation and querying of data in databases
301 : Relational Database Management System	CO-1.To understand relational database concepts in database system.
	CO-2.To write PL/SQL programs that use procedure, function, package, cursor and trigger.
302 : Data Structure using 'C'	CO-1.To efficiently implement solution for different problems.
	CO-2. To understand the different methods of organizing large amounts of data
	CO-3.To efficiently implement different data structures

	CO-4.To get more knowledge on C programming language.
303 : Introduction to Operating System	CO-1.To know system programming.
	CO-2.To know services provided by operating system.
	CO-3.To know the scheduling concepts.
305 : Software Engineering	CO-1.To understand system concepts and its application in software development.
	CO-2.To teach principles of Software Engineering
	CO-3.To teach various process models
	CO-4.To build analysis model
401 : Object Oriented Concepts using C++	CO-1. Acquire an understanding of basic object oriented concepts and the issues involved in effective class design
	CO-2. To write C++ programs that use object oriented concepts such as information hiding, constructors, destructors, inheritance etc.
402 : Programming in Visual Basic	CO-1.To learn properties and events, methods of controls and how to handle events of different controls
	CO-2.To understand the use of active controls and how to design VB application
	CO-3.To learn connectivity between VB and databases.
403 : Computer Networking	CO-1. To know about computer network.
	CO-2.To learn different types of network.
	CO-3.To understand different topologies used in networking.
	CO-4. To understand the use of connecting device used in network.
501: Java Programming	CO-1. To learn the basic concept of java programming
	CO-2. To understand how to use programming in day to day applications.
502 : Web Technologies	CO-1. To know & understand concepts of internet programming.
	CO-2. To understand how to develop web based applications using PHP.
503 : Dot Net Programming	CO-1. This will introduce visual programming and event driven programming practically.
	CO-2. This will enhance applications development skill of the student.
504 : Object Oriented Software Engineering	CO-1. To Understand concept of system design using UML.
	CO-2. To understand system development through object oriented techniques.
601 : Advanced Web Technologies	CO-1. To know & understand concepts of internet programming.
	CO-2. To understand the concepts of XML and AJAX.
602 : Advanced Java	CO-1. To know the concept of Java Programming.
	CO-2. To understand how to use programming in day to day applications.
	CO-3. To develop programming logic.
603 : Recent trends in IT	CO-1.To introduce upcoming trends in Information technology.
	CO-2.To study Eco friendly software development
604 : Software Testing	CO-1. To know the concept of software testing.
	CO-2. To understand how to test bugs in software.

Program outcomes,Program specific outcomes and Course outcomes	
Department of Computer Science	
Programme Outcomes: B. Sc Computer Science	
Three year degree program in Computer Science	
Programme Outcomes	PO-1.To attract young minds to the potentially rich & employable field of computer Science
	PO-2.To be a foundation graduate Programme.This will act as a feeder course for higher studies in the area of Computer Science.
	PO-3. To develop skills in software development so as to enable the B.Sc. Computer Science graduates to take up self-employment in Indian & global software market.
	PO-4. To train & equip the students to meet the requirements of the Software industry within and outside the country.
Programme Specific Outcomes	PSO-1. To develop problem solving abilities using a computer.
	PSO-2. To build the necessary skill set and analytical abilities for developing computer based solutions for real life problems.
	PSO-3. To imbibe quality software development practices.
	PSO-4. To prepare necessary knowledge base for research and development in Computer Science
	PSO-5. To help students build-up a successful career in Computer Science
Course Outcomes of B. Sc.Computer Science	
CS .101 - ProblemSolving Using Computers and 'C' Programming	CO-1. To develop Problem Solving abilities using computers
	CO-2. To teach basic principles of programming
	CO- 3.To develop skills for writing programs using 'C'
CS.102 - File Organization and Fundamental of Databases	CO-1.To understand data processing using computers
	CO-2. To teach basic organization of data using files
	CO-3. To understand creations, manipulation and querying of data in databases
CS. 103 - Computer Science Practical Paper I & II	CO-1.Design and implement a 'C' programs for simple problems
	CO-2. Understand appropriate use of data types and array structures
	CO-3. Understand use of appropriate control structures
	CO-4.Understanding basic HTML designing
	CO-5. Writing C programs using complex data structures such as pointers,structures etc.
CS.211 - Data Structures using 'C'	CO-1.To learn the systematic way of solving problem
	CO-2. To understand the different methods of organizing large amount of data
	CO-3.To efficiently implement the different data structures
	CO-4.To efficiently implement solutions for specific problems Prerequisites: Knowledge of C Programming Language
CS.212 - Relational Database Management System	CO-1.To teach fundamental concepts of RDBMS
	CO-2.To teach principles of Databases
	CO-3.To teach databse management operations

	CO-4.To teach client server architecture
CS.221 - Object Oriented Concepts using C++	CO-1. Acquire an understanding of basic object oriented concepts and the issues involved in effective class design
	CO-2. Write C++ programs that use object oriented concepts such as information hiding, constructors, destructors, inheritance etc.
CS.222 Software Engineering	CO-1.To teach basics of System Analysis and Design.
	CO-2.To teach principles of Software Engineering
	CO-3.To teach various process models
	CO-4.To build analysis model
CS.223 - Data Structures and C++ Practicals	CO-1.Design and implement Data structures and related algorithms
	CO-2. Understand several ways of solving the same problem.
CS.331 - Systems Programming	CO-1. To understand the design structure of a simple editor.
	CO-2.To understand the design structure of Assembler and macro processor for an hypothetical simulated computer.
	CO-3.To understand the working of linkers and loaders and other development utilities
	CO-4.To understand Complexity of Operating system as a software.
CS.332 - Theoretical Computer Science	CO-1.To have an understanding of finite state and pushdown automata.
	CO-2.To have a knowledge of regular languages and context free languages.
	CO-3.To know the relation between regular language, context free language and corresponding recognizers.
	CO-4. To study the Turing machine and classes of problems.
CS. 333 - Computer Networks -I	CO-1.Understand different types of networks, various topologies and application of networks.
	CO-2.Understand types of addresses, data communication.
	CO-3.Understand the concept of networking models, protocols, functionality of each layer.
	CO-4.Learn basic networking hardware and tools.
CS.334 - Internet Programming I	CO-1. Learn Core-PHP, Server Side Scripting Language
	CO-2. Learn PHP-Database handling
CS.335 - Programming in Java-I	CO-1. To learn Object Oriented Programming language
	CO-2. To handle abnormal termination of a program using exception handling
	CO-3. To create flat files
	CO-4. To design User Interface using Swing and AWT
CS.336 - Object Oriented Software Engineering	CO-1. Understanding importance of Object Orientation in Software engineering
	CO-2. Understand the components of Unified Modeling Language
	CO-3. Understand techniques and diagrams related to structural modeling
CS.341 - Operating Systems	CO-1.To understand design issues related to process management and various related algorithms

	CO-2.To understand design issues related to memory management and various related algorithms
	CO-3.To understand design issues related to File management and various related algorithms
CS.342 - Compiler Construction	CO-1.To understand design issues of a lexical analyzer and use of Lex tool
	CO-2.To understand design issues of a parser and use of Yacc tool
	CO-3.To understand issues related to memory allocation
	CO-4.To understand and design code generation schemes
CS. 343 - Computer Networks -II	CO-1.Basic networking concepts.
	CO-2.Understand wired and wireless networks, its types, functionality of layer.
	CO-3.Understand importance of network security and cryptography.
CS.344 - Internet Programming II	CO-1.Learn different technologies used at client Side Scripting Language
	CO-2. Learn XML,CSS and XML parsers.
	CO-3. One PHP framework for effective design of web application.
	CO-4.Learn AJAX to make our application more dynamic.
	CO-5.Learn JavaScript to program the behavior of web pages.
CS.345 - Programming in Java-II	CO-1. To learn database programming using Java
	CO-2.To study web development concept using Servlet and JSP processing.
	CO-3.To develop a game application using multithreading
	CO-4. To learn socket programming concept
CS.346 - Computer Graphics	CO-1. To study how graphics objects are represented in Computer
	CO-2. To study how graphics system in a computer supports presentation of graphics information
	CO-3. To study how interaction is handled in a graphics system
	CO-4. To study how to manipulate graphics object by applying different transformations.
	CO-5. To provide the programmer's perspective of working of computer graphics

Prgram outcomes,Program specific outcomes and Course outcomes	
Department of CHEMISTRY	
Programme Outcomes: B. Sc.Chemistry	
After successful completion of three year degree program in Chemistry a student is able to;	
Programme Outcomes	PO-1.Demonstrate, solve and an understanding of major concepts in all disciplines of chemistry.
	PO-2. Solve the problem and also think methodically, independently and draw a logical conclusion.
	PO-3. Employ critical thinking and the scientific knowledge to design ,carry out, record and analyze the result of chemical reactions.
	PO-4.Create an awareness of the impact of chemistry on the environment, society, and development outside the scientific community.
	PO-5.Find out the green route for chemical reaction for sustainable development.
	PO-6.To inculcate the scientific temperament in the students and outside the scientific community.
	PO-7.Use modern techniques, decent equipments and chemistry softwares.
	PO-8.Use of basic chemistry knowledge in daily life.
	PO-9.To inculcates the scientific temperament in the students and outside the scientific community.
Programme Specific Outcomes	PSO-1.Gain the knowledge of chemistry through theory and practical's.
	PSO-2.To explain nomenclature, stereochemistry, structure, reactivity, and mechanism of the chemical reactions.
	PSO-3.Identify chemical formula and solve numerical problems.
	PSOI-4.Use modern chemical tools, models, chem-draw, charts and Equipments.
	PSO-5.Know structure-activity relationship.
	PSO-6.Understand good laboratory practices and safety.
	PSO-7.Develop research oriented skills.
	PSO-8. Make aware and handle the sophisticated instruments/equipments.
Course Outcomes B. Sc Chemistry	
<u>Semester-III</u>	
Course	Outcomes
	After completion of these courses students should be able to;

