ARTS SCIENCE AND COMMERCE COLLEGE INDAPUR		
A. Y. 2019-20		
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 get 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.		
		Understand the nature and basic concepts of Literature and Criticism
		Understand the nature and basic concepts of Linguistics.
		improve communication skills

ARTS, SCIENCE & COMMERCE COLLEGE INDAPUR DIST PUNE

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.(Semester)	Compulsory English	
		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	CO1. Organs of Speech
		CO2. 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	CO1. Strengthening the literary and linguistic test of the students.
		CO2. Improvement of communication skills in English
		CO3. Enrichment of Grammatical sense and reading skills.
		CO4. Ability of group discussion and oral presentation
		CO1. Introduction of elements of drama.

ARTS, SCIENCE & COMMERCE COLLEGE INDAPUR DIST PUNE

S.Y. (Annual)	Special English Paper I	CO2. Development of students,, liking for the stage.
		CO3. Enhancement of the sense of technique of characterization.
		CO4. Improvement of stage daring of the students.
	General English Paper II	CO1. Familiarizing the students with the minor form of literature.
		CO2. Introduction of short story as Genre of Literature.
		CO3. Familiarizing with the basics of English Language.
		CO4. 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 Programmed
	Functional English Paper IV	CO1. Verbal and Non-verbal Communication
		CO2. Reading Newspaper, situational conversations
		CO3. Group Discussion and group activities
		CO4. Interview skills
	Compulsory English	CO1. Improvement of speaking skills in English.
		CO2. Enrichment of the Grammatical sense and news reporting.
		CO3. Skills for compering and rapid reading.
		CO4. Perfection of the use of idioms and phrases
	Special English Paper III	CO1. Introduction of the novel as genre of literature
		CO2. Sensitization of the element of fiction
		CO3. Knowledge of the novels
		CO4. Introduction to the critical analysis of prose passages

ARTS, SCIENCE & COMMERCE COLLEGE
INDAPUR DIST PUNE

T.Y. (Annual)	Special English Paper IV	CO1. Enrichment of critical views of the students
		CO2. Development of broad views in students about various approaches
		CO3. Study of the interpretation of various critics
		CO4. Knowledge of different critical terms
	General English Paper III	CO1. Enrichment of competence in English
		CO2. Introduction of clauses and phrases
		CO3. Illustration of pragmatics
		CO4. 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		
Programme: B.A. (MARATHI)		
		Programme Outcomes (POs)
PO 1		Get introduced to Marathi literature, language and culture.
		Ethical professional and ideological were nurtured in the students.
		Understand the form and elements of the novel and learn the journey and genre of the novel.
		Writing for the media, he wrote several video clips for the newspaper, including.
		Develop ability to appreciate and evaluate selected Biographies and Autobiographies in modern Marathi Literature.

ARTS, SCIENCE & COMMERCE COLLEGE INDAPUR DIST PUNE

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.
Programme 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.
Programme: M.A. (MARATHI)		
Programme 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.

Programme Outcomes M.A. (POs)		
PO1		Get introduced to Marathi literature, language and culture.
PO2		Ethical professional and ideological were nurtured in the students.
PO3		Understand the form and elements of the novel and learn the journey and genre of the novel.
PO4		Writing for the media, he wrote several video clips for the newspaper, including.
PO5		Develop ability to appreciate and evaluate selected Biographies and Autobiographies in modern Marathi Literature.
PO6		Understand the nature of the process of literary creation and the concept of Literary genus.
PO7		Gained knowledge of the training required for publishing and editing.
PO8		Students understood how Rural & Dalit literature was created after the post-independence period.
PO9		Develop ability to appreciate and evaluate selected Biographies and Autobiographies in modern Marathi Literature.
PO10		Understand the form and elements of the novel and learn the journey and genre of the novel.
Class	**Course**	**Course outcome (COs)**
F.Y.B.A	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.
		CO2.Understand group dynamics and individual in the social world.
		CO3.Understand the basic psychological processes and their applications in day to day life.
		CO4. Develop the ability to evaluate cognitive processes, learning and memory of an individual.

