ARTS SCIENCE AND COMMERCE COLLEGE, INDAPUR		
A.Y. 2021-22		
Programme Outcomes (POs), Programme Specific Outcomes (PSOs) & Course Outcomes (COs) for ARTS FACULTY		
Department of English		
Programme Outcomes (POs) Of English Department B. A.		
PO1	**Understanding and Knowledge**:	A graduate student is expected to be capable of demonstrating comprehensive knowledge and understanding both theoretical knowledge in all disciplines
PO2	**Skilled communicator**	Students became aware of memoir literature. Students became aware of line drawing literature.
PO3	**Practical skills**	Students get acquainted with the nature of linguistics. Students get acquainted with the conditions of study of linguistics. Students should understand the Applied aspects of linguistics.
PO4	**Scientific knowledge skill**	To acquaint the students with the method of official correspondence. To acquaint the students with various aspects of journalism to get it done.
PO5	**Problem Analysis**	1) Students able to apply appropriate techniques for solving research related problems.
PO6	**Literary Ability**	Students get acquainted with English literary history writing Students studied the authors and works of major literary trends of the ancient, devotional and Ritual periods.
PO7	**International Language**	Students got to know the vocabulary of English. Students get acquainted with state language, national language, contact language and international Language.
PO8	**Writing Skills**	Evaluative vision of students developed. The meeting minutes writing skills of the students were improved
PO9	**Ethics**	Apply ethical principles and commit to environmental ethics and responsibilities and norms of the biodiversity conservation.
PO10	**Target to Specialization**	Developing the ability to demonstrate proficiently in the experimental techniques and methods for analysis, appropriate for their area of specialization within biology.
Programme Specific Outcomes (PSOs) Of English Department B. A.		
PSO1		Understand the nature and basic concepts of Literature and Criticism
PSO2		Understand the nature and basic concepts of Linguistics.
PSO3		improve communication skills
PSO4		Ability to use language for specific purpose
PSO5		enhance language skills, Speaking, Listening, Reading, Writing
Class	Course	**Course outcome (COs)**
F.Y.B.A.	Compulsory English Visionary Gleams	
		CO1. Development of literary and linguistic test of the newly admitted students.
		CO2. Improvement of communication skills in English
		CO3. Enrichment of Grammatical sense and writing skills.
		CO4. Developing an ability for dialogue and group discussion.
	Optional English	CO1.Development of liking for English literature
		CO2.Clear understanding of the aims and objectives of course
		CO3.Knowledge of the basic function of Literary Language.
	Functional English Paper I	CO 1. Organs of Speech
		CO 2. Learning Grammar
		CO3. Words, Accent, sentences and weak forms

	Functional English Paper II	CO1. Introducing oneself and others
		CO2. Describing objects and narration skills
		CO3 Reading dialogues with proper accents
		CO4. Presentation on given topics
	Compulsory English Literary Landscape	CO 1Strengthening the literary and linguistic test of the students.
		CO 2. Improvement of communication skills in English
		CO 3. Enrichment of Grammatical sense and reading skills.
		CO 4. Ability of group discussion and oral presentation
	Special English Paper I	CO 1. Introduction of elements of drama.
		CO 2. Development of students liking for the stage.
		CO 3. Enhancement of the sense of technique of characterization.
		CO 4. Improvement of stage daring of the students.
		CO 1. Familiarizing the students with the minor form of literature.
S.Y.B.A.	General English Paper II	CO 2. Introduction of short story as Genre of Literature.
		CO 3. Familiarizing with the basics of English Language.
		CO 4. Awareness of phenomena of world English.
	Functional English Paper III	CO1. Vocabulary, prefix and suffix
		CO2. Elaboration of concepts
		CO3. Different types of Report
		CO4 language used for Radio and TV programs
	Functional English Paper IV	CO1. Verbal and Non-verbal Communication
		CO 2. Reading Newspaper, situational conversations
		CO3. Group Discussion and group activities
		CO4. Interview skills
	Compulsory English	CO 1. Improvement of speaking skills in English.
		CO 2. Enrichment of the Grammatical sense and news reporting.
		CO 3. Skills for compering and rapid reading.
		CO 4. Perfection of the use of idioms and phrases
	Special English Paper III	CO.1. Introduction of the novel as genre of literature
		CO2. Sensitization of the element of fiction
		CO.3. Knowledge of the novels
		CO.4.Introduction to the critical analysis of prose passages

T.Y.B.A.	Special English Paper IV	CO.1.Enrichment of critical views of the students
		CO.2.Development of broad views in students about various approaches
		CO.3. Study of the interpretation of various critics
		CO.4.Knowledge of different critical terms
	General English Paper III	CO.1.Enrichment of competence in English
		CO.2.Introduction of clauses and phrases
		CO.3.Illustration of pragmatics
		CO.4. Development of the poetry writing skill
	Functional English Paper V	CO1. Acquainting students to new career options
		CO2. Various career in Language
		CO3. Creating awareness about language changes from one media to the other
		CO4. Language activities of media through exposure
		CO5. To impart translation skills related to media
	Functional English Paper VI	CO1. Possibilities of self-employment
		CO2. Provide basic sources of information regarding SSI
		CO3. Idea of self-employment through field work, study reports and interviews
		CO4. Overall personality development through key competency modules
		CO5. Create possibility of focused writing
Department of Marathi		
		Program: B.A. (MARATHI)
		Program Outcomes (POs)
PO 1		Get introduced to Marathi literature, language and culture.
PO 2		Ethical professional and ideological were nurtured in the students.
PO 3		Understand the form and elements of the novel and learn the journey and genre of the novel.
PO 4		Writing for the media, he wrote several video clips for the newspaper, including.
PO 5		Develop ability to appreciate and evaluate selected Biographies and Autobiographies in modern Marathi Literature.
PO 6		Understand the nature of the process of literary creation and the concept of Literary genus.
PO 7		Gained knowledge of the training required for publishing and editing.
		Students understood how Rural & Dalit literature was created after the post-independence period.
		Develop ability to appreciate and evaluate selected Biographies and Autobiographies in modern Marathi Literature.
		Understand the form and elements of the novel and learn the journey and genre of the novel.

		Program Specific Outcomes (PSOs) B A
PSO1		Students understood how Rural & Dalit literature was created after the post-independence period.
PSO2		Writing for the media, he wrote several video clips for the newspaper, including.
PSO3		Develop ability to appreciate and evaluate selected Biographies and Autobiographies in modern Marathi Literature.
PSO4		Ethical professional and ideological were nurtured in the students.
PSO5		Gained knowledge of the training required for publishing and editing.
		Program: M.A. (MARATHI)
		Program Specific Outcomes (PSOs)
PSO1		Students understood how Rural & Dalit literature was created after the post-independence period.
PSO2		Writing for the media, he wrote several video clips for the newspaper, including.
PSO3		Develop ability to appreciate and evaluate selected Biographies and Autobiographies in modern Marathi Literature.
PSO4		Ethical professional and ideological were nurtured in the students.
PSO5		Gained knowledge of the training required for publishing and editing.
		Program Outcomes (POs) M. A.
PO 1		Get introduced to Marathi literature, language and culture.
PO 2		Ethical professional and ideological were nurtured in the students.
PO 3		Understand the form and elements of the novel and learn the journey and genre of the novel.
PO 4		Writing for the media, he wrote several video clips for the newspaper, including.
PO 5		Develop ability to appreciate and evaluate selected Biographies and Autobiographies in modern Marathi Literature.
PO 6		Understand the nature of the process of literary creation and the concept of Literary genus.
PO 7		Gained knowledge of the training required for publishing and editing.
PO 8		Students understood how Rural & Dalit literature was created after the post-independence period.
PO 9		Develop ability to appreciate and evaluate selected Biographies and Autobiographies in modern Marathi Literature.
PO 10		Understand the form and elements of the novel and learn the journey and genre of the novel.
Class	**Course**	**Course outcome (COs)**
	Marathi katha	CO1 To understand the nature, motivation, purpose, characteristics and movement of the literary genre of travelogue.
		CO2 To appreciate and analyze the assigned travelogue.
		CO3. Philosophical analysis of essay and descriptive literature
		CO4. To develop the ability to understand and use language appropriately
	Marathi Ekankika	CO1. Assess the interactional processes, love and aggression in our day today life.
		CO.2.Understand group dynamics and individual in the social world.
		CO.3.Understand the basic psychological processes and their applications in day to day life.

		CO.4 Develop the ability to evaluate cognitive processes, learning and memory of an individual.
S.Y.B.A	G2 Bhashik koushalya vikas aani adhunik marathi sahitya prakar	
		CO1.Conducting live interviews for various media.
		CO2 To understand the nature, motivation, purpose, characteristics and movement of the literary genre of travelogue.
	S1 Adhunik marathi sahitya	CO1 To appreciate and analyze the assigned travelogue.
		CO2. Philosophical analysis of essay and descriptive literature
		CO3. To increase the introduction of various types of literature in modern Marathi literature
	S2 Sahitya vichar	CO1. understand them, to develop the taste for literature and to increase the ability to appreciate the work of art
		CO2. Snippets of compelling news writers as well as splash-headlines and reviews from newspapers.
		CO3. Compilation of news from different newspapers about the same incident.
		CO4 To develop the ability to understand and use language appropriately.
		CO5. Philosophical analysis of essay and descriptive literature
T.Y.B.A	G3 Bhashik koushalya vikas aani adhunik marathi sahitya prakar	CO1. Literary history inclined students will study
		CO2. To provide a broad introduction to the literary tradition in relation to assigned works of art,
		CO3. Students will have knowledge of the cultural conditions of the medieval period
	S3 Madhyayugin Marathi Vangmaacha Sthul Eitihas	CO1. To develop the ability to understand and use language appropriately.
		CO2 Philosophical analysis of essay and descriptive literature
		CO3. To understand the role and nature of language in cognition. Language Skills, Abilities: Developing
	S4 Varnanatmak Bhashavidnya	CO1. To explain and apply the interrelationship of different inventions and communication media of language skills.
		CO2. To know about the use, need and nature of Marathi in office business work.
		CO3. Acquiring writing skills required for office and business communication.
		CO4. To review the functioning of print electronic media.
	Prasarmadhmansathi Lekhan Koushalya	CO1. To understand literary form and purpose on the basis of Indian and Western linguistic thought.
		CO2. To understand the process of language formation
		CO3. To understand the language and style of literature
		CO4 To study Marathi language historical Marathi literature and Marathi culture.
		CO5 To develop appreciation and appreciation of historical literature.
	Sahitya Smiksha	
		CO1 To develop a social life through the study of historical literature.
		CO2 To develop applied skills of historical Marathi language.
		CO3 To introduce historical stories and literary genres
		CO4 To understand the process of language formation

M.A- 1		CO5 To understand the language and style of literature
	Nemlelya Arvachin Sahitykrutincha Abhyas	CO1. To study Marathi language historical Marathi literature and Marathi culture.
		CO2. To develop appreciation and appreciation of historical literature.
		CO3. To develop a social life through the study of historical literature.
		CO4. To develop applied skills of historical Marathi language.
		CO5. To introduce historical stories and literary genres
	Loksahityachi Multatve Ani Marathi Loksahitya	CO.1 To understand language form, features and functions.
		CO.2 Explaining the need for language study.
		CO3. To give a brief introduction to the branches and various methods of language study.
		CO4. To understand the structure, function and process of self-formation of vagina.
		CO5. To understand phonology, phonemic thought and phonemic system of Marathi
MA- 2	Prasarmadhmansathi Lekhan Koushalya	CO1.To understand the causal tradition of the production of rural literature in the post-independence period.
		CO2. To treat the form and function of rural literature.
		CO3. To evaluate the development of various sentence types including rural.
		CO4. To consider the contribution of rural literature, the speed and direction of its development.
		CO5. Literary history inclined students will study
	Sahity Sanshodhan	CO1. To study the causes, traditions and challenges posed by Dalit literature in the post-independence period.
		CO2. To know the nature of pain and rebellion expressed in Dalit literature.
		CO3. To evaluate the development of various literary forms produced by Dalit literature
		CO4. To understand the process of language formation
		CO5. To develop appreciation and appreciation of historical literature.
	Nemlelya Arvachin Sahitykrutincha Abhyas 2	CO1. To understand the process of language formation
		CO2. To understand the language and style of literature
		CO3. To study Marathi language historical Marathi literature and Marathi culture.
		CO4. To develop appreciation and appreciation of historical literature.
		CO5.Conducting live interviews for various media.
	Loksahityachi Multatve Ani Marathi Loksahitya 2	CO1. To understand the social and cultural background of the medieval period.
		CO2.To understand the history of Marathi language and literature according to period.
		CO3. To understand the language and style of literature
		CO4 To study Marathi language historical Marathi literature and Marathi culture.
		CO5 To develop appreciation and appreciation of historical literature.

Department of political science		
		Programme Outcomes (POs) -B.A.
PO1		To inculcate Constitutional Values.
PO2		To create awareness regarding active participation in Politics.
PO3		To create awareness regarding challenges of Indian Democracy.
PO4		To develop unbiased views about social problems & issues.
PO5		To create social awareness among students
PO6		To develop scientific approach.
PO7		To create awareness about National Unity and Integrity.
PO8		To inculcate Democratic values
PO9		Voting awareness.
PO10		To encourage students to develop Research oriented learning.
Programme Specific Outcomes (PSOs) -B.A.		
PSO1		Constitutional Values are inculcated in students and attitudes are created.
PSO2		Government systems was introduced.
PSO3		The Challenges Faced by the Democratic, Governance system were identified.
PSO4		Scientific Approach Developed.
PSO5		Leadership qualities developed in students.
Programme Outcomes (POs) -M.A.		
PO1		To inculcate Constitutional Values.
PO2		To create awareness regarding active participation in Politics.
PO3		To create awareness regarding challenges of Indian Democracy.
PO4		To develop unbiased views about social problems & issues.
PO5		To create social awareness among students
PO6		To develop scientific approach.
PO7		To create awareness about National Unity and Integrity.
		To inculcate Democratic values
		Voting awareness.
		To encourage students to develop Research oriented learning.

Programme Specific Outcomes (PSOs) -M.A.		
PSO1		Constitutional Values are inculcated in students and attitudes are created.
PSO2		Government systems was introduced.
PSO3		The Challenges Faced by the Democratic, Governance system was identified.
PSO4		Scientific Approach Developed.
PSO5		Leadership qualities developed in students.
Course Outcomes (COs)		
F.Y.B.A.		CO1. Students can learn more about political process in details. They can know more about actual functioning both constitutional and Administrative.
	Indian govt. and Politics paper G-1	CO2. Emphasis on local influences of castes and jatis from language, religion ethic.
		CO3. Critical assessment of its impact on our political processes
		CO4. Learning of background of our constitution federal system structure of our state and central govt. party
		system election process
S.Y.B.A.		
	Political Theory and concepts Paper-G-2	CO1.This is an introductory paper to the concepts, ideas and theories with reference to individual thinkers
		CO2.Students can learn in detail the concept of state, liberty, justice, power and Authority
		CO3.It is need of students to emphasize the containing this relevance of concepts.
	S1 Western Political Thoughts	CO1. From this paper students can studies the various thinkers and their thought.
		CO2. Students can study the classical tradition in politics theory from Plato to Marx.
	S2 Political Sociology	CO1. Students will learn basic principles of political theory.
		CO2. They can study various types of Political culture of different country.
		CO3. Knowledge of nature and types of Political participation.
T.Y.B.A.		
	S-3 Public Administration	CO1. This paper is an introductory course in public Administration.
		CO2. The paper covers personal public administration in its historical context.
		CO3. Students learn more about the recent development in new public administration.
		CO4. Knowledge of our budget and its processes.
	S-4 International Politics	CO1.This paper deals with concepts and dimensions of International relations.
		CO2.Students learn different aspects of balance of power leading to the present situation of unipolar world
		CO3.Highliting of the various accepts and conflict, resolution, and collective security.

	Modern political Analysis	CO1.Learning of ideology like nationalism Gandhism, Fascism Political Ideology.
		CO1.Students will learn the role of different ideology and their impact in politics.
		CO1.Each ideology will be critically studied in its historical context.
		CO1. Knowledge about various ideologies like nationalism fascism, Marxism Gandhism.
PO-C1: Traditions of Political Thought		CO1This course is meant to serve as a window on the major traditions of thought that have shaped political discourse in different parts of the world over the last three millennia
		CO2.It stresses the great diversity of social contexts and philosophical visions that have informed the ideas of key political thinkers across epochs.
PO-C2: Administrative Theory		CO1Public Administration is an essential part of a society. In last few years the profession of Public Administration is going through changes
		CO2.Paper introduces changing trends in the field of Public Administration.
PO-C3: Political Institutions in India		CO1 The course introduces the student to the leading institutions of India's political system and to the changing nature of these institutions.
		CO2 Apart from explaining the structure and functions of the main institutions the course will try to acquaint students with the idea of institutional balance of power as discussed in the Indian constitution and as developed during the functioning of Indian democracy over the past seven decades.
PO-O1- Modern Political Ideologies		CO1 This Course is meant to acquaint students with the character and trajectory of modern political ideologies.
		CO2 It seeks to clarify the key differences between ideological and other modes of thought, and to introduce debates such as End of Ideology and End of History.
PO-C4: Comparative Political Analysis		CO1 The purpose of this course is to acquaint the student with the sub-discipline of comparative politics.
		CO2 It expects the students to understand the comparative methodology and dynamics of domestic politics across countries.
PO-C5: Theory of International Politics		CO1 Students need a brief history of international politics to understand why we study the subject and how current scholarship is informed by what preceded it.
		CO2 Theories provide interpretative frameworks for understanding what is happening in the world and the levels of analysis. Competing theories are presented.
PO-C6: Public Policy		CO1 The purpose of this course is to provide students an understanding of the basic concepts, theories and process of public policy.
		CO2 The course also seeks to help students understand public policy processes and actors involved in it by studying specific policies.
PO-O6- Human Rights		CO1 This course is aimed at introducing the basic idea of Human rights; equip the student with an ability to distinguish between human rights, fundamental rights and also between individual rights and group rights.
M.A. Political Science		
		CO2 The course operates at two levels: it discusses human rights in the context of global political order and secondly, discusses the implementation of human rights in the context of rights movements in India.
PO-C7 Modern Political Thought		CO1 The purpose of this course is to introduce to the student political ideas, views and concerns of leading Indian thinkers.
		CO2 The course encourages students to understand and decipher the diverse and often contesting ways in which the ideas of nationalism, democracy and social transformation were discussed in pre and post-independence India.
PO-C8: Political Sociology		CO1 This Course will introduce the overall scope of the sub-discipline of political sociology. The focus of the course will be on the political sociology of power.
		CO2 State will be studied as a repository of power in society while class and patriarchy are two instances of how the nature of power is shaped by social factors.
PO-C9 World Politics-New Developments		CO1 The objectives of this course are to introduce the students to the contemporary issues and debates in the world

		politics.
		CO2 The students would also be made aware of the dimensions of the making of the foreign policy as well as the role of Non- State Actors in World Politics.
PO-O12 Research Methodology		CO 1To introduce the concept and techniques of the students.
		CO2 To make the students aware of the different tools of research.
PO-C10 Fundamentals of Political Theory		CO1 This course introduces the students to the evolution, importance to the study of Political Theory. It introduces Political Theory as a distinctive area of inquiry.
		CO2 It is the integral area to the study of politics. It highlights debates in the field and places them in a historical perspective.
PO-C11 Political Process in India		CO1 The course will introduce to the student the key issues and details of the political process in post-independence India.
		CO2 It will also try to develop among students a perspective to understand and analyse Indian politics.
	PO-C12 Politics and Society	CO1 This Course expects students to understand the interface of politics with social structures and processes and how the nature of power is shaped by social factors.
	PO-O15 Election Studies	CO1 This course has a dual purpose. It seeks to introduce to the students the methods of studying elections.
		CO2 It also seeks to acquaint the student with the practice of studying elections in India and issues involved in it.
Department of History		
Program Outcomes (POs) B A		
PO 1		To Gain the knowledge of History, Historiography and Society through theory and field work.
PO2		To explain Human development, culture and society.
PO3		Understand the nature and basic concepts of History of Early India, Medieval India, Chh. Shivaji & His Times, Modern India. Ancient India, Medieval India.
PO 4		To option of public service is always open.
PO 5		History of The World In 20TH Century.
PO 6		To Serve as a tourist guide in historical monuments, Tourism Expert, Archivist, Museum curator, Historian/ Researcher, Script Expert (Modi, Brahmi), Freelance writer, Media Writer, Teacher.
PO 7		Introduction To History, History of Asia in 20TH Century.
PO 8		To Understand the present existing social, political, religious and economic conditions of the people.
PO 9		To develop interests in the study of history and activities relating to history.
PO 10		To understands to Evaluate and recognize different Empire in Indian history.
PO 11		Understand the nature and basic concepts of History of Early India, Medieval India, Chh. Shivaji & His Times, Modern India
PO 12		Focus on History of The World In 20TH Century. History of The World In 20TH Century. Introduction to History, History of Asia in 20TH Century.
		To analyze relationship between the past and the present is lively presented in the history.
Program Specific Outcomes (PSOs) B A		
		Develop various communication skills such as reading, listing, speaking, etc., which will help in expressing ideas and views effectively.
		To gain analytical skill to analyze social issues.
		Acquire knowledge with facts and figures related to that subject.

PSO4		Grasp the importance literature in creating aesthetic, mental, moral, intellectual development of an Individual.
PSO5		Appear as a multifaceted personality who is self-dependent.
Program Specific Outcomes (PSOs): M.A. (History)		
PSO1		With basic knowledge of History to Serve as a tourist guide in historical monuments,
PSO2		Tourism Expert, Archivist, Museum curator, Historian/ Researcher, Script Expert (Modi, Brahmi), Freelance writer, Media Writer, Teacher.
PSO3		To understand the present existing social, political, religious and economic conditions of the people in Historical Past.
PSO4		To develop interests in the study of history and activities relating to history.
PSO5		To analyze relationship between the past and the present is lively presented in the history.
Program Outcomes (POs): M.A. (History)		
PO1		Grasp the importance literature in creating aesthetic, mental, moral, intellectual development of an Individual.
PO2		Acquire knowledge with facts and figures related to that subject.
PO3		To gain analytical skill to analyze social issues.
PO4		Students will be introduced to the information and importance of Historiography and also applied history.
PO5		The students will get acquainted with the Renaissance, major political, socio-religious and economic developments during the Historical past.
PO6		Analyze socio-political and economic changes during the various periods.
PO7		Analyses factors of Literature, Religion, Art and Architecture in various periods in History.
PO8		Students will develop the ability to analyze sources of the Maratha and other Empire history.
PO9		Draws comparisons between policies of different rulers.
PO10		Provides examples of sources used to study of various periods in early/Medieval/ Modern history.
Class	**Course**	**Course outcome (COs)**
F.Y.B.A. Sem I	**Early India: From Prehistory to the Age of the Maurya's**	CO.1. It is a base for understanding the entire Indian history. Provocative.
		CO.2. The course is aimed at helping the student to understand the history of early India from the prehistoric times to the age of the Maurya's.
em II	**Early India: Post Mauryan Age to the Rashtrakutas**	CO.1. It is a base for understanding the entire Indian history. Provocative.
		CO.2. The course is aimed at helping the student to understand the history of early India from the prehistoric times to the age of the Maurya's.
	CC - History of the Marathas: (1630-1707)	CO.1. Student will develop the ability to analyze sources for Maratha History.
	Course Code : 23174	CO.2. Student will learn significance of regional history and political foundation of the region.

		CO.3.It will enhance their perception of 17th century Maharashtra and India in context of Maratha history.
		CO.4.Appreciate the skills of leadership and the administrative system of the Marathas.
	DSE 1 - Medieval India - Sultanate Period	CO.1 Provides examples of sources used to study various periods in history.
	Course Code : 23171	CO.2. Relates key historical developments during medieval period occurring in one place with another.
		CO.3. Analyses socio - political and economic changes during medieval period
S.Y.B.A. SEM. III	**DSE 2 - Glimpses of the Modern World - Part I**	CO.1. It will enable students to develop the overall understanding of the Modern World.
	Course Code : 23172	CO.2. The students will get acquainted with the Renaissance, major political, socio-religious and economic developments during the Modern World.
		CO.3. It will enhance their perception of the history of the Modern World.
		CO.4. It will enable students to understand the significance of the intellectual, economic, political developments in the Modern World.
	DSE 2 - History of East Asia	CO.1.It will enable students to develop the overall understanding of the Asian countries.
	Course Code : 23173	CO.2. The students will get acquainted with the Communism in China & Imperialism of Japan.
		CO.3. It will enhance their perception of the developmental Policies of the Asian Countries
		CO.4.It will enable students to understand the significance of the intellectual, economic, political developments in the Modern World.
	SEC - Tourism Management	CO.1.Students will get an overall understanding of the process of Tourism Management.
	Course Code : 23178	CO.2. They will learn to work in the Tourism Management with great potential.
		CO.3. They will be able to seek self-employment by starting their own tourism related business.
	CC - History of the Marathas: (1707-1818)	CO.1. Students will be able to analyze the Marathas policy of expansionism and its consequences.
	Course Code : 24174	CO.2. They will understand the role played by the Marathas in the 18th century India
		CO.3. They will be acquainted with the art of diplomacy in the Deccan region.
		CO.4. It will help to enrich the knowledge of the administrative skills and profundity of diplomacy.
	DSE 1 - Medieval India - Mughal Period	CO. 1 Provides examples of sources used to study various periods in history.
	Course Code : 24171	CO.2. Relates key historical developments during medieval period occurring in one place with another.
		CO.3. Analyses socio - political and economic changes during medieval period
	DSE 2 - Glimpses of the Modern World - Part II	CO.1. It will enable students to develop the overall understanding of the Modern World.
	Course Code : 24172	CO.2. The students will get acquainted with the Renaissance, major political, socio-religious and economic developments during the Modern World.
		CO.3. It will enhance their perception of the history of the Modern World.
Sem IV		CO.4. It will enable students to understand the significance of the intellectual, economic, political developments in the Modern World.
	DSE 2 - History of West Asia	CO.1.It will enable students to develop the overall understanding of the Asian countries.
	Course Code : 24173	CO.2. The students will get acquainted with the Communism in China & Imperialism of Japan.
		CO.3. It will enhance their perception of the developmental Policies of the Asian Countries
		CO.4.It will enable students to understand the significance of the intellectual, economic, political developments in the Modern World.

	SEC - Travel Agency and Tour Business **Course Code : 24178**	CO.1.The students will understand the details of the business of Travel Agency.
		CO.2. They will be trained on both Theory and Practical aspect and Travel Agency and creating professionals for Tourism Industry.
		CO.3. It will enable student to seek self-employment by starting their own Travel Agency related to business.
T.Y.B.A. Sem V	**CC - Indian National Movement (1885-1947)** **Course Code : 35174**	CO.1. It will enable students to develop an overall understanding of Modern India.
		CO.2. It will increase the spirit of healthy Nationalism, Democratic Values and Secularism among the Students.
		CO.3. Students will understand various aspects of the Indian Independence Movement and the creation of Modern India.
	DSE 3 - Introduction to Historiography **Course Code : 35171**	CO.1 Students will be introduced to the information and importance of Historiography.
		CO.2. Students will be introduced to the different Methods and Tools of data collection.
		CO.3. Students can study the interdisciplinary approach of History.
	DSE 4 - Maharashtra in the 19th Century **Course Code : 35172**	CO.1. Student will develop the ability to analysis sources for 19th century Maharashtra History.
		CO.2. Student will learn significance of Regional History and Socio- religious reformism foundation of the region.
		CO.3. It will enhance their perception of 19th Century Maharashtra.
		CO.4. Appreciate the skills of leadership and the Socio-religious System of the Maharashtra.
	DSE 4 - Constitutional Development in India (1773-1853) **Course Code : 35173**	CO.1. Students will understand evolution of Constitution of India.
		CO.2. Student will learn factors and conditions that contributed to constitution of India
		CO.3. Students will understand the Democratic Processes and thereby.
	SEC - Research Paper Writing **Course Code : 35177**	CO.1.Students will be introduced to the information and importance of Historiography. Management.
		CO.2. Students can study the interdisciplinary approach History.
		CO.3. This curriculum Will help to develop Research ability and Process of Research Paper Writing in History
em VI	**CC - India After Independence- (1947-1991)** **Course Code : 36174**	CO.1. It will enable students to develop an overall understanding of the Contemporary India.
		CO.2. To increase the spirit of healthy Nationalism, Democratic Values and Secularism among the students.
		CO.3. Students will understand various aspects of India's domestic and foreign policies that shaped post-Independence India.
	DSE 3 - Applied History **Course Code : 36171**	CO. 1 Students will be introduced to the information and importance of applied history.
		CO.2. Student will learn about the Historical significance of Archaeology and Archives and opportunities in the field of Archaeology and Archives
		CO.3. Through this course, students will be informed about the opportunities in the field of Media, Museums.
	DSE 4 - History of Maharashtra in the 20th Century **Course Code : 36172**	CO.1. Student will develop the ability to analyses sources for 20th Century Maharashtra History.
		CO.2. Student will learn significance of regional history and Socio- Religious Reformism foundation of the region.
		CO.3. It will enhance their Perception of 20th Century Maharashtra.
		CO.4. Appreciate the skills of leadership and the Socio-Religious System of the Maharashtra
	DSE 4 - Constitutional Development in India (1858-1950)	CO.1. Student will understand evolution of Constitution of India.

	Course Code : 36173	CO.2. Student will learn factors and conditions that contributed to Constitution of India
		CO.3. Students will understand democratic processes and thereby strengthen Democracy.
	SEC - Heritage Management	CO.1.Student will understand over all process of Heritage Management
	Course Code : 36177	CO.2. Student will get the knowledge about scope and the fact of Heritage Management.
		CO.3. The students will enable to understand about legal and commercial framework of Heritage
		CO.5. Empowering the students to cope with the challenges of globalization.
Class	**Course**	**Course outcomes (COs)**
M.A.-I	**CC – 1: History: Theory and Method**	CO 1. Students will be introduced to the information and importance of Historiography.
Sem-I		CO 2. Students will be introduced to the different Methods and Tools of data collection.
		CO 3. Students will be introduced to the formulating hypotheses and develop broad frames of interaction with other Social sciences and attain certain level of Interdisciplinary approach.
	CC – 2: Evolution of Ideas and Institutions in Early India	CO 1. Students will be introduced to provide an understanding of the social, economic and institutional bases of early India.
		CO 2. Students will be introduced to an understanding of early Indian history is crucial to understand Indian history as a whole.
	CC– 3: Maratha Polity	CO 1. Students will be introduced to provide an understanding of the study the administrative system of the Marathas in an analytical way, to acquaint the student with the nature of Maratha Polity.
		CO 2. Students will be introduced to provide an understanding of to understand basic components of the Maratha administrative structure, to enable the student to understand the basic concepts of the Maratha polity.
	Elective Courses:	CO 1. Students will learn about the background of the Dalit movement which flourished in the twentieth century.
	EC-2 Social Background of Dalit Movement in Maharashtra	CO 2. Students will be introduced to highlights the earlier forms of protest from the ancient till the medieval period, which laid the foundations for social protest and dissent in the pre- Ambedkar period
M.A-I	**CC - 4: Approaches to History**	CO 1. Students can study the interdisciplinary approach of History.
Sem-II		CO 2. Students will learn about the usefulness of History in the 21st century, its changing perspectives, the new ideas that have been invented, and the importance of History in a competitive World.
		CO 3. This curriculum develops Research ability and process of Research methodology in History
	CC - 5: Ideas and Institutions in Medieval India	CO 1. Students will be introduced to provide an understanding of the social, economic and institutional bases of medieval India.
		CO 2. Students will be understanding study of the medieval period
	CC - 6: Socio-Economic History of the Marathas (22203)	CO 1. Students will be introduced to the study socio-economic history of the Marathas in an analytical way, to acquaint the student with the components of social structure and their functions.
		CO 2. Students will learn about the relationship between religion, caste, customs, traditions, class in 17th and 18thcentury Maratha Society.
		CO Students will be understanding aspects of economic life, to trace the determinants of changes in social and economic life in the history of the Marathas
	Elective Courses:	CO 1. Students will learn about the ideology and organization of the Dalit Movement in Maharashtra. Dr. Babasaheb Ambedkar led the Dalit Movement and achieved many kinds of justices to Dalits. He had to fight against inequality and atrocities imposed due to socioeconomic and political structure of Hindu
	EC - 10: Nature of Dalit Movement in Maharashtra	CO 2. Students will be introduced to the attempt here is to help students to understand the details of the most important and neglected socio-religious reform movement in Maharashtra with its root causes.
		CO 3. The paper attempts to help students to understand the ideology of Dr. Babasaheb Ambedkar who was the unchallenged leader of the Dalit Movement.