CH.331 PHYSICAL CHEMISTRY	CO-1. Study the Expression for rate constant k for third order reaction
	CO-2. Solve the numerical problems based on this topic.
	CO- 3. Understand Nature of wave and its characteristics such as wavelength, wave number, frequency and velocity.
	CO-4. Know Meaning and Types of equilibrium such as true or static, metastable and Unstable equilibrium. I_i
	CO-5. Understand the two component system curve : for silver-lead and Zinc-cadmium
CH.332 INORGANIC CHEMISTRY	CO-1. Understand Molecular Orbital Theory
	CO-2. Know the meaning of various terms involved in coordination chemistry.
	CO-3. Be able to give the IUPAC name the co-ordination compound.
	CO-4. Be able to identify which d-orbitals are involved in hybridization during formation of complexes with different geometries such as tetrahedral, square planar, trigonalbipyramidal and octahedral.
	CO-5. Be able to compare the different approaches to bonding in Coordination compounds.
CH.333 ORGANIC CHEMISTRY	CO-1. Definition and types of organic acid and base and the pK_a and pK_b concepts
	CO-2. Be able to draw different types of disubstituted cyclohexane in Chair form
	CO-3. Students are understood Different types of nucleophilic substitution reactions
	CO-4. Study the Correct mechanism of addition reactions using different reagents
	CO-5. Understand the Whether a given reaction follows E_1 , E_2 or E_1cB mechanism.
	CO-6. Study the types of aromatic substitution reactions
CH.334 ANALYTICAL CHEMISTRY	CO-1. Understand Principles of common ion effect and solubility product
	CO-2. Understand Methods of thermo gravimetric analysis
	CO-3. Understand Principles of Spectrophotometric analysis and properties of electromagnetic radiations
	CO-4. Understand the Construction, working, advantages and disadvantages of DME
	CO-5. Know Applications and numerical problems
	CO-6. Study of Measurement of emission of atomic species

	CO-7.Study of Different methods of analysis, Application and numerical problems.
CH.335 INDUSTRIAL CHEMISTRY	CO-1.Study of Importance of chemical industry
	CO-2.Study the Rodenticides & biopesticides used in Agriculture field with their synthesis and Applications
	CO-3.know the physic chemicals principals involved in manufacturing process
	CO-4.Introduction, occurrence, composition of petroleum, resources, processing of petroleum, other properties
	CO-5.Study the Nutritive aspects of food constituents
	CO-6.To know about making of glass by different methods ; Properties and uses of special glasses.
CH.336D ENVIRONMENTAL AND GREEN CHEMISTRY	CO-1.Study the Concepts and scope of Environmental Chemistry
	CO-2.Understand the Chemistry of O ₃ , SO _x , NO _x and chlorides in atmosphere
	CO-3.Know the WHO limits for toxic materials in water stream
	CO-4. Study the Green Chemistry and synthetic chemistry
	CO-5.Use of alternative basic chemicals as feedstocs in chemical industry and research
	CO-6.Know the Catalytic routes for sustainable developments
Course Outcomes B. Sc.Chemistry	
Semester-IV	
	CO-1.Understand the reversible and irreversible electrochemical cell with suitable example
CH.341 PHYSICAL CHEMISTRY	CO-2.Understand the Construction, representation and working of Calomel and Silver –Silver Chloride electrode
	CO-3.Understand the Distance between the planes for 100, 110 and 111 type of simple, body centred and face centred cubic crystals
	CO-4.Explanation: Structure of NaCl can be ascertained with the help of X-ray analysis
	CO-5.Understand the The atom its nucleus and outer sphere.
	CO-6.Know the Uncertainty principle and its physical significance
	CO-7.Know Bragg's experiment and Derivation of ($n\lambda = 2d\sin\theta$) Bragg's equation

CH.342 INORGANIC CHEMISTRY	CO-1.Understand the meaning of term f-block elements, Inner transition elements, lanthanides,
	CO-2.Study the difference between metal, semiconductor and insulator
	CO-3.Know the crystal structures of solids.
	CO-4.Give examples of homogeneous catalyts.
	CO-5.Understand the essential properties of heterogeneous catalyts
CH.343 ORGANIC CHEMISTRY	CO-6.Understand the role of metals in non-enzymatic processes.
	CO-1.Study the Possible mechanism of some known name reactions involving carbanions
	CO-2.Know the Meaning of terms Disconnection, Synthons, Synthetic equivalence, Functional Group Interconversion, Target Molecule
	CO-3.Study of Different types of intermediate in rearrangement reactions?
	CO-4.Understand the what is Spectroscopy
	CO-5.To calculate fundamental modes of vibrations for a given molecule
	CO-6.Study Various terms used in PMR spectroscopy.
CH.344 ANALYTICAL CHEMISTRY	CO-7.Study Various methods of isolation/extraction of these natural products
	CO-1.Understand the Principles of solvent extraction.
	CO-2.Study the Technique and applications of Chromatography
	CO-3.Know the Separation mechanism involved in GSC and GLC
	CO-4.Discuss the Separation mechanism involved in adsorption and partition HPLC
	CO-5.Comparison between electrophoresis and chromatography
CH.345 INDUSTRIAL CHEMISTRY	CO-6.Understand the Nephelometry and Turbidimetry as an analytical tool
	CO-1.Study the Classification of polymerization reactions,
	CO-2.Know the Importance of sugar industry
	CO-3.Students know about various cosmetics
	CO-4.Students know about the Preparation of dye intermediates
	CO-5.Students know about the General aspects of drug action
	CO-6.The students are learn all the problems of pollution and deposal of waste of various industries.
CH.346D ENVIRONMENTAL	CO-1.Students know the Methods of water purification
	CO-2.Students know the Types of solid waste and their disposal

CHEMISTRY	CO-3.Student know-Techniques used to monitor hazardous materials present in environment
	CO-4.Students know the Green house gases and their effects
	CO-5.Students know the Resources of of green solvents like alcohol and water
	CO-6.Students know the Conventional and nonconventional energy resources
Programme Outcomes: M. Sc. Organic Chemistry.	After successful completion of two year degree program in Chemistry a student is able to;
Department of Chemistry	PO-1.Determine molecular structure by using UV, IR, and NMR.
Programme Outcomes	PO-2. Study of medicinal chemistry for lead compound.
	PO-3. Improve the Skill of student in organic research area.
	PO-4. Synthesis of Natural products and drugs by using proper mechanisms.
	PO-5. Study of Asymmetric synthesis.
	PO-6.Determine the aromaticity of different compounds.
	PO-7.Solve the reaction mechanisms and assign the final product.
Programme Specific Outcomes	PSO-1.Know the structure and bonding in molecules/ions and predict the stucture of molecule /ions.
	PSO-2.Undestandthe various type of aliphatic, aromatic, nucleophilic substitution reaction.
	PSO-3.Undestand and apply principles of Organic Chemistry for understanding the scientific phenomenon in Reaction mechanisms. PSO-4.Learn the Familiar name reaction and their reaction mechanism.
	PSO-5.Understand good laboratory practices and safety.
	PSO-6.Study of organometallic reaction.
	PSO-7.Study of free radical, bycyclic compound , conjugate addition of Enolates and pericyclic reactions.
	PSO-8.Study of biological mechanisms using amino acids.
Semester III	Outcomes
Course	After completion of these courses students should be able to;

	CO-1. To study Carbanions-Formation, stability and related name reactions
CHO-350 ORGANIC REACTION MECHANISM	CO-2. Understand the NGP :Neighbouring group participation ,
	CO- 3. Study of Reactions of carbenes and nitrene
	CO-4. Knows Generation of radiacals, Stable free radicals, Nucleophilic and electrophilic radicals, Characteristics reactions.
	CO-5.Knows the concept Mechanisms in Biological Chemistry
CHO-351 SPECTROSCOPIC METHODS IN STRUCTURE DETERMINATION	CO-1. Know about 1H NMR Spectroscopy.
	CO-2.Know about 13C NMR spectroscopy
	CO-3.Study of 2D NMR Techniques
	CO-4. Study of Mass Spectrometry
	CO-5.Solve Problems based on joint application of UV, IR, PMR, CMR, and Mass
CHO-352 ORGANIC STEREOCHEMISTRY	CO-1. Gain knowledge about Stereochemistry of six membered rings
	CO-2.Study of Stereochemistry of rings other than six membered
	CO-3.Study of Fused Bridged and caged rings
	CO-4.Understand Resolution of racemic modification
	CO-5.Knows the concept Geometrical Isomerism and Stereochemistry of olefins
CHO-353 PERICYCLIC REACTION, PHOTOCHEMISTRY AND HETEROCYCLIC CHEMISTRY	CO-1.Study of Photochemistry
	CO-2.Study of Pericyclic reactions
	CO-3.Study of Heterocyclic Chemistry
Semester-IV	CO-1. Know the basic terms Natural Products CO-2. Understand the Structure and stereochemistry of Hardwickii acid, Camptothecin and podophyllotoxin
CHO-450 NATURAL PRODUCTS	CO-3. Know the concept Biogenesis
	CO-4. Synthesis of-i) Taxol ii) Estrone and Mifepristone iii) Juvabione (K.Mori and Matsui, Pawson and Cheung Synthesis) iv) Fredericamycin A
	CO-5. Understand various kinds applications of natural products.