ARTS, SCIENCE & COMMERCE COLLEGE
INDAPUR DIST PUNE

S.Y.B.A	G2 Bhashik koushalya vikas aani adhunikmarathi 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 adhunikmarathi 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 SthulEitihas	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 Bhashavidnyan	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.
		CO1. To understand literary form and purpose on the basis of Indian and Western linguistic thought.

ARTS, SCIENCE & COMMERCE COLLEGE
INDAPUR DIST PUNE

M.A- 1	Prasarmadhmansathi Lekhan Koushalya	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
		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	CO1. To understand language form, features and functions.
		CO2. 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
	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.

ARTS, SCIENCE & COMMERCE COLLEGE
INDAPUR DIST PUNE

MA- 2		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 Loksahitya2	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.
3		To create awareness regarding challenges of Indian Democracy.
4		To develop unbiased views about social problems & issues.

ARTS, SCIENCE & COMMERCE COLLEGE INDAPUR DIST PUNE

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 was 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.
PO8		To inculcate Democratic values
PO9		Voting awareness.
		To encourage students to develop Research oriented learning.

ARTS, SCIENCE & COMMERCE COLLEGE
INDAPUR DIST PUNE

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.	Introduction to Indian Constitution	CO1. To acquaint students with the important features of the Constitution of India and with The basic framework of Indian government.
(Semester)		CO2. To familiarize students with the working of the Constitution of India
		CO3. Emphasis on local influences of castes and jatis from language, religion ethic.
		CO4. Learning of background of our constitution federal system structure of our state and central govt. party
		CO5.system election process
S.Y.B.A.	Political Theory and concepts Paper-G-2	
(Annual)		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.
.B.A.		
nual)		CO1. This paper is an introductory course in public Administration.

ARTS, SCIENCE & COMMERCE COLLEGE
INDAPUR DIST PUNE

	S-3 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.
	G-3Political Ideologies	CO1.Learning of ideology like nationalism Gandhism, Fascism Political Ideology.
		CO2.Students will learn the role of different ideology and their impact in politics.
		CO3.Each ideology will be critically studied in its historical context.
		CO4. Knowledge about various ideologies like nationalism fascism, Marxism Gandhism.
	PO-C1: Traditions of Political Thought	CO1. This 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	CO1. Public 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.

ARTS, SCIENCE & COMMERCE COLLEGE
INDAPUR DIST PUNE

M.A. Political Science	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.
		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	CO1. To introduce the concept and techniques of the students.

ARTS, SCIENCE & COMMERCE COLLEGE
INDAPUR DIST PUNE

		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 analyses 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		
Programme: B.A. (History)		
Programme Outcomes (POs) B.A.		
PO1		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, Ch. Shivaji & His Times, Modern India. Ancient India, Medieval India.
PO4		To option of public service is always open.
PO5		History of The World In 20TH Century.
PO6		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.
PO7		Introduction To History, History of Asia In 20TH Century.
PO8		To Understand the present existing social, political, religious and economic conditions of the people.

ARTS, SCIENCE & COMMERCE COLLEGE INDAPUR DIST PUNE

PO9		To develop interests in the study of history and activities relating to history.
PO10		To understands to Evaluate and recognize different Empire in Indian history.
PO11		Understand the nature and basic concepts of History of Early India, Medieval India, Chh. Shivaji & His Times, Modern India
PO12		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.
PO13		To analyze relationship between the past and the present is lively presented in the history.
Programme Specific Outcomes (PSOs) B.A.		
PSO1		Develop various communication skills such as reading, listing, speaking, etc., which will help in expressing ideas and views effectively.
PSO2		To gain analytical skill to analyze social issues.
PSO3		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.
Programme 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.
Programme 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.