M.A.-II	**CC - 7: Cultural History of Maharashtra (32201)**	CO 1. Students will be introduced to the student situate and interpret the cultural manifestations across historical memory which have contributed to the creation of the geopolitical region of Maharashtra
Sem-III		CO 2. Students will be able to analyze the Marathas policy of expansionism and its consequences.
		CO 3. They will understand the role played by the Marathas in the 17th and18th century India.
		CO 4. They will be acquainted with the art of diplomacy in the Deccan region.
		CO 5. It will help to enrich the knowledge of the administrative skills and profundity of diplomacy.
	CC - 8: Intellectual History of the Modern World	CO 1. It will enable students to develop the overall understanding of the Modern World.
		CO 2. The students will get acquainted with the Renaissance, major political, socio-religious and economic developments during the Modern World.
		CO 3. It will enhance their perception of the history of the Modern World.
		CO 4. It will enable students to understand the significance of the intellectual, economic, political developments in the Modern World.
	CC - 9: Economic History of Modern India	CO 1. Students will learn about the structural and conceptual changes in Indian economy after coming of the British.
		CO 2. Students will be introduced to the aware of the exploitative nature of the British rule, to help them understand the process of internalization by Indians of new economic ideas, principles and practices.
	Elective courses	CO 1. This course attempts to study various approaches to peasant revolts and movements
	EC - 19: Peasant Movements in India (Medieval and Modern)	CO 2. This Course helps the student to understand characteristics of peasant movements.
M.A.-II	**CC -10: Modern Maharashtra: History of Ideas (1818-1960)**	CO 1. Student will develop the ability to analyze sources for 19th century Maharashtra History.
Sem-IV		CO 2. Student will learn significance of Regional History and Socio- religious reformism foundation of the region.
		CO 3. It will enhance their perception of 19th Century Maharashtra.
		CO 4. Appreciate the skills of leadership and the Socio-religious System of the Maharashtra.
	CC - 11: Debates in Indian Historiography	CO 1. Students will learn about some of the issues that that have been debated in Indian Historiography by historians.
		CO 2. Students will be introduced to the some perspectives with reference to Indian History.
	CC - 12: World after World War II (1945-2000)	CO 1. To acquaint the student with the post-World War II scenario.
		CO 2. Students will be introduced to understand contemporary world after World War II from the historical perspective.
	Elective Courses	CO 1. The paper intends to make an in-depth study of various aspects of British administrative policies in India.
	EC - 27: British administrative policies in India 1765- 1892	CO 2. Students will be introduced to the various British Acts, administrative system during 19 th century in India.
Department of Geography		
		Programme Outcomes (POs) B. A.
		The geographical maturity of students in their current and future courses shall develop.
		The student develops theoretical, applied and computational skills.
		They discuss the utility and application of Physical geography in different regions and environment.
		Students demonstrate applications of Human Geography in different regions of environment.
		Students are aware about problems and prospects of Maharashtra and understand the relationship between geographic variations and society in Maharashtra.

PO6		Students integrate the various factors of economic development and to acquainted the students with this dynamic aspect of economic geography Students able to develop and use of survey and mapping skills. Aware of the new techniques, accuracy and map making skills.
PO7		Gain knowledge about the various projections and know about sources and types of data.
PO8		Introduce the students with SOI Topo sheets, Aerial, Photographs and Satellite Images acquire the Knowledge of Topo sheet, Aerial, Photographs and Satellite Images and acquire knowledge to interpret it.
PO9		Create confidence in others, for equipping themselves with that part of Geography which is needed for various branches of Sciences or Humanities in which they have aptitude for higher studies and original work.
PO10		To make aware the students about the problems of environment, their utilization and conservation in the view of sustainable development
		Programme Specific Outcomes (PSOs) B. A.
PSO1		To introduce the students to the basic concepts in Physical geography.
PSO2		To introduce latest concept in Physical geography
PSO3		To acquaint the students with the utility and application of Physical geography in different regions and environment.
PSO4		To make the students aware about Earth system.
PSO5		1To create the awareness about dynamic environment among the student.
PSO6		To acquaint the students with fundamental concepts of environment
PSO7		Geography for development in different areas.
PSO8		The students should be able to integrate various factors of Environment and dynamic aspect of Environmental geography.
Programme Outcomes (POs) M. A.		
PO1		Will get knowledge of geographical terms, concepts, and theories and will be able to explain and find out the relation between geographical factors and processes.
PO2		Will be able to understand and apply to collect geographical data through qualitative and quantitative techniques and will be able to analyze the data related to physical and le to develop and prepare various thematic maps and map reading skills
PO3		Will be able to communicate the results of the research in written form and oral communication
PO4		Will be able to understand and relate how their life is related to different geographical factors such as environmental, economic, social, and cultural at the local and global scale. He/she will be able to evaluate factors such as environmental, economic, social, and cultural, with respect to spatial dimensions from a local to global scale
PO5		Will learn and think in spatial dimensions and will be able to find out the temporal change which took place over the period of time. S/he will be able to understand the present and extrapolate for the future.
PO6		Will be able to understand different concepts of sustainability, sustainable development goals, and how a man can use the physical environment for the benefit of human societies, and in the achievement of SDGs and MDGs
PO7		Will acquire skills in interpretation of thematic maps through visual and/or digital interpretation of topographic maps, weather maps, aerial photographs, and satellite images.
PO8		Will be able to apply knowledge of remote sensing concepts, and techniques in various fields of earth and environment sciences
		Will be able to present the completed research through cartographic tools and other visual formats, with an explanation of research methodology, and carry out scholarly discussions.
		She/he will be able to develop a research design including hypotheses, and research questions and also will be able to do a critical analysis of both qualitative and quantitative data to find out the answers using various theoretical and methodological approaches in both physical and human geographies
		Will be able to understand the geographical distribution of the global human population and factors affecting human populations including human settlement and economic activities and transport networks. The students will be able to understand the impacts of human activities on the physical environment.

Programme Specific Outcomes (PSOs) M. A.		
PSO1		To maintain updated curriculum.
PSO2		To take care of fast development in the knowledge of Geography.
PSO3		To enhance the quality and standards of Geography Education.
PSO4		To provide a broad common frame work, for exchange, mobility and free dialogue across the Indian Geography and associated community.
PSO5		To create and aptitude for Geography in those students who show a promise for higher studies and creative work in Geography.
PSO6		To create confidence in others, for equipping themselves with that part of Geography which is needed for various branches of Sciences or Humanities in which they have aptitude for higher studies and original work.
Course Outcomes (COs)		
F.Y.B.A. Sem I	Gg.110 (A)Physical Geography	CO1 To recognize the basic concepts in Physical geography.
		CO2 To discuss the utility and application of Physical geography in different regions and environment.
		CO3 To acquaint with Earth system (Lithosphere, Atmosphere, Biosphere and Hydrosphere).
		CO4 To identify the principles and applications of Hydrology and Oceanography to address water resource and environment related problems.
F.Y.B.A. Sem II	Gg.110 (B) Human Geography	CO1 To describe the basic and latest concepts in Human Geography.
		CO2 To demonstrate applications of Human Geography in different regions of environment.
		CO3 To define the Settlement pattern and rural and urban settlement.
		CO4 To describe the Agriculture types and pattern.
S.Y.B.A.		
S.Y.B.A. Sem III	G2Gg: 210 (A) CC1C Environmental Geography - I	CO1 Students introduced to environmental geography and ecosystem
		CO2 Students understand the biodiversity and its conservation
		CO3 Students learn about environmental pollution
S.Y.B.A. Sem III	G2 Gg: 210 (A) CC1C Economic Geography	CO.CO1 Introduction of the basic principles and concepts in Economic Geography
		COCO2 Knowledge of the applications of Economic Geography in different areas and development.
		COCO3 Integration of the various factors of economic development and to acquaint the students about this dynamic aspect of economic geog.
Sem III	Gg: 220 (A) S1 DSE 1 A Geography of Maharashtra - I	CO1 Learn the geography of Maharashtra state.
		CO2 Aware about problems and prospects of Maharashtra.
		CO3 Understand the relationship between geographic variations and society in Maharashtra.
		CO4 Learn the recent trends in regional studies.

S.Y.B.A. Sem III	Gg: 201(A) S2 DSE 2 A Practical Geography – I (Scale and Map Projections)	CO1 Learn the basic concepts in practical geography.
		CO2 Able to develop and use of survey and mapping skills.
		CO3 Aware of the new techniques, accuracy and map making skills.
S.Y.B.A. Sem III	SEC 2 A Applied Course of Disaster Management	CO.1 Introduction to the basic concepts in disaster management system and classification of disasters.
		CO.2 Study of various phases of disaster management
		CO.3 Study of comparative assessment of disaster management
		CO.4 Introduction to the assessment of disaster management
S.Y.B.A. Sem IV	G2Gg: 210 (B) CC1D Environmental Geography- II	CO1 Students understand the environmental disaster
		CO2 Students understand about the environmental problems
		CO3 Students learn about environmental planning and management
S.Y.B.A. Sem IV	G2Gg: 210 (B) CC1D Economic Geography	CO.CO1 Acquainted students with the basic principles and concepts of economic geography
		CO.CO2 Acquainted the students with the applications to economic geography for development in different areas.
		CO.CO3 Students integrate the various factors of economic development and to acquainted the students with this dynamic aspect of economic geog.
S.Y.B.A. Sem IV	Gg: 220(B) S1 DSE 1 B Geography of Maharashtra -II	CO1 Aware about the problems and prospects of agriculture in Maharashtra.
		CO2 Learn the distribution of population and patterns of settlements in Maharashtra.
		CO3 Learn the concepts in rural development.
		CO4 Understand the prospectus of tourism activities in Maharashtra with role of MTDC in development.
		CO5 Understand the role of MIDC in industrial development in rural Maharashtra.
S.Y.B.A. Sem IV	Gg: 201(B)DSE 2 B Practical Geography -II (Cartographic Techniques, Surveying and Excursion / Village / Project Report)	CO1 Learn the basic concepts in practical geography.
		CO2 Able to develop and use of survey and mapping skills.
		CO3 Aware of the new techniques, accuracy and map making skills.
m IV	SEC 2 B Applied Course of Travel and Tourism Geography	CO1 Students introduced to travel and tourism
		CO2 Students learn about local tourism and local tourist places CO3 Students aware about the tour planning and skill development
		CO.1 Introduction to the basic concepts in disaster management system and classification of disasters.

T.Y.B.A. Sem V	G3Gg: 310(A)CC1E Geography of Disaster Management-I	CO.2 Students learn about hazards and disaster, classification of disaster
		CO.3 Study of structure of disaster management such as Preparedness, Response, Recovery, Mitigation and Rehabilitation.
		CO.4 Learn about climatic disaster and their management
T.Y.B.A. Sem V	G3Gg:310(A)CC1E Geography of Tourism-I	CO.CO1 Introduction of the basic concepts in Tourism Geography
		CO.CO2 Study of Determinants of Tourism development- Physical, Socio-cultural, Political determinants
		CO.CO3 Students understand the classification of tourism and various concepts of tourism
		CO.CO4 Students understand basic infrastructure in tourism, mode of transportation, role of communication
T.Y.B.A. Sem V	Gg: 320(A) DSE 1 C Geography of India –I	CO1 To acquaint the students with geography of India.
		CO2 To make the student aware of the magnitude of problems and Prospects at National level.
		CO3 To help the students to understand the inter relationship between the subject and the society.
T.Y.B.A. Sem V	Gg: 301 (A) DSE 2C Practical Geography -I (Techniques of Spatial Analysis)	CO1 Students introduce the basic concepts and techniques of Geographical Analysis.
		CO2 Introduce the students with SOI Topo sheets, Indian daily weather report, Aerial Photographs and Satellite Images and acquire the Knowledge of interpretation.
		CO3Acquaint students with the spatial and structural characteristics of Practical Geography.
		CO4Student explain the elementary and essential principles on field of practical Work.
T.Y.B.A. Sem V	SEC 2C Research Methodology – I	CO1 To develop the understanding of the basic concept of research.
		CO2 To develop the understanding of the basic framework of sampling and data collection.
		CO3 To develop the understanding of various sampling methods and techniques.
		CO4 To identify various sources of information about data collection.
		CO5 Understanding of the conducting survey on various issues and develop the Report writing skill
em VI	Gg: 310 (B) CC1F Geography of Disaster Management-II	CO.1 Introduction about geographical and geographic disasters and their management
		CO.2 Introduced about anthropogenic disasters and their management
		CO.3 Students aware about global environmental issues
		CO.4 Students study some case studies of disasters

T.Y.B.A. Sem VI	Gg: 310(B) CC1F Geography of Tourism -II	CO.CO1 Students understand the role of accommodation in tourism
		CO.CO2 Study of physical, environmental, economic, social and cultural impact of tourism
		CO.CO3 Students understand planning and policies of tourism development
		CO.CO4 Students learn about case studies of major tourist centers in India- hill station, historical and national parks
T.Y.B.A. Sem VI	Gg: 320(B) DSE 1D Geography of India -II	CO1 To acquaint the students with geography of India.
		CO2 To make the student aware of the magnitude of problems and Prospects at National level.
		CO3 To help the students to understand the inter relationship between the subject and the society.
T.Y.B.A. Sem VI	Gg: 301(B) DSE 2D Practical Geography – II (Techniques of Spatial Analysis, Surveying and Excursion / Village / Project Report	CO1 Students introduce the basic concepts and techniques of Geographical Analysis.
		CO2 Acquaint students with the spatial and structural characteristics of Practical Geography.
		CO3 Student explain the elementary and essential principles on field of practice work.
T.Y.B.A. Sem VI	SEC 2 D Research Methodology – II	CO1 To develop the understanding of the basic framework of sampling and data collection.
		CO2 To develop the understanding of various sampling methods and techniques.
		CO3 To identify various sources of information about data collection.
		CO4 Understanding of the conducting survey on various issues and develop the Report writing skill
All Classes	Certificate course on GIS	CO1 To understand the concept, advantages and importance of GIS.
		CO2 To gain knowledge about the various projections.
		CO3 To know about sources and types of data.
		CO4 To develop ability of attribute linking in GIS for specific purposes in geographical and other areas.
		CO5 To develop practical skills about geo-referencing, TIN spatial analysis and topographical analysis
		CO6 To know about application of query analysis techniques in GIS.

Department of Psychology		
Program: B.A. (Psychology)		
Program Outcomes (POs)		
PO 1		Understand basic concepts, principles and theories of Psychology.
PO 2		Accomplish to understand the basic steps in scientific research and psychology.
PO 3		Understand recent clarification, the causes, symptoms and treatment of various Psychological disorders.
PO 4		Knowledge of psychological testing, its administration, scoring and interpretation.
PO 5		Undertake an independent small-scale research projects or projects related with social works.
PO 6		Understand the basic concepts of psychology for example learning, personality, motivation, memory, IQ, EQ etc.
PO 7		Understand the application of psychological concepts in day-to-day life
PO 8		Understand the behavior of surrounding people.
PO 9		Undertake an independent small-scale research projects or projects related with social works.
PO 10		Understand the importance society socialization process
Program Specific Outcomes (PSOs)		
PSO 1		Understand the biological cognitive and social emotional process.
PSO 2		Understand the importance of heredity and environment in human development.
PSO 3		Understand the importance of motivation emotions in human life.
PSO 4		Understand the various theories of personality.
PSO 5		Understand the behavior of surrounding people.
Class	Course	**Course outcome (COs)**
F.Y.B.A	Foundation of Psychology	CO.1. Understand the basic psychological processes and their applications in day-to-day life.
Semester		CO.2.Develop the ability to evaluate cognitive processes, learning and memory of an individual.
		CO.3.Understand the importance of motivation and emotion of the individual.
		CO.4.Understand the personality and intelligence of the individuals by developing their psychological processes and abstract potentials
	Introduction to Social Psychology	CO.1. Understand the basics of social psychology.
		CO.2.Understand the nature of self, concept of attitude and prejudice of the individual.
		CO.3. Assess the interactional processes, love and aggression in our day today life.
		CO.4.Understand group dynamics and individual in the social world.
	Foundations of Psychology	CO.1.Understand the basic psychological processes and their applications in day-to-day life.
		CO.2.Develop the ability to evaluate cognitive processes, learning and memory of an individual.

		CO.3.Understand the importance of motivation and emotion of the individual.
		CO.4.Understand the personality and intelligence of the individuals by developing their psychological processes and abstract potentials.
	Experimental Psychology	CO.1.Understand basic concepts of Experimental Psychology.
		CO.2.Understand the different methods of psychophysics, learning, reaction time.
		CO.3.Understand psychological tests, intelligence, aptitude and personality.
	Psychology Practical: Experiments	CO.1.To acquaint the students the basic concepts of Experiments in Psychology.
		CO.2.To acquaint the students how to conduct the experiments and to understand its practical applications and To introduce the students about basic knowledge of elementary statistics.
	Introduction to Social Psychology	CO.1. Understand the basics of social psychology.
		CO.2.Understand the nature of self, concept of attitude and prejudice of the individual.
		CO.3.Assess the interactional processes, love and aggression in our day today life.
		CO.4.Understand group dynamics and individual in the social world.
	Psychological Testing	CO.1.Understand the basics of psychological testing.
		CO.2.Understand and assessing the human abilities.
		CO.3. Understand and evaluate behaviour analysis.
	Psychology Practical: Test	CO.1.To acquaint the students the bauc concepts of Tests in Psychology.
		CO.2.To acquaint the students how to administer the tests and to understand its practical applications
		CO.3.To introduce the students about basic knowledge of elementary statistics
SYBA	Psychology of Abnormal Behavior-I	CO.1. Acquire the knowledge about the symptoms, diagnostic criteria, and causes of various psychological disorders.
Semester		CO.2.Examine multiple probable causes and correlates of behaviour.
		CO.3.Understand critiques, limitations, and implications of diagnosis and classification of psychological diseases.
		CO.4.Create awareness about mental health problems in society.
	Developmental Psychology	CO.1.Understand the importance, characteristics and concern in lifespan development.
		CO.2.Understand biological, cognitive, and socio-emotional processes.
		CO.3.Understand the periods of development, the significance of age, and discuss developmental issues.
		CO.4.Understand Psychoanalytic, Cognitive, Behavioural and Social Cognitive, Ethological, Ecological and Eclectic theories of development.
		CO.5.Understand methods of data collection and research designs used in Life-span development research.

	Health Psychology	CO.1.Understand health psychology and arrive at the introduction to the role of psychology in health.
		CO.2. Understand the nature of stress and coping.
		CO.3.Understand various factors related to health and diseases.
		CO.4.Understand quality of life and promoting the good health.
	Skill Enhancement Courses	CO.1.The University Grants Commission has made it compulsory for students to earn two credits from a Skill Enhancement Course (SEC) in each semester second year onwards.
		CO.2.It is mandatory for the student to complete one Skill Enhancement Course (SEC) in each semester from Semester Ill to Semester VI.
		CO.3.Skill Enhancement Course (SEC) will have two (2) credits only.
	Psychology of Abnormal Behavior-II	CO.1.Learn descriptions, and theories underlying diagnostic nosology of psychiatric disorders.
		CO.2.Learn and understand benefits, critiques, limitations, and implications of diagnosis and classification.
		CO.3.Help students to acquire the knowledge about the symptoms, diagnostic criteria, and causes of various psychological disorders.
		CO.4.Examine multiple probable causes and correlates of behaviour.
		CO.5. Create awareness about mental health problems in society.
	Theories of Personality	CO.1.Understand the concept of personality with various theories of personality on the basis of personality psychology.
		CO.2.Understand different framework and theoretical aspects of personality.
		CO.3.Understand and observe, interpret individual differences in behaviour in the light of sound theoretical systems of personality.
		CO.4.Understand comprehensive overview of the major theories personality.
	Positive Psychology	CO.1.Understand how the positive psychology as the science of happiness, human strengths, positive aspects of human behavior and 'psychology of well-being.
		CO.2.How we lead our lives, find happiness and satisfaction, and face life's challenges.
		CO.3.How positive psychology has become an evolving mosaic of research and theory from many different areas of psychology.
	Skill Enhancement Courses	CO.1. The University Grants Commission has made it compulsory for students to earn two credits from a Skill Course (SEC) in each semester second year onwards.
		CO.2.It is mandatory for the student to complete one Skill Enhancement Course (SEC) in each semester from Semester ill to Semester VI.
		CO.3.Skill Enhancement Course (SEC) will have two (2) credits only.
	Industrial and Organizational Psychology	CO.1.Describe the concept of industrial and organizational psychology, selection and training. Evaluation and motivation at workplace.
		CO.2.Explain job profile, job analysis, recruitment techniques and employee training.

		CO.3.Identify and classify the appraisal rating system.
		CO.4. Compare different theories of motivation. COS: Evaluate the training programme and job performance.
	Psychological Testing + Testing Project	CO.1.Describe the concept of psychological test, reliability, validity and norms.
		CO.2.Classify and categorize psychological tests, reliability-validity-norms types.
		CO.3.Identify the reliability and validity of psychological tests.
		CO.4.Evaluate the types of norms.
		CO.5.Conduct testing project for behaviour analysis.
	Psychological Test+ Statistics	CO.1.Describe mapping of human behaviour.
		CO.2.Explain general ability testing, personality, adjustment and attitude.
		CO.3.Identify and classify the intellectual ability and personality patterns.
		CO.4.Conduct testing and evaluate intellectual ability, personality traits, adjustment and attitudes of participant.
		CO.5.Analyze statistical methods employed in behaviour analysis.
	Personality Development-1	CO.1.Describe the concept of personality.
		CO.2.Identify and classify various personality traits.
		CO.3.Correlate real life behavioural patterns with theoretical assumptions.
		CO.4.Apply psychological skills in daily life situations.
	Applied Psychology	CO.1.Describe the concept of applied psychology, educational psychology, family structure and developmental patterns.
		CO.2.Know the clinical psychology related mechanisms, social issues, and criminal behavior.
		CO.3.Classify the intellectual ability, abnormality, criminal behavior.
		CO.4.Identify the problems and solutions in the field of education.
		CO.5. Evaluate the interpersonal relations.
		CO.6.Apply psychological remedies to assess abnormal behavior, to tackle the social issues and to rectify the problematic behavior.
	Experimental Psychology & Research Project	CO.1.Describe the process of experiment in psychology, concept of psychophysics.
		CO.2.Explain problem, hypothesis, variables, sampling in experiment.

		CO.3.Identify and classify the learning system, methods of psychophysics.
		CO.4.Compare laws of psychophysics, types of hypotheses.
		CO.5.Conduct research- b a s e d project.
	Psychological Experiment+ Statistics	CO.1.Explain psychophysics, various cognitive processes of human being.
		CO.2.Classify and compare psychological experiments.
		CO.3.Conduct laboratory experiments.
		CO.4.Analyse statistical base of human behavior.
	Personality Development-2	CO.1.Describe the concept of self-esteem and personality development.
		CO.2.Identify and classify behavioural assessment techniques.
		CO.3.Evaluate personality of individuals.
		CO.4.Apply psychological skills to develop owns personality.
Department of Economics		
Program Outcomes (POs) for B. A. Economics		
PO 1		To relate and recognize the concept and indicators of Economic Development.
PO 2		To describe and analyze the concept and indicators of Human Development.
PO 3		To explain the characteristics of Developing and Developed Countries.
PO 4		To describe the constraints to the process of Economic Development.
PO 5		To describe and explain the process of Economic Planning.
PO 6		To describe and examine the changing structure of planning process in India.
PO 7		To describe and explain the relation between Economic Development and Environment.
PO 8		To provide the students with the background of the Indian Economy with focus on contemporary issues like economic environment.
PO 9		At the end of the course, the student should be able discuss and debate on the various issues and challenges facing the Indian Economic Environment.
PO 10		Ability to develop awareness on the various new developments in the different sectors of an economy – agriculture, industry, services, banking, etc.
Program Specific Outcomes (PSOs) for B. A. Economics		
		Ability to develop an understanding of the economic environment and the factors affecting economic environment.
		At the end of the course, the student should be able discuss and debate on the various issues and challenges facing the Indian Economic Environment.
		To help the students to prepare for varied competitive examinations
		Making students financially literate.
		Students understand the financial environment of the family

Program Outcomes (POs) for M. A. Economics		
PO 1		Ability to apply the concepts of micro economics such as demand, supply, revenue, cost, elasticity, etc.
PO 2		To develop an understanding of the changing role of the government and the fiscal functions of the modern governments.
PO 3		Ability to appraise and assess the theory of public economics in real life situations.
PO 4		Ability to understand the concepts of international economics such as comparative cost, terms of trade, trade policies and trade agreements
PO 5		Ability to interpret and apply theory relating to understand international trade
PO 6		Ability to analyze and evaluate the subject with reference to various aspects of agrarian economies.
PO 7		Ability to develop an understanding of agriculture with its intricacies and imperfections and to be able to construct intellectual dialogue on the challenges of agriculture
PO 8		To provide the students with the background of the Indian Economy with focus on contemporary issues like economic environment.
PO 9		At the end of the course, the student should be able discuss and debate on the various issues and challenges facing the Indian Economic Environment.
PO 10		Ability to develop awareness on the various new developments in the different sectors of an economy – agriculture, industry, services, banking, etc.
Program Specific Outcomes (PSOs) for M. A. Economics		
PSO 1		To promote the student for skill-based Business
PSO 2		At the end of the course, the student should be able discuss and debate on the various issues and challenges facing the Indian Economic Environment.
PSO 3		Ability to develop awareness on the various new developments in the different sectors of an economy – agriculture, industry, services, banking, etc.
PSO 4		Ability to develop an understanding of the rural sector with its intricacies and imperfections and to be able to construct intellectual dialogue on the challenges of agriculture w.r.t. the Indian Economy.
PSO 5		To develop the research attitude among the students
		Course outcomes (COs)
FYBA	**Subject: -CC -1 Financial System**	**CO 1**. Understand fundamentals of modern financial system.
		CO 2. Understand the recent trends and developments in banking system.
		CO 3. Understand the role of the Reserve Bank of India in Indian financial system.
		CO 4. Provided the knowledge of various financial and non-financial institutions.
		CO 5. Provided the students the intricacies of Indian financial system for better financial decision making.

SYBA	**Subject: - DES – 1 Micro Economics**	**CO 1** Developed an understanding about subject matter of Economics.
		CO 2 Impart knowledge of micro economics.
		CO 3 Clarified micro economic concepts
		CO 4 Analyzed and interpret charts, graphs and figures
		CO 5 Developed an understanding of basic theories of micro economics and their application.
		CO 6 demonstrated that the theories discussed in class will usually be applied to real-life situations.
		CO 7 Helped the students to prepare for varied competitive examinations
SYBA	**Subject: - DSE – II Macro Economics**	**CO 1.** Introduced students to the historical background of the emergence of macroeconomics
		CO 2. Familiarized students with the differences between microeconomics and macroeconomics
		CO 3. Familiarized students with various concepts of national income
		CO4. Familiarized students with keynesian macroeconomic theoretical framework of consumption and investment functions
		CO 5. Introduced students to the role of money in an economy.
		CO 6. Introduced students to the conceptual and theoretical frameworks of inflation, deflation and stagflation, Business Cycle. 13
		CO 7. Familiarized students with the conceptual and theoretical framework of business cycles
		CO 8. Introduced students to the role of monetary and fiscal policies in fulfilling the macroeconomic objectives of stability, full employment and growth.
		CO 9. Introduced students to the various instruments of monetary and fiscal policies
SYBA	**Subject: - SEC - Basic Concept of Research Methodology**	**CO 1** Demonstrated his/her understanding of sampling methods and the ability to use collection of data
		CO 2. Identified the appropriate sample techniques for different kinds of research questions
		CO 3. Identified the appropriate source of data in relation to the collection of research data.
		CO 4. Able to classify and present the collected data in the form of graph, bar diagram, chart etc
T.Y.B.A.	**Subject: G-3 Indian Economic Development**	**CO 1.** Related and recognized the concept and indicators of Economic Development.
		CO 2. Described and analyzed the concept and indicators of Human Development.
		CO 3. Explained the characteristics of Developing and Developed Countries.
		CO 4. Described the constraints to the process of Economic Development.
		CO 5. Described and explained the process of Economic Planning.
		CO 6. Described and examined the changing structure of planning process in India.
		CO 7. Described and explained the relation between Economic Development and Environment.
	Subject: CC-2 Indian Economic Development	**CO 1.** Related and recognized the concept and indicators of Economic Development.
		CO 2. Described and analyzed the concept and indicators of Human Development.
		CO 3. Explained the characteristics of Developing and Developed Countries.

T.Y.B.A.		**CO 4.** Described the constraints to the process of Economic Development.
		CO 5. Described and explained the process of Economic Planning.
		CO 6. Described and examined the changing structure of planning process in India.
		CO 7. Described and explained the relation between Economic Development and Environment.
M.A – I ECONOMICS	Subject: - Micro Economic Analysis I &II	**CO1** Ability to applied the concepts of micro economics such as demand, supply, revenue, cost, elasticity, etc. Ability to analyze and demonstrate knowledge of the basic theories/laws in economics- law of demand, law of supply, production function, etc.
		CO2 At the end of the course, the students are able to evaluated microeconomic concepts, models and its use in real life situations.
		CO3 Ability to applied the concepts of micro economics such as demand, supply, revenue, cost, elasticity, etc. Ability to compare and contrast various market structures and understand concept of equilibrium, price determination
		CO4 At the end of the course, the students are able to evaluated microeconomic concepts, models and its use in real life situations.
	Subject: - Public Economics I &II	**CO1** Recognized, apply and analyze concepts and theories in public economics.
		CO2 appraised and assessed the theory of public economics in real life situations.
		CO3 Ability to understand, apply and analyze concepts-public debt, budget, fiscal policy in public economics.
		CO4 Ability to interpret the theories relating to public economics in real life situations.
		CO5 Ability to discuss and debate on the public finance and policies w.r.t. India
	Subject: - International Trade & International Finance	**CO1** Ability to understand the concepts of international economics such as comparative cost, terms of trade, trade policies and trade agreements
		CO2 Ability to interpret and apply theory relating to understand international trade
		CO 3Ability to discuss and debate the effects of trade policy, trade agreements, exchange rate policies on the world economy/trade
		CO 4Ability to understand and interpret the concepts such as Balance of Payments, Exchange Rates, Foreign Exchange transactions, International capital flows, etc.
		CO5 Ability to critically analyze the effects of deficits, exchange risk, role of foreign capital on the world economy/trade
		CO6 Ability to discuss and debate on subjects related to international trade and finance w.r.t the Indian Economy
	Subject: - AGRICULTURAL ECONOMICS & LABOUR ECONOMICS	**CO1** Ability to analyzed and evaluate the subject with reference to various aspects of agrarian economies.
		CO2 Ability to developed an understanding of agriculture with its intricacies and imperfections and to be able to construct intellectual dialogue on the challenges of agriculture.
		CO3 Ability to analyzed and evaluate the subject with reference to various aspects of Labour economics.
		CO4 Ability to develop an understanding of the labour with its intricacies and imperfections and to be able to construct intellectual dialogue on the challenges of labour w.r.t. the Indian Economy.
	Subject:- Macro Economics Analysis-I & II	**CO1** Ability to analyze and demonstrate knowledge of the basic theories/laws in macroeconomics.
		CO2 At the end of the course, the student should be able to evaluate macroeconomic concepts, models and its use in real life situations.
		CO3 Ability to analyze and demonstrate knowledge of the basic theories/laws in economics- general equilibrium psychological law of consumption, etc.