CHO-451 ADVANCED SYNTHETIC ORGANIC CHEMISTRY	CO-1. Understand the Transition metal complexes in organic synthesis ; only Pd, Ni, Co, Fe (Metal mediated C-C and C-X bond formation reactions:
	CO-2. Know the C=C formation reactions: Wittig, Horner-Wordworth-Emmons, Shapiro, Bamford-Stevens, McMurry, Julia-Lythgoe
	CO-3. Understand the mechanism of Multi-component reactions: Ugi, Passerini, Biginelli and Mannich reactions
	CO-4. Know the Use of Boron and Silicon in organic synthesis
CHO-452 CARBOHYDRATE AND CHIRON APPROACH AND MEDICINAL CHEMISTRY	CO-1. To study the Carbohydrates
	CO-2. Understand the The concept of chiral templates and chirons wherein the carbon skeleton is the chiral precursor.
	CO-3. Diastereomers-a) with no side effects b) with undesirable side effects Synthesis of S-Ibuprofen, S-Metoprolol, Inivir sulfate.
	CO-4. Relation of Drug structure and its chemical and biological properties
	CO-5. Understand the Antimicrobial drugs.
CHO-453 DESIGNING ORGANIC SYNTHESIS AND ASYMMETRIC SYNTHESIS	CO-1. Study of Designing of organic synthesis: Protection and de-protection
	CO-2. Study of Umpolung in organic synthesis, Retrosynthesis.
	CO-3. Understand the Principles and applications of asymmetric synthesis

Program outcomes, Program specific outcomes and Course outcomes	
DEPARTMENT OF MATHEMATICS	
Programme Outcomes: B. Sc Mathematics	
After successful completion of three year degree program in Mathematics a student is able to;	
Programme Outcomes	PO-1. To get familiar with concepts of mathematics used in higher study
	PO-2. To understand the daily life scenario in which mathematics is involved
	PO-3. To think logically about a problem
	PO-4. Enhance problem solving aptitude.
	PO-5. student should demonstrate skill in applying fundamental mathematical techniques.
	PO-6. know how and when to use technology.
	PO-7. Communicate mathematical ideas both orally and in writing
	PO-8. Gain experience investigating the real world problems and learn to how to apply mathematical ideas and models to those problems
	PO-9. Apply the underlying unifying structures of mathematics (i.e. sets, relations and functions, logical structure) and the relationships among them
Programme Specific Outcomes	PSO-1. Think in a critical manner
	PSO-2 Know when there is a need for information, to be able to identify, locate, evaluate, and effectively use that information for the issue or problem at hand.
	PSO-3 Formulate and develop mathematical arguments in a logical manner.
	PSO-4 Acquire good knowledge and understanding in advance areas of mathematics and statistics, chosen by the student from the given courses.
	PSO-5 Understand, formulate and use quantitative models arising in social science, business and other contexts.
	PSO-6. To know advance techniques in plant sciences like tissue culture, Phytoremediation, plant disease management, formulation of new herbal drugs etc.
	PSO-7 Students able to start nursery, mushroom cultivation, biofertilizer production, fruit preservation and horticultural practices.
Course Outcomes B. Sc Mathematics	
<u>Semester-III</u>	

Course	Outcomes
MT331: Metric Spaces	CO-1. Identify three properties of a metric or distance
	CO-2. define the basic terms and concepts in metric space topology
	CO- 3. classify and explain open and closed sets, adherent points,convergent and cauchy convergent sequences etc..
	CO-4. Prove logically theorems in metric space topology using the definitions of basic terms and properties of metric spaces.
MT 332: Real Analysis-I	CO-1. Define the real Numbers, least upper bounds and triangle inequality
	CO-2. Calculate the limit superior ,limit inferior, and the limit of a sequence.
	CO- 3. Recognize alternating, convergent, divergent, bounded, cauchy and monotone sequences.
	CO-4. Apply Ratio test, root test , limit and limit comparison test.
MT 334: Group Theory	CO-1. Define groups, Subgroup, Normal subgroups
	CO-2. Define order of a group and order of an element.
	CO- 3. Verify group properties in particular examples.
	CO-4. Understand and use the concept of homomorphism and isomorphism.
MT 335:ORDINARY DIFFERENTIAL EQUATION	CO-1. Distinguish between linear, non linear,partial and ordinary differential equations
	CO-2. State the basic existence theorem for 1st order ODE's
	CO- 3. Recognize and solve a variable seperable differential equation
	CO-4. Recognize and Solve a homogeneous differential equation.
	CO-5 Recognize and Solve an exact differential equation.
	CO-6 Find particular solutions to initial value problems.
MT 337 A: OPERATIONAL RESEARCH	CO-1. Understand the meaning of Operations Research and how to use it. How to write linear program in the event of minimum cost or maximum profit
	CO-2. linear program resolved in a manner graph
	CO- 3. linear program resolved in a simplex way.
	CO-4. Methods of writing and resolving the issue of transport
	CO-5 The Assignment problems, and methods to solve
MT 337 F: NUMBER THEORY	CO-1. Find quotients and remainders from integer division.
	CO-2 Apply Euclids Algorithm and backwards substitution
	CO- 3. Students are able to solve system of Linear Congruences

Course Outcomes B. Sc Mathematics
Semester-IV

MT 341: COMPLEX ANALYSIS	CO-1. Write a complex number in Cartesian form (real and imaginary parts)
	CO-2. Write a complex number in polar form (modulus and arguments) using the Euler's Equation.
	CO-3. Find the powers and the roots of a complex number
	CO-4. Use the Cauchy-Riemann Equations to determine whether/where a function is differentiable and find the derivative of a function.
	CO-5. Evaluate exponential, trigonometric and hyperbolic functions of a complex number. Be able to prove and apply properties involving these functions.
	CO-6. Identify the principal value of a logarithm or a complex power. Locate branch points/cuts and determine branches of a logarithmic or a power function.
MT 342: REAL ANALYSIS-II	CO-1. Describe fundamental properties of the real numbers that lead to the formal development of real analysis.
	CO-2. Comprehend rigorous arguments developing the theory underpinning real analysis.
	CO-3. Demonstrate an understanding of limits and how they are used in sequences, series, differentiation and integration;
MT 344: RING THEORY	CO-1. Demonstrate knowledge of the syllabus material.
	CO-2. Write precise and accurate mathematical definitions of objects in Ring theory.
	CO-3. Validate and critically assess a mathematical proof
	CO-4. Use mathematical definitions to identify and construct examples.
MT 345: PARTIAL DIFFERENTIAL EQUATION	CO-1 Use the existence theorem for boundary value problems to determine uniqueness of solutions.
	CO-2. Use the wronskian to determine if a set of functions is linearly independent
	CO-3. Solve a Cauchy -Euler Equation
	CO-4. Identify Ordinary and Singular Points
	CO-5. Solve basic application problems described by second order linear differential equation
MT 347A: OPTIMIZATION TECHNIQUES	CO-1. Discovery, study and solve optimization Problems.
	CO-2. Feasibility study for solving an optimization problem
	CO-3. Understand Optimization techniques using algorithms
	CO-4. Evaluate and measure the performance of an algorithm

	CO-5. Investigate, study, develop, organize and promote innovative solutions for various applications.
MT 347 F: COMPUTATIONAL GEOMETRY	CO-1. Student will get acquainted with the typical problems of computational Geometry.
	CO-2. Student will get deeper knowledge of mathematics .
	CO-3. Student will understand the existing solutions and their applications in computer graphics and machine vision.
	CO-4. Student will learn the principles of Geometric algebra including its application in Graphics and vision related tasks.
	CO-5. Student will practice programming, problem solving and defence of a small project.

Programme outcomes, Programme specific outcomes and course outcomes	
Department of Physics	
Programme outcomes: B.Sc Physics	
	After completion of three years degree programme in Physics of the savitribai Phule Pune University a student is able to:
Programme	PO-1: apply newtons laws of motion, surface tension, fluid mechanics, elasticity in real life
	PO-2: understand the basic laws governing atoms and molecules, the bonding between them, the EM spectra and their applications
	PO-3: deal with different types of engines, refrigrators, air conditioners their specifications and theories of Carnot's cycle
	PO-4: understand types of charges, electric field, electric potential, forces between charges, gauss's law, ampere's circuital law and magnetostatics
	PO-5: solve complicated mathematical problems by application of mathematical methods in Physics
	PO-6A: design simple circuits by applying the knowledge of amplifiers, kirchoff's laws, thevinins, nortons theoroms, logic gates and digital electronics
	PO-6B: various instruments based on their principal, working, derived formulas and their applications in medical science, earth science and defence
	PO-7: understand basic types of waves, harmonic oscillators, lissajous figures, doppler effect, rend and blue shift,damoed oscillations
	PO-8: undersstand monochromaticity, intensity, wave lengths, laws of lenses ans their applications to terrestrial objects and their abberations
	PO-9: solve various types of polynomials like hermite, lagenders,lorentz trasformation equations, degree and order and ether drag hypothesis
	PO-10: understand crystal structure based on symmetry, bravais, miller indices, braggs condition of diffraction and magnetism
	PO-11:understand physics of many particle theory, central force, newtonial and lagrangian formulations and canonical transformations
	PO-12: study basic knowledge of atoms, molecules, transition of electrons,rutherford experimental arrangement and zeeman effect
	PO-13: design the prpgram based on C language, and its applications to pointers,write algorithms using simpsons rule and newton raphson method
	PO-14: classify materials based on their characterstic phase diagrams and group materials as metals, polymers, applying ficks laws of diffusion