ARTS, SCIENCE & COMMERCE COLLEGE
INDAPUR DIST PUNE

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 outcomes (COs)**
F.Y.B.A. Sem I	Early India: From Prehistory to the Age of the Mauryas	CO1. It is a base for understanding the entire Indian history provocative.
		CO2. The course is aimed at helping the student to understand the history of early India from the prehistoric times to the age of the Mauryas.
F.Y.B.A. Sem II	Early India: Post Mauryan Age to the Rashtrakutas	CO1. It is a base for understanding the entire Indian history. provocative.
		CO2. The course is aimed at helping the student to understand the history of early India from the prehistoric times to the age of the Mauryas.
	Modern India (1857-1950)	CO1. Historical Understanding: - Develop a comprehensive knowledge of the major political, social, economic, and cultural developments in India from 1857 to 1950.
		CO2. Critical Analysis Skills: Acquire the ability to critically analyze primary and secondary sources, evaluating diverse perspectives and interpretations of events during the specified period.
		CO3.Contextualization and Global Perspective: Contextualize the historical events of Modern India within the global historical framework, understanding the influence of international factors on India's trajectory.
		CO4.Effective Communication: Enhance communication skills through class discussions, presentations, and written assignments, articulating historical ideas and analyses effectively.
	Ancient India (3000 BC to 1206 AD)	CO1. Comprehensive Historical Knowledge: Develop a comprehensive understanding of the major political, social, economic, and cultural aspects of Ancient India, spanning the period from 3000 BC to1206 AD.
		CO2. Critical Analysis of Historical Sources: Acquire the ability to critically analyze primary and secondary sources related to Ancient India, including textual, archaeological, and visual materials, evaluating different perspectives and interpretations.

ARTS, SCIENCE & COMMERCE COLLEGE
INDAPUR DIST PUNE

S.Y.B.A. Annual Pattern		CO3. Cultural and Societal Awareness: Gain insights into the diverse cultural and societal dynamics of Ancient India, including the evolution of religions, philosophies, social structures, and artistic achievements.
		CO4. Historical Continuities and Changes: Understand the continuity and change in Ancient India, exploring the major political transitions, economic developments, and societal transformations that occurred over the specified timeframe.
	Diplomatic History of Marathas (1707 - 1818)	CO1.Political and Diplomatic Acumen: Develop a deep understanding of the political strategies and diplomatic maneuvers employed by the Marathas during the period 1707-1818, examining their engagement with other regional powers and foreign entities.
		CO2. Analysis of Treaties and Alliances: Acquire the ability to critically analyze and evaluate the various treaties, alliances, and diplomatic agreements entered into by the Marathas, considering their impact on regional politics and the overall trajectory of Maratha power.
		CO3. Economic and Military Diplomacy: Explore the role of economic and military factors in Maratha diplomacy, understanding how economic considerations and military strength influenced their diplomatic engagements with neighboring states and external powers.
		CO4. Historical Context and Legacy: Situate the diplomatic history of the Marathas within the broader historical context of 18th-century India, examining the consequences of diplomatic decisions on the decline of the Maratha Confederacy and its lasting impact on the region.
	History of Modern Maharashtra (1818 - 1960)	CO1.Historical Context: Understand the socio-political landscape of Maharashtra (1818-1960), including the impact of British colonial rule and significant political movements.
		CO2. Cultural and Economic Evolution: Analyze the cultural and economic shifts during this period, exploring trade, commerce, and the emergence of new cultural movements.
		CO3. Key Events and Figures: Evaluate pivotal historical events and influential figures that shaped modern Maharashtra, fostering a critical understanding of its trajectory.
		CO4. Research and Analytical Skills: Develop research and analytical skills to interpret historical sources, enabling independent study and effective presentation of findings.
	HISTORY OF THE WORLD	CO1. Enable students to understand Modern World, acquaint the student with the Socio-economic &Political
		Developments in other countries. And understand the contemporary world in the light of its background History.
		CO2. Orientation of the students with political history of Modern World.
		CO3. Knowledge about the main developments in the Contemporary World
		CO4. Impart knowledge about world concepts.
		CO5. Understanding of the economic transition in World during the 20th Century.