		CO4 At the end of the course, the students are able to evaluated macroeconomic concepts, models and its use in real life situations.
M.A.-II ECONOMICS	Subject: - GROWTH AND DEVELOPMENT I & II	**CO1** Ability to apply the concepts of economic growth and compare international comparison of economic development, etc.
		CO2 Ability to analyzed and demonstrated knowledge of the economic growth and development theories of economic growth and development
		CO3 Ability to analyzed and demonstrated knowledge of the economic growth and development theories of economic growth and development
		CO4 Ability analyzed, evaluate and apply the growth and development concepts, role of human capital, etc. in real life situations
	Subject:- RESEARCH METHODOLOGY & RESEARCH PROJECT	**CO1** Ability to develop demonstrated and examined topics under Economics to pursue research.
		CO 2Ability to evaluated and examined subject areas in economics and explore possibilities of research.
		CO 3Ability to developed, demonstrate and examine topics under Economics to pursue research.
		CO4 Ability to evaluated and examine subject areas in economics and explore possibilities of research.
	Subject:- DEMOGRAPHY & ECONOMICS OF ENVIRONMENT	**CO1** Ability to developed, demonstrate and examine various topics under Demography.
		CO 2Ability to evaluated and examine subject areas in economics bringing out the relation to population studies and demography.
		CO3 Ability to analyzed and evaluate the subject with reference to various aspects of the economics of environment.
		CO4 Ability to developed an understanding of the economics of environment and various analytical tools to comprehend environmental issues
DEPARTMENT OF HINDI		
PROGRAM OUTCOMES (POs) OF Hindi B. A.		
PO-1		A graduate student is expected to be capable of demonstrating comprehensive knowledge and understanding both theoretical knowledge in all disciplines of Hindi Students get acquainted with Hindi literary history writing. Students studied the authors and works of major literary trends of the ancient, devotional and ritual periods.
PO-2		Students became aware of memoir literature. Students became aware of line drawing literature. Evaluative vision of students developed. The meeting minutes writing skills of the students were improved.
PO-3		Students get acquainted with the nature of linguistics. Students get acquainted with the conditions of study of linguistics. Students should understand the applied aspects of linguistics. Students started understanding the usefulness of Students became aware of memoir literature.
PO-4		To introduce the students to the official Hindi used in government through technical terms and abbreviations. To acquaint the students with the method of official correspondence. To acquaint the students with various aspects of journalism to get it done.
PO-5		Of the periods in the history of Hindi literature To introduce nomenclature and background. To elaborate the importance, deliverable, earlier and later effects of the representative works and creators of Hindi literature. To introduce the development of Hindi literature and the causes of changes in literature.
PO-6:		Students became aware of the characteristics of poetry of Bharatendu era and Dwivedi era.Students got acquainted with the writers of modern time. Students became aware of the works of modern times. To acquaint the students with various aspects of journalism to get it done. From the writing tradition of the history of Hindi literature to make aware.
PO-7		To introduce the students to Hindi autobiography Nigha and Hindi long poem/poetic drama and their form. To introduce the students to the official Hindi used in government offices through technical terms and abbreviations. To acquaint the students with the method of official correspondence.
		From the writing tradition of the history of Hindi literature to make aware. Students gained knowledge of memorization. Students became aware of Ghazal literature. Students get acquainted with the personalities of Ghazal writers
		Students get acquainted with the conditions of study Students should understand the applied aspects of linguistics. Students started understanding the usefulness of Students became aware of memoir literature.
		Students got to know the vocabulary of Hindi. Students get acquainted with state language, national language, contact language and international language. Students got information about phonetics and semantics. Students get

		acquainted with the branches of linguistics.
Programme Specific Outcomes (PSOs) B. A.		
PSO-1		To make students aware of the background of modern times. To make students aware of the characteristics of poetry of Bharatendu era and Dhivehi era. To introduce the creators and creations of modern times.
PSO-2		To make students aware of memoir literature. To make the students aware of drawing literature. To develop the vision of evaluation to the students.
PSO-3		To develop the vision of evaluation to the student. Assembly - Development of Chronicle Writing Skill Enhancement. Dialogue-writing skill vision building.
PSO-4		To introduce the nature of linguistics. To explain the scope of Linguistics to the students. To introduce the directions of study of linguistics.
PSO-5		Studies to explain the applied aspect of linguistics. To explain the utility of linguistics in literary s.
M. A. Hindi		
PROGRAM OUTCOMES (POs)		
PO-1		Students studied the authors and works of major literary trends of the ancient, devotional and ritual periods.
PO-2		Students became aware of memoir literature. Students became aware of line drawing literature. Evaluative vision of students developed.
PO-3		Students should understand the applied aspects of linguistics. Students started understanding the usefulness of Students became aware of memoir literature.
PO-4		To acquaint the students with the method of official correspondence. To acquaint the students with various aspects of journalism to get it done.
PO-5		To elaborate the importance, deliverable, earlier and later effects of the representative works and creators of Hindi literature.
PO-6:		Students became aware of the works of modern times. To acquaint the students with various aspects of journalism to get it done. From the writing tradition of the history of Hindi literature to make aware.
PO-7		To introduce the students to the official Hindi used in government offices through technical terms and abbreviations.
PO-8		From the writing tradition of the history of Hindi literature to make aware. Students gained knowledge of memorization. Students became aware of Ghazal literature. Students get acquainted with the personalities of Ghazal writers
PO-9		Started understanding the usefulness of Students became aware of memoir literature.
PO-10		Students got information about phonetics and semantics. Students get acquainted with the branches of linguistics.
Programme Specific Outcomes (PSOs) M.A. Hindi		
PSO-1		To make students aware of the characteristics of poetry of Bharatendu era and Dhivehi era.
PSO-2		To make the students aware of drawing literature. To develop the vision of evaluation to the students.
PSO-3		Assembly - Development of Chronicle Writing Skill Enhancement. Dialogue-writing skill vision building.
PSO-4		To explain the scope of Linguistics to the students. To introduce the directions of study of linguistics.
		Studies to explain the applied aspect of linguistics. To explain the utility of linguistics in literary s.
COURSE OUTCOMES (COs)		
A	SEMESTER -I = VAIKALPIK PRASHANPATRA G-1 (1091A)	CO1: Students get acquainted with the background of Hindi literature. Students get acquainted with the science of phonetics.
		CO2: To develop the vision of evaluation to the student. To make students aware of memoir literature.
		CO3: Dialogue-writing skill vision building. To develop the vision of evaluation to the student.

		CO4: To introduce the creators and creations of modern times. To develop the vision of evaluation to the students.
		CO5: Students became aware of Ghazal literature. Students get acquainted with the personalities of Ghazal writers
F.Y.B. A	SEMESTER -II = VAIKALPIK PRASHAN PATRA G-1 (1092B)	CO1: Students studied the authors and works of major literary trends of the ancient, devotional and ritual periods.
		CO2: To acquaint the students with various aspects of journalism to get it done.
		CO3: Students became aware of the characteristics of poetry of Bharatendu era and Dwivedi era.
		CO4: Students studied the authors and works of major literary trends of the ancient, devotional and ritual periods.
		CO5: Writing Skill Enhancement. Dialogue-writing skill vision building. Students got information about phonetics and semantics.
S.Y.B.A SEMESTER Course	KAVYA SHASTRA (DSE-1) 23091 SEM I	
		CO1: To introduce the students to the official Hindi used in government offices through technical terms and abbreviations.
		CO2: To introduce the development of Hindi literature and the causes of changes in literature.
		CO3: To elaborate the importance, deliverable, earlier and later effects of the representative works and creators of Hindi literature.
		CO4: Of the periods in the history of Hindi literature to introduce nomenclature and background.
		CO5: To introduce the development of Hindi literature and the causes of changes in literature.
S.Y.B.A SEMESTER Course	SAHITYA KE BHEDA (DSE-1) 24091 SEM II	
		CO1: Students studied the authors and works of major literary trends of the ancient, devotional and ritual periods.
		CO2: To acquaint the students with various aspects of journalism to get it done.
		CO3: Students became aware of the characteristics of poetry of Bharatendu era and Dwivedi era.
		CO4: Students studied the authors and works of major literary trends of the ancient, devotional and ritual periods.
		CO5: Writing Skill Enhancement. Dialogue-writing skill vision building. Students got information about phonetics and semantics.
S.Y.B.A SEMESTER Course	MADHYAYUGIN KAVYA TATHA UPANYAS SAHITYA (DSE-2) 23092 SEM I	
		CO1: Writing Skill Enhancement. Dialogue-writing skill vision building. Students got information about phonetics and semantics.
		CO2: To acquaint the students with various aspects of journalism to get it done. To introduce the creators and creations of modern times.
		CO3: Students studied the authors and works of major literary trends of the ancient, devotional and ritual periods.
		CO4: Students studied the authors and works of major literary trends of the ancient, devotional and ritual periods.
		CO5: Writing Skill Enhancement. Dialogue-writing skill vision building. Students got information about phonetics and semantics.

S.Y.B.A SEMESTER Course: :	MADHYAYUGIN KAVYA TATHA NATAKA SAHITYA (DSE-2) 24092 SEM II	CO1. Students got to know the vocabulary of Hindi. Students get acquainted with state language, national language, contact language and international language.
		CO2. Students got information about phonetics and semantics. Students get acquainted with the branches of linguistics.
		CO3. Students get acquainted with the science of phonetics. Students get acquainted with the conditions of study of linguistics.
		CO4. Students get acquainted with the science of phonetics. Students get acquainted with the conditions of study of linguistics.
		CO5. Students get acquainted with state language, national language, contact language and international language.
S.Y.B.A SEMESTER Course	ADHUNIK KAVYA, KAHANI TATHA VYAVAHARIK HINDI (CC- 1) (2020-21) SEM I	
		CO1: To introduce the students to the official Hindi used in government offices through technical terms and abbreviations.
		CO2: To introduce the development of Hindi literature and the causes of changes in literature.
		CO3: To elaborate the importance, deliverable, earlier and later effects of the representative works and creators of Hindi literature.
		CO4: Of the periods in the history of Hindi literature to introduce nomenclature and background.
		CO5: To introduce the development of Hindi literature and the causes of changes in literature.
S.Y.B.A SEMESTER Course: :	ADHUNIK KAVYA TATHA VYANGYA (CC-2) SEM II	
		CO1: Students get acquainted with Hindi literary history writing Students studied the authors and works of major literary trends of the ancient, devotional and ritual periods.
		CO2: Students became familiar with the period division and nomenclature of Hindi literary history. Students get acquainted with the background of Hindi literature.
		CO3: Students studied the characteristics of ancient, devotional and ritual literature. To make aware about the writing tradition of the history of Hindi literature.
		CO4: Of the periods in the history of Hindi literature. To introduce nomenclature and background. To elaborate the importance, deliverable, earlier and later effects of the representative works and creators of Hindi literature.
		CO5: To introduce the development of Hindi literature and the causes of changes in literature. Through the history of Hindi literature and to elaborate the relationship between era and life.
S.Y.B.A SEMESTER Course	(SEC-1) ANUVAD SWARUP EVAM VAVHAR SEM I	
		CO1: Students studied the authors and works of major literary trends of the ancient, devotional and ritual periods.
		CO2: To acquaint the students with various aspects of journalism to get it done.
		CO3: Students became aware of the characteristics of poetry of Bharatendu era and Dwivedi era.
		CO4: Students studied the authors and works of major literary trends of the ancient, devotional and ritual periods.
		CO5: Writing Skill Enhancement. Dialogue-writing skill vision building. Students got information about phonetics and semantics.
		CO1: Students get acquainted with the background of Hindi literature. Students get acquainted with the science of phonetics.
		CO2: To develop the vision of evaluation to the student. To make students aware of memoir literature.
		CO3: Dialogue-writing skill vision building. To develop the vision of evaluation to the student.

		CO4: To introduce the creators and creations of modern times. To develop the vision of evaluation to the students.
		CO5: Students became aware of Ghazal literature. Students get acquainted with the personalities of Ghazal writers
S.Y.B.A SEMESTER Course	(MIL-1)HINDI BHASHA SHIKASHAN (23012) SEM I	
		CO1: Students became aware of the background of modern times.
		CO2: Students get acquainted with the writers of modern times. Students became aware of the works of modern Tim
		CO3. To acquaint the students with the method of official correspondent.
		CO4. The meeting minutes writing skills of the students were improved. Students became aware of memoir literature.
		CO5. Students get acquainted with state language, national language, contact language and international language.
S.Y.B.A SEMESTER Course: :	(MIL-2) HINDI BHASHA SHIKASHAN (24012) SEM II	
		CO1. Dialogue writing skills and vision were developed in the students.
		CO2. To acquaint the students with various aspects of journalism to get it done from the writing tradition of the history of Hindi literature to make aware.
		CO3. Dialogue writing skills and vision were developed in the students.
		CO4. Students got information about phonetics and semantics.
		CO5: To introduce the development of Hindi literature and the causes of changes in literature.
SEMESTER THREE Course:	HINDI SAHITYA KA ITIHAS : --(DSE3)	
		CO1: Students get acquainted with Hindi literary history writing Students studied the authors and works of major literary trends of the ancient, devotional and intellectual periods
		CO2: Students came familiar with the period division and nomenclature of Hindi literary history. Students get acquainted with the background of Hindi literature.
		CO3: Students studied the characteristics of ancient, devotional and ritual literature. To make aware about the writing tradition of the history of Hindi literature.
		CO4: Of the periods in the history of Hindi literature. To introduce nomenclature and background. To elaborate the importance, deliverable, earlier and later effects of the representative works and creators of Hindi literature.
		CO5: To introduce the development of Hindi literature and the causes of changes in literature. Through the history of Hindi literature and to elaborate the relationship between era and life.
		CO1: Students became aware of the background of modern times. Students became aware of the characteristics of poetry of Bharatendu era and Divide era.
		CO2: Students get acquainted with the writers of modern times. Students became aware of the works of modern times.

SEMESTER FOUR Course:	HINDI SAHITYA KA ITIHAS (ADHUNIK KAL) (DSE3)	**CO3:** Various devotional paths of the Bhakti period became known to the students.
		CO4: To make students aware of the changes that have taken place in Hindi literature in view of the changes in the social, political, religious, literary and economic conditions of the modern era.
		CO5: Students studied the characteristics of ancient, devotional and ritual literature.
SEMESTER THREE Course:	BHASHA VIGYAN : (DSE4)	CO1. Students became aware of memoir literature. Students became aware of line drawing literature.
		CO2. Evaluative vision of students developed. The meeting minutes writing skills of the students were improved
		CO3. Dialogue writing skills and vision were developed in the students. To introduce the students to Hindi autobiography nigh and Hindi long Poem/poetic drama and their form.
		CO4. To introduce the students to the official Hindi used in government offices through technical terms and abbreviations. To acquaint the students with the method of official correspondence.
		CO5. To acquaint the students with various aspects of journalism to get it done from the writing tradition of the history of Hindi literature to make aware.
SEMESTER FOUR Course:	HINDI BHASHA AUR USAKA VIKAS : (DSE4)	**CO1.** Students got to know the vocabulary of Hindi. Students get acquainted with state language, national language, contact language and international language.
		CO2. Students got information about phonetics and semantics. Students get acquainted with the branches of linguistics.
		CO3. Students get acquainted with the science of phonetics. Students get acquainted with the conditions of study of linguistics.
		CO4. Students get acquainted with the science of phonetics. Students get acquainted with the conditions of study of linguistics.
		CO5. Students get acquainted with state language, national language, contact language and international language.
SEMESTER FIFTH Course:	KATHETAR VIDHAYE : (CC1)	**CO1.** Students became aware of memoir literature. Students became aware of line drawing literature.
		CO2. Evaluative vision of students developed. The meeting minutes writing skills of the students were improved
		CO3. Dialogue writing skills and vision were developed in the students. To introduce the students to Hindi autobiography nigh and Hindi long Poem/poetic drama and their form.
		CO4. To introduce the students to the official Hindi used in government offices through technical terms and abbreviations. To acquaint the students with the method of official correspondence.
		CO5. To acquaint the students with various aspects of journalism to get it done from the writing tradition of the history of Hindi literature to make aware.
SEMESTER SIXTH Course:	GAZAL VIDHA AUR PATRACHAR : (CC2)	**CO1.** Dialogue writing skills and vision were developed in the students. To introduce the students to Hindi autobiography nigh and Hindi long poem/poetic drama and their form.
		CO2. To acquaint the students with various aspects of journalism to get it done from the writing tradition of the history of Hindi literature to make aware.
		CO3. To acquaint the students with the method of official correspondence. To introduce the students to the official Hindi used in government offices through technical terms and abbreviations.
		CO4. The meeting minutes writing skills of the students were improved. Students became aware of memoir literature.
		CO5. Students get acquainted with the conditions of study of linguistics. Students became aware of memoir literature.
FTH	PATAKATHA LEKHAN : (SEC1)	**CO1:** Writing Skill Enhancement. Dialogue-writing skill vision building. Students got information about phonetics and semantics.
		CO2: To acquaint the students with various aspects of journalism to get it done. To introduce the creators and creations of modern times.
		CO3: Students studied the authors and works of major literary trends of the ancient, devotional and ritual periods.
		CO4: Students studied the authors and works of major literary trends of the ancient, devotional and ritual periods.
		CO5: Writing Skill Enhancement. Dialogue-writing skill vision building. Students got information about phonetics and semantics.
XTH	SAHITY AUR FILMANTARN : (SEC1)	**CO1:** Students get acquainted with the background of Hindi literature. Students get acquainted with the science of phonetics.

Course:		**CO2:** To develop the vision of evaluation to the student. To make students aware of memoir literature.
		CO3: Dialogue-writing skill vision building. To develop the vision of evaluation to the student.
		CO4: To introduce the creators and creations of modern times. To develop the vision of evaluation to the students.
		CO5: Students became aware of Ghazal literature. Students get acquainted with the personalities of Ghazal writers
Course Outcomes (COs)		
M. A. – HINDI I & II		
FIRST SEMESTER Course: M.A. I	MADHYUGIN KAVYA	CO1: To introduce the medieval poetic trends of Hindi. To introduce the work of a particular poet on the background of medieval poetic trends.
		CO2: To introduce the tendencies of contemporary poetic language. To develop the ability to evaluate poetry on the basis of texts.
		CO3: To develop creative skills. To introduce the medieval poetic trends of Hindi. To introduce the medieval poetic trends of Hindi.
		CO4: To introduce the works of a particular poet on the background of medieval poetic trends. To develop creative skills.
		CO5: To develop the ability to evaluate poetry on the basis of 4 texts. To develop an emotional perspective. To develop creative skills.
SECOND SEMESTER Course M.A. I	KATHETAR GADYA SAHITYA	CO1: Students get acquainted with idealistic, shadows and other poems in modern poetry. The art of poetic creativity developed among the students.
		CO2: Students get acquainted with idealistic, shadows and other poems in modern poetry. The art of poetic creativity developed among the students.
		CO3: Students became aware of poetic sensitivity and artistic study the vision of poetry appreciation developed among the students.
		CO4: The vision of modern poetry studies developed in the students get acquainted with modern poetry.
		CO5: Students became aware of poetic sensitivity and artistic study. The vision of poetry appreciation developed among the students
FIRST SEMESTER Course	KATHA SAHITY	CO1: Students get acquainted with the background of Hindi literature. Students get acquainted with the science of phonetics.
		CO2: To develop the vision of evaluation to the student. To make students aware of memoir literature.
		CO3: Dialogue-writing skill vision building. To develop the vision of evaluation to the student.
		CO4: To introduce the creators and creations of modern times. To develop the vision of evaluation to the students.
		CO5: Students became aware of Ghazal literature. Students get acquainted with the personalities of Ghazal writers
SECOND SEMESTER Course M.A.I	SHODH PRVIDHI	CO1: Students became aware of the nature and different types of criticism. Literary criticism and practical review developed in the students.
		CO2: Students were introduced to the critical paradigms of the major critics of Hindi. Students get acquainted with the prevalence of folklore.
		CO3: Students got familiar with Bharatendu era criticism, Dwivedi era criticism, and A.Shukla era criticism.
		CO4: Students became aware of a brief history of Hindi criticism. Students became familiar with critical approach and methods.
ER	BHARTIYA KAVYASHASTRA	CO1: Students get acquainted with modern poetry. The vision of modern poetry studies developed in the students.
		CO2: The vision of poetry appreciation developed among the students. Students became aware of poetic sensitivity and artistic study.
		CO3: The art of poetic creativity developed among the students. Students get acquainted with idealistic, shadows and other poems in modern poetry.
		CO4: The art of poetic creativity developed among the students. Students get acquainted with idealistic, shadows and other poems in modern poetry.
		CO5: Students studied empathy and craft. Students became aware of poetic sensitivity and artistic study the vision of poetry appreciation developed among the students.

SECOND SEMESTER Course M.A.I	PASHCHATYA KAVYASHASTRA	CO1: Students get acquainted with idealistic, shadows and other poems in modern poetry. The art of poetic creativity developed among the students.
		CO2: Students get acquainted with idealistic, shadows and other poems in modern poetry. The art of poetic creativity developed among the students.
		CO3: Students became aware of poetic sensitivity and artistic study the vision of poetry appreciation developed among the students.
		CO4: The vision of modern poetry studies developed in the students get acquainted with modern poetry.
		CO5: Students became aware of poetic sensitivity and artistic study. The vision of poetry appreciation developed among the students.
FIRST SEMESTER Course M.A.I	NATAKKAR MOHAN RAKESH	CO1: Students get acquainted with the nature and importance of folklore. Students get acquainted with various types of folklore.
		CO2: Students get acquainted with the prevalence of folklore. Students get acquainted with the folk literature of Maharashtra.
		CO3: Students studied the history of folklore. Became aware of folk literature, folk songs, folk drama, folk tales
		CO4: folk language Students became aware of folk proverbs, idioms, proverbs, riddles aware of the collection. Students get acquainted with the prevalence of folklore.
		CO5: Indian Folklore Students get acquainted with the nature and importance of folklore. Students get acquainted with various types of folklore.
SECOND SEMESTER Course M.A.I	HINDI UPANYAS SAHITYA	CO1. Students became aware of memoir literature. Students became aware of line drawing literature.
		CO2. Evaluative vision of students developed. The meeting minutes writing skills of the students were improved
		CO3. Dialogue writing skills and vision were developed in the students. To introduce the students to Hindi autobiography nigh and Hindi long poem/poetic drama and their form.
		CO4. To introduce the students to the official Hindi used in government offices through technical terms and abbreviations. To acquaint the students with the method of official correspondence.
		CO5. To acquaint the students with various aspects of journalism to get it done from the writing tradition of the history of Hindi literature to make aware.
THIRD SEMESTER Course M.A.II	ADHUNIK KAVYA	CO1: Students get acquainted with modern poetry. The vision of modern poetry studies developed in the students.
		CO2: The vision of poetry appreciation developed among the students. Students became aware of poetic sensitivity and artistic study.
		CO3: The art of poetic creativity developed among the students. Students get acquainted with idealistic, shadows and other poems in modern poetry.
		CO4: The art of poetic creativity developed among the students. Students get acquainted with idealistic, shadows and other poems in modern poetry.
		CO5: Students studied empathy and craft. Students became aware of poetic sensitivity and artistic study the vision of poetry appreciation developed among the students.
FOURTH SEMESTER Course M.A.II	ADHUNIK KAVITA	CO1: Students get acquainted with idealistic, shadows and other poems in modern poetry. The art of poetic creativity developed among the students.
		CO2: Students get acquainted with idealistic, shadows and other poems in modern poetry. The art of poetic creativity developed among the students.
		CO3: Students became aware of poetic sensitivity and artistic study the vision of poetry appreciation developed among the students.
		CO4: The vision of modern poetry studies developed in the students get acquainted with modern poetry.
		CO5: Students became aware of poetic sensitivity and artistic study. The vision of poetry appreciation developed among the students.

THIRD SEMESTER Course M.A.II	BHASHA VIGNYAN	CO1: Linguistics students get acquainted with the nature of linguistics. Students get acquainted with the directions of study of linguistics.
		CO2: Students get acquainted with the applied side of linguistics. Students became familiar with the utility of linguistics in the study of literature.
		CO3: Students became aware of the definition, nature and scope of Linguistics. Students get acquainted with phonetics.
		CO4: Students became aware of the definition, nature and scope of Linguistics. Students get acquainted with phonetics.
		CO5: Students get acquainted with phonetics. Students became aware of Morphology. Students get acquainted with syntax.
FOURTH SEMESTER Course M.A.II	HINDI BHASHA KA VIKAS	CO1: Indian Folklore Students get acquainted with the nature and importance of folklore. Students get acquainted with various types of folklore.
		CO2: Students get acquainted with the prevalence of folklore Students get acquainted with the folk literature of Maharashtra
		CO3: Maharashtra Students studied the history of folklore Students became aware of folk literature, folk songs, folk drama, and folk tales.
		CO4: Students became aware of folk tales and folk music, folk language. Students became aware of folk proverbs, idioms, proverbs, riddles aware of the collection.
		CO5: Students became aware of folk literature, folk songs, folk drama, and folk tales. Linguistics students get acquainted with the nature of linguistics.
THIRD SEMESTER Course M.A.II	HINDI SAHITYA KA ITIHAS	CO1: Students became aware of the emergence and development of Hindi prose. Became familiar with the Dwivedi era, Chhayavad, Pragmatism, and the authors and creations of new poetry.
		CO2: Students became familiars, Chhayavad; Progressivism. Students became familiar with experimentalism and new poetry.
		CO3: Students became aware of the historical vision of the students. Became familiar with the modern period of the history of Hindi literature.
		CO4: Students became familiar with the modern period of the history of Hindi literature. Became aware of the emergence and development of Hindi prose.
		CO5: Students became aware of Chhayavad. Got acquainted with the poetic characteristics of progressivism, experimentalism.
ESTER e M.A.II	HINDI SAHITYA KA ITIHAS (Adhunik Kaal)	CO1: Students became familiar with Dwivedi era, Chhayavad, Progressivism. Became familiar with experimentalism and new poetry.
		CO2: Major literary trends of Dwivedi era, Chhayavad, Progressivism, and new poetry. Got acquainted with the poetic characteristics of progressivism, experimentalism.
		CO3: Became familiar with the Dwivedi era, Chhayavad, Pragmatism, and the authors and creations of new poetry. Students became aware of Chhayavad
		CO4: Students became familiar with experimentalism and new poetry. Students became familiar with Dwivedi era, Chhayavad; Progressivism.
		CO5: Students became aware of the emergence and development of Hindi prose. Became familiar with the Dwivedi era, Chhayavad, Pragmatism, and the authors and creations of new poetry.

Programme Outcomes (POs), Programme Specific Outcomes (PSOs) & Course Outcomes (COs) for SCIENCE FACULTY		
Department of Botany		
B.Sc. Programme Outcomes (POs) Of Botany Department		
PO1	**Understanding and Knowledge**:	1) Structure, Function and environmental relationships of plant groups and plant diversity. 2) Plant identification, Classification and Systematic position.3) The role of plants in Ecosystem functioning of world.
PO2	**Intellectual skills**	1) Students able to think logically and perform tasks into structured form. 2) Propose new ideas based on wide reading and use of internet, 3) able to transfer assimilated knowledge from one topic to another within biology. 4) Students able to evolve of information in developing fields.
PO3	**Practical skills**	1) Students acquired skill to carry out practical work, in the field and in the laboratory, with minimal risk. 2) Plant identification on basis of morphological and Anatomical characters. 3) Analysis of vegetation data. 4) Skill of developing nursery, mushroom culture and methods of development of organic farming and their use. 5) Analyse range of phytochemicals from plant materials in plant context of physiology and biochemistry. 6) Analysis of data using different statistical methods. 7) Plant disease diagnosis under plant pathology.
PO4	**Scientific knowledge skill**	Students able to apply the knowledge of life science and fundamentals of botany to study and analyze any plant form.
PO5	**Problem Analysis**	Students able to apply appropriate techniques for solving research related problems. 2) Identify taxonomic position of plants 3) able to formulate the research literature and analyses non reported plants using taxonomic literature like flora, herbarium.
PO6	**Environment and sustainability**	Understand the impact of plant diversity on environment and societal health, and demonstrate the knowledge and need for sustainable development.
PO7	**Modern tool usage**	Create, Select and apply appropriate techniques, resources and modern instruments and equipment for biochemical estimation, plant physiological activities of plants with an understanding of the application and limitations.
PO8	**As a botanist for society**	Apply reasoning informed by the contextual knowledge to assess plant diversity, plant identification and its importance for society and environmental health.
PO9	**Ethics**	Apply ethical principles and commit to environmental ethics and responsibilities and norms of the biodiversity conservation.
PO10	**Target to Specialization**	Developing the ability to demonstrate proficiently in the experimental techniques and methods for analysis, appropriate for their area of specialization within biology.
		B.Sc. Programme Specific Outcomes (PSOs) Of Botany Department
PSO1		Understand the nature and basic concepts of phycology, Mycology, Lichenology and Taxonomy.
PSO2		Understand the nature and basic concepts of instrumentation and Laboratory Techniques.
PSO3		Understand the nature and basic concepts of cytology, genetics, Molecular biology, Microbiology, Plant physiology, Ecology and Phytogeography.
PSO4		Understand the nature and basic concepts of utility and methods of Bio fertilizer, Nursery and Gardening, Pharmacognosy, Horticultural Practices and Post-Harvest technology.
PSO5		Understand the nature and basic concepts of Anatomy, palynology and Embryology, Stress biology, Economic Botany.
Class		**Botany Course Outcome (COs)**
	Sem-I	
	Bo 111 – Plant life and utilization 1	Co1 – Understand about the general characters, classification and life cycle of Bryophytes.
		Co2 – Understand about the economic important of Algae, Fungi and Lichens and Bryophytes.
		Co3 – Students understand about utilization of fungi in agriculture, food, Industry and Pharmaceuticals.
		Co4 – Understand about general characters, classification and life cycle of algae.
		Co5 – Understand about general characters, classification and life cycle of fungi.
	Bo 112-Plant Morphology and Anatomy	Co1 -Students understand the Morphology of all reproductive parts and types of inflorescence and fruits.
		Co2 – Students understand the anatomy of all parts of plants and different types of tissue system.
		Co3- Students learn about the application of Morphology in Identification and classification of plants.
		Co4 – Students understands structure of simple and complex tissues.
		Co5- Understands internal structure of Dicot root, stem and leaf.
		Co6- Students understands internal structure of Monocot root, stem and leaf.