	PO-15 understand gauss's law in diff. and integral form, biot- savarts law, poynting theorem as applicable to electrical methods and magnetisation
	PO-16: understand probability and uncertainty relation, normalise wave function and to obtain schrodingers equations
	PO-17: establish the gibbs-helmholtz equation, gaussian probability distribution eqn. and transport phenomenon in gases
	PO-18: undestand radioactive materials, its half line, decay constant, linear accelerators, nuclear reactors, elementary particles.
	PO-19A: study classes of amplifiers, power regulations, JFET, photo diode, operational amplifiers and its applications
	PO-19B: convert various temp. range, study thermisters, photo detectors, control principles, multiplexers and de-multiplexers
	PO-20: history of LASER, pumping, frequency, population inversion, coherence, holography and types of lasers
Programme specific outcomes	PSO-1:students acquire fundamental knowledge through theory and practicals
	PSO-2: Students are able to apply all the practical and theoretical knowledge of optics and successfully execute the same in thesis of specific
	rotation of polarimeter
	PSO-3: students were able to construct a solar cabinet dryer using the knowledge of heat and thermodynamics
	PSO-4: a comparitive study of youngs modulus of different materials was carried out from the course work of mechanics
	PSO-5: using c programming laboratory apparatus were systematically placed in cupboards
	PSO-6: the knowledge of waves and oscillations helps students to design an experiment to study different materials based on standing wave pattern
	PSO-7: sound knowledge of mathematical physics resulted in thesis entitled study of transmission of sound through different materials
	PSO-8:intensity studies of different lamps using lux meter was accomplished using the knowledge of oscillation waves and sound
Course Outcomes	
semester I	
Course	Study of these courses help students to:
F.Y.B.Sc. :MECHANICS	CO-1: Fast calculation on how an object moves is measured and frame of references are determined
	CO-2: work energy relationship is used to analyse a physical situation and develop an equation which relates the energies of initial and final states of motion

	CO-3: an understanding of fundamental concepts of fluid mechanics is established by building necessary theoretical background
	CO-4: identification and description of properties of matter including flexibility, strength, transparency, hardness and density
F.Y.B.Sc. :PHYSICS PRINCIPLES AND APPLICATIONS	CO-1: Study Physics of Atoms and molecules through Thomson's model, Rutherford's model and Bohr's Atomic model;
	CO-2: Get a detailed knowledge of a monochromatic, coherent and a highly collimated beam of source i.e., Laser, its principle of working via induced, spontaneous and stimulated emissions, population inversion and its applications in various fields like medicine, defence, space science, spying etc.
	CO-3: Study of Physics of molecules - types of forces between atoms, ionic, covalent, Van der Waal's, Hydrogen, metallic and types of vibrations.
	CO-4: Study of EM spectrum, Planck's hypothesis, source of EM waves and their applications as Microwave ovens, Radar, X-Ray Radiography, CT scan etc.
semester II	
F.Y.B.Sc. : HEAT AND THERMODYNAMICS	CO-1: Concept of balance and how it can be used to solve equations are understood
	CO-2: how heat energy is converted into other forms of energy and efficiency and working of different types of engines are calculated
	CO-3: basic theory of Carnot's engine, second law of thermodynamics and its applications can be explained
	CO-4: internal combustion engines and its functioning, basics of refrigerator and air conditioning are studied
	CO-5: temperature scales, principle construction, and working of different thermometers are understood
F.Y.B.Sc. : ELECTROMAGNETICS	CO-1: understand Coulomb's law, superposition principle calculations of electric fields, applications of Gauss's law.
	CO-2: understand dipole and dipole moment, electric potential, torque and Gauss's law in dielectrics.
	CO-3: follow Biot-Savart's law, application of Ampere's law to solenoids and toroids.
	CO-4: understand magnetic materials and their Bohr magneton, relation between B, H and M and hysteresis.
semester III	
S.Y.B.Sc. : MATHEMATICAL METHODS IN PHYSICS.	CO-1: Solve problems related to complex numbers, rectangular, polar and exponential forms, Argand diagrams and applications to solving various complicated problems related to Physics
	CO-2: Solve complicated problems in Partial Differentiation, successive, total, exact chain rule. Determination of maxima and minima.
	CO-3: Problems in vector algebra with dot and cross products, scalar triple product and vector triple product.

	CO-4: solve problems of vector analysis involving scalar and vector fields, gradient and divergence operators, Laplacian operators, and vector identities.
	CO-5: Determine linearity, homogeneity, singularity and regularity of differential Equation of types hermite, lagendre and laguerre polynomials.
S.Y.B.Sc. :ELECTRONICS	CO-1: Kirchhoffs laws voltage and current divider circuits, nortons theorems, superposition theorem are applied in practical knowledge
	CO-2: apply various biasing methods, configurations and transistors in designing the circuit
	CO-3: understand amplifier circuits and its uses as op-amp, adder, subtractor, inverting-noninverting modes
	CO-4: learn the concept and working of types of rectifier circuits, ripple voltage, zener diode as a regulator
	CO-5: derive different logic gates with symbols and truth tables, and verify de morgans theorem so also number system is conceptualised
S.Y.B.Sc. : INSTRUMENTATION	CO-1: design experiment using sensors
	CO-2: understand the function of different instruments
	CO-3: use different instruments for measurement of parameters
	CO-4: explain the basic functioning of display, recorders
Semester - IV	
S.Y.B.Sc. : OSCILLATIONS,WAVES AND SOUND	CO-1: understand the physics and mathematics of oscillations
	CO-2: solve the equations of motions for simple harmonic , damped and forced oscillators
	CO-3: describe oscillatory motion with graphs and equations
	CO-4: understand the mathematical description of travelling and standing waves
	CO-5: explain the doppler effect and predict in qualitative terms the frequency change with respect to stationary and moving observer
S.Y.B.Sc. : OPTICS	CO-1: understand lens theory, lens makers formula, magnification, deviation and power of thin lenses.
	CO-2: understand lens aberrations like chromatic and monochromatic, achromatism of lenses in contact and at a finite distance.
	CO-3: study simple and compound microscopes and Ramsden's and Huygen's eye pieces.
	CO-4: understand interference and diffraction, stoke's treatment, interference due to reflection and refraction, Fresnels and Fraunhoffer's diffraction, Newton's rings and Rayleigh criterion.
	CO-5: study polarisation effects, Brewster's law, law of Malus, polarisation by double refraction and Nicol prism.
Semester - V	
T.Y.B.Sc. : MATHEMATICAL METHODS IN PHYSICS	CO-1: to know different types of coordinates system and their parameters

	CO-2: understand special theory of relativity , galilean , lorentz transformation and mass energy relation
	CO-3: to study differential equations their importance and applications
	CO-4: differentiate what are hermite,legendres and bessels function
T.Y.B.Sc. : SOLID STATE PHYSICS	CO-1: Understand crystalline state, lattice, basis, symmetry operations,bravais lattices, miller indices, interplanar distances and reciprocal lattice.
	CO-2: study X-Ray diffraction, Bragg's diffraction condition for direct and reciprocal lattice, laue's method, rotating crystal method and characterisation techniques
	CO-3: understand free electron gas theory, classical, quantum mechanical and zone theory, effective mass of electron, hall effect and distinction between metals, semiconductors and insulators.
	CO-4: understand langevin theory of diamagnetism and paramagnetism, superconductivity, meissner effect, Curie and Curie Weiss law.
T.Y.B.Sc. : CLASSICAL MECHNACIS	CO-1: Apply theory to projectile motion in resistive medium, rocket motion, motion of charged particles to electric and magnetic fields, system of particles
	CO-2: understand central force field, equation of orbit, deduction of kepler's laws of planetary motion and artificial satellite orbits.
	CO-3: study elastic and inelastic scattering in laboratory and centre of mass system, differential and total cross section and impact parameter.
	CO-4: understand limitations of newtonian mechanics, D'Alemberts principle and virtual work,Hamiltonian and Lagrangian formulations.
	CO-5: solve canonical transformation problems, poisson brackets and Jacobi identities.
T.Y.B.Sc. : ATOMIC AND MOLECULAR PHYSICS	CO-1:determine energy of hydrogen atom , velocity of an electron and understand origin of line spectra
	CO-2: prepare the table for electronic configuration of an atom, quantum state of an electron, spectral notation of quantum state
	CO-3: experiment zeeman effects on the basis of quantum theory so also bohrs magneton is determined
	CO-4: discuss x-rays its nature, origin spectra, characteristic spectra, fine structure, auger effect precisely
	CO-5: determine the energy level of rigid diatomic molecule , understand fluorescence and phosphorescence
T.Y.B.Sc. : COMPUTATIONAL PHYSICS	CO-1: will learn algorithm and flowcharts ,middle and higher level language
	CO-2:to know input and output function, operators and different type of control statements
	CO-3:understand application of arrays and pointers in c
	CO-4: know how graphic command are used

	CO-5:to know about the methods (newton raphson, trapezoidal, simpsons) to solve complex integrals
T.Y.B.Sc. : ELEMENTS OF MATERIALS SCIENCE	CO-1: to understand defects in solids, material properties, rules of solid solution,Fick's law, point, surface and volume imperfection.
	CO-2: to study single phase alloys, deformation both elastic and plastic, slip, CRSS.
	CO-3: to understand polymers and polymerisation, addition and condensation and cross linked polymers.
	CO-4: classify materials, ceramic phases, mechanical, electrical and magnetic behaviour of ceramics.
	CO-5: understand Type I and Type II types of phase diagrams and construction.
	CO-6: understand and classify smart materials, their types, structure, properties and applications of smart materials.
Semester - VI	
T.Y.B.Sc. : CLASSICAL ELECTRODYNAMICS	CO-1: To understand Gauss's law, Poisson's equation and solve boundary value problems and method of images and dielectric systems.
	CO-2: understand Biot Savart's law, Ampere's law,equation of continuity, magnetic vector potential,susceptibility and permeability, Hysteresis losses.
	CO-3: understand concept of EM induction, Faraday's laws, Lenz's law,Maxwell's equations in differential and integral form, wave equation.
T.Y.B.Sc. : QUANTUM MECHANICS	CO-1: to solve quantum mechanical problems using schrodingers equation
	CO-2: understand the application of steady state equation and eigen values and eigen functions
	CO-3:to apply schrodingers equation in spherically symmetric potentials and study the quantization of energy
	CO-4: understand commutation brackets, their relations involving position and momentum cordinates and their importance
T.Y.B.Sc. : THERMODYNAMICS AND STATISTICAL PHYSICS	CO-1: to calculate mean free path , know about transport phenomena
	CO-2: understand maxwell relations and their applications
	CO-3: understand statistical distribution of system of particles
	CO-4: know about basic knowledge of quantum statistics
	CO-5: know about the elementary concept of statistics and micro canonical, canonical, grand canonical ensembles and their applications
T.Y.B.Sc. : NUCLEAR PHYSICS	CO-1:determine the nuclear charge ,size , density, angular momentum, magnetic moment, electrical quadrupole moment and binding energy