ARTS, SCIENCE & COMMERCE COLLEGE
INDAPUR DIST PUNE

T.Y.B.A.	**INTRODUCTION TO HISTORY (S-III)**	CO6. Become aware of the principles, forces, processes and problems of the recent times.
		CO7. Knowledge regarding growth of various political movements that shaped the modern world.
		CO8. Highlighting the rise and growth of nationalism as a movement in different parts of the world.
		CO1. Orientation of the students about how history is studied, written and understood.
		CO2. Explanation of methods and tools of data collection.
		CO3.Understanding the meaning of Evolution of Historiography.
		CO4. Knowledge of Various Views of Historiography.
		CO5. Knowledge of the approaches to Historiography.
		CO6. Knowledge of the types of Indian Historiography.
		CO7. Ability to describe importance of inter-disciplinary research.
		CO8. Introduction of the basics of research.
		CO9. Knowledge of the recent research in History.
		CO10. Learn how to use sources in their presentation.
	HISTORY OF ASIA IN 20TH	CO1. Orienting the students with political history of Asia.
		CO2. Enabling the students to understand the economic transition in Asia during 20th Centuries.
		CO3. Understanding the important developments in the 20th century Asia in a Thematic approach.
		CO4. Providing an overall view and broad perspective different movements connected with Nationalist aspirations in the region of Asia in general.
		CO5. Empowering the students to cope with the challenges of globalization.
Class	**Course**	**Course outcomes (COs)**
M.A.-I	**CC – 1: History: Theory and Method**	CO1.Students will be introduced to the information and importance of Historiography.
Sem-I		CO2.Students will be introduced to the different Methods and Tools of data collection.
		CO3.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.

ARTS, SCIENCE & COMMERCE COLLEGE
INDAPUR DIST PUNE

	CC – 2: Evolution of Ideas and Institutions in EarlyIndia	CO1. Students will be introduced to provide an understanding of the social, economic and institutional bases of early India.
		CO2. Students will be introduced to an understanding of early Indian history is crucial to understand Indian history as a whole.
	CC– 3: Maratha Polity	CO1. 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.
		CO2. 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:	CO1. Students will learn about the background of the Dalit movement which flourished in the twentieth century.
	EC-2 Social Background of Dalit Movement inMaharashtra	CO2. 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**	CO1. Students can study the interdisciplinary approach of History.
Sem-II		CO2. 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.
		CO3. This curriculum develops Research ability and process of Research methodology in History
	CC - 5: Ideas and Institutions in Medieval India	CO1. Students will be introduced to provide an understanding of the social, economic and institutional bases of medieval India.
		CO2. Students will be understanding study of the medieval period
	CC - 6: Socio-Economic History of the Marathas (22203)	CO1. 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.
		CO2. Students will learn about the relationship between religion, caste, customs, traditions, class in 17thand 18thcentury Maratha Society.
		CO3. 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:	CO1. 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 Dalit's. He had to fight against inequality and atrocities imposed due to socioeconomic and political structure of Hindu society. He had to fight on various fields at the same time such as political, social, economic, religious etc.