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F. Y. B. Sc. (CBCS)	Bo 113 Practical based on Bo 111and Bo 112	Co1 – Students understand the life cycle of algae, fungi, lichen, and bryophytes
		Co2- Students observes specimen and slides of primitive plant groups.
		Co3 – Students will be able to identify the forms of major groups of plants.
		Co4- Students will be able to compare and contrast the characteristics of the different groups of algae, fungi and bryophytes.
		Co5- Students learn to carry out practical work in the field and in the laboratory with minimal risk.
		Co6 – Students Know the botanical name, family Morphology of plant parts.
		Co7- Students develop skill of Mushroom cultivation
		Co8- Students learn to differentiate different types of Inflorescence and Fruits.
		Co9- Students understands internal organization of monocot and observing under Microscope.
	Sem II	
	Bo -121: Plant life and utilization- 2	Co1- Students understands about general characters, classification and lifecycle of pteridophytes.
		Co2- Students understand about general characters, classification and life cycle of Gymnosperm and Angiosperms.
		Co3 – Students learn about utilization and economic importance of pteridophytes, Gymnosperms and Angiosperms.
		Co4- Students understands and compare monocots and dicots.
		Co5- Students will be able to communicate.
	F. Y.B.Sc. (CBCS) Course outcome	Co1 – Students achieve upto date level of understanding of plant Science.
		Co2- Students learn how plant survive and interact with other living and non- living things in the Environment.
		Co3- Students understands plant diversity in terms of structure, functions and environmental relationships.
		Co4- Students Know the role of plants in the functioning of the ecosystem.
		Co5- Students able to think logically and organize tasks into a structured form.
		Co6- Students learn to carry out practical work, in the field and in the laboratory with minimal risk.
		Co7- Students learn to create select and apply appropriate techniques, resources and modern instruments with an understanding of the application and limitations.
	SEM-I	
	Bo. 231 Taxonomy and plant ecology	Co1- Students will develop the skill of plant parts (vegetative and floral) coming under the families prescribed in theory syllabus.
		Co2- Students get knowledge of identification, classification and nomenclature of Angiospermic plants.
		Co3- Students study the Bentham and Hooker's system of classification in detail.
		Co4- Students study the plant families covering different groups.
		Co5- Students learn about ecology
		Co6- Understands the population and community ecology.
		Co7- Students learn the approaches to the study of ecology.
	Bo. 232 Plant Physiology	Co1- know about the requirements of mineral nutrition for plant growth.
		Co2- Understands the process of photosynthesis and nitrogen metabolism.
		Co3- Students know about the plant growth and plant growth hormones.
		Co4- Understands the relation between structure and function as it relates to the plant cells and tissues.
		Co5- Students gain the knowledge of various metabolic and Physiological processes unique to plants.
		Co6- Understand the importance and scope of plant physiology.
		Co7- Understand the plant and plant cells in relation to water.
		Co8- Understand the movement of sap and absorption of water in plants.

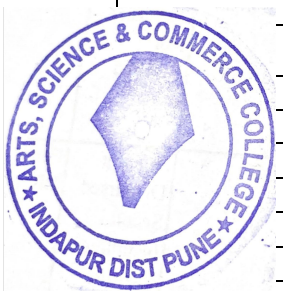
		Co9- Students learns seed dormancy and process of seed germination.
	Bo. 233 -Practical based on Bo-231 and Bo-232	Co1- student learn the tools of taxonomy and ecological instruments.
		Co2- Students know about flowering plant in botanical terms.
		Co3- Students learn plant families.
		Co4- Understands the ecological adaptations in Hydrophytes, xerophytes.
		Co5- Understand the vegetation by list count method.
		Co6- Student learn the photochemical test for starch and protein.
		Co7- Students know the isolation of leaf protein concentration.
		Co8- Understands the Diffusion Pressure Deficit (DPD) concept.
		Co9- Students learn the transpiration process.
		Co10- Students understands Imbibition in seeds, Ringing Experiments, Arc Auxanometer, Spectrophotometers, and Nitrogen fixing bacteria/BGA.
		Co11- Students learn how to calculate seed germination percentage and vigour index.
S. Y. B. Sc. (CBCS)	SEM-II	
	Bo.241 – Plant Anatomy and Embryology	Co1- Students understand the anatomy of all parts of plant and different types of tissue systems.
		Co2- Students learn the application of plant anatomy in various branches of botany.
		Co3- Students learn the structure and function of epidermal tissue system and vascular tissue system.
		Co4- Students understands the principles involved in distribution of various mechanical tissues in leaf, stem, roots of Dicot and monocots.
		Co5- Understand process of normal secondary growth in stems of annual and perennial plants.
		Co6- Learns process of Anomalous secondary growth in plants and their causes.
		Co7- Students learn the micro and megasporogenesis.
		Co8- Students learn the mechanisms of pollination and process of fertilization in plants.
		Co9- Students understand types of endosperm and types of embryo and seed formulation.
		Co10- Understand the development of Male and Female gametophyte.
	Bo.242 - Plant Biotechnology	Co1- Students learn the concept, scope and importance of plant Biotechnology.
		Co2- Students gain the knowledge on plant tissue culture as well as Micro propagation, Haploid production, protoplast fusion etc. and their application.
		Co3- Students learn the use of single cell protein.
		Co4- Students understands the Genomics, Proteomics and Bioinformatics.
		Co5- Understands the concept of Bioremediation.
		Co6- Students learn the process of Genetic engineering.
		Co7- Understands the Biofuel technology, biogas, Bioethanol, Bio butanol, Bio hydrogen.
	Bo.243-Practical based on Bo-241 and Bo- 242	Co1- To learn the epidermal tissue system.
		Co2- Students understand the mechanical tissues and their distribution in root, stem, leaves.
		Co3- Students learn the normal secondary growth in dicot stem.
		Co4 – Students understand the anomalous secondary growth.
		Co5- Students learn the tetrasporangiate anther and types of ovules.
		Co6- Understands the dicot and the monocot embryo.
		Co7- Students learn working and principles of laboratory instruments
		Co8- Students learn process of Surface sterilization and Inoculation of nodal sector.
		Co9- Students develop skill of cultivation of *spirulina*.
		Co10- Students learn about the transgenic crops.

		Co11- Understands the Principal and working of agarose gel electrophoresis, centrifuge.
Department of Electronics		
Program Outcomes (POs) for B. Sc. Electronics		
PO1		To foster scientific attitude, provide in-depth knowledge of scientific and technological concepts of Physics.
PO2		To enrich knowledge through problem solving, minor/major projects, seminars, tutorials, review of research articles/papers, participation in scientific events, study visits, etc.
PO3		To familiarize with recent scientific and technological developments.
PO4		To create foundation for research and development in Physics.
PO5		To help students to learn various experimental computational tools thereby developing analytical abilities to address real world problems.
PO6		To train students in skills related to research, education, industry, and market.
PO7		problem solving, minor/major projects, seminars, tutorials
PO8		Developing analytical abilities to address real world problems.
PO9		To research, education, industry, and market.
PO10		To help students to build-up a progressive and successful career in Physics.
Program Specific Outcomes (PSOs) for B. Sc. Electronics		
PSO1		To understand importance of Electronics in day today life
PSO2		To make the students learn through problem solving
PSO3		To understand basics of electronic circuits
PSO4		To research, education, industry, and market.
PSO5		To understand few electronic systems
Course Outcomes (COs) for B. Sc. Electronics		
Class	**Course**	**Course outcomes**
F.Y. B.Sc. Semester I		
	EL- 111: Basics of Applied Electronics	CO1. To identify different parameters/functions/specifications of components used in electronic circuits
		CO2. To solve problems based on network theorems.
		CO3. To perform simulations using simulator for analyzing network performance
	EL- 112: Electronic Devices and Circuits	CO1. To analyze performance parameters based on study of characteristics of electronic devices like diode, transistors etc.
		CO2. To choose proper electronic devices as per the need of application
		CO3. To perform simulations for designing and analyzing diode/transistor circuits
		CO4. To build and test the circuits like street light controller using electronic devices
	EL- 113: ELECTRONICS LAB IA	CO1. To identify different components and devices as well as their types
		CO2. To understand basic parameters associated with each device
		CO3. To know operation of different instruments used in the laboratory
	EL-121: Fundamentals of Digital Electronics	CO1. To solve problems based on interconversion of number systems
		CO2. To reduce the expression using Boolean theorems
		CO3. To reduce expressions using K maps in SOP and POS forms
		CO4. To understand how to use flip flops to build modulus counter
		CO5. To familiarize with applications of counters like ring counter or event counter

	EL- 122: Analog and Digital Device applications	CO1. To compare different opamps as per specifications or performance parameters
		CO2. To understand opamp circuits and its usefulness in different applications
		CO3. To know operating principle of IC 555 in different configurations
		CO4. To understand different types of DAC and their performance parameters
		CO5. To study different types of ADC and their performance parameters
	EL- 123: ELECTRONICS LAB IB	CO1. To connect op-amp circuits and analyze the output
		CO2. To build application circuits of op-amp
		CO3. To design the output frequency of IC 555 as a stable/monostable multivibrator
S.Y. B.Sc. Semester III	**EL-231: Communication Electronics**	CO1. Understand different blocks in communication systems, types of noise in communication
		systems and its different parameters
		CO2. Understand need of modulation, modulation process and amplitude modulation and
		demodulation methods
		CO3. Analyze generation of FM Modulation and demodulation methods and comparison
	EL-232: Digital Circuit Design	CO1. Distinguish between different logic families based on their performance parameters
		CO2. Analyze basic combinational logic circuits for simple applications
		CO3. Design combinational logic circuits using K maps for identified applications
		CO4. Design Sequential logic circuits using state diagram, excitation table for identified applications
	EL-233: Paper- III: Practical Course: SEMESTER III	CO1. Describe and explain the techniques of generation of AM/ FM and demodulation
		CO2. Design FSK generation using standard IC XR 2206 referring data manuals
		CO3. Describe and explain the TDM/ FDM generation technique
		CO4. Demonstrate PPM/PWM/PAM and PCM techniques using standard circuits in data
ster IV	**EL-241: Analog Circuit Design**	CO1. Design single/multistage amplifier using transistor and analyze their frequency response
		base on gain-bandwidth product due to coupling /bypass capacitors
		CO2. Classify and compare different power amplifiers
		CO3. Understand and design push pull amplifier and need of heat sinks
	EL-242: Microcontroller and Python Programming	CO1. Identify the features and architectural details of microcontroller (arduiono)
		CO2. Write code/program using open-source programming language (ardiuno) for basic
		identified applications
		CO3. Understand programming basics of python programming language
		CO4. Understand special features of python programming language such as importing modules,
		directory, tupules
	EL-243: Paper- III: Practical Course: SEMESTER IV	CO1. Describe and explain the design procedure of different types of active filters and analyze
		its frequency response
		CO2. Demonstrate positive feedback for oscillator circuits using standard ICs

		CO3. Describe and explain design procedure for two stage amplifiers and application circuits
Department of Mathematics		
Program Outcomes (POs)		
PO 1		Gain sound knowledge on fundamental principles and concepts of Mathematics.
PO2		Exhibit in depth the analytical and critical thinking to identify, formulate and solve real world problems of science and engineering.
PO3		Get a relational understanding of mathematical concepts and concerned structures, and should be able to follow the patterns involved, mathematical reasoning.
PO 4		A student should get adequate exposure to global and local concerns that explore them many aspects of Mathematical Sciences.
PO 5		Apply their skills and knowledge, that is, translate information presented verbally into mathematical form, select and use appropriate mathematical formulae or techniques in order to process the information and draw the relevant conclusion.
PO 6		Be capable of undertaking suitable experiments/research methods while solving the real-life problem and would arrive at valid conclusions based on appropriate interpretations of data and experimental results.
PO 7		Develop written and oral communications skills in order to effectively communicate design, analysis and research results.
PO 8		Demonstrate appropriate inter-personal skills to function effectively as an individual, as a member or as a leader of a team and in a multi-disciplinary setting.
PO 9		Acquire competent positions in industry and academia as well.
PO 10		Computing with applications related to Industrial, Engineering, Biological and Ecological problems.
Program Specific Outcomes (PSOs)		
PSO 1		Give the students a sufficient knowledge of fundamental principles, methods and a clear perception of innumerous power of mathematical ideas and tools and know how to use them by modeling, solving and interpreting.
PSO 2		To equip the students sufficiently in both analytical and computational skills in Mathematical Sciences.
PSO 3		To develop a competitive attitude for building a strong academic - industrial collaboration, with focus on continuous learning skills.
PSO 4		Enhancing students overall development and to equip them with mathematical modeling abilities, problem solving skills, creative talent and power of communication necessary for various kinds of employment.
PSO 5		Enabling students to develop a positive attitude towards mathematics as an interesting and valuable subject of study.
		Course Outcomes (COs)
(Sem-I)	Algebra (MT-111)	CO1. The course aids in basic understanding of the sets, relations, and functions as revision
		CO2.student able to calculate GCD and LCM using divisibility
	Calculus-*I*	CO1. Study of various properties of real numbers and its consequences
	(MT-112	CO2. Knowledge of limit of functions with examples and limit theorems.
		CO3. student know continuous function, continuous function on intervals with examples
	Practical Course Paper (MT-113)	CO1.student gains confidence in solving the problems
		CO2.using Maxima software student should study convergence and divergence of sequence.
	Analytical Geometry	CO1.student should know the significance of second-degree equation in x and y so as to classify the nature of graph in two dimension
	(MT-121)	CO2.student know various forms of planes

		CO3.student know various forms of spheres and significant points of equation of sphere
	Calculus-II	CO1.student should be familiar to obtain the derivative of different functions.
	(MT-122)	CO2.student should know the techniques of solving the differential equations
		CO3-student should able to solve various real life problems.
	Practical Course Paper (MT-113)	CO1.student gains confidence in solving the problems
		CO2.using Maxima software student should study convergence and divergence of sequence.
S.Y. B.Sc. MT-231	Calculus of	CO1 The student should know partial derivatives and differentiability with higher order with applications.
	Several	CO2 Using the derivative test student should be able to find extreme values of various functions.
	Variables	CO3 The student should develop the skill of solving multiple integrals and their applications.
S.Y. B. Sc. MT-232		
	(A)	CO1 Student should able to solve algebraic and transcendal equations by using different numerical methods.
	Numerical	CO2 Student should able to know different interpolation formulae and apply them to interpolate the given data.
	Methods & its	CO3 Student should able to differentiate and integrate by different numerical methods.
S.Y. B. Sc. MT-233	Mathematics	CO1 The student develops theoretical, applied and computational skills.
	Practical based	CO2 The student gains confidence in proving theorems and solving problems.
	on MT-231 & MT-232	CO3 Student should able to plot 2D and 3D curves using Maxima software.
S.Y. B. Sc.	MT-241 Linear Algebra	CO1 Student should be familiar with matrices and its application to solve the system of linear equation.
		CO2 The student should be able to identify a set as a vector space and to find dimension, row space, column space, null space, rank and nullity.
		CO3 Student should be able to study various vector spaces using linear transformation
S.Y. B. Sc. MT 242(A)	Vector	CO1 Student should be familiar with gradient, divergence and curl of the functions.
	Calculus	CO2 Using gradient student can find tangent, plane and normal line to the surface.
		CO3 Student should be familiar to solve line, surface and volume integrals so as to solve many real-life problems.
S.Y. B. Sc. MT-243	Mathematics	CO1 The student develops theoretical, applied and computational skills.
	Practical based	CO2 The student gains confidence in proving theorems and solving problems of linear algebra, vector calculus and Dynamical System.
	on MT-241 & MT-242	CO3 Student should be able to solve various problems of linear algebra, vector calculus and Dynamical System using maxima software.
	Metric Spaces	CO1.Introductory Concepts
	Paper I	CO2. Study continuous functions on metric spaces.
		CO3. Knowledge and study of connectedness and completeness property of Metric Spaces.
	Real Analysis I Paper II	CO1.Knowledge and study Sets and Functions.



		CO2.Study of convergence of sequences and series of Real Numbers.
	Problem course based on paper I & II Paper III	CO1. Imparting skill to solve problems.
	Group Theory Paper IV	CO1.Learning of groups and subgroups.
		CO2.Knowledge and study of Permutation groups.
		CO3.Knowledge and study Homeomorphisms of groups and factor groups.
	Ordinary Differential	CO1.Linear Differential Equations with constant coefficients.
	Equations Paper V	CO2.Non Homogeneous differential Equations
		CO3.Power series solution of Differential Equations.
		CO4.System of first order equations.
	Problem course based on	CO1.Imparting skill to solve problems.
	paper III & IV Paper VI	CO2.I Theory
	Operational Research. Paper VII	CO1. Knowledge and study Modeling with linear programming,
		CO2.Simplex Method, Duality,
		CO3.Transportation Model, The assignment model.
	Number Theory VIII	CO1.Knowledge and study of Divisibility of integers,
		CO2.Congruences,
		CO3.Greatest Integer Function,
		CO4.Quadratic Reciprocity,
		CO5.Diophantine Equations.
	Practical Course IX	Imparting skill to solve problems.
Semester-IV	Complex Analysis Paper I	CO1.Knowledge and study of Complex Numbers
		CO2.Analytic functions, Elementary functions
		CO3.Integrals, Series, Residues and poles.
	Real Analysis II Paper II	CO1. Study of Riemann Integrations
		CO2.Improper Integrals
		CO3.Sequences and series of functions.
	Problem Course based on	CO1.Imparting skill to solve problems.
	Paper I & II (Paper III)	
	Ring Theory Paper IV	CO1.Knowledge and study of Rings and Fields,
		CO1.Ideals and Factor Rings, Factorization
		CO1.Knowledge of Ordinary Differential equations in more than two variables and their methods of substitution.
	Partial Differential Equations Paper V	CO2.First order partial differential equations, Types and methods of solution.

	Problem course based on Paper III & IV (Paper VI)	CO1.Imparting skill to solve problems.
	Lebesgue Integration Paper VII	CO1. Study of Measurable Sets, Measurable Functions
		CO2.Labesgue Integration, Fourier Series.
	Computational geometry Paper VIII	CO1. Study of two-dimensional transformation,
		CO2.Three-dimensional transformation,
		CO3.Plane curves, Space curves, Beizer Curves.
	Practical Course IX	CO1.Imparting skill to solve problems
Department of Statistics		
POs		**Program Outcomes (POs)**
PO1		Obtain knowledge with facts and figures related to various subjects in basic sciences such as
		Physics, Chemistry, Biology, Mathematics, etc.
PO2		Understand the fundamental concepts, principles, and scientific theories related to various
		Scientific phenomena and their relevance in daily life.
PO3		Acquire expertise in handling scientific instruments, planning and performing laboratory
		Experiments nothing losing the observations and drawing logical inferences from them.
PO4		Evaluate the given scientific data critically and systematically and drawing objective conclusions.
PO5		Able to think creatively (divergently and convergent) to propose novel ideas in explaining facts or
		Providing new solution to the problems.
PO6		Develop the scientific outlook not only with respect to science subjects but also in all aspects Related to life.
PO7		Absorb ethical, moral and social values in personal and social life leading to highly cultured and civilized personality.
PO8		Realize the knowledge of subjects in other faculties such as humanities, performing arts, social sciences etc can greatly and effectively influence & inspire in evolving new scientific theories and inventions.
PO9		Obtain knowledge with facts and figures related to various subjects in basic sciences such as
PO10		Acquire expertise in handling scientific instruments, planning and performing laboratory
PSOs		**Program Specific Outcomes (PSOs)**
PSO1		Develop an understanding of various statistical tools, techniques and software.
PSO2		Apply critical and contextual approaches across wide variety of subject matter.
PSO3		Develop logical thinking to comprehend key facts leading to formulation of the solution process.
PSO4		Develop self-confidence and awareness of general issues prevailing in the society.
PSO5		Integrate knowledge, skill and attitude that will sustain an environment of learning and creativity.
F.Y. B.Sc.		**Course Outcomes (COs)**
	Descriptive Statistics Paper-I	CO1. Building of different electronic circuits for specific applications is the main aspect of this course.
		CO2. Knowledge and use of graphical technique and interpret
		CO3 Computation of various measures of central tendency, Dispersion, Skewness and Kurtosis.
	Discrete Probability Paper-II	CO1. Comparison between random and non-random experiments.

		CO2. Finding the probabilities of events.
		CO3. Obtaining the probability distribution of random variable (one or two dimensional) in the given situation, and
		CO4. Application of standard discrete probability distribution to different situation.
	Practical Course Paper-III	CO1. Computation of the various measures of central tendency, Dispersion, Skewness and Kurtosis.
		CO2. Interpretation of summary statistics of computer output.
F.Y. B.Sc.		
Semester-II	Descriptive Statistics Paper-I	CO1. Computation of the correlation coefficient for bivariate data and interpret it.
		CO2. Analysis of data pertaining to attributes and to interpret the results.
		CO3. Summary and analysis of the data using computer.
		CO4. Application of statistics in the various field.
	Discrete Probability Distribution Paper-II	CO1. Obtaining the probability distribution of random variable (one or two dimensional) in the given situation, and
		CO2. Application of standard discrete probability distribution to different situation.
	Practical Course Paper-III	CO1. Computation of the correlation coefficient, regression coefficients.
		CO2. Fitting the binomial distribution.
		CO3. Analysis data pertaining to discrete and continuous variables and to interpret result.
		CO4. Computing the probabilities of bivariate distributions.
S. Y. B. Sc.	ST-231 Discrete Prob.Distri.	CO1. Study of discrete probability distributions.
Semester-I &II	Time series and R-software	CO2. Knowledge and study of different component of time series and analyze time series data.
	ST-241 Statistical Methods Paper-I	CO3. Knowledge and study of different command of R-Software to analyze the statistical data.
		CO4. Knowledge and study of multiple regression and multiple and partial correlation coefficients.
		CO5. Application of statistics in the field demography.
		CO6. Testing of the hypothesis particularly about mean, variance, correlation, proportions.
	ST-232 Continuous probability	CO1. Study of the standard univariate continuous probability distributions.
	Distributions.	CO2. Knowledge and study of bivariate continuous probability distributions.
	ST-242 Sampling Distributions And Inference Paper-II	CO3. Study of exact sampling distributions (Chi-Square, t, F).
		CO4. Testing of the hypothesis particularly about mean (unknown population variance), variance, goodness of fit
		and independence of attributes.
	Practical Course Paper- III	CO1. Computing the multiple and partial correlation coefficients, trivariate multiple regression plane, to find residual
		Sum of squares and adjusted residual sum of squares. (using calculators and MSEXCEL), fit various
		discrete and continuous distribution, test the goodness of fit, to draw model samples
		(Using calculators and MSEXCEL).
		CO2. Testing the various hypothesis included in theory.
		CO3. Analysis of the time series data.

Department of Chemistry		
Class	**Course Name**	**M.Sc. Programme outcomes (POs)**
		PO1: Demonstrate and apply the fundamental knowledge of the basic principles in the field of organic Chemistry and Analytical chemistry.
		PO2: Create awareness in the field of chemistry.
		PO3: Apply knowledge to build up small scale industry for developing endogenous product.
		PO4: Apply various aspects of chemistry in natural products isolations, pharmaceuticals, dyes, textiles, polymers, petroleum products, forensic etc.
		Po5: Apply group theory to recognize and assign symmetry characteristics to molecules.
		PO6: Students able to Predict the reactivity of an organic compound from its structure.
		PO7: Students are trained to do different purification techniques in organic chemistry like recrystallization, distillation, steam distillation and extraction.
		PO8: Apply a fundamental understanding of the tools of optical spectroscopy.
		PO9: Students Able To write research project / paper in scientific manner.
		PO10: Students able to know Importance of Pharmaceutical industries.
Class	**Course Name**	**M.Sc. Programme Specific outcomes (PSOs)**
		POS1: Students able to logical thinking to address a problem in terms of chemical science.
		POS2: Explain the kinetics of the explosive photochemical and unimolecular reactions.
		POS3: Students Apply group theory to predicting concerted organic reactions.
		POS4: Develop basic skills for the multi-step synthesis of organic compounds.
		POS5: Synthesize the metal complexes and find out the percentage purity.
PROGRAM OUTCOMES OF CHEMISTRY (B.Sc.)		
Class	**Course Name**	**B.Sc. Programme outcomes (POs)**
F.Y.B.Sc To T.Y.B.Sc	**UG**	**PO-1: Disciplinary knowledge and skill:** A graduate student is expected to be capable of demonstrating comprehensive knowledge and understanding both theoretical and practical knowledge in all disciplines of Chemistry. Students can solve their subjective problems very methodically, independently and finally draw a logical conclusion. Further, the student will be capable of applying modern technologies, handling advanced instruments and Chemistry related soft-wares for chemical analysis, characterization of materials and in separation technology.
		PO-2: Skilled communicator: The course curriculum incorporates basics and advanced training in order to make a graduate student capable of expressing the subject through technical writing as well as through oral presentation.
		PO-3: Critical thinker and problem solver: The course curriculum also includes components that can be helpful to graduate students to develop critical thinking and to design, carry out, record and analyze the results of chemical reactions. Students will be able to think and apply evidence based comparative chemistry approach to explain chemical synthesis and analysis.
		PO-4: Sense of inquiry: It is expected that the course curriculum will develop an inquisitive characteristic among the students through appropriate questions, planning and reporting experimental investigation.
		PO-5: Team player: The course curriculum has been designed to provide opportunity to act as team player by contributing in laboratory, field- b a s e d situation and industry.
		PO-6: Skilled project manager: The course curriculum has been designed in such a manner as to enabling a graduate student to become a skilled project manager by acquiring knowledge about chemistry project management, writing, planning, study of ethical standards and rules and regulations pertaining to scientific project operation.
		PO-7: Digitally literate: The course curriculum has been so designed to impart a good working knowledge in understanding and carrying out data analysis, use of library search tools, use of chemical simulation software and related computational work.
		PO-8: Ethical awareness: A graduate student requires understanding and developing ethical awareness or reasoning which is adequately provided through the course curriculum Students can also create an awareness of the impact of chemistry on the environment, society, and also make development outside the scientific community.
		PO-9: Environmental Awareness: As an inhabitant of this green planet a Chemistry graduate student should

		have many social responsibilities. The course curriculum is designed to teach a Chemistry graduate student to follow the green routes for the synthesis of chemical compounds and also find out new greener routes for sustainable development. The course also helps them to understand the causes of environmental pollution and thereby applying environmentally friendly policies instead of environmentally hazard ones in every aspect.
		PO-10: Lifelong learner: The course curriculum is designed to inculcate a habit of learning continuously through use of advanced ICT technique and other available e-techniques, e-books and e-journals for personal academic growth.
Class	**Course Name**	**B.Sc. Programme Specific outcomes (PSOs)**
F. Y. B. Sc. To T. Y. B. Sc.	**UG**	**PSO-1: Core competency:** The chemistry graduates are expected to gain knowledge of the fundamental concepts of chemistry and applied chemistry through theory and practical. These fundamental concepts would be reflected in the latest understanding of the field to keep continues its progression.
		PSO-2: Communication skills: Chemistry graduates are expected to possess minimum standards of communication skills to read and understand documents so that they can solve their problems very methodically, independently and with logical argument. Graduates are expected to build good communication skill so that they can easily share their idea/finding/concepts to others.
		PSO-3: Critical thinking: Chemistry graduates are expected to achieve critical thinking ability to design, carry out, record and analyze the results of chemical reactions. They can have that much potential and confidence that they can overcome many difficulties with the help of their sharp scientific knowledge and logical approaches.
		PSO-4: Psychological skills: Chemistry graduates are expected to possess basic psychological skills so that they can deal with individuals and students of various socio-cultural, economic and educational levels. . Psychological skills are very important for proper mind setting during performing, observing and giving conclusion of a particular reaction. It is also important for self-compassion, self-reflection, interpersonal relationships, and emotional management.
		PSO-5: Problem-solving: Graduates are expected to be well trained with problem-solving philosophical approaches that are pertinent across the disciplines.
Class	**Course Name**	**Course Outcomes (COs)**
	CH- 101: Physical Chemistry	CO.1.Students will be able to apply thermodynamic principles to physical and chemical process
		CO.2.To Understand Relation between Free energy and equilibrium and factors affecting on equilibrium constant.
		CO.3. To understand Concept to ionization process occurred in acids, bases and pH scale
		CO.4. To know Degree of hydrolysis and pH for different salts, buffer solutions
	CH- 102: Organic Chemistry	CO.1.The students are expected to understand the fundamentals, principles, and recent developments in the subject area
		CO.2. It is expected to inspire and boost interest of the students towards chemistry as the main subject.
		CO.3.To familiarize with current and recent developments in Chemistry.
		CO.4. To create foundation for research and development in Chemistry
	CH- 103: Chemistry Practical Course I	CO.1. Importance of chemical safety and Lab safety while performing experiments in laboratory
		CO.2 Determination of thermochemical parameters and related concepts
		CO.3 Techniques of pH measurements
		CO.4. Preparation of buffer solutions
		CO.5. Elemental analysis of organic compounds (non-instrumental)
		CO.6. Chromatographic Techniques for separation of constituents of mixtures
	Semester-II	
Sc.	CH-201: Inorganic Chemistry	CO.1. Significance of quantum numbers
		CO.2. Describe stability of half-filled and completely filled orbitals.
		CO.3. Attainment of stable electronic configurations.
		CO.4. Define Fajan's rule, bond moment, dipole moment and percent ionic character.