	CO-2: differentiate alpha, beta and gamma rays also half life, mean life, activity, successive disintegration of particular radioactive source is determined
	CO-3:solve deuteron problem and analyse the process of observation in atomic physics in sub atomic level
	CO-4: learn different types of particle accelerators its construction and working and use gm counter as a particle detector
	CO-5:describe liquid drop model of bohr and wheeler and estimate the release in energy from binding energy curve
T.Y.B.Sc. : ELECTRONICS	CO-1: learn working principle of the led and its use in sevensegment display.Photodiode and varactor diode applications are practiced
	CO-2: classify amplifiers based on its operation , coupling , frequency range
	CO-3: study JFET and MOSFET their channels and relations with parameters. Learn how to apply FETS in Electronic switch
	CO-4: apply the knowledge opamp to design integrator and differentiator circuits
	CO-5:design an astable multivibrator, monostable multivibrator using IC555
T.Y.B.Sc. : ADVANCE ELECTRONICS	CO-1:know about basic working principles of various sensors and their applications
	CO-2:understand the principles of analog signal conditioning
	CO-3:understand digital signal conditioning and converters eg DAC,ADC and data acquisition system
	CO-4: know about basic control processes and control system evaluation
T.Y.B.Sc. : LASERS	CO-1: to understand difference between ordinary and laser light, spontaneous, stimulated emission, Einstein's co-efficients.
	CO-2: to understand population inversion, light amplification,metastable state and 3 and 4 level pumping schemes.
	CO-3: to understand laser oscillator, optical round trip, optical resonator, condition for steady state oscillations and cavity resonance frequencies.
	CO-4: understand lineshape, lifetime, collision and doppler broadening
	CO-5: understand characteristics of laser.
	CO-6: to follow solid state, gas, liquid and semiconductor lasers
	CO-7: to apply lasers to industrial, nuclear science, defence, medical and optical holography.

Program outcomes, Program specific outcomes and Course outcomes	
DEPARTMENT OF ELECTRONICS	
PROGRAM OUTCOME: BSc Electronics & BSc(CS) Electronics	
After successful completion of two year program in Electronics a student is able to	
Program Outcomes	PO1 -Students know about passive components , their use in basic electrical circuits, analysis of circuit using network theorem, gain knowledge about rectifying, switching and amplifying devices.
	PO2 –Students are know about number system ,logic gates ,combinational and sequential circuits, gain knowledge about logic families.
	PO3 – Students are able to design analog circuits, know about differential amplifier and applications of operational amplifier.
	PO4 – Understands the technique to design digital circuits, data converters ,digital system interfacing and applications.
	PO5 –Students are able to understand measuring instruments, specifications and internal structure of signal sources and oscilloscope, various digital applications and power supply.
	PO6 – Understanding the role of digital circuits in computer, memory architecture, computer organization and architecture of microprocessor.
	PO7 – Gain knowledge about analog electronic system for the detection and measurement of atmospheric parameters, necessary circuits for processing.
	PO8 – Understanding about architecture, programming of 8051 microcontroller and interfacing with other peripherals.
	PO9- Know about elements of communication, various analog and digital modulation techniques ,wireless communication and applications.
Program Specific Outcomes	PSO1 – Understands the concept of analog and digital electronics.
	PSO2 – Learn to design analog and digital circuits.
	PSO3 – Get idea about electronics instruments used in laboratories and basic electronic communication system.
	PSO4 – Understand the system to detect atmospheric parameter and get able to construct the same system by case study.
	PSO5 - Gain knowledge about computer organization and various applications of electronics in day today life.
Course Outcomes B. Sc. ELECTRONICS	
Course	Outcomes
EL-101 Principles of Analog Electronics	CO-1 To get familiar with basic circuit elements and passive components.
	CO-2 Students should understand specifications and role of basic component in a circuit.
	CO-3 To understand basic electrical circuits and analysis of the same using network theorems.

	CO-4 To get knowledge about semiconductor devices and their characteristics.
	CO-5 To understand the role of semiconductor devices in electronic circuit and applications of the same.
	CO-6 To get an idea about transistor which is basic building block of integrated circuits.
	CO-7 To get an idea about some unipolar devices .
	CO-8 To learn the characteristics of unipolar devices.
	CO-9 To know the elementary electronic circuits and their applications.
	CO-10 Understand the basics of operational amplifier.
	CO-11 To learn the various applications of operational amplifier.
EL-102 Principles of Digital Electronics	CO-1 To get familiar with digital electronics
	CO-2 To learn number system and their representation.
	CO-3 To understand basic logic gates, Boolean algebra and k-map.
	CO-4 To study arithmetic circuits ,combinational circuits and sequential circuits
	CO-5 To study the applications of shift register.
	CO-6 To get an idea about various logic families.
	CO-7 To study comparative aspects of logic families and their role in designing of integrated circuits.
<u>Semester-I</u>	
EL-211 Analog Circuit Design	CO-1 To study basic working principle of transistor amplifier.
	CO-2 To get an idea about various applications of amplifier .
	CO-3 Understand the working of various analog circuits.
	CO-4 To develop skill to design various analog circuits.
	CO-5 To understand voltage amplifier and power amplifier.
	CO-6 To get an idea about role of feedback system to design amplifier.
	CO-7 To understand role of feedback system to design oscillator circuit.
	CO-8 To know the various applications of oscillators.
	CO-9 To get an idea about differential amplifier .
	CO-10 To study the applications of operational amplifier.
	CO- 11 To apply knowledge of analog circuits in different applications.
EL-212 Digital Circuit Design	CO-1 To design various combinational circuits using k-map
	CO-2 To understand the design principle of sequential circuits.
	CO-3 To get an idea about various data converters used in electronics.
	CO-4 To design an various data converters and understand their working.
	CO-5 To study digital interfacing techniques for various electronic devices.
	CO-6 Apply knowledge of digital electronics in various applications.
Semester II	

EL-221 Electronic Instrumentation	CO-1 To study block diagram of electronic instrumentation.
	CO-2 To understand basic measuring principle
	CO-3 To design various basic electronic measuring instruments.
	CO-4 To get an idea about signal sources types, internal structure, working principle and applications.
	CO-5 To understand output device cathode ray oscilloscope.
	CO-6 To study the various applications of digital instruments .
	CO-7 To study various power supply used in electronics.
	CO-8 Use of Molluscan shell as source of calcium carbonate and Ornament.
	CO-9 To learn the operating procedure of electronic instruments.
EL-221 Electronic Communication	CO-1 Study the basics of communication system and telephone system.
	CO-2 To understand of various Analog modulation techniques used in electronic communications.
	CO-3 Understand basics of AM and FM receiver.
	CO-4 Understand the block diagram of digital communication system.
	CO-5 Study of various digital modulation techniques.
	CO-6 Study of electronic communication devices.
B.Sc. (Computer Science) Electronics	
ELC-101 Principles of Analog Electronics	CO-1 To get familiar with basic circuit elements and passive components.
	CO-2 Students should understand specifications and role of basic component in a circuit.
	CO-3 To understand basic electrical circuits and analysis of the same using network theorems.
	CO-4 To get knowledge about semiconductor devices and their characteristics.
	CO-5 To understand the role of semiconductor devices in electronic circuit and applications of the same.
	CO-6 To get an idea about transistor which is basic building block of integrated circuits.
	CO-7 To get an idea about some unipolar devices .
	CO-8 To learn the characteristics of unipolar devices.
	CO-9 To know the elementary electronic circuits and their applications.
	CO-10 Understand the basics of operational amplifier.
	CO-11 To learn the various applications of operational amplifier.
EL-102 Principles of Digital Electronics	CO-1 To design various combinational circuits using k-map
	CO-2 To understand the design principle of sequential circuits.
	CO-3 To get an idea about various data converters used in electronics.
	CO-4 To design an various data converters and understand their working.
	CO-5 To study digital interfacing techniques for various electronic

	devices.
	CO-6 Apply knowledge of digital electronics in various applications.
Semester –I	
ELC-211 Digital System Hardware	CO-1 Study of applications of logic gates.
	CO-2 Use of K-map to design digital circuit.
	CO-3 Get an idea about memory organization.
	CO-4 Study and understand basics of microprocessor.
	CO-5 Get an idea about fundamental of multicore technology.
ELC-212 Analog System	CO-1 Understanding of analog electronic system for measurement of atmospheric parameters.
	CO-2 Study of different types of sensors.
	CO-3 To understand different types of signal conditioning circuits required for sensors.
	CO-4 To learn an data converter techniques to drive analog or digital output device.
	CO-5 To apply knowledge of analog system in different applications.
Semester II	
ELC 221: The 8051 Architecture, Interfacing and Programming	CO-1 Understanding of 8051 microcontroller architecture.
	CO-2 To get an idea about different registers and I/o ports of 8051 microcontroller.
	CO-2 Study the programming of 8051 microcontroller.
	CO-3 To learn different interfacing techniques of 8051 microcontroller.
	CO-4 Applies knowledge of 8051 to design various application circuits.
	CO-5 Introduction to basic concept of advanced microcontroller.
ELC-222 Communication Principles	CO-1 Understanding of electronic communication system.
	CO-2 To know the concept of Electromagnetic spectrum required for electronic communication.
	CO-3 Learning of error handling code for code generation, error detection and correction.
	CO-4 To get an idea about modulation and demodulation technique.
	CO-5 Study of different digital modulation techniques.
	CO-6 Get an Idea about multiplexing techniques.
	CO-7 Study of frequency spectrum techniques..
	CO-8 Understanding of wireless communication system.
	CO-9 Understanding of mobile communication.
	CO-10 Introduction to concept of advanced wireless communication .