	EC - 10: Nature of Dalit Movement in Maharashtra	CO2. 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.
		CO3. 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)**	CO1. 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		CO2. Students will be able to analyze the Marathas policy of expansionism and its consequences.
		CO3. They will understand the role played by the Marathas in the 17th and18th century India.
		CO4. They will be acquainted with the art of diplomacy in the Deccan region.
		CO5. It will help to enrich the knowledge of the administrative skills and profundity of diplomacy.
	CC - 8: Intellectual History of the Modern World	CO1. It will enable students to develop the overall understanding of the Modern World.
		CO2. The students will get acquainted with the Renaissance, major political, socio-religious and economic developments during the Modern World.
		CO3. It will enhance their perception of the history of the Modern World.
		CO4. 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	CO1. Students will learn about the structural and conceptual changes in Indian economy after coming of the British.
		CO2. 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	CO1. This course attempts to study various approaches to peasant revolts and movements
	EC - 19: Peasant Movements in India (Medieval and Modern)	CO2. This Course helps the student to understand characteristics of peasant movements.
M.A.-II	**CC -10: Modern Maharashtra: History of Ideas (1818-1960)**	CO1. Student will develop the ability to analyze sources for 19th century Maharashtra History.
Sem-IV		CO2. Student will learn significance of Regional History and Socio- religious reformism foundation of the region.
		CO3. It will enhance their perception of 19th Century Maharashtra.
		CO4. Appreciate the skills of leadership and the Socio-religious System of the Maharashtra.

ARTS, SCIENCE & COMMERCE COLLEGE
INDAPUR DIST PUNE

	CC - 11: Debates in Indian Historiography	CO1. Students will learn about some of the issues that that have been debated in Indian Historiography by historians.
		CO2. Students will be introduced to the some perspectives with reference to Indian History.
	CC - 12: World after World War II (1945-2000)	CO1. To acquaint the student with the post-World War II scenario.
		CO2. Students will be introduced to understand contemporary world after World War II from the historical perspective.
	Elective Courses	CO1. The paper intends to make an in-depth study of various aspects of British administrative policies in India.
	EC - 27: British administrative policies in India1765- 1892	CO2. Students will be introduced to the various British Acts, administrative system during 19th century in India.
Department of Geography		
Programme Outcomes (POs) B.A.		
PO1		The geographical maturity of students in their current and future courses shall develop.
PO2		The student develops theoretical, applied and computational skills.
PO3		They discuss the utility and application of Physical geography in different regions and environment.
PO4		Students demonstrate applications of Human Geography in different regions of environment.
PO5		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 Top sheets, Aerial, Photographs and Satellite Images acquire the Knowledge of Top 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.
		To make aware the students about the problems of environment , their utilization and conservation in the view of sustainable development

ARTS, SCIENCE & COMMERCE COLLEGE
INDAPUR DIST PUNE

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		To 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
		Will acquire skills in interpretation of thematic maps through visual and/or digital interpretation of topographic maps, weather maps, aerial photographs, and satellite images.

ARTS, SCIENCE & COMMERCE COLLEGE
INDAPUR DIST PUNE

PO8		Will be able to apply knowledge of remote sensing concepts, and techniques in various fields of earth and environment sciences
PO9		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.
PO10		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
PO11		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.
		CO1. To describe the basic and latest concepts in Human Geography.

ARTS, SCIENCE & COMMERCE COLLEGE ★ INDAPUR DIST PUNE ★

F.Y.B.A. Sem II	Gg.110 (B) 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.		
(Annual)	G-2 Gg-210 Geography of Disaster Management	CO1. Introduction to the basic concepts in disaster management system and classification of disasters.
		CO2. Study of various components of disaster management such as Preparedness, Response, Recovery, Mitigation and Rehabilitation.
		CO3. Study of causes and consequences of various climatic, geological, geomorphic and atmospheric disasters.
		CO4. Introduction to the global issues with causative and controlling factors of these issues.
		OR
	G-2 Gg-210 Element of Climatology and Oceanography	CO1. Knowledge of the basic principles and concepts in Climatology and Oceanography.
		CO2.Knowledge of the applications of Climatology and Oceanography in different areas and environment.
		CO3. Awareness of the Planet Earth and thereby to enrich the students' knowledge.
	S-1 Gg-220 Economic Geography	CO1. Introduction of the basic principles and concepts in Economic Geography
		CO2.Knowledge of the applications of Economic Geography in different areas and development.
		CO3. Integration of the various factors of economic development and to acquaint the students about this geography.
		OR
	S-1 Gg-220 Tourism Geography	CO1. Introduction about the basic principles and concepts in Economic Geography
		CO2. Knowledge and the applications of Economic Geography in different areas and development.
		CO.3. Integration of the various factors of economic development and to acquaint the students about
	S-2 Gg-201 Fundamentals of Geographical Analysis	CO1. Enabling the students to use various Projections and Cartographic Techniques.
		CO2. Knowledge of basic of Statistical data.
		CO3. Knowledge and principles of surveying, its importance and utility in the geographical study.