	CH- 202: Analytical Chemistry	CO.1.Perspectives of analytical Chemistry
		CO.2. Stoichiometric calculation
		CO.3. Separation of binary mixtures and analysis
		CO.4. Basics of chromatography and types of chromatography
		CO.5. Measurement of pH
	CH- 203: Chemistry Practical –II	CO.1. Inorganic Estimations using volumetric analysis
		CO.2.Synthesis of Inorganic compounds
		CO.3. Analysis of commercial products
		CO.4. Purification of organic compounds
		CO.5. Preparations and mechanism of reactions involved
	Semester - I	
	CH-301 : Physical and Analytical Chemistry	Co1 – Explain factors affecting rate of reaction.
		Co2 –Explain / discuss / derive integrated rate laws, characteristics, expression for half-life and examples of zero order, first order, and second order reactions
		Co3 – Apply adsorption process to real life problem.
		Co4 – Apply the methods of expressing the errors in analysis from results.
		Co5 – Apply statistical methods to express his / her analytical results in laboratory.
S.Y. B. Sc. (CBCS)		
	CH-302 : Inorganic and Organic Chemistry	Co1 -Explain and apply LCAO principle for the formation of MO's from AO's.
		Co2 – Apply IUPAC nomenclature to coordination compound.
		Co3- Explain / discuss synthesis of aromatic hydrocarbons.
		Co4 –Explain /Discuss important reactions of alkyl / aryl halides.
		Co5- To correlate reagent and reactions.
		Co6- Explain /Discuss important reactions of alcohols / phenols.
	CH-303 : Chemistry Practical - III	Co1 – Verify theoretical principles experimentally.
		Co2- Interpret the experimental data on the basis of theoretical principles.
		Co3 – Understand systematic methods of identification of substance by chemical methods.
		Co4- Set up the apparatus / prepare the solutions - properly for the designed experiments.
		Co5- Perform the quantitative chemical analysis of substances explain principles behind it.
		Co6 – Systematic working skill in laboratory will be imparted in student.
	Semester - II	
	CH-401 : Physical and Analytical Chemistry	Co1- Discuss meaning of phase, component and degree of freedom.
		Co2- Define various terms, laws, differentiate ideal and no-ideal solutions.
		Co3-Apply conductometric methods of analysis to real problem in analytical laboratory.
		Co4-Apply colorimetric methods of analysis to real problem in analytical laboratory.
	CH-402 : Inorganic and Organic Chemistry	Co1- Explain different types of isomerism in coordination complexes.
		Co2- Apply principles of VBT to explain bonding in coordination compound of different geometries.
		Co3-Explain / discuss synthesis of carboxylic acids and their derivatives.
		Co4 – Perform inter conversion of functional groups

	CH-403 : Chemistry Practical - IV	Co1-Interpret the experimental data on the basis of theoretical principles
		Co2-Set up the apparatus properly for the designed experiments.
		Co3-Write balanced equation for all the chemical reactions performed in the laboratory.
		Co4-Verify theoretical principles experimentally
T. Y. B. Sc. (CBCS)	**Sem-I**	
	CH-501 Physical Chemistry-I	Co1 – Difference between thermal and photochemical processes.
		Co2 –Photochemical laws: Grothus - Draper law, Stark-Einstein law,
		Co3 – Experimental method for the determination of quantum yield
		Co4 – Photochemical reactions: photosynthesis, photolysis, photocatalysis, photosensitization
		Co5 – Applications to conjugated systems, zero-point energy and quantum tunnelling.
	CH-502 Analytical Chemistry-I	Co1 -Students able to Define basic terms in gravimetry, spectrophotometry, qualitative analysis and parameters in instrumental analysis
		Co2 – Students Identify important parameters in analytical processes or estimations.
		Co3- Students Explain different principles involved in the gravimetry, spectrophotometry, parameters in instrumental analysis, qualitative analysis.
		Co4 – Students able to Demonstrate theoretical principles with help of practical.
		Co5- Student able to Design analytical procedure for given sample.
		Co6- Students Select particular method of analysis if analyte sample is given to him.
	CH-503 Physical Chemistry Practical-I	Co1 – Students able to determine the molecular refractivity of the given liquids A, B, C and D.
		Co2- Students able to determine the indicator constant of methyl red indicator
		Co3 – Students determine the order of reaction for the oxidation of alcohol by potassium dichromate and potassium permanganate in acidic medium calorimetrically
		Co4- Students will be able to do Titration of a mixture of weak acid and strong acid with strong alkali.
		Co5- Students learn to determine the radius of glycerol molecule from viscosity measurement.
		Co6 – Students do Analysis of the given vibration-rotation spectrum of HCl(g)
	CH-504 Inorganic Chemistry-I	Co1 – Students Able to explain Nephelauxetic effect towards covalent bonding.
		Co2- Students able to compare the different approaches to bonding in Coordination compounds.
		Co3- Students understands Tran's effect and applications of Trans effect
		Co4- Students Gain the knowledge of inorganic reaction mechanisms available in the literature to solve chemical problems.
		Co5- Students know trends in periodic properties of these elements w.r.t. size of atom and ions, reactivity, catalytic activity, oxidation state, complex formation ability, color, magnetic
		Co6- Students learn to Separation lanthanides by modern methods
		Co7- Students learn to the difference between metal, semiconductor and insulator.
	CH-505 Industrial Chemistry	Co1- Students will develop Knowledge of various industrial aspects
		Co2- Students should also know the physico-chemical principals involved in manufacturing process
		Co3- Students study the Importance of sugar industry
		Co4- Students study Basic requirement of fermentation process, Manufacturing of ethyl alcohol by using molasses and fruit juice.
		Co5- Students learn Meaning of the term's Surfactants, Types of surfactants
		Co6- students learns Synthesis, Structures, properties and applications of dyes
		Co7- Students learn the Classification and general properties of pigment

		Co1-Students do Preparation of inorganic complexes and spot tests for metal ions and ligands:S
	CH-506 Inorganic Chemistry Practical-I	Co2- Students do Inorganic Qualitative analysis
		Co3- Students do Qualitative and confirmatory tests of inorganic toxicants of any four ions (Borate, copper, hypochlorite, nitrate
	CH-507 Organic Chemistry-I	Co1- student Write the structure, synthesis of polynuclear and heteronuclear aromatic hydrocarbons.
		Co2- Students Describe the synthesis of chemical reactions of polynuclear and heteronuclear aromatic Hydrocarbons.
		Co3- Students Define and classify polynuclear and heteronuclear aromatic hydrocarbons.
		Co4- Understand the reactions and mechanisms
	CH-508 Chemistry of Biomolecules	Co1-The student will be understanding of Cell types, Difference between a bacterial cell, Plant cell and animal cell.
		Co2- Students learn Properties of carbohydrates.
		Co3- The student needs to know the types of lipids with examples, structure of lipids, properties of lipids
		Co4- Students understand Effect of pH on structure of amino acid, Determination of N and C terminus of peptide chain.
		Co5-The student knows the classes of enzymes with subclasses and examples. Enzyme specificity, Equations of enzyme kinetics Km and its significance
		Co6- Learns Basic concepts of Endocrinology
	CH-509 Organic Chemistry Practical-I	Co1- A) Separation of Binary Mixtures and Qualitative Analysis
		Co2- Students Perform the quantitative chemical analysis of binary mixture, explain principles behind it.
		Co3- Understand the techniques involving drying and recrystallization by various method.
		Co4- Learn the confirmatory test for various functional groups
		Co5- Understands the Systematic working skill in laboratory will be imparted in student.
		Co6- Students Understand the techniques involving drying and recrystallization by various method
		Co7- Understand the purification technique used in organic chemistry.
	CH-510(B) Polymer Chemistry	Co1- Students know History of polymers.
		Co2- Students understand Terms-Monomer, Polymer, Polymerization, Degree of polymerization, Functionality, Number average, Weight average molecular weight.
		Co3- Students learn Difference between natural, synthetic, organic and inorganic polymers.
		Co4 – Students understand Role of polymer industry in the economy.
	CH-511 (A) : Environmental Chemistry	Co1- Students knows Concepts and Scope of Environmental Chemistry
		Co2- Students understand Hydrosphere and Water Pollution
		Co3- Students learn Analytical Techniques in water Analysis
		Co4 – Students understand Water pollution and treatment methods
	Sem-II	
	CH-601 : Physical Chemistry-II	Co1- Students knows Concepts and Scope of Electrochemical cells.
		Co2- Students understand Determination of crystal structure of NaCl by Bragg's method
		Co3- Students learn Solve the problems based on this topic
		Co4 – Students understand Types of radioactive decay: α- Decay, β-Decay and γ-Decay
	CH-602 : Physical Chemistry-III	Co1- Students knows Relation between Vant Hoff's factor and degree of dissociation of electrolyte by colligative property.
		Co2- Students understand Results of kinetics studies
		Co3- Students learn electronic structure and macroscopic properties
		Co4 – Students understand Practical significance of polymer molecular weights
		Co1- Students do Potentiometry techniques

T.Y. B. Sc. (CBCS)	CH-603 : Physical Chemistry Practical-II	Co2- Students developed knowledge about pH metry
		Co3- Students learns Colligative properties
		Co4 – Students understand Practical significance Turbidometry
	CH-604 : Inorganic Chemistry -II	Co1- Students understand the uses of organometallic compounds in the homogenous catalysis.
		Co2- Students Understand the catalytic reactions used in industries around.
		Co3- Students Understand the role of metals in non-enzymatic processes.
		Co4 – Students understand Technological importance of ionic liquids.
	CH-605: Inorganic Chemistry -III	Co1- Students understand the uses of organometallic compounds in the homogenous catalysis.
		Co2- Student will learn the concept of acid base and their theories.
		Co3- Students Know the crystal structures of solids.
		Co4 – Students understand Application of zeolites
	CH-606: Inorganic Chemistry Practical-II	Co1- Students able to perform Volumetric Estimations
		Co2- Student will learn Nanomaterial synthesis
		Co3- Students Verify the periodic trends using solubility of alkaline earth metal hydroxides Ca (OH)2, Mg(OH)2, Cr(OH)2, Ba(OH)2.
		Co4 – Students understand Solvent free microwave assisted one pot synthesis of phthalocyanine copper (II) complex
	CH-607: Organic Chemistry-II	Co1- Students will learn the principle of mass spectroscopy, its instrumentation and nature of mass spectrum.
		Co2- Students will be able to interpret the NMR data and they will be able to use it for determination of structure of organic compounds.
		Co3- Students Understand The use models and to draw different types of conformational isomers of decalin in chair form.
		Co4 – Students Learns Retrosynthetic Analysis and Applications
	CH-608: Organic Chemistry-III	Co1- Students understand Organic Reaction Mechanism and Synthetic Applications
		Co2- Student will learn Reagents in Organic Synthesis.
		Co3- Students Know Natural Products.
		Co4 – Students understand Application of zeolites
	CH-609: Organic Chemistry Practical-II	Co1- Students Interpret elemental analysis techniques.
		Co2- Student will learn Practical knowledge of handling chemicals.
		Co3- Students Apply the principles of extraction.
		Co4 – Students Realize the selection of appropriate mobile phase, column and detector
	CH-610 (A) : Chemistry of Soil and Agrochemicals	Co1- Students Understood various components of soil and soil properties and their impact on plant growth
		Co2- Student Understood various Nutrient management concepts and Nutrient use efficiencies of major and micronutrients and enhancement techniques
		Co3- Students Proper understanding of chemistry of pesticides will be inculcated among the students.
		Co4 – Students Imparts knowledge on different pesticides, their nature and, mode of action and their fate in soil so as to monitor their effect on the environment.
I (CBCS)	**Semester - I**	
	CCTP-1 Physical Chemistry-I	CO1: Represent of the rate law of the elementary and chain reaction
		CO2: Understand of the theories for the determination of the rate of the reactions
		CO3: Understand of the kinetics of the explosive photochemical and unimolecular reactions
		CO4: Understand of the laws of thermodynamics and their applications CO5: know the phase diagram of single component systems and binary mixture

	CCTP-2 Inorganic Chemistry-I	CO1. Understand the details of molecular symmetry including symmetry elements, operations and symmetry point groups.
		CO2. Use of group theory to recognize and assign symmetry characteristics to molecules.
		CO3.Understand the mathematical basics needed for group theory, including matrices, reduction formula, reducible and irreducible representations.
		CO4. Apply group theory in valence bond theory treatment of structure and bonding.
		CO5. Apply group theory in molecular orbital theory treatment of bonding and structure.
		CO6. Apply group theory to predicting concerted organic reactions.
	CCTP-3 Organic Chemistry-I	CO1. Predict the reactivity of an organic compound from its structure.
		CO2. Develop basic skills for the multi-step synthesis of organic compounds.
		CO3. Know the different aromatic substitution processes and their application to heteroaromatic systems.
		CO4. Describe synthetically the processes relevant organic-chemical reactions and be able to discuss the mechanism of these reactions.
	CBOP-1	**Elective Option-A: Introduction to Solid State of Matter**
		1. Bonding in solids – band theory
		2. Electronic conductivity
		3. Semiconductors, photoconductivity
		4. Non-stoichiometry, defects and types of defects in solids
		Elective Option-A :Inorganic Chemistry-Material Analysis, Synthesis and Applications
		CO1. Perform gravimetric and volumetric analysis for ores and alloy.
		CO2. Analyze binary mixtures by gravimetric and volumetric method.
		CO3. Synthesize the metal complexes and find out the percentage purity.
		CO4. Understand and Perform ion exchange chromatographic technique for separation of metal ion.
	CCPP-1 CHP-107 Basic Practical Chemistry-I	CO 1. Students are trained to different purification techniques in organic chemistry like recrystallization, distillation, steam distillation and extraction.
		CO 2. Students are made aware of safety techniques and handling of chemicals.
		CO 3. Students are made aware of carrying out different types of reactions and their workup methods.
		CO 4. This practical course is designed to make student aware of green chemistry and role of green chemistry in pollution reduction.
	CBOP-1 (CHG-190)	
	CCTP-4 (CHP- 210) Physical Chemistry - II	CO1: Understand of the principle of Microwave, IR, Raman, Electronic, NMR, ESR and Mossbauer spectroscopy
		CO2: Draw of the schematic Microwave, IR and Raman spectrum of di and triatomic molecules based on the selection rules.
		CO3: Understand of decay kinetics and measurement of radioactivity
		CO4: get knowledge of types of nuclear reactors
		CO5: study the applications of radioactivity, Understand Radiolysis and radicals
	CCTP-5 (CHI -230) Inorganic Chemistry -II	CO1.Understand the fundamental principles of main group organometallic chemistry.

		CO2.Able to use Crystal Field Theory to understand the magnetic properties of coordination compounds.
		CO3.Able to describe the stability of metal complexes by the use of formation constants.
		CO4.Able to recognize the types of isomers in coordination compounds.
		CO5.Familiarization with some applications of coordination compounds.
		CO6.Understand how metal ions interact with biological environments and how these interaction influences the properties of metal centers.
	CCTP-6 (CHO-250) Organic Chemistry-II	CO1. Know the basic mechanism of oxidation in organic compounds.
		CO2. Acquire knowledge about the reagents which causes oxidation in various compounds
		CO3. Know the reagents that causes selective and complete reduction
		CO4.Interpret 1H NMR, 13C NMR, IR, UV, and mass spectra and use these data to determine the structure of organic molecules.
		CO5. Predict the relative energies of reactive intermediates such as radicals, carbocations, and carbanions, based on structural considerations
		such as orbital hybridization, hyperconjugation, and resonance stabilization.
		CO6.Describe stereochemical problems in relation to chemical transformations.
	CBOP-2 (CHG-290)	**Elective Option-A : Material Characterization Technique**
	Section-I: General Chemistry-II, Theory	CO 1. Valence electron count, back bonding in organometallics, spectral characterization of organometallic compounds.
		CO 2. Catalytic reaction involving organometallic compounds and mechanism of these reactions
		CO 3. Types of reaction involving organometallic compounds
	Section-II: General Chemistry, Practical	**Elective Option-A: Electroanalytical Techniques of Analysis**
		CO1. Apply a fundamental understanding of the tools of optical spectroscopy.
		CO2. Demonstrate an understanding of the interactions of electromagnetic radiation with matter in the analysis of papers from the current scientific literature.
		CO3. Demonstrate a basic understanding of a range of state-of-the-art spectroscopic techniques that will be surveyed in the latter part of the course.
		CO4. Able to explain the principles of the most important liquid and gas chromatography as well as electro-migration techniques
	CCPP-2 CHP-227 Basic Practical Chemistry-II	CO 1. Students are trained to different purification techniques in organic chemistry like recrystallization, distillation, steam distillation and extraction.
		CO 2. Students are made aware of safety techniques and handling of chemicals.
		CO 3. Students are made aware of carrying out different types of reactions and their workup methods.
		CO 4. This practical course is designed to make student aware of green chemistry and role of green chemistry in pollution reduction.
M. Sc.- II Organic Chemistry	**Semester - III**	
	CHO-350 Organic Reaction mechanism	After successfully completing this course, students will be able to:
		CO1: Understand various methods of Carbanion generation and their applications in Organic Synthesis and mechanisms in biological reactions that will help students to understand Nature better.
		CO2: differentiate between various organic reactive intermediates and correlate the reaction mechanisms with practical procedures.
	CHO – 351 Spectroscopic Methods in Structure Determination	After successfully completing this course, students will be able to:
		CO1: understand how to interpret nuclear magnetic resonance spectrum.
		CO2: know how to solve problems based on H1 and C13 NMR

		CO3: know applications of mass spectroscopy in determination of structures.
		CO4: understand methods of solving combines problems on all spectroscopic techniques.
	CHO-352 Organic Stereochemistry & Asymmetric Synthesis	After successfully completing this course, students will be able to:
		CO1: understand various terminologies in stereochemistry.
		CO2: will be able to draw the stereochemical structures of different molecules.
		CO3: understand the isolation of racemic mixtures.
		CO4: draw various organic reactive intermediates with stereochemistry.
	CHO - 353 Pericyclic reactions, Photochemistry and Heterocyclic Chemistry.	After successfully completing this course, students will be able to:
		CO1: understand various Pericyclic and photochemical reactions and rearrangements.
		CO2: understand and write mechanism of reactions and their applications.
		CO3: understand how to synthesize five, six and seven-membered heterocycles.
		CO4: utilize their knowledge in practicals for various heterocyclic and photochemical conversions.
	Semester - IV	
M. Sc. - II Organic Chemistry	CHO - 450 Course Name: Chemistry of Natural products	After successfully completing this course, students will be able to:
		CO1: Industrial applications of Natural Products.
		CO2: become familiar with many reagents used in organic synthesis and develop interest in Biogenesis of naturally occurring essential compounds.
		CO3: understand nature better by studying mechanisms in biological reactions and different Secondary metabolites and their importance.
	CHO - 451 Organomettalic Reagents in organic Synthesi	After successfully completing this course, students will be able to:
		CO1: Industrial applications of organometallic compounds in organic reactions
		. CO2: Mechanisms of organometallic reactions.
		CO3: Stereochemistry of the organometallic reactions.
	CHO - 452 Concept and applications in Medicinal Chemistry	After successfully completing this course, students will be able to:
		CO1: understand the stereochemistry of carbohydrates and their reactions.
		CO2: understand the concept of chiral templates and chiral drugs
		CO3: understand the synthesis of various drugs.
		CO4: understand the mode of action of different anti-fungal, anti-bacterial and anti-viral drugs.
M. Sc.- II Organic Chemistry	ORGANIC PRACTICALS-CHO-354	CO1: To learn. stoichiometric calculation of the reaction
		CO2: To understand importance of mole ration ratio of the reagents
		CO3: To understand different types of name reactions
		CO5: To learn the purification of the products from their crude mixture
		CO6: To identify the functional groups of the products using spectral data and chemical tests
		CO1: Understand and employ concept of type determination and separation
		CO2: To meticulously record physical constants

	ORGANIC PRACTICAL-CH 453	CO3: To Perform micro scale chemical elemental analysis
		CO4: To Perform qualitative estimation of functional groups
		CO5: To Recrystallize /distill the separated compounds
		CO6: To Extend these skills to organic synthesis
	ORGANIC PRACTICAL-CHO-454	
		CO1: To learn How to carried out micro-scale experiments
		CO2: Students must read MSDS and should handle chemicals and reactions accordingly
		CO3: Students should learn how to monitor reactions using alumina coated TLC plates
		CO5: To Perform qualitative estimation of functional groups
		CO6: To Recrystallize /distill the separated compounds
		CO6: To Extend these skills to organic synthesis
M. Sc. - II Analytical Chemistry	**Semester - III**	
		Electrochemical and Thermogravimetric Methods of chemical analysis.
	CHA-390	CO -1 Define various terms in electrochemistry and Thermogravimetry.
		CO -2 Explain instrumentation in electrochemistry and Thermogravimetry.
		CO -3 Describe basic principles of electrochemistry and Thermogravimetry.
		CO -4 Explain applications of electrochemistry and Thermogravimetry in industry & in analytical laboratory.
		CO - 5 Select particular method of analysis for sample to be analyzed.
		CO - 6 Solve numerical problems on electrochemistry and Thermogravimetry.
		CO-7 Interpret polarogram, cyclic voltammogram, pulse polarogram, Thermogram
		differential thermogram and DSC thermogram.
		CO -8 Differentiate among the various methods of electrochemistry and Thermogravimetry.
	CHA-391	**Analytical Method Development and Extraction Techniques**
		CO- 1. Understand various terms in analytical extraction and method Development and validation.
		CO- 2. Explain instrumentations and methodology in analytical extraction.
		CO- 3. Describe basic principles of analytical extraction method development and validation.
		CO- 4. Explain applications analytical extraction and method development
		and validation in industry and in analytical laboratory.
		CO- 5. Apply / select particular method of analysis for sample to be analyzed.
		CO- 6. Solve numerical problems on analytical extraction and method development and validation.
		CO- 7. Develop analytical method for analysis of given sample. Apply statistical treatment to the analytical data.
		Select appropriate parameters for the development of analytical method
		CO- 8. Differentiate among the methods of analytical extraction.
	CHA- 392	**Advanced Chromatographic Methods of Analysis**
		CO-1. Define / understand various terms in chromatography (GC and HPLC) and mass spectroscopy.
		CO-2. Explain instrumentations in chromatography (GC and HPLC) and mass spectroscopy.
		CO-3. Explain / describe i) basic principles of chromatography (GC and HPLC) and mass spectroscopy. ii) separation in GC / HPLC column. iii) Functioning and construction of GC / HPLC/ MS detectors.
		CO-4. Explain /Describe applications chromatography (GC and HPLC) in industry and in analytical laboratory.

		CO-5. Apply / select particular method / instrumental parameters for analysis for sample GC / HPLC.
		CO-6. Solve numerical problems on chromatography (GC and HPLC) and mass spectroscopy.
		CO-7. Integrate GC and HPLC chromatogram, Mass spectrum
		CO-8. Differentiate among the chromatography (GC and HPLC) methods of analysis.
		Advanced Chromatographic Methods of Analysis
		CO -1. Define / understand various terms in Electrophoresis, capillary electrophoresis, HPTLC, Body fluid analysis, ELISA, RIA.
		CO -2. Explain instrumentations in in Electrophoresis, capillary electrophoresis, HPTLC, Body fluid analysis, ELISA, RIA.
	CHA-393A	CO -3. Explain / describe i) basic principles of chromatography (GC and HPLC) and mass spectroscopy. ii) Separation in GC / HPLC column. iii) Functioning and construction of GC / HPLC/ MS detectors.
		CO -4. Explain /Describe applications chromatography (GC and HPLC) in industry and in analytical laboratory.
		CO -5. Apply / select particular method / instrumental parameters for analysis for sample GC / HPLC.
		CO -6. Solve numerical problems on chromatography (GC and HPLC) and mass spectroscopy.
		CO -7. Integrate GC and HPLC chromatogram, Mass spectrum
		CO -8. Differentiate among the chromatography (GC and HPLC) methods of analysis.
		Basics of Instrumental Methods of Chemical Analysis
		CO- 1. Maintain proper record of analytical data in notebook. Observer personal safety in laboratory
		and able handle all chemicals, instruments, etc safely in laboratory.
		CO -2. Define / understand various terms involved practical methods of quantitative analysis.
	CHA-394	CO- 3. Explain instrumentations of colorimeter, spectrophotometer, photoflurometer, TGA, HPLC, GC, Flame-photometer, CV, AAS, etc.
		CO- 4. Explain / describe basic principles of chromatography different instrumental methods of analysis. Able to handle particular instrument according to SOP.
		CO- 5. Design / modify and validate new analytical method for chemical analysis of particular sample.
		CO- 6. Apply / select particular method / instrumental parameters for analysis of given sample.
		CO- 7. Give mathematical treatment to analytical data and able to interpret the results accurately.
		CO- 8. Verify theoretical principle practically or apply theory to explain practical observations.
		CO- 9. To conclude the results able to take the decision regarding quality of sample.
		Semester - IV
	CHA- 490	**Advanced Analytical Spectroscopic Techniques**
		CO- 1. Define / understand various terms in atomic absorption, atomic emission, fluorescence, ESR and electron spectroscopy.
		CO-2. Explain instrumentation of atomic absorption, atomic emission, ICPAES, ICPAES-MS, fluorescence, ESR and electron spectroscopy.
		CO- 3. To describe basic principles of atomic absorption, atomic emission, ICPAES, ICPAES-MS, fluorescence, ESR and electron spectroscopy.
		CO- 4. Select appropriate methods for sample treatment in AAS / AES, ICPAES, ICPAES-MS.
		CO-5. Explain advantages of ICPAES-MS over AES spectroscopy, fluorescence spectroscopy.
		CO-6. Solve numerical problems on analysis all these spectroscopic methods.
		CO-7. Interpret ESR spectra, super hyperfine splitting and g value in ESR, and parameters affecting it.

		CO-8. Calculate theoretical parameters from ESR data and characterize compound.
		CO-9. Solve problems based on atomic absorption, atomic emission, ICPAES, ICPAES-MS, fluorescence, ESR and electron spectroscopy.
	CHA- 491	**Chemical Methods of Pharmaceuticals Analysis**
		CO-1. Define / understand various terms in pharmaceutical raw material and finished product analysis.
		CO-2. Explain various pharmaceutical dosage forms and types of raw materials used.
		CO-3. To describe basic principles of methods of pharmaceutical analysis according to IP.
		CO-4. Explain importance particular test in pharmaceutical raw material and finished product analysis.
		CO-5. Perform and explain importance of limit tests, identification tests and microbiological limit test of raw materials and finished products.
		CO-6. Solve numerical problems on analysis pharmaceutical raw material and finished product analysis.
	CHA-492 B)	CO-7. Interpret IR spectra, HPLC chromatogram, UV-Visible spectra of pharmaceutical materials.
		CO-8. To perform total analysis of pharmaceutical raw material and finished product analysis according to IP / BP / USP.
		CO-9. Standardize analytical instruments according IP /BP/ USP.
		CO-10. Take a decision on the basis of analytical results regarding quality of raw materials so that material can be accepted for production or rejected.
		Analytical Chemistry of agriculture, Polymer and Detergents
		CO-1. Define / understand various terms in soil analysis, pesticide residue analysis, detergent analysis and polymer analysis.
		CO-2. Explain / describe techniques / methods of soil analysis, pesticide residue analysis, detergent analysis and polymer analysis.
		CO-3. To describe basic principles techniques / methods soil analysis, pesticide residue analysis, detergent analysis and polymer analysis.
		CO-4. Explain importance of soil analysis, pesticide residue analysis, detergent analysis and polymer analysis.
		CO-5. Choose suitable method / techniques to characterize quality of soli polymer and detergent.
		CO-6. Describe / explain results of analysis soil, pesticide residue, detergent and polymer.
		CO-7. Solve numerical problems on analysis soil, pesticide residue, detergent and polymer.
		CO-8. Draw conclusion regarding soil, detergent and polymer quality from analytical results.
	CHA-493 A) Practical	**Optional Analytical Chemistry Practical**
		CO-1. Maintain proper record of analytical data in notebook. Observer personal safety in laboratory and able handle all chemicals, instruments, etc. safely in laboratory.
		CO-2. Define / understand various terms involved practical methods of quantitative analysis.
		CO-3. To analyses organic and inorganic materials using appropriate chemical / instrumental methods
		CO-4. Explain / describe basic principles of chemical / instrumental methods used for analysis. Able to handle particular instrument according to SOP.
		CO-5. Perform analysis of sample with described procedure. Able to handle analytical instruments.
		CO-6. Apply / select particular method / instrumental parameters for analysis of given sample.
		CO-7. Maintain appropriate reaction conditions as described in procedures.
		CO-8. To perform i) selective analysis of particular component from sample. ii) Analysis at trace level from sample.
		CO-9. To conclude the results able to take the decision regarding quality of sample.
		CO-10. To perform calculations and interpret the results.

	CHA- 493 B)	**Project**
		CO-1. Maintain proper record of analytical data in note book for research purpose.
		CO-2. Perform review of literature related to the topic of project work and design the problem for project work.
		CO-3. Decide and describe methodology for problem to solve proposed problem in the form of project. Decide and perform application of research work.
		CO-4. To design experiment for research work. Collect the resources, design small equipment, etc. for completion of research work.
		CO-5. Collect experimental data (raw data) and analyses the data in the perspective of problem. Present data in graphical forms for the conclusive results.
		CO-6. Use computer as a tool for result analysis, presentation and writing the project.
		CO-7. To obtain concrete conclusion from the results on the basis of reported theory / research work and analytical results.
		CO-8. To perform report writing, scientifically.
		CO-9. To write research project / paper in scientific manner.
	CHA- 494	**Applied Analytical Chemistry Practical**
		CO-1. Maintain proper record of analytical data in notebook. Observer personal safety in laboratory and able handle all chemicals, instruments, etc. safely in laboratory.
		CO-2. Define / understand various terms involved practical methods of quantitative analysis.
		CO-3. To analyses organic and inorganic materials using appropriate chemical / instrumental methods
		CO-4. Explain / describe basic principles of chemical / instrumental methods used for analysis. Able to handle particular instrument according to SOP.
		CO-5. Perform analysis of sample with described procedure. Able to handle analytical instruments.
		CO-6. Apply / select particular method / instrumental parameters for analysis of given sample.
		CO-7. Maintain appropriate reaction conditions as described in procedures.
		CO-8. To perform i) selective analysis of particular component from sample. ii) Analysis at trace level from sample.
		CO-9. To conclude the results able to take the decision regarding quality of sample.
		CO-10. To perform calculations and interpret the results.
DEPARTMENT OF MICROBIOLOGY		
		Programme Outcomes (POs)- B. Sc.
PO1		Students of the B.Sc. Microbiology programme will learn to use scientific logic as they explore a wide range of contemporary subjects spanning various aspects of basic microbiology such as Bacteriology, Virology, Biochemistry, Microbial Physiology, Immunology, Cell Biology, Molecular Biology,
PO2		Students will appreciate the biological diversity of microbial forms and be able to describe/explain the processes used by microorganisms for their replication, survival, and interaction with their environment, hosts, and host populations. They will become aware of the important role microorganisms
PO3		Students will gain knowledge of various biotechnological applications of microorganisms and will learn of industrially important substances produced by microorganisms. They will gain familiarity with the unique role of microbes in genetic modification technologies.
		Students will become familiar with scientific methodology**,** hypothesis generation and testing, design and execution of experiments. Students will develop the ability to think critically and to read and analyze scientific literature.
		Students will acquire and demonstrate proficiency in good laboratory practices in a microbiological laboratory and be able to explain the theoretical basis and practical skills of the tools/technologies commonly used to study this field.

PO6		Students will develop proficiency in the quantitative skills necessary to analyze biological problems (e.g., arithmetic, algebra, and statistical methods as applied to biology)
PO7		Students will develop strong oral and written communication skills through the effective presentation of experimental results as well as through seminars.
PO8		Graduates of the B.Sc. Microbiology programme will be informed citizens who can understand and evaluate the impact of new research discoveries in the life sciences, and will be able to pursue a wide range of careers, including biological and medical research in higher education institutions as well as
PO9		Microbiology is a branch of science that studies "life" taking an example of microorganisms such as bacteria, protozoa, algae, fungi, bacteria, viruses, etc. These studies integrate cytology, physiology, ecology, genetics and molecular biology, evolution, taxonomy and systematics with a focus on
PO10		Apply basic concepts/ theories of Life Sciences for solving current scientific and social issues in key fields such as agriculture, environment, human health, transgenic animals, GMOs and plant disease management
Program Specific Outcomes (PSOs)- B. Sc.		
PSO1		Identify and classify microorganisms using various microbial techniques. Gain knowledge on microbial diversity in different environments.
PSO2		Understand the principles used in pathogen detection and different diagnostic tools for their identification.
PSO3		Mastering the skills of handling microorganisms, hands on training for accessing the information technology in computers and its applications in identifying the organisms using bioinformatics tools. in the various fields such as Agriculture, Pharmaceuticals, Medical, Food, Dairy and Fermentation technology, Immunodiagnostics
PSO4		Appreciate the versatility and significance of microorganisms in the various fields such as Agriculture, Pharmaceuticals, Medical, Food, Dairy and Fermentation technology, Immunodiagnostics
PSO5		Develop the different research / entrepreneurship skills in industries to understand the significance of research in Microbiology.
		Programme Outcomes (POs) - M. Sc.
PO1		Foster learning through accumulation of knowledge in Science.
PO2		Identify complex problems in the society which can be addressed through science.
PO3		Formulate strategies and design experiments to address the societal problems using first principles of basic sciences and applied sciences.
PO4		Adopt appropriate scientific techniques and resources to solve societal issues with an understanding of the limitations.
PO5		Critically and analytically evaluate and interpret research based data to provide valid conclusions and solutions.
PO6		Demonstrate leadership qualities by working collaboratively in a team, to set goals, communicate scientific information to stakeholders, comprehend and write reports, develop documentation, make presentation and to give and receive clear instructions.
PO7		Apply ethical principles, commit to professional ethics and responsibilities and norms of the scientific practice.
PO8		Engage in life-long learning in the broadest context of scientific advancement.
PO9		Communicate and analyze the core concepts and theories in Microbiology and allied sciences (Microbial systematics, Immunology, Biochemistry, Medical Microbiology, Molecular Biology, Genetic Engineering, Biostatistics)
		Apply basic concepts/ theories of Life Sciences for solving current scientific and social issues in key fields such as agriculture, environment, human health, transgenic animals, GMOs and plant disease management
Program Specific Outcome (PSOs)- M. Sc.		
		Prepare and view specimens for examination using light microscopy
		Use pure culture and selective techniques to isolate microorganisms. Identify microorganisms (media-based, molecular and serological).