Program outcomes, Program specific outcomes and Course outcomes	
Department of Microbiology	
Programme Outcomes: B. Sc Microbiology	
After successful completion of three year degree program in Microbiology, a student is able to;	
Programme Outcomes	PO-1. Students know about historical roots of microbiology, like discovery of microorganisms, microscope. Students also know how microbiology develops as science and developments in microbiology in 19th, 20th and 21st century
	PO-2. scopes and applications of the field of microbiology are known.
	PO-3. Chemistry of biomolecules gives knowledge about basic foundation of structural and functional potential of cell.
	PO-4. Bacterial cytology provides knowledge about structure, chemical composition and function of various components in bacterial cell..
	PO-5. Bacterial physiology gives knowledge of metabolism, catabolism, respiration and fermentation in bacteria.
	PO-6. Air microbiology gives information about air flora, air pollution, methods of air sampling.
	PO-7. They know importance of microorganisms in fermentation, pharmaceutical, dairy industries, in waste water treatment plant, in biological research, in soil and agricultural processes.
	PO-8. Use of Genetic engineering to produce recombinant molecules.
	PO-9. Encourage and motivate students to explore the potential applications in the field of microbiology.
Programme Specific Outcomes	PSO-1. Students acquire fundamental basic and technical knowledge through theory and practical
	PSO-2. Morphological and differentiating characters of various microorganisms are known. Which help to understand principles in identification and classification of bacteria.
	PSO-. It explains principles, construction and working and applications of Bright field, dark field, fluorescence, confocal, electron microscopy.
	PSO-3. Helped to understand role of microorganisms transformation of organic matter, in causation of diseases.
	PSO-4. Help to understand effect of different environmental parameters, chemical and physical agents on growth of bacteria.
	PSO-6. To know advanced techniques like gel filtration, column chromatography, recombinant DNA technology etc

	<p>PSO-7 Students able to -isolate, identify and classify and cultivate bacteria /pathogen in pure culture, screen antibiotic producing /enzyme producing/nitrogen fixing /pesticide degrading bacteria, to do bacteriological tests of water, milk and dairy products, to produce ethanol by lab scale fermentation. To carry out qualitative and quantitative test for biomolecules, to clinically examine blood, urine, stool samples etc.</p>
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Course Outcomes B. Sc Botany	
<u>Semester-III</u>	
Course	Outcomes
	After completion of these courses students should be able to;
MB. 331 MEDICAL MICROBIOLOGY-I	CO-1. Know in brief the anatomy and physiology of various human body systems,
	CO-2. Know about the infectious diseases occurring in various human body systems and also the pathogens and symptoms of the respective diseases.
	CO-3. have knowledge regarding Epidemiology
	CO-4. Know about clinical trials of drugs and vaccines
	CO- 5. Know the classification, biochemical characters, antigenic properties, viability characters, pathogenicity, pathogenesis, symptoms, laboratory diagnosis, epidemiology, prophylaxis and chemotherapy of certain groups of pathogenic bacteria.
MB.332 GENETICS AND MOLECULAR BIOLOGY-I	CO-1. Gain knowledge about gene linkage and crossing over through Mendelian laws and fungal genetics.
	CO-2. Learn basic molecular biological process of replication, transcription and translation
	CO-3. Understand enzymatic machinery involved in above processes and regulation of these processes.
	CO-4. Understands History, potential use, biohazards and safety guidelines for recombinant DNA technology.
	CO-5. study techniques used in recombinant DNA technology.
MB. 333 ENZYMOLOGY	CO-1. Understand structure of enzymes, role of cofactors in metabolism.
	CO-2 Know about enzyme assays and their principles.
	CO-3. study principles and methods of enzyme purification and characterization.
	CO-5 Study enzyme kinetics. Concept and types of inhibitors
	CO-6 Understand metabolic regulation and enzyme immobilisation.
MB.334 IMMUNOLOGY -I	CO-1. Study of Immunity and Types of Immunity.
	CO-2. Understand the cells and organs of immune system their structure and function.
	CO-3. Understand specific and non specific components of immunity. First, second and third lines of defence.

	CO-4.Understand the structure and function, types of antigen and antibody
	CO-5.To study humoral and cell mediated immune response.
	CO-6 Know transplantation immunology, types of graft, graft rejection and its prevention.
	CO-5.Know types of fossils, geological time scale.
MB.335 FERMENTATION TECHNOLOGY -I	CO-1.know about strain improvement of strains used in fermentation industry.
	CO-2. Know about media optimization of media used in large scale production and Understand the sterilization methods for media
	CO-3. Know about scale-up and scale-down of fermentation process.
	CO-4.know the principles and methods of down stream processing.
	CO-5. Know the bioassay techniques and various tests done for quality assurance.
	CO-6. Know about fermentation economics and in brief about Intellectual Property Rights
MB.336 FOOD AND DAIRY MICROBIOLOGY	CO-1.To study role of milk as a important source of nutrition and its methods of preservation.
	CO-2 To study various microbial tests to analyse quality of milk as an industrial product.
	CO-3.To study spoilage of various food materials.
	CO-4. To study various methods of food preservation used at industrial level.
	CO-5.To study fermentation of food materials and their health benefits.

Course Outcomes B. Sc Botany	
Semester-IV	
MB. 341 MEDICAL MICROBIOLOGY- II	CO-1.Know about chemotherapy and various parameters of chemotherapeutic agents and concept of drug resistance.
	CO-2. have knowledge regarding the mode of actions of various antimicrobial agents
	CO-3.Know about various viral pathogens with respect to virion characters, viability, pathogenicity, symptoms, pathogenesis, laboratory diagnosis, epidemiology, prophylaxis and chemotherapy.
	CO-4. Know about certain groups of parasites with respect to their classification, life cycle, morphological characters, viability, pathogenicity, symptoms, pathogenesis, laboratory diagnosis, epidemiology, prophylaxis and chemotherapy.
	CO-5. Know about groups of candida and non-candida fungal pathogens with respect to their morphological and cultural characters, classification, pathogenicity, symptoms, pathogenesis, laboratory diagnosis, epidemiology, prophylaxis and chemotherapy.
MB.342 GENETICS AND MOLECULAR	CO-1.Know gene transfer mechanism in bacteria by transformation, transduction and conjugation.

BIOLOGY-II	CO-2. study DNA damage and repair mechanism
	CO-3. Understand recombination and mutation in bacteriophage . Applications of phage genetics
	CO-4 Understand tools of recombinant DNA technology
	CO-5 Study techniques to generate recombinant DNA molecule.
MB 343 METABOLISM	CO-1. Understand membrane transport mechanism.
	CO-2. study bioenergetics, laws of thermodynamics, concept of free energy, ETC.
	CO-3. Understand biosynthesis and degradation of macromolecules
	CO-4. to study bacterial photosynthesis.
	CO-5. to understand importance of Electron Transport Chain in energy harvesting process of living things.
MB.344 IMMUNOLOGY -II	CO-1. Understand the major histocompatibility complex and its role in immunity
	CO-2. To study type and properties and general characters of cytokines
	CO-3. Understand antigen antibody interactions .
	CO-4. Study of Blood groups, types of blood groups, laboratory methods .
	CO-5. study of public health immunology, vaccines
	CO-6 Understand hypersensitive reactions , autoimmunity
	CO-7 Use of hybridoma technology and monoclonal antibodies
MB.345 FERMENTATION TECHNOLOGY -II	CO-1. Understand the concept of solid state and submerged fermentations.
	CO-2. Know the large scale production of vitamins, amino acids, organic acids, alcohol, beer, wine, antibiotics.
	CO-3. Know the large scale production of enzymes, yeasts and mushrooms.
	CO-4. Know the large scale production of milk products - cheese and yoghurt.
	CO-5. Know the large scale production of vaccines and immune sera.
	CO-6. Know about the microbial transformation of steroids.
BO. 346 AGRICULTURAL AND ENVIRONMENTAL MICROBIOLOGY	CO-1. Understand importance and methods to control plant diseases.
	CO-2. To know the significance and requirement of Biodegradable plastics in present era.
	CO-3. To study Bioremediation of commercially important metals, and its benefits over chemical leaching process.
	CO-4. To study concept of Bioterrorism of modern warfare.
	CO-5. To study applications and microbial production of Nanoparticles.

Program outcomes, Program specific outcomes and Course outcomes	
Department of ZOOLOGY	
Program Outcomes: B. Sc ZOOLOGY	
Program Outcomes	PO1 - Students can obtain knowledge and develop skill over animal sciences, understands the relations and interactions among various living organisms
	PO2 – Students can study animals of different phyla, their distribution and their relationship with the environment
	PO3 – Students can get knowledge about internal structure of cell and functions of various cellular organelles.
	PO4 – Students are able to understands the complex evolutionary processes and behavioral pattern of various animals
	PO5 – Students can correlate the physiological and biochemical processes of animals
	PO6 – Students get awareness regarding pollution control and biodiversity, ecological factors, environmental conservation processes and its importance and protection of threatened species
	PO7 – Students can learn about sericulture, fisheries, apiculture
	PO8 – Students can get conceptual knowledge of genetics and its importance in human health
Program Specific Outcomes	PSO1 - Analyse the relationships among animals with their ecosystems
	PSO2 - Understand the nature and basic concepts of cell biology, genetics, taxonomy, physiology, ecology and applied Zoology
	PSO3 - Perform procedures as per laboratory standards in the areas of Taxonomy, Physiology, Ecology, Cell biology, Genetics, Applied Zoology, tools and techniques of Zoology, Toxicology, Sericulture, Biochemistry
	PSO4 - Understand the applications of Zoology in Agriculture, Medicine and daily life
	PSO5 - Gains knowledge about research methodologies, effective communication and skills of
	PSO-6 problem solving methods
Course Outcomes B. Sc Zoology	
<u>Semester-I</u>	
Course	Outcomes
ZO-111 Animal Diversity I	CO-1 Sensitization towards animal world.
	CO-2 Development of conceptual clarity with regard to the anatomy of animals at different levels.
	CO-3 Understanding of evolutionary perspective of each level of organisation