PSO3		Estimate the number of microorganisms in a sample by suitable enumeration technique
PSO4		Use appropriate microbiological and molecular lab equipment and methods
PSO5		Document and report on experimental protocols, results and conclusions.
PSO6		Practice safe microbiology, using appropriate protective, biosafety and emergency procedures.
CLASS		**COURSE OUTCOMES (COs)**
FYBSC	(MB 111) - Introduction to Microbial World Paper I.	CO 1. The course aids in basic understanding of the genesis of Microbiology with
		emphasis on various great discoveries, golden era in microbiology, the efforts of great microbiologists.
		CO 2. The scope of Microbiology in the different fields with thrust on the applications of microorganisms of
		ancient and advanced periods.
		CO 3. The characterization of various groups of microorganisms based on morphology and reproduction using
		Bergey manual for bacteria and viruses by ICTV.
		CO 4. Detailing the cytology of microorganisms with respect to ultra structure to be used in identification.
		CO 5. Analysis of the role of biological chemicals in cell by understanding the types, functions with examples.
	(MB 112) - Basic Techniques in Microbiology Paper II	CO 1. Awareness of bio safety, containment, asepsis and their role in microbiology laboratories.
		CO 2. Knowledge of the measurements used in microbiology in terms of micrometry, units, conversions.
		CO 3. Understanding the principles of basic microscopy, use of different types of microscopes, care
		& maintenance in handling microscopes.
		CO 4. Knowledge of the stains used in study of microorganisms, staining methods, role of different stains and
		theories of staining.
		CO 5. Learning of the methods of sterilization, disinfection, mechanisms of each agent, testing the disinfectant.
		efficiency
		CO 6. Assessment of the requirements of growth, nutrients, media ingredients, media preparation, enrichment methods,
		pure culture isolation methods, identification & special cultivation methods for each group of microorganisms.
		CO 7. Study of the principles of general growth, compare the different types of growth,
		measurement methods with emphasis on industry.
	(MB 113) - Practical course: Paper-III	CO 1. Learning of the general instructions of safety in microbiology, discuss the need of micro-aid box.
		CO 2. Skills for handling instruments of microbiology laboratory with care & maintenance, creation
		of SOPs.
		CO 3. Skills for handling different types of microscopes and learn the design, functioning and maintenance.
		CO 4. Collection of samples for identification of the microorganisms from natural habitats and characterize
		morphologically, staining & motility.
		CO 5. Enumeration of the bacteria, fungal cells & their spores by Neubauer chamber method.
		CO 6. Knowledge of aseptic transfer techniques.
		CO 7. Preparation of media for cultivation of microorganisms and perform media sterilization and checking its efficiency,
		to study the growth characters on different media.
		CO 8. Learning of the pure culture isolation methods by streak, spread, pour plate method after serial dilution
		of the given soil sample.
		CO 9. Enrichment of the soil microorganisms using Winograd Skys column, enrichment media.
		CO 10. Demonstration of the methods of disinfection and check the effect of disinfectants on skin microflora.

		CO 11. Learning of the method of phenol co-efficient method.
	(MB 121) - Bacterial cell & Biochemistry : Paper- 1	CO 1. Bacterial Cytology
		CO 2. Chemical basis of microbiology
		CO 3.Carbohydrates
		CO4. Protein
		CO5. Nucleic acid
		CO6. Classification of Bacteria
		CO7. Classification of Viruses
	(MB 122) - Cultivation of Microorganism : Paper- 2	CO 1. Types of Media
		CO 2. Cultivation of Algae, Fungi, Viruses
		CO 3. Concept of Pure culture
		CO 4. Streak plate method
		CO 5. Culture collection Centre & their role
		CO6. Guidelines of national biodiversity for culture collection Centre
	(MB 123) - Practical course	CO1. Endospore & Capsule staining
		CO2. Study of normal flora of skill
		CO3. Preparation of simple laboratory Media
		CO4. Preservation of culture on slant
SYBSC	(MB-211) Medical Microbiology & Immunology Paper-I	CO 1. Study the principles of bacterial taxonomy, classification, identification based on Bergey's manual.
		CO 2. Learning of the different methods used in taxonomy.
		CO 3. Sketching of the different physiology in different cells with the pathways and the role of enzymes as catalysts
		with the principles of their action.
	(MB-212) Bacterial Physiology & fermentation technique	CO 1. Understanding of the screening methods used in fermentation industry, strains used & their characters.
		CO 2. Assessment of the types of cultures, media used, monitoring methods during the fermentation process,
		CO 3. Skills to avoid the Risks of contamination, types of fermentations and applications of microorganisms in industry
		CO 4. Study the different types of soils, formation of soil, role of microbes in soil as rhizosphere, composting,
		bioinoculants, microbial associations in soil.
		CO 5. Skill to sketch the biogeochemical cycles with role of microorganisms.
		CO 6. Knowledge of the microbial degradations of complex polymers.
		CO 7. Learning of the methods of large-scale production of bioinoculants.
	(MB -213) Practical Course	CO 1. Blood Grouping
		CO 2. Biochemical Characterization of Bacteria
		CO3. Isolation & Identification of E coli
		CO4 Primary screening of Industrially important organism
	(MB-221) Bacterial Genetics	CO 1. Knowledge of the basic principles of genetics with focus on discoveries, experiments of scientists.
	Paper-I	CO 2. Development of skills to sketch the structure of nucleic acids with their role in cells.

		CO 3. Ability to compare the structures of different forms of nucleic acids.
		CO 4. Learning the principles of DNA replication, methods, models and sequence of events.
		CO 5. Analysis of the DNA code, gene organization, gene expression.
		CO 6. Understanding of the role of mutations, mutagens, mechanism, types of mutants, isolation methods.
		CO 7. Knowledge of plasmids- types, characters, genetics, curing, role.
	(MB-222) Air Water& soil Microbiology Paper- II	CO 1. Understanding of the significance of air and water quality.
		CO 2. Learning the principles of air microbiology, differentiating air droplets, aerosols, nuclei.
		CO 3. Assessing the different methods of air sampling.
		CO 4. Learning of the methods of air sanitation.
		CO 5. Knowledge of the different types of water, composition, water standards, water potability.
		CO 6. Analysis of the sampling of water and fecal indicators in Water.
		CO 7. Knowledge of the water treatment methodologies.
		CO 8. Ability to characterize the waste waters and treatment methods for effective disposal of waste waters.
	(MB -223) Practical course:	CO 1. Learning of the air sampling methods by settling velocity and Simpsons diversity
		index and to comment on the air quality
		CO 2. Identification and characterization of pathogens form air, soil and water by cultural,
		morphological and biochemical characterization.
		CO 3. Knowledge of the water sampling methods, potability testing, D.O., BOD, TS, TSS,
		TDS determination.
		CO 4. Skills to carry out mutagenesis, isolation & characterization of mutants by replica plate
		method.
		CO 5. Knowledge and study the bacterial growth curve and plotting the graphs using software.
	.	CO 6. Visit to a fermentation industry/water treatment plant and report generation
	MB 351 : MEDICAL MICROBIOLOGY I	CO 1. Understand the human anatomy, pathogens associated with diseases.
		CO 2. Acquire knowledge of principles underlying establishment of pathogens in human
		body.
		CO 3. Comprehend of pathogenesis of specific pathogens causing microbial diseases.
		CO 4. Assess epidemiological patterns of microbial disease transmission as various modes,
		intensity at local and global level.
		CO 5. Gain Knowledge principles of chemotherapy of microbial diseases and development
		of drug resistance among pathogens and strategies to mitigate.
		CO 6. Develop identification systems for microbial disease diagnosis, disease treatment and
		prevention measures.
		CO 1. Understand the human anatomy, pathogens associated with diseases.
		CO 2. Acquire knowledge of principles underlying establishment of pathogens in human
		body.
		CO 3. Comprehend of pathogenesis of specific pathogens causing microbial diseases.
		CO 4. Assess epidemiological patterns of microbial disease transmission as various modes,
		intensity at local and global level.

	MB 361 : MEDICAL MICROBIOLOGY II	CO 5. Gain Knowledge principles of chemotherapy of microbial diseases and development
		of drug resistance among pathogens and strategies to mitigate.
		CO 6. Develop identification systems for microbial disease diagnosis, disease treatment and
		prevention measures.
		CO 1. Understand immune system structure, composition, function and comparison of
		different types of immunity.
		CO 2. Acquire knowledge about antigens, Recognition of pathogens; antigen processing
		and presentation; Immunity to infection and pathological consequences of
		immunodeficiencies.
		CO 3. To learn the applications of Immunology in monoclonal antibodies, vaccines
	MB 352 IMMUNOLOGY I	production and Immunotherapy.
		CO 4. Understand abnormal working of Immune system in hypersensitivity, auto immune
		diseases, immune tolerance and transplantation immunology.
		CO 5. To develop strategies for Diagnosis of diseases based on antigen and antibody
		reactions with emphasis on prevailing communicable diseases.
		CO 1. Understand immune system structure, composition, function and comparison of
		different types of immunity.
		CO 2. Acquire knowledge about antigens, Recognition of pathogens; antigen processing
		and presentation; Immunity to infection and pathological consequences of
		immunodeficiencies.
		CO 3. To learn the applications of Immunology in monoclonal antibodies, vaccines
	MB 362 IMMUNOLOGY II	production and Immunotherapy.
		CO 4. Understand abnormal working of Immune system in hypersensitivity, auto immune
		diseases, immune tolerance and transplantation immunology.
		CO 5. To develop strategies for Diagnosis of diseases based on antigen and antibody
		reactions with emphasis on prevailing communicable diseases.
		CO 1. To understand methods of active site determination, role of enzymes and its cofactors in
		microbial physiology.
		CO 2. To learn to perform enzyme assay, purification and quantification of enzymes activity,
		enzyme kinetics in terms of initial, final velocity, mathematical expression of enzyme
		kinetic parameters.
		CO 3. To correlate regulation of metabolism at enzymatic levels and apply, methodology for
	MB 353 ENZYMOLOGY	commercial applications of enzymes
		CO 4. To learn mechanisms of transport of solutes across the membrane
		CO 5. To get acquainted with mechanism of biosynthesis and degradation of bio
		molecules
		CO 6. To comprehend basic concept of autotrophic mode of metabolism of prokaryotes
		CO 1. To understand methods of active site determination, role of enzymes and its cofactors in
		microbial physiology.
		CO 2. To learn to perform enzyme assay, purification and quantification of enzymes activity,
		enzyme kinetics in terms of initial, final velocity, mathematical expression of enzyme
		kinetic parameters.

	MB 363 METABOLISM	CO 3. To correlate regulation of metabolism at enzymatic levels and apply, methodology for
		commercial applications of enzymes
		CO 4. To learn mechanisms of transport of solutes across the membrane
		CO 5. To get acquainted with mechanism of biosynthesis and degradation of bio molecules
		CO 6. To comprehend basic concept of autotrophic mode of metabolism of prokaryotes
	MB 354 GENETICS	CO 1. To exhibit a knowledge base in Genetics and Molecular Biology
		CO 2. To understand the central dogma of Molecular Biology
		CO 3. To construct genetic map of bacteria and fungi
		CO 4. To get introduced to concept of recombination and bacteriophage Genetics
		CO 5. To understand the concept cloning in bacteria
		CO 6. To demonstrate the knowledge of common and advanced laboratory practices in Molecular Biology
	MB 364 MOLECULAR BIOLOGY	CO 1. To exhibit a knowledge base in Genetics and Molecular Biology
		CO 2. To understand the central dogma of Molecular Biology
		CO 3. To construct genetic map of bacteria and fungi
		CO 4. To get introduced to concept of recombination and bacteriophage Genetics
		CO 5. To understand the concept cloning in bacteria
		CO 6. To demonstrate the knowledge of common and advanced laboratory practices in Molecular Biology
	MB 355 FERMENTATION TECHNOLOGY I	CO 1 To impart technical understanding of commercial fermentations.
		CO 2. To apply classical, advanced strain improvement and isolation techniques for
		fermentation processes.
		CO 3. To optimize and sterilize media used in fermentation industry for
		commercially economical and efficient fermentations.
		CO 4. To recover the product using suitable methods and ensuring quality of the finished
		product by quality assurance tests.
		CO 5. To acquaint fermentation economics, process patentability, process validation.
		CO 6. To comprehend the large-scale productions of commercially significant fermentation
		products of classical and recent significance.
	MB 365 FERMENTATION TECHNOLOGY II	CO 1. To impart technical understanding of commercial fermentations.
		CO 2. To apply classical, advanced strain improvement and isolation techniques for
		fermentation processes.
		CO 3. To optimize and sterilize media used in fermentation industry for
		commercially economical and efficient fermentations.
		CO 4. To recover the product using suitable methods and ensuring quality of the finished
		product by quality assurance tests.
		CO 5. To acquaint fermentation economics, process patentability, process validation.
		CO 6. To comprehend the large-scale productions of commercially significant fermentation
		products of classical and recent significance.
		CO 1 To understand plant growth improvement with respect to disease resistance, environment tolerance.
	MB 356 AGRICULTURAL MICROBIOLOGY	CO 2. To correlate stages of plant disease development, epidemiology, symptom based
		classification, control methods.

		CO 3. To understand the importance of microorganisms in sustainable agriculture,
		biotechnological application of bio films, edible vaccines.
		CO 4. To correlate Soil Micro biome and Role of microorganisms in soil health
		CO 5. To determine the use of Microorganisms as tools in plant genetic engineering
		CO 1. To describe food safety problems and solutions in India and global scale.
		CO 2. Identify and classify types of microorganisms in food processing and compare their
		Characteristics and behavior
		CO 3. To learn food classification based on their perishability, intrinsic and extrinsic factors
		affecting the growth of microbes in foods, role of microorganisms in food fermentation.
	MB366 FOOD MICROBIOLOGY	CO 4. To acquire knowledge about food spoilage, food borne diseases, predisposition and
		preventive and control measures.
		CO 5. To apply principles of sanitation, heat treatment, irradiation, modified atmosphere,
		antimicrobial preservatives and combination of method (hurdle concept) to control
		microbial growth with emphasis on HACCP guidelines
		CO 1. To impart the awareness of unseen and unexplored niche of marine ecosystem of microbes.
		CO 2. To acquire advances in the knowledge of marine microbes and marine ecology.
		CO 3. To learn the field research on marine processes and laboratory research on microorganisms.
	SKILLED BASE ELECTIVE MB 3510 MARINE MICROBIOLOGY	CO 4. To comprehend the role of marine microbes in bioremediation and bioprospecting.
	SKILLED BASE ELECTIVE MB 3510 MARINE MICROBIOLOGY PRACTICAL	CO 1. To avail career opportunities in marine education, industry and research
		CO 1. To understand prospects of dairying at commercial marketing.
		CO 2. To acquire skills of processing of milk and dairy products.
	SKILLED BASE ELECTIVE MB 3511 DAIRY MICROBIOLOGY	CO 3. To assess quality control in dairy industry.
		CO 4. To comprehend production of dairy products of commercial significance with emphasis to local
		and global market demand
	SKILLED BASE ELECTIVE MB 3511 DAIRY MICROBIOLOGY PRACTICAL	
	SKILLED BASE ELECTIVE MB 3610 WASTE MANAGEMENT	CO 1. To understand waste management and it practicable applicability**.**
		CO 2. To assess the magnitude and influence of hazardous content of waste, pollution of waters
		and waste water treatment technologies.
	SKILLED BASE ELECTIVE MB 3610 WASTE MANAGEMENT PRACTICAL	
		CO 1. To learn the design and working of treatment plants and methods used for liquid and solid
		waste treatment.
	Skilled Base Elective MB 3611 Nano-biotechnology	CO 2. To impart the understanding of kinetics of biological systems used in waste treatment.
		CO 3. To learn the standards of waste management and competent authorities involved at
		National and international level.
		CO 4. To understand design, development and application of Nanomaterials and their application in Nanodevices.
		CO 5. To learn fundamentals of nanotechnology as to Synthesis and characterization techniques of nanoparticles.

		CO 6. To acquire knowledge of applications of nanomaterials in different disciplines of human life.
	Skilled Base Elective MB 3611 Nano-biotechnology practical	CO 1· To compare the merits of using nanotechnology with existing technologies.
	MB 357 PRACTICAL COURSE I BASED ON MB 351 MB 352	CO 1. Acquire knowledge of principles underlying establishment of pathogens in human
		body.
		CO 2. Comprehend of pathogenesis of specific pathogens causing microbial diseases.
		CO 3· Assess epidemiological patterns of microbial disease transmission as various modes,
		intensity at local and global level.
		CO 4. Acquire knowledge about antigens, Recognition of pathogens; antigen processing
		and presentation; Immunity to infection and pathological consequences of
		immunodeficiencies.
		CO 5. To learn the applications of Immunology in monoclonal antibodies, vaccines
		production and Immunotherapy.
		CO 6. Understand abnormal working of Immune system in hypersensitivity, auto immune
		diseases, immune tolerance and transplantation immunology.
	MB 358 PRACTICACOURSE II BASED ON MB 353 MB 354	CO 1. To learn to perform enzyme assay, purification and quantification of enzymes activity,
		enzyme kinetics in terms of initial, final velocity, mathematical expression of enzyme
		kinetic parameters.
		CO 2. To correlate regulation of metabolism at enzymatic levels and apply, methodology for
		commercial applications of enzymes
		CO 3. To construct genetic map of bacteria and fungi
		CO 4. To get introduced to concept of recombination and bacteriophage Genetics
		CO 5. To understand the concept cloning in bacteria
		CO 6. To demonstrate the knowledge of common and advanced laboratory practices in Molecular Biology
	MB 359 PRACTICAL COURSE III BASED ON MB 355 MB 356	CO 1. To apply classical, advanced strain improvement and isolation techniques for
		fermentation processes.
		CO 2. To optimize and sterilize media used in fermentation industry for
		commercially economical and efficient fermentations.
		CO 3. To recover the product using suitable methods and ensuring quality of the finished
		product by quality assurance tests.
		CO 4. To correlate stages of plant disease development, epidemiology, symptom based
		classification, control methods.
		CO 5. To understand the importance of microorganisms in sustainable agriculture,
		biotechnological application of bio films, edible vaccines.
		CO 6. To correlate Soil Micro biome and Role of microorganisms in soil health
	MB 367 PRACTICAL COURSE I BASED ON MB 361 MB 362	CO 1· Acquire knowledge of principles underlying establishment of pathogens in human body.
		CO 2. Comprehend of pathogenesis of specific pathogens causing microbial diseases.
		CO 3. Acquire knowledge about antigens, Recognition of pathogens; antigen processing
		and presentation; Immunity to infection and pathological consequences of
		immunodeficiencies.

		CO 4. To learn the applications of Immunology in monoclonal antibodies, vaccines
		production and Immunotherapy.
		CO 5. Understand abnormal working of Immune system in hypersensitivity, auto immune
		diseases, immune tolerance and transplantation immunology.
	MB 368 PRACTICAL COURSE II BASED ON MB 363 MB 364	CO 1. To learn to perform enzyme assay, purification and quantification of enzymes activity,
		enzyme kinetics in terms of initial, final velocity, mathematical expression of enzyme kinetic parameters.
		CO 2. To correlate regulation of metabolism at enzymatic levels and apply, methodology for
		commercial applications of enzymes
		CO 3. To understand the central dogma of Molecular Biology
		CO 4. To construct genetic map of bacteria and fungi
		CO 5. To get introduced to concept of recombination and bacteriophage Genetics
	MB 369 PRACTICAL COURSE III BASED ON MB 365 MB 366	CO 1. To apply classical, advanced strain improvement and isolation techniques for fermentation processes.
		CO 2. To optimize and sterilize media used in fermentation industry for
		commercially economical and efficient fermentations.
		CO 3. To recover the product using suitable methods and ensuring quality of the finished
		product by quality assurance tests.
		CO 4. Identify and classify types of microorganisms in food processing and compare their
		Characteristics and behavior
		CO 5. To learn food classification based on their perishability, intrinsic and extrinsic factors
		affecting the growth of microbes in foods, role of microorganisms in food fermentation.
		CO 6. To acquire knowledge about food spoilage, food borne diseases, predisposition and
		preventive and control measures.
Msc- I	**MB501:Microbial Systematics**	CO 1. In Bacterial Physiology students learnt about five kingdom classification and three domain system.
		CO 2. Students understood about structural, functional and morphological microbial diversity.
		CO 3. Students knew about Methods of extracting total bacterial DNA from a habitat and metagenome analysis.
		CO 4. CO 6Students learnt about History and development of evolutionary theory(Lamarckism, Darwinism), Neo Darwinism: Spontaneous mutation controversy, evolution of rates of mutation, types of selection, levels of selection, group selection and selfish gene.
	MB502:Quantitative Biology	CO 1. To understand about Fundamental concepts –Sample Statistics and Population parameter, data (qualitative and quantitative data, discrete and continuous series data), data sources, variables, measurement scales (nominal, ordinal, interval and ratio), variability and uncertainty in measurements.
		CO 2. To learn about The concepts of null hypothesis, Test statistics, P-value significance level, type I and type II errors, one tailed and two tailed tests, degrees of freedom, Parametric and nonparametric test, statistical decision tree, Parametric statistical test: Z-test, t-test and F-test.
		CO 3. To leant about Concept of experiment, event (mutually exclusive & non-exclusive events, dependent & independent events).
	MB503:Biochemistry and Metabolism	CO 1. To understand about Amino acids as buffers, Henderson Hasselbalch equation and its role in buffer formulation Peptide linkage, partial double bond nature of peptide bond.
		To learn about Chromatography: Principles and applications of gel filtration, Ion exchange, affinity chromatography.
		CO 2. To study about developmental biology.
		CO 3. To study about cell biology: structure and function of cells.

	MBCP1:Biochemical Techniques Core Compulsory Practical Paper	CO 1. Safety rules in Laboratory: Laboratory safety, hazard from chemicals, handling of chemicals, disposal of chemicals and cultures, recording of scientific experiments. Standardization of laboratory procedures, calibration and validation instruments, preparing / designing SOP for the same.
		To study about Enrichment, Isolation and identification of the following extremophiles from natural samples: Alkaliphiles and Thermophiles.
	MBTE13:Microbial communication, Membrane transport and signal transduction Choice based Optional Theory Paper(Elective)	CO 2. To study about Communication and Coordination among microorganisms
		CO 3. Life cycle of Dictyostelium disodium, Molecular mechanism of quorum sensing in slime moulds, Life cycle of myxobacteria, Molecular mechanism of quorum sensing in myxobacteria.
		To understand about Membrane transport and signal transduction.
	MBPE13:Practicals Based on Microbial communication, Membrane transport and signal transduction Choice based	CO 1. Communication And Coordination among microorganisms 1. Crystal violet assay for estimation of biofilm formation 2. Bioassay for determination of quorum sensing signals produced by bacteria.
		CO 2. Membrane transport and signal transduction.
		CO 3. Study principles of osmosis and diffusion using artificial membranes (dialysis membrane) (explain how various physical and chemical factors affect the diffusion).
	MB601:Instrumentation and Molecular Biophysics	CO 1. Study about Separation and analysis of biomolecules.
		CO 2. To study about different type of spectroscopy.
		CO 3. To understand about biophysical techniques.
		CO 4. To understand about Radioisotopes in Biology and Confocal Microscopy.
	MB602:Molecular Biology	CO 1. To understand about RNA Processing: Eukaryotic mRNA splicing (Spliceosome and auto splicing by Intron I and Intron II), rRNA processing, tRNA processing, RNA Editing, Nuclear export of mRNA.
		CO 2. Study about Restriction endonucleases and methylases; DNA ligase, Kleinow enzyme, T4 DNA polymerase, polynucleotide kinase, alkaline phosphatase and Vectors for cloning and gene expression.
		CO 3To learn about Genome projects and Molecular diagnostics and applications.
	MB603:Enzymology, Bioenergetics and Metabolism	CO 1. To understand about
		CO 2. Purifications of enzyme, purification chart,
		CO 3. Kinetics of reversible inhibitions
		CO 4. King Altman approach to derive – two substrate enzyme catalyzed reactions.
		CO 5. To understand about Bioenergetics
		CO 6. High energy compounds
		CO 7. Coupled reactions 3. Determination of feasibility of reactions
		CO 8. Problems based on 2 and 4.
		CO 9. Atkinson's energy charge.
		CO 10. To learn about Lipid Chemistry and Metabolism.
		CO 11. To understand about Carbohydrate Chemistry and Metabolism.
	MBCP2:Molecular Biology, Enzymology and Instrumentation Techniques	CO 1. To understand Concept of lac-operon: Lactose induction of Beta galactosidase; Glucose Repression; Diauxic growth curve of E. coli.
		CO 2. Plasmid DNA isolation, DNA quantitation and characterization by gel electrophoresis.
		CO 3. Construction of restriction digestion map of plasmid DNA 4. Curing of bacterial Plasmid
	MBTE23:Nitrogen Metabolism, respiration and Photosynthesis Choice based Optional Theory Paper(Elective)	CO 1. To understand about Nitrogen Metabolism

		CO 2. Respiration and photosynthesis
	MBPE23: Practicals based on Nitrogen Metabolism, respiration and Photosynthesis Choice based Optional Practical	CO 1. To learn about Isolation of IAA producing organism, Detection of Indole acetic acid production by microorganism
		CO 2. Detection of siderophore production by microorganism
		CO 3. Enrichment, Isolation and characterization of nitrogen fixing activity of bacteria 4. Extraction and estimation of a) polyphenols, b) tannins by Folin Danis method
		CO 4. Enrichment and isolation of lignin/Xylan degraders from Soil
B. Sc. Physics		**Department of Physics**
		Program Outcomes (POs) for B. Sc. Physics
	PO1	To foster scientific attitude, provide in-depth knowledge of scientific and technological concepts of Physics.
	PO2	To enrich knowledge through problem solving, minor/major projects, seminars, tutorials, review of research articles/papers,
		participation in scientific events, study visits, etc.
	PO3	To familiarize with recent scientific and technological developments.
	PO4	To create foundation for research and development in Physics.
	PO5	To help students to learn various experimental computational tools thereby developing analytical abilities to address real world problems.
	PO6	To train students in skills related to research, education, industry, and market.
	PO7	To help students to build-up a progressive and successful career in Physics.
	PO8	To help students in understanding theoretical and mathematical development of physics
	PO9	To learn Physics through experimentation
	PO10	To develop Experimental skills
		Program Specific Outcomes (PSOs) for B. Sc. Physics
	PSO1	Understanding of core knowledge on various papers of Physics. Clear the concepts which help
		them in understanding physical phenomenon in nature.
	PSO2	Demonstrate skills and competencies to conduct scientific experiments related to Physics.
	PSO3	Identify their area of interest and further specialize in the Physics.
	PSO4	Analyze situations, search for truth and extract information, formulate and solve problems in a
		systematic and logical manner.
	PSO5	CO Possess advanced knowledge and skills in job market for various technical industries.
		M.Sc. Physics
ysics	**Program Outcomes (POs)**	PO1. To foster scientific attitude, provide in-depth knowledge of scientific and technological
		concepts of Physics.
		PO2. To enrich knowledge through problem solving, minor/major projects, seminars, tutorials,
		review of research articles/papers, participation in scientific events, study visits, etc.
		PO3. To familiarize with recent scientific and technological developments.
		PO4. To create foundation for research and development in Physics.
		PO5. To help students to learn various experimental and computational tools thereby developing
		analytical abilities to address real world problems.
		PO6. To train students in skills related to research, education, industry and market.

		PO7. To help students to build-up a progressive and successful career in Physics.
		PO8 To help students in understanding theoretical and mathematical development of physics
		PO 9To help students to build-up a progressive and successful career in Physics.
		PO 10To train students in skills related to research, education, industry, and market.
	Program Specific Outcomes (PSOs)	PSO1. Understanding core knowledge on various papers of Physics. Clear the concepts which help
		them in understanding physical phenomenon in nature.
		PSO2. Demonstrate skills and competencies to conduct scientific experiments related to Physics.
		PSO3. Identify their area of interest and further specialize in the Physics.
		PSO4. Analyze situations, search for truth and extract information, formulate and solve problems in a
		systematic and logical manner.
		PSO5. Possess advanced knowledge and skills in job market for various technical industries.
Class	**Course**	**Course outcome (COs)**
F.Y. B.Sc. Semester I	**PHY-111 Mechanics and Properties of Matter**	CO1. To understand concepts in topic motion, work energy, fluid mechanics and properties of matter
		CO2. Understanding the concepts of energy, work, power.
		CO3. Understanding of the concepts of conservation of energy, surface tension and viscosity the concepts of elasticity and be able to perform calculations using them.
	PHY-112 Physics Principles and Applications	CO1. To understand the general structure of atom, spectrum of hydrogen atom.
		CO2. To understand the atomic excitation and LASER principles.
		CO3. To understand the bonding mechanism and its different types.
		CO4. To demonstrate an understanding of electromagnetic waves and its spectrum.
F.Y. B.Sc. Semester II		
	PHY-113 Physics Laboratory 1A	CO1. To identify different components and devices as well as their types
		CO2. To understand basic parameters associated with each device
		CO3. To know operation of different instruments used in the laboratory
	PHY-121 Heat and Thermodynamics	CO1. To understand concepts in topic Fundamentals of Thermodynamics, Applied Thermodynamics, Heat TransferMechanisms, Thermometry
	PHY-122 Electricity and Magnetism	CO1 To understand the concept of the electric force, electric field and electric potential for stationary charges.
		CO2 Able to calculate electrostatic field and potential of charge distributions using Coulomb's law and Gauss's law.
		CO3 To understand the dielectric phenomenon and effect of electric field on dielectric.
		CO4 T o Study magnetic field for steady currents using Biot-Savart and Ampere's Circuital laws.
		CO5 To study magnetic materials and its properties.
	PHY-123 Physics Laboratory 1B Practical	CO1 To identify different components and devices as well as their types
		CO2 To understand basic parameters associated with each device
		CO3 To know operation of different instruments used in the laboratory

S.Y. B.Sc. Semester III	**PHY-231: Mathematical Methods in Physics-I**	CO1. Understand the complex algebra useful in physics courses.
		CO2. Understand the concept of partial differentiation.
		CO3. Understand the role of partial differential equations in physics.
		CO4. Understand vector algebra useful in mathematics and physics.
		CO5. Understand the concept of singular points of differential equations.
	PHY-232: Electronics	CO1 Apply different theorems and laws to electrical circuits.
		CO2 Understand the relations in electricity.
		CO3 Understand the parameters, characteristics and working of transistors.
		CO4 Understand the functions of operational amplifiers.
		CO5 Design circuits using transistors and applications of operational amplifiers.
	OR	
	PHY-232: Instrumentation	CO1.Understand the functions of different instruments.
		CO2.Use different instruments for measurement of parameters.
		CO3. Design experiments using sensors.
S.Y. B.Sc. Semester IV	**PHY-233: Practical Course (Laboratory 2A)**	CO1 Use various instruments and equipment.
		CO2 Analyze the data, plot appropriate graphs and reach conclusions from data analysis.
		CO3 Investigate the theoretical background of an experiment.
		CO4 Work in a group to plan, implement and report on a project/experiment.
	PHY-241: Oscillations, Waves, and Sound	CO 1. Understand the physics and mathematics of oscillations.
		CO 2. Solve the equations of motion for simple harmonic, damped, and forced oscillators.
		CO 3. Describe oscillatory motion with graphs and equations, and use these descriptions to solve problems of oscillatory motion.
		CO4. Explain oscillation in terms of energy exchange, giving various examples.
		CO5. Understand the mathematical description of travelling and standing waves.
		CO6. Explain the Doppler effect, and predict in qualitative terms the frequency change that will occur for a stationary and a moving observer.
		CO7. Explain in qualitative terms how frequency, amplitude, and wave shape affect the pitch, intensity, and quality of tones produced by musical instruments.
	PHY-242: Optics	CO 1. Acquire the basic concepts of wave optics
		CO 2. Describe how light can constructively and destructively interfere
		CO3. Summarize the polarization characteristics of electromagnetic waves
		CO4. Understand optical phenomena such as polarization, birefringence, interference and diffraction in terms of the wave model.
		CO5. Analyze simple examples of interference and diffraction phenomena.
		CO6. Be familiar with a range of equipment used in modern optics.
		CO1. Use various instruments and equipment

	PHY-243: Practical Course (Laboratory 2B)	CO2. Design experiments to test a hypothesis and/ determine the value of an unknown quantity.
		CO3. Investigate the theoretical background to an experiment.
		CO4. Set up experimental equipment to implement an experimental approach.
	PH351 : Mathematical Methods in Physics- II	CO1. Calculate with vectors and scalars in physics.
		CO2. Determine the difference between Complex numbers and Real number.
		CO3. Learn geometrical representation of complex numbers.
		CO4. Find Fourier Series of periodic function,
		CO5. Use Laplace transform as tools of Physics.
	PHY-352 : Electrodynamics	
		CO1. To understand Electrostatics and Magnetostatics
		CO2. To understand the Concept of electromagnetic induction, Faraday's law, Lenz' law, generalization of Ampere's law.
		CO3. To understand the concepts of Electrodynamics.
	PH 353 : Classical Mechanics	
		CO1. Training the students of B. Sc. class in the Mechanics of the particles.
		CO2. Motion of central force, scattering of particles, Lagrangian and Hamiltonian formalisms to a scope that they
		Understand the concept and Laws.
	PH354: Atomic and Molecular Physics	
		CO1. Understand the Atomic structure
		CO2. Understand the One and two valence electron systems
		CO3. Study the Zeeman Effect, Raman Effect
		CO4. Understand the various spectroscopy
	PH355: Computational Physics	
		CO1. Understand the Concepts of programming
		CO2. Understand the concept of C Programming
		CO3. Understand the Arrays and Pointers in C
		CO4. Understand the User Defined Function in C
	PH-356 Elective I: Astronomy and Astrophysics	
		CO1. Study the Fundamentals of Astronomy
		CO2. Refer the Astronomical Instruments
		CO3. Understand the Star and Star Systems
		CO4. Study of Galaxies, Dark Matter and Dark Energy
T. Y. B. Sc. Semester V	**PHY-357: Physics Laboratory-3A**	
		CO1. To identify different components and devices as well as their types
		CO2. To understand basic parameters associated with each device
		CO3. To know operation of different instruments used in the laboratory
		CO4. To connect circuit and do require performance analysis
		CO5. To compare simulated and actual results of given particular experiment

		CO1. Use various instruments and equipment.
	PHY-358: Physics Laboratory-3B	CO2. Work in a group to plan, implement and report on a project/experiment
		CO3. Design experiments to test a hypothesis and/or determine the value of an unknown quantity.
		CO4. Investigate the theoretical background of an experiment.
	PHY-359: Physics Project-I	CO1. Access the data from given thesis
		CO2. Read and refer the research papers
		CO3. Handle various methods required in research work
		CO4. Result analysis and conclusions
	Skill Enhancement Courses (SEC)	
	PHY-3510 : Energy Studies	CO1. Students become capable of conducting energy audits and give consultancy in that field.
		CO2. Students can design different types of solar heaters for small domestic as well as large scale community level applications.
		CO3. Students acquire skills to implement solar P-V systems at domestic levels as well as for office premises and educational institutions. Students become able to start their own enterprise in net metering.
		CO4. Students get ideas and hence become self-employed in the field of design, production, commissioning and implementation of bio-mass energy sources, bio-gas plants, gasifiers, wind mills, hybrid systems etc.
	PHY-3511 : Physics Workshop Skill	CO1. After completion of this course students will able to handle and test various instruments.
	PHY-361: Solid State Physics	CO1. Understand the concept of The Crystalline State
		CO2. Understand the concept of X ray Diffraction and Other Characterization Techniques
		CO3. Understand the concept of Free Electron and Band Theory of Metals
		CO4. Understand the concept of Magnetism
	PH-362: Quantum Mechanics	
		CO1. To understand The Schrodinger equation
		CO2. To study the applications of Schrodinger Steady state equation
		CO3. To understand the concept of spherically symmetric potentials
		CO4. To understand Operators in Quantum Mechanics
	PH-363: Thermodynamics and Statistical Physics	
		CO1. To understand The Kinetic Theory of Gases
		CO2. To understand The Maxwell Relations and Application
		CO3. To study Elementary Concepts of Statistics
		CO4. To understand The Statistical Ensembles
		CO5. To understand The Quantum Statistics
	PH 364 : Nuclear Physics	
		CO1. To understand the Basic Properties of Nucleus
		CO2. To understand the concepts of Radioactivity

T. Y. B. Sc. Semester VI		CO3. To study Nuclear forces
		CO4. To study Particle Accelerator and Detectors
	PH365(A) : Electronics II	CO1. To study the Transistor amplifier
		CO2. To study the Field Effect Transistor
		CO3. To study the Operational Amplifier
		CO4. To study the Timer (IC555)
		CO5. To study the Regulated Power Supply
	OR	
	PH365(B) :Advanced Electronics	CO1. To study Sensors, Thermistors, Thermocouples, Motion sensors, Photo detectors, Optical sensors
		CO2. To study Signal Conditioning using OP-AMP
		CO3. To study Digital signal conditioning
	PH356 Elective II : Lasers	CO1. To study Laser and its properties
		CO2. To study Laser Action and Laser Oscillator
		CO3. To study Characteristics of Laser
		CO4. To study Types of Lasers and Applications of Lasers
	PH367 : Physics Laboratory-4A	CO1. Use various instruments and equipment.
		CO2. Work in a group to plan, implement and report on a project/experiment.
		CO3. Design experiments to test a hypothesis and/or determine the value of an unknown quantity.
		CO4. Investigate the theoretical background of an experiment.
	PH368: Physics Laboratory-4B	CO1. To identify different components and devices as well as their types
		CO2. To understand basic parameters associated with each device
		CO3. To know operation of different instruments used in the laboratory
		CO4. To connect circuit and do require performance analysis
		CO5. To compare simulated and actual results of given particular experiment
M. Sc.		
	PHY-369: Physics Project II	CO1. Access the data from given thesis
		CO2. Read and refer the research papers
		CO3. Handle various methods required in research work
		CO4. Result analysis and conclusions
		CO1. To know about complex analysis
	PHCT-111 Mathematical Methods in Physics	CO2. To study Vector Space and Matrix Algebra
		CO3. To study Special Functions
		CO4. To study Fourier Series and Integral Transforms
	PHCT-112 Classical Mechanics	CO1. Constrained motion and lagrangian formulation
		CO2. Vibrational principles and Hamilton formulation

Semester I		CO3. Canonical transformation and Poisson bracket
	PHCT-113 Electronics	CO1. To study Semiconductor Devices and its Applications
		CO2. To study Special Function ICs and their Applications
		CO3. To study Digital Logic Circuits: Combinational Logic & Sequential logic
		CO4. To study Data Converters
	PHOTD2: Physics of Semiconductor Devices	CO1. To study Properties of Semiconductor and p-n Junctions
		CO2. To study Junction Transistor and Metal Insulator Semiconductor devices
		CO3. To improve experimental knowledge of students
	PHCP-115 Physics Laboratory-I (Electronics)	CO1. To study and use various electronic instruments
Semester-II		CO2. Diode Pump Staircase generator using UJT
		CO3. Foldback Power Supply
		CO4. Crystal Oscillator & Digital Clock
		CO5. Voltage Control Oscillator using IC-566
	PHCT-121 Electrodynamics	CO1. The outcome of this course is to understand the covariant formulation of electrodynamics to
		explore the unification of electricity and magnetism.
		CO2. Origin of the electromagnetic radiation by an accelerating charge particle: Its applications to linear and
		circular accelerators.
		CO3. Understanding of the scattering of electromagnetic wave by free and bound electron.
	PHCT-122 Atoms and Molecules	CO1- To understand the Atomic structure and atomic spectra
		CO2- To understand the Molecular Spectra – Rotational and vibrational spectra for
		diatomic molecules
		CO3- To understand the Resonance Spectroscopy, ESR and NMR Spectroscopy
	PHCT-123 Quantum Mechanics	CO1. Show an understanding of wave mechanics;
		CO2. Know the concept of operators in quantum mechanics.
		CO3. Perform calculations on wave functions, and solve the Schrödinger equation for simple potential problems.
		CO4. Apply Schrodingers equation in Hydrogen atom
		CO5. Describe the structure of the hydrogen atom and show an understanding of quantization of angular momentum.
	PHOTC2: Laser and Applications	CO1. To study Interaction of radiation with matter
		CO2. To study Principle, Construction, Energy level diagram and working of various lasers
		CO3. To improve experimental knowledge of students
	PHCP-125 Physics Laboratory-II (General Lab)	CO1. To find the speed of light
		CO2. To determine Dielectric constant
		CO3. To study the Millikan Oil Drop method
		CO4. To study Michelson's Interferometer

		CO5. To perform Frank-Hertz experiment
	PHCT-231 Statistical Mechanics	CO1. The outcome of the course on Statistical Mechanics to expose students to
		the theoretical techniques
		CO2. Understanding the interacting systems, phase transitions and the non-equilibrium phenomena.
		CO3. To understand the Ideal Bose and Fermi Systems
	PHCT-232 Solid State Physics	CO1- To understand the Band Theory of Solids
		CO2- To understand the Diamagnetism and Para magnetism
		CO3- To understand the Ferromagnetism, Antiferromagnetism and Ferrimagnetism
Semester-III		CO4- To understand the Superconductivity
	PHCT-233 Experimental Techniques in Physics-I	CO1- To understand the Signals, random signals, and time series (basic), Signal analysis
		CO2- To understand the Vacuum Physics and fields applications of vacuum,
		CO3- To understand the Pumps for High Vacuum (HV) and Ultra High Vacuum (UHV)
		CO4- To understand the Vacuum Measurements and Low Temperature Technique
	PHOT234M2: Material Science-I	CO1. To study Properties of Materials and Defects in Solids
		CO2. To study Solid Solutions and Diffusion in Solids
		CO3. To improve experimental knowledge of students
	PHCP-235 Physics Laboratory III	CO1. Laboratory course III deals with the experiments based on fundamental concepts in Physics.
	PHCT -241 Nuclear Physics	CO1. Understand the fundamental principles and concepts governing nuclear and particle physics.
		CO2. Demonstrate knowledge and understanding of scientific and technological applications, of Nuclear Physics
		as well as their social, economic and environmental applications,
		CO3.Demonstrate comprehension of physical reality through estimation, approximation, and mathematical modeling,
Semester IV		and understand how small number fundamental physical principles underlie a huge variety of interconnected
		natural phenomena.
		CO4. Able to explain the Rutherfords experiment, Nuclear Radiation and Charged Particle Accelerators.
	PHCT 242 Experimental Techniques in Physics-II	CO1. To study Radiation Sources and Detectors
		CO2. To study Structural Characterization and Thermal Analysis
		CO3. To study Morphological and Magnetic Characterization
		CO4. To study Spectroscopic Analysis
	PHOTB2: Physics of Nanomaterials	CO1. To study Introduction and Synthesis of Nanomaterials
		CO2. To study Properties and Application of Nanomaterials
		CO3. To improve experimental knowledge of students
	PHOT244M2: Material Science-II	CO1. To study Metallurgical Thermodynamics
		CO2. To study Phase diagrams

		CO3. To improve experimental knowledge of students
	PHCP-245 : Project	CO1. To enhance the research quality
		CO2. To increase the research applications in Physics area
		CO3. To improve experimental knowledge of students
	Department of Zoology	
		Program Outcomes (POs) for B.Sc.
PO1		Demonstrate and apply the fundamental knowledge of the basic principles of major
PO2		Apply knowledge to solve the issues related to animal sciences
PO3		Take appropriate steps towards conservation of endemic and endangered animal species
PO4		To foster curiosity in the students for Zoology
PO5		To create awareness amongst students for the basic and applied areas of Zoology
PO6		To orient students about the importance of abiotic and biotic factors of environment and their conservation
PO7		To provide an insight to the aspects of animal diversity.
PO8		fundamental knowledge of the basic principles of major
PO9		abiotic and biotic factors of environment and their conservation
PO10		To inculcate good laboratory practices in students and to train them about proper handling of lab instruments.
		Program Specific Outcomes (PSOs) for B.Sc.
PSO1		Acquire the knowledge of animal science, natural phenomenon, and manipulation of nature and environment by man.
PSO2		Understanding the scientific terms, concepts, facts, phenomenon and their interrelationship.
PSO3		Students followed and understood general laboratory practice guidelines, including safety
PSO4		Develop scientific attitude which is the major objective this makes the students open minded, critical observations, curiosity, thinking etc.
PSO5		Abilities to apply scientific methods, collection of scientific data, problem solving.
		Program Outcomes (POs) for M.Sc. Zoology
PO1		Zoology knowledge: Apply the knowledge of Zoology, Life Sciences
PO2		Subjects to the understanding of complex life processes and phenomena.
PO3		Analyze complex situations of living forms.
PO4		The cultural, societal, and environmental considerations.
PO5		Design processes/strategies that meet the specified needs
		Interpretation of data, and synthesis of the information to provide valid conclusions in real situations.
		Problem analysis: Identify, review research literature
		Design/development of solutions: with appropriate consideration for the public health and safety.
		Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis.
		Modern tool usage: Create, select, and apply appropriate techniques, resources, and ICT tools for understanding of the subject.

		Program Specific Outcomes (PSOs) for M.Sc. Zoology
PSO1		Acquire the knowledge of animal science, natural phenomenon, and manipulation of nature and environment by man.
PSO2		Understanding the scientific terms, concepts, facts, phenomenon and their interrelationship.
PSO3		Students followed and understood general laboratory practice guidelines, including safety
PSO4		Develop scientific attitude which is the major objective this makes the students open minded, critical observations, curiosity, thinking etc.
PSO5		Abilities to apply scientific methods, collection of scientific data, problem solving.
		Course Outcome (COs)
Class		
F. Y. B. Sc. (semester pattern)	**Course**	**Course Outcome**
Semester 1	Animal Diversity I (ZO 111)	CO1: The student will be able to understand classify and identify the diversity of animals.
		CO2: The student understands the importance of classification of animals and
		classifies them effectively using the six levels of classification.
		CO3: The student knows his role in nature as a protector, preserver and promoter of
		life which he has achieved by learning, observing and understanding life.
	Animal Ecology (ZO 112)	CO1: The learners will be able to identify and critically evaluate their own beliefs, values and actions in relation to professional and societal standards of ethics and its impact on ecosystem and biosphere due to the dynamics in population.
		CO2: To understand anticipate, analyze and evaluate natural resource issues and act on a lifestyle that conserves nature
		CO3: The Learner understands and appreciates the diversity of ecosystems and applies beyond the syllabi to understand the local lifestyle and problems of the community
Semester 2		
	Zoology Practical Paper (ZO 113)	CO1: The student will be able to understand classify and identify the diversity of animals.
		CO2: The student understands the importance of classification of animals and
		CO3: The Learner understands and appreciates the diversity of ecosystems and applies beyond the syllabi to understand the local lifestyle and problems of the community
	Animal Diversity –II (ZO 121)	CO1: To understand the differences and similarities in the various aspects of classification.
		CO2: To classify invertebrates and to be able to understand the possible group of the invertebrate observed in nature.to understand our role as a caretaker and promoter of life.
	Cell Biology (ZO122)	CO1. Study of the concepts of cell Biology.
		CO 2. Study of the scope of Cell Biology.
		CO 3. Study of cell structure and cell functions.
		CO 4. Study of broad description of bio-chemistry of cell, structure & functions of cell organelles.
		CO 5. Study of cell biology with its concern aspects scientifically.
		CO 6. Study of the cellular activities.
		CO 7. Study of significance of cell & its molecular activities.
		CO 8. Study of cancer cell & cancer-causing agents.

S. Y. B. Sc.	Zoology Practical Paper (ZO123)	CO1: The student will be able to understand classify and identify the diversity of animals.
Semester-I		CO2: The student understands the importance of classification of animals and
		CO3. Study of the concepts of cell Biology.
	Animal Diversity - III (ZO – 231)	CO 1. To understand the origin and advancement of higher vertebrates (Tetrapoda).
		CO 2. To understand general characters of different groups of higher vertebrates
		CO 3. To understand different behaviours and adaptations in higher vertebrates
		CO 4. To understand affinities among different groups of higher vertebrates.
	Applied Zoology I (ZO - 232)	CO 1. To understand the basic life cycle of the honeybees, beekeeping tools and equipment.
		CO 2. To learn for managing beehives for honey production and pollination.
		CO 3. To understand the basic information about fishery, cultural and harvesting methods of fishes.
		CO 4. To understand fish preservation techniques.
	Zoology Practical Paper (ZO – 233)	CO 1. Learn the Museum study of Group Protochordata
Semester-II		CO 2. Learn the types of tail fins in fishes
		CO 3. Learn the external characters & digestive system of locally available fish.
		CO 4. Learn the f external morphology and life-cycle of Bombyx mori.
	Animal Diversity - IV (ZO – 241)	CO 1. To understand different behaviours and adaptations in higher vertebrates
		CO 2. To understand affinities among different groups of higher vertebrates.
	Applied Zoology II (ZO-242)	CO 1. To understand the biology, varieties of silkworms and the basic techniques of silk production and harvesting of cocoons.
		CO 2. To learn the different silkworm species and their host plants.
		CO 3. To study types of agricultural pests and Major insect pests of agricultural importance
T. Y. B. Sc.		CO 4. To study Pest control practices
Semester III		
	Zoology Practical Paper (ZO – 243)	CO 1. Study of external morphology, life cycle and polymorphism in Honey Bee.
		CO 2. To study Temporary mounting of mouth parts, legs, wings and sting apparatus of worker bee.
		CO 3. learn the Identification, Classification and study of habit, habitat and economic importance of a) Rohu (Labeo rohita), b) Catla (Catla catla), c) Mrigal (Cirrhinus mrigala).
	ZO-351 - Pest Management	CO1. Define pest management.
		CO2. Describe the economic, ecological, and sociological benefits of IPM.
		CO3. Distinguish positive and negative impacts of pesticide use.
		CO4. Understand problems resulting from misuse, overuse, and abuse of chemical pesticides.
		CO5. Define and describe pesticide resistance and how it develops.
	ZO-352 - Histology	CO 1. Study of the epithelial, connective, nervous and muscular tissue.
		CO 2. Histological studies of the organs like- skin, tooth, tongue, alimentary canal and digestive gland, respiratory
		organs, blood vessels, kidney and reproductive organs.

		CO 3. Detail study of endocrine gland like pituitary, thyroid and adrenal gland.
	ZO-353 - Biological Chemistry	CO 1. Study of chemical process within living organism.
		CO 2. Study the Types of bonds and their functions in biomolecules.
		CO 2. Study the Structure of Water molecule and their Physical and Chemical Properties.
		CO 4. Study the concept of Acid and Base, pH, Sorensons scale, derivation of
		Henderson-Hassel Balch equation and its application.
		CO 5. Study the concept of Buffer, Types, Buffering capacity, and buffers in biological system
	ZO-354 - Genetics	CO1. Study the Classical and Modern concept of Gene, Cistron, Muton, Recon.
		CO2.Study the Multiple alleles
		CO3. Study the sex-determination
		CO4. Study the Population Genetics:
	ZO-355 - Developmental Biology	CO1. Study the Fundamentals of Developmental Biology
		CO2. Study the Theories of Developmental Biology
		CO3. Study the Cleavage and Blastula
	ZO-356 - Parasitology	CO1. The students will be able to learn about basics and scope of parasitology.
		CO2. The students will be able to learn the types of hosts and parasite with examples.
		CO3. The students will be able to learn about the morphology, life cycle, pathogenicity and treatment of common parasites (Protists and Platyhelminthes).
	ZO-357 - Zoology Practical Paper 1	CO1. To study the plant protection appliances.
		CO2. Studies on beneficial insects.
		CO3. Study of permanent histological slides
		CO4. Temporary mounting of tissues of any mammal
	ZO-358 - Zoology Practical Paper 2	CO1. Preparation of buffer of desired pH and molarity
		CO2. Protein estimation by Lowry et al. method.
		CO3. Study of monohybrid ratio by providing hypothetical data and deducing applicability of Mendelian laws
		CO3. Study of blood groups in human (ABO and Rh).
	ZO-359 - Zoology Practical Paper 3	CO1. Study of ultrastructure of Sperm and Ovum of Mammal.
		CO2. Temporary preparation of chick embryo.
		CO3. To study the life cycle, pathogenicity, diagnosis and treatment of Entamoeba histolytica and Plasmodium vivax through permanent slides or microphotographs
	(ZY 336) Cell Biology (Paper VI)	CO1. Study of the concepts of cell Biology.
		CO 2. Study of the scope of Cell Biology.
		CO 3. Study of cell structure and cell functions.
		CO 4. Study of broad description of bio-chemistry of cell, structure & functions of cell organelles.
	ZO-3510 - Aquarium Management	CO1. Introduction to Aquarium Fish Keeping

		CO2. Biology of Aquarium Fishes:
		CO3. Food and feeding of Aquarium Fishes:
	ZO- 3511 - Poultry Management	CO1. The students will be able to understand the Poultry farming practices.
		CO2. The students will able to understand the poultry breeding techniques.
	ZO 361 - Medical & Forensic Zoology	CO1. The students will be able to understand the basics principles of Medical and Forensic Zoology.
		CO2. The students will able to understand scientific methods in crime detection.
		CO3. The students will be able to understand the advancements in the field of Medical and Forensic Zoology.
		CO4. The students will be able to understand modern tools, techniques and skills in forensic investigations.
	ZO 362 - Animal Physiology	CO1. The various physiological organ-systems and their importance to the integrative functions of the human body.
		CO2. Understand Concept of energy requirements
		CO3. Various aspects of Digestive physiology.
		CO4. Circulatory system with medical conditions
		CO5. Understand Respiratory mechanism and gases transport.
		CO6. Eliminations of waste materials from the body
	ZO 363 - Molecular Biology	CO1. Learner shall get an insight into molecular mechanisms of various biological processes in cells and organisms
		CO2. Learner shall get an insight into the Structure of DNA and RNA, DNA and RNA as genetic material
		CO3. The course shall prepare learner to get insight into the Central Dogma of Molecular Biology
	ZO 364 - Entomology	CO1. Understand basic concepts in Entomology and its scope.
		CO2. Learn morphology and anatomy of Insects.
		CO3. Understand the concept of social organization in Insects.
		CO4. Understand the development process of Insects.
		CO5. Identify disease causing insect vectors.
		CO6. Will be able to design and implement pest controlling methods against pests.
	ZO 365 - Techniques in Biology	CO1. To study the Microscopy
		CO2. To study Microtomy: Tissue fixation and Processing
		CO3. To study the Types of PCR & DNA Barcoding
	ZO 366 - Evolutionary Biology	CO1. Students will be able to learn most of the essential aspects of Evolutionary Biology in detail which will help them in acquiring better understanding regarding the subject.
		CO2. Explain important processes, principles and concepts and critically evaluate theories and empirical research within evolutionary biology
		CO3. Apply evolutionary theory and concepts to address empirical and theoretical questions in evolutionary biology.
		CO4. Independently investigate evolutionary questions using literature and analyses of empirical data.
		CO5. Communicate the principles, theories, problems and research results associated with questions that lie within the evolutionary framework to students
	ZO 3610 - Environmental Impact Assessment	CO1.To study the Environment:
		CO2. To study Pollution:
		CO3. To study Environmental Impact Assessment (EIA):

	ZO 3611 - Project	CO1. Planning the project
		CO2. Selecting a suitable title for projects
		CO3. Significance of the work
	ZO 367 - Zoology Practical Paper - I	CO1. To carry out routine analysis of given urine sample
		CO2. To examine human hair for cortex and medulla
		CO3. To estimate the blood glucose level from given sample.
		CO4. Study of disorders caused by endocrine glands with the help of photographs
	ZO 368 - Zoology Practical Paper - II	CO1. Estimation of DNA by Diphenylamine method.
		CO2. Estimation of RNA by Bial's Orcinol method
		CO3. Study of Insect Head, its articulations and types of mouthparts and their modifications.
		CO4. Study of Reproductive system of any locally available insect pest.
Course Outcome		
Class	ZO 369 - Zoology Practical Paper III	CO1. To observe different kind of cells under compound microscope and its measurement using micrometer scale or by image analysis software (Ex. Image J).
M. Sc. I , Zoology		CO2. To study population density and percentage frequency of different animal insect species of a given area.
Semester-I		CO3. Study of morphological similarities and differences between man and ape
		CO4. Study of types of fossils with the help of specimens/ charts/ photos
	Course	**Course Outcome (COs)**
	(ZOUT 101) Biochemistry I and Biochemical technique	CO 1. Study of chemical process within living organism.
		CO 2. Study the Types of bonds and their functions in biomolecules, study the Structure of Water molecule and their Physical and Chemical Properties.
		CO 4. Study the concept of Acid and Base, pH, Sorensons scale, derivation of Henderson-Hassel Balch equation andits application.
		CO 5. Study the concept of Buffer, Types, Buffering capacity, and buffers in biological system
		CO 6. Much of biochemistry deals with the structures, functions and interactions of biological macromolecules.
		CO 7. Study the Carbohydrates with classification and Significance.
		CO 8. Study the Proteins with Structures and Classifications of Amino acids.
		CO 8. Study the Enzymes their Classification and Regulation.
		CO 9. Study the Lipids and their Classification and Significance.
	(ZOUT 102) Cell Biology and Developmental Biology	CO1. Study of the concepts of cell Biology.
		CO 2. Study of the scope of Cell Biology.
		CO 3. Study of cell structure and cell functions.
		CO 4. Study of overview of chemical nature of cell.
		CO 5. Study of cell biology with its concern aspects scientifically.
		CO 6. Study of the cellular activities.

		CO 7. Study of significance of cell & its molecular activities.
		CO 8 Detail study of cell cycle with their regulation.
		CO 9 Study of Cytoskeleton.
	(ZOUT 113) Genetics and English in Scientific Communication	CO1. Study of fundamentals of Genetics, Mendelian ratios & modified Mendelian ratios.
		CO2. Study of classical consent of gene.
		CO3. Study of linkage and crossing over.
		CO4. Study of inheritance of qualitative and quantitative traits.
		CO 5 Detail Study of population genetics.
		CO 6 Study of common error in written and spoken presentation.
		CO 7 Study the hypothesis, theory and concept and genetic code as a simple language.
		CO 8 Study of outline of a science paper and project preparation, funding.
		CO 9 Study the writing of Introduction, Materials and Methods, Observations and Results and Discussion.
	(ZODT 114) Freshwater Zoology	CO 1. Study of types of aquatic environment.
		CO 2. Study of physical and chemical properties of water.
		CO 3. Study of Physiological and protective adaptations of protozoa, rotifer, crustaceans, fishes.
		CO 4. Study of Diagnostic features and life cycle of temporary rainwater pool animals: Fairy shrimps and Tadpole
		shrimps.
		CO 5. Study of Respiratory and Locomotory adaptations in freshwater insects and their larvae.
		CO 6. Study of Amphibia and water.
		CO 7. Study of Adaptations in Freshwater reptiles.
		CO 8. Study of Economic importance of freshwater mollusks.
		CO 9. Study of Biological changes in freshwater due to sewage pollution and its effect on freshwater animals.
	(ZODP 114) Zoology Practical Paper-1	CO1: Identify commercially important freshwater fish.
		CO2: Identify the aquatic adaptations in common freshwater forms.
		CO3: Prepare the culture of Paramecium and Daphnia.
Semester II		CO4: Estimate the hardness and chloride content in water samples.
	(ZOUP 115) Basic Zoology Lab-I	CO1: Identify the developmental stages of chick embryo, cell structures and phases of cell division
		CO2: Identify the grammatical mistakes from the given paragraph and common errors in written and spoken presentations.
		CO3: Write a scientific project and research article along with its proof reading.
		CO4: Demonstrate the working of different microscopes, colorimetric and
	ZOUT 121	
	Molecular Biology and Bioinformatics	CO1: Explain the DNA structure & types, topology, Physical properties; chromatin structure and organization.
		CO2: Discuss genome organization, DNA and Protein sequencing with their application in evolutionary studies.
		CO3: Explain the mobile DNA elements.
		CO4: Explain mechanism of DNA damage and repair.

	ZOUT 122	
	Endocrinology and Parasitology	CO1: Discuss the roles of Pituitary gland and pineal body.
		CO2: Explain hormonal regulation of biomolecules and mineral metabolism.
		CO3: Describe the role of osmoregulatory and gastrointestinal hormones.
		CO4: Explain the role of hormones in moulting, change in body colour of crustaceans; yolk
		synthesis in amphibians; insect development.
		CO5: Define the terminologies of parasitology.
		CO6: Explain the concepts of animal association with examples.
	ZOUT 123	CO1: Describe the mechanism of thermoregulation in both poikilotherms and homeotherms.
	Comparative Animal Physiology and Environmental Biology.	CO2: Explain the mechanism of chemical communication in vertebrates.
		CO3: Explain the structure and impact of biogeochemical cycles, ecosystems and energy
		transformation across trophic levels.
		CO4: Describe concepts in population ecology and their significance.
	ZODT 124	CO1: Identify the common fishes in India.
	Ichthyology	CO2: Explain the general characters and evolution of fishes.
		CO3: Explain the fish morphology and anatomical modifications.
		CO4: Illustrate the physiology of reproductive and endocrine organs in fish.
	ZODP 124	
	Zoology Practical Paper-2	CO1: Discuss the signs, symptoms and control measures of common diseases in fish.
		CO2: Justify the role of respiratory and excretory organs in survival of fishes.
		CO3: Classify fishes upto order level.
		CO4: Setup aquarium and manage it.
M.Sc. II	ZOUP 125	CO1: Identify the various parasites and parasitic stages of common parasites, nitrogenous waste products of animals, freshwater planktons and slides of endocrine glands.
Semester III	Basic Zoology Lab-II	CO2: Explain the principle and significance of gonadectomy, thyroidectomy and pancreatomy.
		CO3: Demonstrate the role of eye stalk and insulin in sugar level in crab.
		CO4: Demonstrate the retro cerebral complex in cockroach.
		CO5: Demonstrate the RBCs of common vertebrates and effect of various osmolarities.
	ZOUT 231	CO1: Explain the membrane physiology and its dynamics.
	Special Paper (any one) Animal Physiology-I	CO2: Explain the concept of nutrition and digestion.
		CO3: Explain the structure, contraction and types of contraction of muscle.
	ZOUT 232	CO1: Explain principles, methods of biological classification and diversity in kingdom Animalia.
	Fundamentals of Systematics	CO2: Explain the importance of taxonomic keys and taxonomic characters.
	and	CO3: Explain parasitic roundworms of animal and plants.
	Economic Zoology	CO4: Signify the role of parasitic and soil protozoan in human welfare.
		CO5: Justify the use of animals in pharmaceutical research.