	CO-4 Learning of modern system of animal classification
	CO-5 Get an idea about Ecological role of unicellular eukaryotes
	CO-6 Get an idea about Evolution and mechanism of heterotrophy.
	CO-7 Get an idea about Pathogenicity and industrially important protozoan species
	CO-8 Understanding of origin of intercellular communication.
	CO-9 Understand the Physiology of metazoan in the absence of true tissue
	CO-10 Understand the Role of Porifera in food web with reference to Filter feeding habit
	CO-11 Understanding of key evolution aspects like formation of the third germ layer, nervous system and bilateral symmetry
	CO-12 To learn classification and adaptations in life endangering parasite.
ZO-112 Animal Ecology	CO-1 Understanding of prosperity and present degradation of environment
	CO-2 Understanding of ecosystem with respect to How human is part of ecosystem.
	CO-3 Understanding of ecosystem with respect to Need of maintaining of ecological balance.
	CO-4 Understanding of ecosystem with respect to Sustainable utilization and conservation of natural resources
	CO-5 Learning of importance and techniques of quantitative and qualitative estimation of each species.
	CO-6 Understand population trends.
	CO-7 Understanding of dependence and association between species
<u>Semester-II</u>	
ZO-121 Animal Diversity II	CO-1 Understanding of classification and threats from the free living parasite for human, pets and economically important plants
	CO-2 Understanding of classification and ecological role of Annelids.
	CO-3 Understanding of arthropods with respect to Classification, modifications (with respect to food habit) and importance (as source of food, silk, honey and wax) of arthropods
	CO-4 Understanding of arthropods with respect to Role in drug discovery, pollination and biological pest control.
	CO-5 Understanding of arthropods with respect to Ecological indicators
	CO-6 Understanding of molluscs with respect to Classification and importance as source of food, calcium carbonate and drug.
	CO-7 Understanding of molluscs with respect to Role as ecological indicator.
	CO-8 Understanding of molluscs with respect to Ornamental value of shell.
	CO-9 Understanding of echinoderms with respect to Origin of

	deuterostome.
	CO-10 Understanding of echinoderms with respect to Classification and role as ecological indicator.
	CO- 11 Understanding of echinoderms with respect to Value for ornamental fishery.
ZO-122- Cell Biology	CO-1 Industrial applications of Cell Biology
	CO-2 Structural and functional organization of cell with an emphasis on nucleus, plasma membrane and cytoskeleton.
	CO-3 Learn techniques to understand dynamism of each part of animal
	CO-4 Dynamism of cell membrane.
	CO-5 Acquire insight of transport mechanisms for the maintenance and composition of cell
	CO-6 Understand ultrastructure of nucleus
	CO-7 Involvement of nucleus in heredity and variation
	CO-8 Understand the compartmentalization and higher degree of cell specialization
	CO-9 Understand the interlinking of endomembrane system for functioning of cell.
	CO-10 Understand ultrastructure of mitochondria and peroxisomes
	CO-11 Role of mitochondria and peroxisomes in metabolism
	CO-12 Understand mechanism of Reproduction of cell
Semester III	
ZY-211: Animal Systematics and Diversity -III	CO-1 Use of Arthropoda, Mollusca and Echinodermata as Ecological indicators.
	CO-2 Origin of deuterostome.
	CO-3 Importance of Arthropoda as source of silk, honey and wax.
	CO-4 Role of Arthropoda in pollination and biological pest control.
	CO-5 Ecological adaptation in zooplankton, Arthropoda, Mollusca and Echinodermata
	CO-6 Role of Arthropoda, Mollusca and Echinodermata in drug discovery.
	CO-7 Importance of Arthropoda and Mollusca as source of food.
	CO-8 Use of Molluscan shell as source of calcium carbonate and Ornament.
	CO-9 Pearl culture and ornamental fishery as sustainable industry for livelihood development.
	CO-10 Understanding of invertebrate animal life and its classification

ZY-212: Applied Zoology – I	CO-1 Understand basic requirements and techniques in fisheries and aquaculture
	CO-2 Understand role of fisheries in livelihood development
	CO-3 Understand design and operation of different type of crafts and gears
	CO-4 Understand methods to reduce fisheries loss
Semester IV	
ZY-221: Animal Systematics and Diversity – IV	CO-1 Understanding of Scientific classification of higher classes of vertebrate on the basis of modification in anatomy, respiratory system, circulatory system, nervous system and reproductive system
	CO-2 General environmental adaptation in snake, desert animals, birds and mammals with reference to their habit and habitat
	CO-3 Understanding of vertebrate animal life and its classification
ZY-222: Applied Zoology – II	CO-1 Understand scope and importance of apiculture in livelihood development.
	CO-2 Understanding of bee colony characteristics and key aspects of honey bee life cycle
	CO-3 Selection of appropriate methods for apiculture
	CO-4 Understand scope and importance of sericulture in livelihood development.
	CO-5 Understanding of key aspects of silk worm life cycle
	CO-6 Selection of appropriate methods for sericulture
Semester V	
ZY-331: Animal Systematics and Diversity V	CO-1 Understanding of invertebrate animal life and its classification with reference to gastropod <i>Pila globosa</i>
	CO-2 Understanding of characteristics features of animals belonging to phylum Protozoa, Porifera, Coelenterata and Hemichordata
	CO-3 Understanding of vertebrate animal life and its classification with reference to reptile <i>Calotes versicolor</i>
	CO-4 Understanding of the development and functions of Integument, Heart, Kidney and Brain in each class of vertebrates
	CO-5 Understanding of characteristics features of Dipnoi, Rhynchocephalia and Mammalia
ZY-332: Mammalian Histology	CO-1 Understanding of importance of the well planned organization of tissues and cells in the organ systems.
	CO-2 Understanding of the need and importance of different types of tissues in the vital organs and their functions.
	CO-3 To make acquainted with the cellular architecture of the various organs in the body.
	CO-4 Understanding of structure, function and regulation of endocrine glands

ZY-333: Biological Chemistry	CO-1 Understanding of basic chemistry behind biological material and processes
	CO-2 Structure, properties, clinical significance of carbohydrates and their role in sustenance of life.
	CO-3 Structure, properties, clinical significance of proteins and their role in sustenance of life.
	CO-4 Understanding of basics of enzyme structure and function.
	CO-5 Realization of the power and application of enzymes in basic and applied science.
	CO-6 Structure, properties, clinical significance of lipids and their role in sustenance of life.
ZY-334 Environmental Biology and Toxicology	CO-1 Understanding of dynamics and regulatory factors important for sustenance of life on earth
	CO-2 Impart knowledge of different components of ecosystem and educate about essentials of coexistence of human beings with all other living organisms.
	CO-3 Understanding of the different factors affecting environment and its impact on environment and human health.
	CO-4 Understanding of the importance of factors governing environment and its management in India
	CO-5 Impart need to develop and adopt methods of CO-6 C0-6 sustainable utilization and conservation of natural resources to sustain life on earth
	CO-7 Learn different threatened species categorised by IUCN through estimating population trends.
	CO-8 Understanding of importance of wildlife conservation.
	CO-9 Understanding of the wildlife habitat projects for animal protection
	CO-10 Understanding of principles of toxicology with particular emphasis on toxic responses to chemical exposures and toxicity testing
	CO-11 Understanding of nature and effect of different toxicant
ZY-335: Parasitology	CO-1 Understanding of importance to learn Parasitology
	CO-2 Understanding of the general epidemiological aspects of parasites that affect humans, pets and cattle.
	CO-3 To make learners aware about the modes of transmission of disease and reservoir of parasites.
	CO-4 To acquaint with the concepts of parasitism, their relationship with host physiology and environment.
	CO-5 Understanding of the life cycle of specific endoparasites, the symptoms of the diseases caused by them and its treatment.
	CO-6 Understanding of the life cycle of specific ectoparasites, the symptoms of the diseases caused by them and its treatment.

	CO-7 To acquaint with the concepts of zoonosis from Bird flu, Rabies and Toxoplasmosis diseases
	CO-8 Understanding of the role of vectors in disease transmission by learning life cycle of parasite, symptoms of disease and its treatment
	CO-9 Understanding of life cycle of pathogen, symptoms, treatment and preventive measures for epidemic diseases
ZY-336: Cell Biology	CO-1 Industrial applications of Cell Biology.
	CO-2 Structural and functional organization of cell with an emphasis on nucleus, plasma membrane and cytoskeleton.
	CO-3 Learn techniques to understand dynamism of each part of animal
	CO-4 Dynamism of cell membrane.
	CO-5 Acquire insight of transport mechanisms for the maintenance and composition of cell
	CO-6 Understand ultrastructure of endoplasmic reticulum and its role in protein synthesis
	CO-7 Understand ultrastructure of Golgi complex and its function in packaging of biomolecules.
	CO-8 Understand ultrastructure of lysosome and its function in digestion and cell lysis.
	CO-9 Understand ultrastructure of mitochondria and its role in metabolism
	CO-10 Understand ultrastructure of nucleus
	CO-11 Involvement of nucleus in heredity and variation
	CO-12 Understand structural and functional properties of cytoskeleton
	CO-13 Understand mechanism of Reproduction of cell
	CO-14 Understand mechanism of cell aging and cell death
	CO-15 Understand basic concepts of cancer biology
SEMESTER VI	
ZY- 341 BIOLOGICAL TECHNIQUES	CO-1 Learn different systems to represent ionic strength of chemicals
	CO-2 Aware of risks involved in handling of different chemicals during practical sessions in the laboratory and to train them to avoid mishap.
	CO-3 Learn different technique to purify biomolecules.
	CO-4 Understand composition of blood.
	CO-5 Learn techniques and operational skills of different instruments required in clinical haematology.
	CO-6 Learn techniques in preparation and analysis of tissue to find cause and extent of tissue damage
	CO-7 Understanding of selection of appropriate technique for tissue sectioning
	CO-8 Learn different staining techniques required to distinguish cell components

	CO-9 Estimation of Carbogydrate by PAS technique and nucleic acid by Feulgen Reaction.
ZY-342: Mammalian Physiology and Endocrinology	CO-1 Realize the fundamental concepts in Mammalian Physiology and Endocrinology
	CO-2 Introduce the concepts from physiology of nutrition.
	CO-3 Introduce the concepts from physiology of circulation.
	CO-4 Learn techniques to diagnose, monitor and solve circulation related problems
	CO-5 Introduce the concepts from physiology of respiration.
	CO-6 Introduce the concepts from physiology of excretion.
	CO-7 Understand ultrastructure and physiology of muscles.
	CO-8 Introduce the concepts from physiology of control and co-ordination.
	CO-9 Introduce the concepts from human reproductive biology
	CO-10 Introduction of endocrine glands, their mechanism of action and regulation.
ZY-343: Genetics and Molecular Biology	CO-1 Understand the concepts of non-mendelian inheritance.
	CO-2 Understanding of chemical and molecular processes that affect genetic material leads to heredity, variation as well as lethal effect
	CO-3 Understanding of genetic variability within a population and how the change in the gene pool leads to evolution of species.
	CO-4 To learn the classical experiments proving DNA as the genetic material.
	CO-5 Understand the structure of nucleic acids and the concept of central dogma of molecular biology.
	CO-6 Learn the concept of gene regulation
	CO-7 Learn set of techniques to modify an organism's genome to produce improved or novel genes and organisms.
ZY-344: Organic Evolution	CO-1 Impart scientific knowledge about how life originated
	CO-2 Distinguish between microevolution, macroevolution and megaevolution
	CO-3 Learn different theories about how life originated and evolved on our planet.
	CO-4 Comprehend the mechanisms of isolation
	CO-5 Comprehend the mechanisms of speciation
	CO-6 Portray evolutionary history of animals.
	CO-7 Understand geographic distribution of animals.
	CO-8 Learn various divergence in evolution of animals

	CO-9 Acquainted with how and why different animal species are distributed around the globe
ZY-345: General Embryology	CO-1 Understand experiments and theories related to basic embryology
	CO-2 Understand basic concepts in developmental biology
	CO-3 Aware student about strategies for male and female gametogenesis present in human
	CO-4 Aware student about concepts in gametogenesis
	CO-5 Understand the processes involved in embryonic development and its application
	CO-6 Basics of developmental biology with reference to chick as a model
	CO-7 Aware students about mechanism of nutrition, circulation and excretion during embryonic development
ZY-346: Public Health and Hygiene	CO-1 Educate students about personal and public health
	CO-2 Impart knowledge about essentials of maintaining proper sanitation, hygiene and nuisance causes from addiction
	CO-3 Inculcate Healthy dietary habits in the life style of students
	CO-4 Learn methods of food preservation in order to prevent contaminations and risk of developing health hazards
	CO-5 Impart knowledge about causes and effect of air pollution
	CO-6 Impart knowledge about source, quantum and need for conservation of fast depleting water resource
	CO-7 Learn process of water purification
	CO-8 Aware students about how environment and ultimately human depends on composition and properties of soil.
	CO-9 Impart knowledge about land pollution and its impact on the health of human, other animals and plants
	CO-10 Educate personal and public sanitation practices
	CO-11 Encouragement for maintaining adequate personal and public hygiene to prevent diseases

Prgram outcomes,Program specific outcomes and Course outcomes	
Department of BOTANY	
Programme Outcomes: B. Sc Botany	
After successful completion of three year degree program in Botany a student is able to;	
Programme Outcomes	PO-1. Students know about different types of lower & higher plants their evolution in from algae to angiosperm &also their economic and ecological importance.
	PO-2. Cell biology gives knowledge about cell organelles & their functions
	PO-3. Molecular biology gives knowledge about chemical properties of nucleic acid and their role in living systems.
	PO-4. Genetics provides knowledge about laws of inheritance, various genetic interactions, chromosomal abrasions & multiple alleles.
	PO-5. Structural changes in chromosomes.
	PO-6.Student can describe morphological & reproductive characters of plant and also identified different plant families and classification.
	PO-7.They knows economic importance of various plant products & artificial methods of plant propagation
	PO-8. Use modern Botanical techniques and decent equipments.
	PO-9.To inculcates the scientific temperament in the students and outside the scientific community.
Programme Specific Outcomes	PSO-1. Students acquire fundamental Botanical knowledge through theory and practical's.
	PSO-2. To explain basis plant of life, reproduction and their survival in nature.
	PSO-3. Helped to understand role of living and fossil plants in our life. PSO-4. Understand good laboratory practices and safety.
	PSO-5 To create awareness about cultivation, conservation and sustainable utilization of biodiversity.
	PSO-6. To know advance techniques in plant sciences like tissue culture, Phytoremediation, plant disease management, formulation of new herbal drugs etc.
	PSO-7 Students able to start nursery, mushroom cultivation, biofertilizer production, fruit preservation and horticultural practices.
Course Outcomes B. Sc Botany	
Semester-III	
Course	Outcomes
	After completion of these courses students should be able to;
BO . 331 CRYPTOGAMIC BOTANY.	CO-1. Study of cryptogams to understand their Diversity.

	CO-2. Know the systematics, morphology and structure of algae, fungi , bryophytes, and Pteredophytes.
	CO- 3. Know life cycle pattern of cryptogams.
	CO-4. Know economic importance of cryptogams.
	CO-5.Know evolution of algae, fungi, bryophytes and Pteredophytes.
BO.332 CELL & MOLECULAR BIOLOGY	
	CO-1.Gain knowledge about cell and its function.
	CO-2.Learn the scope and importance of molecular biology.
	CO-3. Understand ultra structure of cell wall, plasma membrane and cell organelles
	CO-4. Understand the biochemistry of cell.
	CO-5. Understand the biochemical nature of nucleic acid and their role in living systems.
BO. 333 GENETICS AND EVOLUTION	
	CO-1.Understand the Mendelian and neo Mendelian genetics.
	CO-2 Know about interaction of genes, multiple alleles and linkage and crossing over.
	CO-3. Know about sex linked inheritance, chromosomal aberrations.
	CO-4. Know the evolutionary sequence of various groups of plants.
BO.334 SPERMATOPHYTIC AND PALAEOBOTANY	
	CO-1. Systematic study of gymnosperms and angiosperms.
	CO-2.Understand the morphological and reproductive character of spermatophytic plants.
	CO-3.Understand economic importance of gymnosperms and angiosperms.
	CO-4.Understand the diversity among spermatophyte.
	CO-5.To bring investigation of palaeobotanical study in India.
	CO-6.Know, scope and application of Palaeobotany.
	CO-5.Know types of fossils, geological time scale.
BO.335 HORTICULTURE & FLORICULTURE	
	CO-1.Understand economic importance of plant and plant product.
	CO-2. Know the methods of plant propagation.
	CO-3.Understand the fruit & vegetables production technology.
	CO-4.Understand the scope & importance of floriculture.
	CO-5.Understand the methods of cultivation of different flowering plants.
B0.336 COMPUTATIONAL BOTANY	
	CO-1.Understand the scope & importance of biostatistics.

	CO-2.Understand the scope and some basic commonly used terms like sampling, data, dispersion, population, central tendency etc.
	CO-3.Knowledge to apply statistical analysis to biological data for testing different hypothesis.
BO. 341 PLANT PHYSIOLOGY & BIOCHEMISTRY.	CO-1.Know scope and importance of plant physiology.
	CO-2Understand plant & water relation.
	CO-3.Understand process of photosynthesis, C3 , C4, CAM pathways.
	CO-4.Understand the process of respiration, growth and developmental process in plant.
	CO-5.Understand the biochemistry of cell.
	CO-6.Understand the different biochemical reaction of biomolecules in plant cell.
BO. 342 PLANT ECOLOGY AND BIODIVERSITY.	
	CO-1.Know the biotic and abiotic components of ecosystem.
	CO-2.Food chain & food web in ecosystem.
	CO-3.Understand diversity among various groups of plant kingdom. CO-4.Understand plant community & ecological adaptation in plants. CO-5. Scope , importance and management of biodiversity.
BO. 343 PLANT PATHOLOGY.	CO-1.Understand scope and importance of plant pathology.
	CO-2.Know disease cycle and disease development .
	CO-3.Know the effect of plant diseases on economy of crops.
	CO-4.Know the methods of studying plant diseases.
	CO-5.They can identify the plant diseases like bacterial , nematodal, and fungal.
	CO-6.Know the disease forecasting.
	CO-7.Know the prevention and control measures of plant diseases.
BO. 344 MEDICAL AND ECONOMIC BOTANY	
	CO-1.Understand scope and importance of pharmacognosy.
	CO-2.Know the cultivation, collection, processing & importance of various herbal drugs.
	CO-3.Understand the scope of economic botany.
	CO-4.Know the botanical resources like non wood forest products.
	CO-5.Understand the concept of Ayurvedic pharmacy.

BO. 345 PLANT BIOTECHNOLOGY	CO-1.Understand the fundamental of recombinant DNA technology.
	CO-2.Understand tissue culture techniques.
	CO-3.Role of microbes in agriculture , medicine & industry.
	CO-4.Know the fermentation technology.
	CO-5.Understand the concept of bioinformatics, genomics & proteomics.
	CO-6.Understand technical germplasm & cryopreservation.
BO. 346 PLANT BREEDING & SEED TECHNOLOGY.	CO-1.Understand the scope & importance of plant breeding.
	CO-2.Know the technique of production of new superior crop varictics.
	CO-3.Know the about heterosis, hybrid vigor etc.
	CO-4.Know the process of hybrid variety, development & their release.
	CO-5.Know about seed germination, processing , production etc.

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Principal
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