	ZOUT 233	CO1: demonstrate knowledge of research processes (reading, evaluating, and developing)
	Research Methodology and	CO2: perform literature reviews using print and online databases.
	Insect Physiology and	CO3: select and define appropriate research problem and parameters to prepare a project proposal.
	Biochemistry	CO4: identify, explain, compare, and prepare the key elements of a research proposal/report.
		CO5: Demonstrate the process of excretion, detoxification and water balance
		CO6: Justify the role of insect hormones in physiological processes.
	ZODT 234	CO1: Define genotoxicity test systems.
	Genetic Toxicology	CO2: Describe basic toxicological principles and describe how different chemicals are taken up
		by, processed in and eliminated from the body
		CO3: Inspect physical and chemical genotoxic agents being exposed in his/her environment
		CO4: Illustrate physical and chemical genotoxic agents.
		CO5: Explain efficiency mechanisms of physical chemical genotoxic agents
		CO6: Relate genotoxicity and DNA repair mechanisms and relate types of mutation and DNA repair
		CO7: Judge about proper genotoxicity test for mutation types
	ZODP 234 Zoology Practical Paper- 3	CO 1. to study Dominant lethal test in Drosophila (Compulsory)
		CO 2. to study Sex linked recessive lethal test in Drosophila
	ZOUP 235	CO1: Demonstrate the effect of body size and salinity on oxygen consumption in given animal.
		CO2: Demonstrate the effect of starvation on liver and muscle glycogen in given animal
Semester IV		CO3: Collect and preserve animal samples using common methods.
		CO4: Write scientific report of field/ institutional visit.
		CO5: Conduct a scientific survey.
		CO6: Perform protein purification experiment
	ZOUT 241	CO1: Explain the composition of blood, types of blood cells, vascular dynamics and clotting.
	Special Paper-Any One- Animal Physiology-II/	CO2: Illustrate the anatomy and physiology of heart and cardiac cycle
		CO3: Describe the excretory system, nitrogenous wastes and renal regulation
		CO4: Illustrate the osmoregulatory mechanism in Invertebrates and Vertebrates
		CO5: Discuss the neuronal physiology and various potentials.
	ZOUT 242	
	Mammalian Reproductive Physiology and	CO1: Explain the male and female reproductive systems and sexual dimorphic characteristics
	Aquaculture	CO2: Explain the sexual cycles with examples
		CO3: Describe the methods of freshwater prawn culture and its management.
		CO4: Explain the methods of pearl culture and pearl harvesting.
		CO5: Illustrate the preparation and management of fish culture ponds.
		CO6: Demonstrate the methods of packaging and transport of fish and brood fish.
	ZODT 243 Pest Control	CO1: Explain the Pest, nature of damage caused by pests and pest control.
		CO2: Explain medical, veterinary, Household and stored grain pests.

		CO3: Explain the Principles and methods of pest control including Biological control measures.
		CO4: Explain the Integrated pest management (IPM)
		CO5: Explain the Non- insect pest and their control: Rat, Bandicoots, Crabs, Snails, Slugs, Birds and Squirrels.
		CO5: Explain the principle and working of pesticide appliances.
	ZODP 243 Zoology Practical Paper-4 (Practicals corresponding to ZOUT 241and ZODT 243)	CO1: Determine the bleeding and clotting time of human blood.
		CO2: Demonstrate the invertebrate heart.
		CO3: Calculate the heartbeats of Daphnia/Drosophila larva.
		CO4: Determine the LD50
		CO5: Behavior of insects to repellants and attractants.
		CO6: Know the principle and working of pesticide appliances.
	ZODT 244 Apiculture	CO1: Explain the basic concepts of apiculture like systematics, colony organization,
		polymorphism, morphology and foraging.
		CO2: Explain the tools and management of apiary.
		CO3: Explain the importance of institutions pertinent to apiculture.
	ZODP 244 Zoology Practical Paper-5 (Practicals corresponding to ZOUT 242 and ZODT 244)	CO1: Identify the histological slides of reproductive organ/tissues.
		CO2: Explain the various types of placenta in mammals.
		CO3: Comment on merits and demerits of contraceptive devices/methods.
		CO4: Test the freshness of fish/prawn by histological methods.
		CO5: Test the freshness of fish/prawn by biochemical methods.
		CO6: Identify the honey bees
		CO7: explain the bee morphology and behavior
	ZOUP 245	CO 1. learn the project on different topic
	(Project)	CO 2. Learn the methodology in research
Programme Outcomes (POs), Programme Specific Outcomes (PSOs) & Course Outcomes (COs) for COMMERCE FACULTY		
Programme Outcomes (POs) of B. Com.		
PO1		A career options after BCom includes Accountant, Account Executive.
PO2		A few government jobs roles suitable for B.com graduates. (Income Tax officers, Railway Accounts Officers)
PO3		Top companies that hire commerce graduates
		Best career option After B. Com Sales Manager.
		MBA is the most popular course available for after B. Com
		If you are wondering what to do after B. Com, Company Secretary (CS) IS one of the pivotal job roles from the B. Com.
		CMA (certified management account) is about a career after B. Com.in aboard.
		A career option after B. Com. Telecommunications services.
		A Completion of B. Com and acquiring in direct and in direct taxes jobs for B. Com graduates.
		After B.com The jobs in Banking industries are very much in demand. like (HDFC, SBI, ICICI etc)

Programme Specific Outcomes (PSOs) of B. Com.		
PSO1		That hire B. Com**.** graduates in positions like Insurance Agents.
PSO2		The jobs for B. Com**.** graduates found to be great in Business management.
PSO3		B. Com Aspirants eligible for both programmes separately can pursue a CA with B.Com.
PSO4		While pursuing B. Com degree, we can do digital marketing course so that we can get opportunities for suitable jobs.
PSO5		You can do ADCA (Advance diploma in computer application) is best course with B. Com
Programme Outcomes (POs) of M. Com.		
PO1		Able to acquire basic and fundamental knowledge and skills for doing business and commercial activities of their choice.
PO2		Acquire the accounting knowledge, management principles, retail trading, banking and insurance transactions, business economics and financial management
PO3		Appear Government jobs for M.Com. graduates like IBPS, SBI PO, SSC CHL etc..)
PO4		after completing M.Com. degree course, some candidates opt for PhD or M.Phil. course.
PO5		Demonstrate knowledge of the theories, concepts and findings of the various specializations.
PO6		The best opportunities after M. Com on Economic Consulting Firms.
PO7		Develop and capable of doing a business of their choice or choosing a profession or can become employees having basic knowledge and skill required for such activities.
PO8		Demonstrate knowledge of accounting theory as it relates to markets, firms, government policy, and resource allocation.
PO9		After M. Com degree candidates need to qualify B. ED to teach commerce subjects to class 11 and class 12.
PO10		Apply basic accounting and statistical skills necessary for analysis of a range of problems in economics, actuarial studies, accounting, marketing, management and finance.
Programme Specific Outcomes (PSOs) of B. Com.		
PSO1		Empowers the students to choose a profession of their choice such as CA, CS, ICWA, MBA, M. Com etc
PSO2		Acquire knowledge in the field of management accounting, corporate accounting, statistical and mathematical techniques and knowledge relating to corporate law and business laws
PSO3		Generate realistic solutions based on current academic research in organizational behavior.
PSO4		Digital Marketing is also a good course while doing M.Com.
PSO5		While pursuing M.Com. degree, we can do PGDCA Diploma course so that we can get opportunity for suitable jobs.
Department of Commerce		
Class	**Course**	**Course outcome (COs)**
F.Y.B com	Financial Accounting- I	CO.1 To impart knowledge of basic accounting concepts
Semester		CO.2 To create awareness about application of these concepts in business world
		CO.3 To impart skills regarding Computerized Accounting
		CO.4 To impart knowledge regarding finalization of accounts of various establishments.
	Marketing and Salesmanship- I	CO.1 To introduce the basic concepts in Marketing.
		CO.2 To give the insight of the basic knowledge of Market Segmentation and Marketing Mix
		CO.3 To impart knowledge on Product and Price Mix.
		CO.4 To establish link between commerce, business and marketing
		CO.5 To understand the segmentation of markets and Marketing Mix.
		CO.6 To enable students to apply this knowledge in practicality by enhancing their skills in the field of Marketing.
	Business Mathematics & Statistics- I	CO.1 To introduce the basic concepts in Finance and Business Mathematics and Statistics

		CO.2 To familiar the students with applications of Statistics and Mathematics in Business
		CO.3 To acquaint students with some basic concepts in Statistics.
		CO.4 To learn some elementary statistical methods for analysis of data.
		CO.5 The main outcome of this course is that the students are able to analyze the data by using some elementary statistical methods
	Organizational Skills Development- I	CO.1 To introduce the students to the emerging changes in the modern office environment
		CO.2 To develop the conceptual, analytical, technical and managerial skills of students efficient office organization and records management
		CO.3 To develop the organizational skills of students
		CO.4 To develop employability skills among the students
	Financial Accounting- II	CO.1 To impart knowledge of various software used in accounting
		CO.2. To impart knowledge about final accounts of charitable trusts
		CO.3 To impart knowledge about valuation of intangible assets
		CO.4 To impart knowledge about accounting for leases
	Business Mathematics and Statistics - II	CO.1 introduce the basic concepts in Finance and Business Mathematics and Statistics
		CO.2To familiar the students with applications of Statistics and Mathematics in Business
		CO.3To acquaint students with some basic concepts in Statistics.
		CO.4To learn some elementary statistical methods for analysis of data
	Organizational Skill Development- II	CO.1To imbibe among the students the qualities of a good manager and develop the necessary skill set
		CO.2 To develop the technical skills of the students to keep up with the technological advancements and digitalization
		CO.3To develop the communication skills of students and introducing them to the latest tools in communication
	Marketing and Salesmanship- Fundamental of Marketing- I	CO.1To introduce the concept of Salesmanship
		CO.2To give insight about various techniques required for the salesman
		CO.3To inculcate the importance of Rural Marketing.
		CO.4To acquaint the students with recent trends in marketing and social media marketing.
S. Y. B. Com	Business Communication- I	CO.1To understand the concept, process and importance of communication
		CO.2To acquire and develop good communication skills requisite for business correspondence.
		CO.3To develop awareness regarding new trends in business communication
		CO.4To provide knowledge of various media of communication
	Business Communication-II	CO.1 To understand the concept, process and importance of communication.
		CO.2 To acquire and develop good communication skills requisite for business correspondence.
		CO.3 To develop awareness regarding new trends in business communication.
		CO.4 To provide knowledge of various media of communication.
	CORPORATE ACCOUNTING –I	CO.1 To acquaint the student with knowledge about various Concepts, Objectives and applicability of some important accounting standards associated with to corporate accounting.
		CO.2 To develop understanding among the students on the difference between commencement and incorporation of a company and the accounting treatment for transactions during the two phases.
		CO.3To update the students with knowledge for preparation of final accounts of a company as per Schedule III of the

		Companies Act 2013
		CO.4 To empower to students with skills to interpret the financial statements in simple and summarized manner for effective decision-making process.
	CORPORATE ACCOUNTING –II	CO.1 To acquaint the student with knowledge of corporate policies of investment for expansion and growth through purchase of stake in or absorption of smaller units
		CO.2 To develop the knowledge among the student about consolidation of financial statement with the process of holding
		CO.3 To update the students with knowledge of the process of liquidation of a company
		CO.4 To introduce the students with the recent trends in the field of accountancy
	Business Management-I	CO.1 To provide basic knowledge and understanding about various concepts of Business Management.
		CO.2 To help the students to develop cognizance of the importance of management principles.
		CO.3 To provide an understanding about various functions of management.
		CO.1To provide basic knowledge and understanding about various concepts of Business
		C0.2To help the students to develop cognizance of the importance of management principle
		CO.3To provide an understanding about various functions of management
		CO.4To provide them tools and techniques to be used in the performance of the managerial
	Cost and Works Accounting: –I	CO.1. To understand and explain the conceptual framework of CW
		CO.2To equip the students to seek suitable career in CWA and Entrepreneurship
		CO.3To develop communication and analytical skill among students through self-learning
		CO.1To inculcate Theory and expose to practical world
		CO.2To develop skills to find out customize and creative solutions to ever increasing business
		CO.3To motivate students to apply costing knowledge in dealing current problem
	BUSINESS LAWS AND PRACTICE – I	CO.1To develop an understanding of the significant provision of selective Business
		CO.2To gain the ability of students to address a basic business legal application
		CO.1To develop general awareness among the students about management of
		CO.2To have a comprehensive understanding about Key managerial Personnel of company and their role in Company administration
		CO.3. To acquaint the students about E Governance and E Filling under the Companies Act, 2013
		CO.4. To make students capable of becoming good human resource of the corporate sector.
	Marketing Management	To introduce the concept of Marketing Management
		CO.2To give the students the basic knowledge of Marketing Management to be a successful
		CO.3To give the students the basic knowledge of Marketing Management to be a successful
		CO.4To interpret the issues in marketing and their solutions by using relevant theories of marketing
		CO.1To orient the students in recent trends in marketing management.
		CO.2To understand the concept of Green Marketing
		CO.3To enable students to apply this knowledge in practical by enhancing their skills in the field of Marketing.
	ADVANCED ACCOUNTING – I	CO.1 To acquaint the student with knowledge about various concepts, objectives, and applicability of some important accounting standards
		CO.2 To develop the knowledge among the students about reorganization of business regarding restructuring the

		capital.
		CO.3 To update the students with knowledge for preparation of final accounts of a Banking Companies with the provisions of Banking Regulation Act 1949.
		CO.4 To empower to students with skills to prepare the investment account in simple and summarized manner.
	Auditing	CO.1 To acquaint themselves about the Definition, Nature, Objectives and Advantages of Auditing, Types of Audits, Errors and Fraud, Audit Program, Notebook, Working Paper, Internal Control, Check.
		CO.2 To get knowledge about concept of Checking, Vouching, Verification and Valuation, Types of Audit Report and Auditing Assurance Standard
		CO.3 To understand the provision related Qualification, Disqualification, Appointment, Removal, Rights, Duties and Liability of Company Auditor and Provisions regarding Tax Audit as per Income Tax Act 1961 (Section 44 AA to 44AE).
		CO.4 To know the various new concepts in computerized system and Forensic Audit.
	BUSINESS LAWS AND PRACTICE PAPER II	CO.1 To impart the students with the fundamental understanding of important business laws
		CO.2 To study & acquaint students an application-based knowledge of various Business & Labour Laws.
		CO.3 To familiar the students with legal Business Environment of India
		CO.4 To develop & strengthen students through the legal practical knowledge and their importance to the Indian Business organizations.
	Cost and Works Accounting. Special Paper II	CO.1 To provide knowledge about the concepts and principles of overheads
		CO.2 To Introduce the cost accounting standards and the cost accounting standard board
		CO.3 To understand the stages involved in the accounting of overheads.
		CO.4 To build an ability towards strategic overhead accounting under Activity Based Costing
	Marketing Management-II	CO.1 The objective of this course is to facilitate understanding of the conceptual framework of marketing and its applications in decision making under various environmental constraints.
		CO.2 The course will make learners understand how to make effective marketing decisions, including assessing marketing opportunities and developing marketing strategies and implementation plans.
	BUSINESS LAWS AND PRACTICE PAPER II	CO.1 To develop an understanding of the significant compliances under various Laws
		CO.2 To gain the ability of students to address a basic business legal application-oriented issue.
	Cost and Works Accounting Special Paper III	CO.1 To prepare learners to understand the basic techniques in Cost Accounting
		CO.2 To understand the learner, application of Cost Accounting techniques in cost control and decision making.
		CO.3 To enable the learners to prepare various types of Budgets.
		CO.4 To learn the basic concept of Uniform Costing and Inter-firm comparison
		CO.5 To enhance the knowledge of students about MIS and Supply Chain Management.
	Marketing Management	CO.1 To introduce the concept of advertising and advertising media.
		CO.2 To provide the students the knowledge about appeals and approaches in advertisement.
		CO.3 To acquaint the students to the economic, social and regulatory aspects of advertising.
		CO.4 To make the student understand the role of Brand Management in marketing.
		CO.5 To enable the students to apply this knowledge in precise by enhancing their skills in the field of advertising.
	ADVANCED ACCOUNTING – II	CO.1To acquaint the student with knowledge about the legal provisions regarding preparation and presentation of final accounts
		CO.2 To empower to students about the branch accounting in simple.
		CO.3 To understand the procedure and methods of analysis of financial statements

	Auditing & Taxation - II	CO.1To understand the basic concepts of Income Tax Act, 1961 and create awareness of direct taxation among the students.
		CO.2To understand the income tax rules and regulations and its provisions.
		CO.3To have a comprehensive knowledge of calculation various types of income.
		CO.4To know the recent changes made by the finance bill (Act) every year and its impact on taxation of person.
	: Cost and Works Accounting. Special Paper II	CO.11. To provide knowledge about the various methods of costing
		CO.2To understand the income tax rules and regulations and its provisions.
		CO.3To have a comprehensive knowledge of calculation various types of income.
		CO.4To know the recent changes made by the finance bill (Act) every year and its impact on taxation of person.
	Marketing Management-II	CO.1he primary purpose of this course is to brief students about agricultural marketing, various marketing regulations, importance global marketing and various measures used by cyber security marketers in today's digital world.
	Cost and Works Accounting Special Paper III	CO.1. To impart knowledge about Standard Costing and Variance Analysis
		CO.2To understand the income tax rules and regulations and its provisions.
		CO.3To have a comprehensive knowledge of calculation various types of income.
		CO.4 To provide a conceptual understanding of procedures and Provisions of Cost Audit
	Marketing Management	CO.11. To introduce the concept of Marketing of Service.
		CO.3To acquaint the students to various social media marketing
		CO.4To make the student understand the technique and process of Marketing Control and Audit.
M.Com-I(Sem-I)	Advanced accounting and taxation	CO1 To lay a theoretical foundation of account
		CO2 To study a theoretical foundation of accounting and accounting standards.
		CO3 To gain ability to solve problems relating to company accounts.
M.Com-I(Sem-II)	Advanced accounting and taxation	CO1 To develop competency of student to solve problems relating special areas in account.
		CO2 To understanding of financial reporting practices.
		CO3 To familiarize the student with procedure of accounting for taxation.
M.Com-I	Income tax	CO1 To know the computation of income under salaries.
		CO2 To know the computation of business and profession.
		CO3To study and understand computation of taxable income.
M.Com-I	Business tax assessment and planning	CO1 To know the assessment of companies & co-operative society.
		CO2 To know the tax planning.
		CO3 To know the GST and its applications.
M.Com -II	Capital market and financial services	CO-1 Understand the concept of Capital market.
		CO2 To learn the process of stock market.
		CO3 To learn the financial services of co-operative sector.
	Specialized areas in auditing	CO1 To know the audit under tax laws is going on.
		CO2 To know and understand internal audit.
		CO3 To know audit of co-curative societies.
	Advanced auditing	CO1 To know the basic concepts of auditing.
		CO2To know the IFRS & standards.
		CO3 To know the audit under CIS Environment.
	Recent advances in accounting, taxation and auditing	CO1 To know about IFRS and listing agreement clause-49

		CO2 To know environmental accounting and forensic accounting.
		CO3 To know lean and responsibility accounting.
Department of BBA (Computer Application)		
Programme Outcomes (POs) Of BBA CA		
PO1		To produce skill oriented human resource.
PO2		To import practical skills among students.
PO3		To make industry ready resource.
PO4		To bring the spirit of entrepreneurship
PO5		Students will be able to give Design Specifications for Project.
PO6		Students will acquire Knowledge in Basic Modeling.
PO7		Students will acquire Project Management Skills.
PO8		Able to develop applets for web applications.
PO9		Able to design GUI based applications
PO10		To discuss the basic concepts AI.
Programme Specific Outcomes (PSOs) of BBA CA		
PSO1		Effectively communicating computing concepts and solutions to bridge gap between computing industry experts.
PSO2		Effectively utilizing their knowledge of computing principles to develop sustainable solutions to current and future computing problem.
PSO3		Developing and implementing solution-based system.
PSO4		Give information about software design and development practices to develop software in emerging areas.
PSO5		Successful career and Entrepreneurship.
COURSE OUTCOMES (COs)		
BBA(CA)	CA-101: Business Communication	CO1: Student understand importance of communication in business.
	Paper I	
	CA-102: Principle of Management	CO1: Students are understood different business organization.CO2: Students are familiar about recent trends of management
	Paper II	
	CA-103: C Language Paper III	CO1: Students can solve problem by analyzing and converting logical thinking to computer understandable format using C Programming.
		CO2: Student learns the basic terminologies of C language.
		CO3: Students will be able to design their own program to solve mathematical problems using C Programming.
Semester I	CA-104: Database Management System Paper IV	CO1: Students understand basic database concepts in database system.
		CO2: Students can write SQL queries and do database connectivity with any front-end platform.
	CA-105: Statistics Paper V	CO1: Students will be able to understand the concept of measures of central tendency and variation, probability and probability distributions and their
	CA-106: Computer Laboratory Based on 103 &104	CO1: Students can write programs in C Programming and make their own databases using Oracle.
	CA-107: Add-On (PPA)	CO1: Analytical and Logical Thinking is developed amongst students.
		CO2: Students can find solution of problems using Problem Solving Techniques.CO3: Students learn Basic idea of programming.

		CO4: Students will be able to write their own algorithms.
	CA-201: Organization Behavior & Human Resource Management	CO1: Students enhance and apply the knowledge they have received for the betterment of the organization.
	Paper I	CO2: Students are understood the importance of Human resource management.
		CO3: Students are aware about different functions of HRM.
	CA-202: Financial Accounting	CO1. Maintenance, proper handling, creation, firing queries to the database with mapping cardinalities, Cartesian product.
	Paper II (202)	CO1: Student acquired sound knowledge of basic concepts of accounting.
		CO2: Students are practicing tally software package in their day today life.
	CA-203: Business Mathematics Paper III	CO1: Students understand the nature of mathematics and be able to use mathematical concepts in business and their day-to-day life
Semester II		
	CA-204: Relational database (Paper	CO1: Students understand relational database concepts and transaction management concepts in database system.
	IV 204)	CO2: Students can write PL/SQL programs that use procedure, function, package, cursor and trigger.
		CO1: Students will be aware of world's best open-source web technology.
	CA-205: Web Technology HTML-JS-CSS (205) Paper V	CO2: Student will be able to design website user interface. client communicative web site.
	Lab course – II Practical Paper VI (206)	CO1: Students understand how data of different types can be handled / accessed using different structures using C Programming.
	CA-207: Add-On (Advance C)	CO1: Students can solve problem by analyzing and converting logical thinking to computer understandable format using C Programming.
	CA-301: Digital Marketing Paper I	CO1: Students will be able to understand the new digital market and its terminology.
		CO2: Students will get greatest benefit of digital marketing which will allow to target the ideal buyer, through social media or with any digital platform.
	Data Structure using 'C' (302) Paper II	CO1: Students will be able to understand the concepts of ADTs and learn linear data structures – lists, stacks, and queues.
		CO2: Students will be able to understand the sorting, searching and hashing algorithms and apply Tree and Graph structures
	CA-303: Software Engineering Paper III	CO1: Students will be able to understand the System concepts and learn Software Engineering concepts.
		CO2: Students will be able to understand the applications of Software Engineering concepts and Design in Software development
		CO3. Study of management of all resources in the O.S.
	CA-304: Angular JS Paper IV	CO1: Student will be able to create single page applications with AngularJS.
Semester III		CO2: student will be able to understand how to create website Angular JS
	CA-305: Big data Paper V	CO1: Student understand and able to develop analytical skills in current an developing areas of analysis statistics, and machine learning.
		CO2: Student can be able to identify, develop and apply detailed analytical, creative, problem-solving skills
		CO3: Course provides a comprehensive platform for career development and
	Lab Course-Practical (306) Paper VI	CO1: Students will learn practical application of how to implement different data structures to solve the problems. They will be able to apply different
		CO2: Students will understand how to design AngularJS Single Page Application, create and bind controllers with JavaScript and apply filter in AngularJS
		CO3: Students will be able to identify, develop and apply detailed analytical, creative, problem-solving skills.

	CA-307: Environment Awareness	CO1: This course helps students know about environmental pollution, its effect on human being.
		CO2: Students get information about the government initiatives for conservation of Environment and what are the controlling measures.
Semester IV		
	CA-401: Networking	CO1: Students will be able to understand the basic concepts of Operating System.
		CO2: Students will be able to understand the concept process scheduling within the Operating system, also get knowledge about Deadlock and if deadlock
	CA-402: Object Oriented Concepts Through CPP Paper II	CO1: Students will be able to understand the basic object-oriented concepts.
		CO2: Students will be able to apply C++ features like operator overloading, constructor and destructor, inheritance, polymorphism, and exception handling
	CA-403: Operating System Paper III	CO1: Students will be able to understand the basic concepts of Operating System.
		CO2: Students will be able to understand the concept process scheduling within the Operating system, also get knowledge about Deadlock and if deadlock
	CA-404: NODE JS Paper IV	CO1: Student able to understand one of the most popular runtime Environment to create server-side application with JavaScript.
		CO2: Student understand how to create server application with node is, also get information about to connect with database and how to use third party
	CA-405: Project Paper V	CO1: Students get ideas about how to create Software projects. How to write the project abstract, how to write the project documentation.
		CO2: How to create a database along with code logic to create the input screen and generate the output screen.
	Lab Course-Practical (406) Paper VI	CO1: Students will learn practical application of object-oriented concepts in programming using C++.
		CO2: Students will understand how to apply the use of operator overloading, constructor and destructor, inheritance, polymorphism, and exception
		CO3: Students will be able to understand how to apply Structure a Node application in modules and how to Build a Web Server in Node.
	CA-407: Add-On (JQUERY)	CO1: Students will be able to understand the JavaScript language and the document object Model. jQuery is JavaScript library.
Semester V		
	CA-501: Java Programming Paper I	CO1: After learning the basic concept of Java Programming. Students understand how to use programming in day-to-day applications.
		CO2: Students can work as a Java Developer
	CA-502: Web Technologies Paper II	CO1: Students will be aware of world's best open-source web technology.
		CO2: Students will be able to hands on training by practical with PHP & XAAMP.
		CO3: Student will able to design website user interface. client- server communicative web site.
	CA-503: Dot Net Programming Paper III	CO1: Students will be able to understand .NET technologies, basics of design, development of .NET based web technologies.
		CO2: Students will able to be a .NET Developer
	CA-504: Object Oriented Software Engg. Paper IV	CO1: Students will able to design basic project design diagram ie -Case studies, UML diagrams sequence, DFD etc.
		CO2: Students will be Functional Analyst for designing a data flow diagram etc
	CA-505: Software Project – I [Based on C++ / VB Technology]	CO1: Students gets the basic idea of how problems can be solved using programming by developing a software in Visual Basic or C++.
	(505) Paper V	CO2: They are able to develop small scale applications by their own which helps them to understand the process of software development
	CA-506: Laboratory Course – V [Based on Paper No. 501,502 and 503]	CO1: This is helping students to learn Java/Dot net/Web Technology Programming in a simple and effective manner so that students are able to work in company as a developer.
	CA-601: Advanced Web Technologies Paper I	CO1: Students will aware world's best open-source web technology.

Semester VI		CO2: Students will be able to hands on training by practical with PHP, CSS, HTML & XAAMP.
		CO3: Students will be a PHP Web Developer
	Advanced Java (602) Paper II	CO1: Students develop programming logic and understand how to use programming in day-to-day applications.
		CO2: Students can be work as a Java Developer
	Recent Trends in IT (603) Paper III	CO1: Students gets the basic idea of upcoming trends in Information Technology which guides them to understand the different technologies used in the industry for actual software development and its maintenance.
		CO2: Students are able to understand the new ecofriendly software development techniques used in the market.
	Software Testing (604) Paper IV	CO1: Students will get the testing methods procedures of software component to deal with Errors/bug.
		CO2: By Learning this student will able to be a functional tester i.e. End verification /validation Authority before software package release
	CA-605: Software Project – II [Java / Dot net Technology	CO1: It helps to guide to open-source tools and frameworks.
	(605) Paper V	CO2: Gives the real time experience of working on Java /Dot net /PHP development projects through software.
	CA-606: Laboratory Course – VI [Based on Paper No. 601 & 602]	CO1: This is helping students to learn Adv. Java/Adv. web Technology Programming in a simple and effective manner so that students are able to work in company as a developer.
	(606) Paper VI	CO1. Able to develop applets for web applications and design GUI based applications.
Department of Economics		
Program Outcomes (POs) for B. Com Economics		
PO 1		To relate and recognize the concept and indicators of Economic Development.
PO 2		To describe and analyze the concept and indicators of Human Development.
PO 3		To explain the characteristics of Developing and Developed Countries.
PO 4		To describe the constraints to the process of Economic Development.
PO 5		To describe and explain the process of Economic Planning.
PO 6		To describe and examine the changing structure of planning process in India.
PO 7		To describe and explain the relation between Economic Development and Environment.
PO 8		To provide the students with the background of the Indian Economy with focus on contemporary issues like economic environment.
PO 9		At the end of the course, the student should be able discuss and debate on the various issues and challenges facing the Indian Economic Environment.
PO 10		Ability to develop awareness on the various new developments in the different sectors of an economy – agriculture, industry, services, banking, etc.
Program Specific Outcomes (PSOs) for B. Com Economics		
PSO 1		Ability to develop an understanding of the economic environment and the factors affecting economic environment.
PSO 2		At the end of the course, the student should be able discuss and debate on the various issues and challenges facing the Indian Economic Environment.
PSO 3		To help the students to prepare for varied competitive examinations
PSO 4		Making students financially literate.
		Students understand the financial environment of the family
		Course Outcome (COs)
	Subject: -Business Economics (Micro) – SEM-I&II	CO 1. To impart knowledge of business economics
		CO 2. To clarify micro economic concepts
		CO 3. To analyze and interpret charts and graphs
		CO 4. To understand basic theories, concepts of micro economics and their application

FYBCOM	**Subject: - BANKING & FINANCE SEM-I&II**	CO 1. To provide knowledge of fundamentals of Banking
		CO 2.To create awareness about various banking concepts
		CO 3.To conceptualize banking operations.
SYBCOM	**subject: Banking and Finance-I (Indian Banking System - I) SEM- III&IV Course Code: 236(B)**	CO 1. To familiarize the students to the basic theories and concepts of Macro Economics and their application.
		CO 2. To study the relationship amongst broad aggregates.
		CO 3. To impart knowledge of business economics.
		CO 4. To understand macroeconomic concepts.
		CO 5. To introduce the various concepts of National Income.
	Subject: Banking and Finance-I (Indian Banking System - I) SEM- III&IV Course Code: 236(B)	CO 1.To provide the knowledge about Indian Banking System.
		CO 2.To create the awareness about the role of banking in economic development.
		CO 3. To provide the knowledge about working of Central Banking in India.
		CO 4. To know the functioning of private and public sector banking in India.
TYBCOM	**Subject Name -: Indian & Global Economic Development SEM- V&VI Course Code -: 352 (A)**	CO 1.Students will be able to understand present Economic Scenario of Indian Economy as well as World Economy.
		CO 2.Students will be able to understand the various aspects of development in Agricultural, Industrial and service sectorin India.
		CO 3.Student will be able to critically evaluate the role of India in international economy.
		CO 4. Students will be able to evaluate the working of international financial organization and institutions
	Subject Name -: Banking & Finance Special Paper II SEM-V&VI Course Code -: 364(B)	CO 1.To acquaint the students with Financial Markets and its various segments.
		CO 2. To give the students and understanding of the operations and developments in financial markets in India.
		CO 3. To enable them to gain an insight into the functioning and role of financial institutions in the Indian Economy
	Subject Name -: Banking Law and Practices in India. SEM-V&VI	CO 1. To familiarize the Banking Laws and Practice in correlation to the Banking System in India.
		CO 2. To understand the legal aspects of Banking transactions and its implication as a Banker and as a customer.
		CO 3. To familiarize the students with the Banking Laws and Practices in India.
		CO 4. To make students capable of understanding and applying the legal and practical aspects of banking to help them technically sound in banking parlance.

ARTS, SCIENCE & COMMERCE COLLEGE INDAPUR DIST PUNE

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