ARTS, SCIENCE & COMMERCE COLLEGE
INDAPUR DIST PUNE

T.Y.B.A.		
(Annual)	G-3. Gg-310 Regional Geography of India	CO1. Knowledge of geography of our Nation.
		CO2. Awareness of the magnitude of problems and Prospects at National level.
		CO3. Understanding of the inter relationship between the subject and the society.
		CO4.Understanding of the recent trends in regional studies.
	G-3. Gg-310 Human Geography	CO1. This course is to acquaint the students with the nature of man-environment relationship and human capability.
		CO2. Adoption and modification of the environment under its varied conditions from primitive
		CO3. Identification and understanding environment and population in terms of their quality and spatial distribution pattern.
		CO4. Comprehension of the contemporary issues facing the global community.
	S-3 Gg-320 Agricultural Geography	CO1. Introduction of the Agricultural activities and its relation with Geography.
		CO2.Familirization with new modern technical methods and their applications in Agricultural activities.
		CO3.Enabling the students to apply Previously knowledge in Problems and Prospects in agriculture
	S-4 Gg-301 Techniques of Spatial Analysis	CO1. Study of SOI top sheets with proper interpretation of the physical and cultural landscapes and landforms over the hilly, plateau and plain regions.
		CO2. Introduction to the weather charts of India Meteorology Department (IMD) including interpretation of various
		weather conditions during the summer, winter and monsoon seasons over India.
		CO3. Brief study on applications of aerial photographs and satellite images in geography research
F. Y. B. Sc. Sem I	GG:111 Introduction to Physical Geography-I (Geomorphology)	CO1. Student understand the physical geography and its branches
		CO2. Students understand the interior of the earth, origin of continents and ocean basins
		CO3. Student understand the rostral movement and internal movement of earth.
F. Y. B. Sc. Sem I	GG:112 Introduction to Physical Geography -II	CO1. Students introduced by climatology basic principles, concepts , nature ,scope and importance
		CO2. Students understand the composition and structure of the atmosphere.
		CO3. Students were learnt the isolations and temperature of the atmosphere.
	GG:113 Practical's in Physical Geography	CO1. Student introduced about maps and scales and types conversion of scale.

ARTS, SCIENCE & COMMERCE COLLEGE INDAPUR DIST PUNE

F. Y. B. Sc. Sem I	(Geography of Atmosphere and Hydrosphere)	CO2. Student learnt the methods of relief representations
		CO3. Student get knowledge about SOI toposheet and draw profiles.
F. Y. B. Sc. Sem II	Introduction to Human Geography	CO1. Student understand the physical geography and its branches
		CO2. Students understand the interior of the earth, origin of continents and ocean basins
		CO3. Student understand the crustrol movement and internal movement of earth.
F. Y. B. Sc. Sem II	Population and Settlement Geography	CO1. Students introduced by climatology basic principles, concepts, nature, scope and importance
		CO2. Students understand the composition and structure of the atmosphere.
		CO3. Students were learnt the isolations and temperature of the atmosphere.
F. Y. B. Sc. Sem II	Practical's in Human Geography	CO1. Student introduced about maps and scales and types conversion of scale.
		CO2. Student learnt the methods of relief representations
		CO3. Student get knowledge about SOI top sheet and draw profiles.
S. Y. B.Sc. Paper I Sem I	Geography of resources I	CO1. Student acquainted the fundamental concepts of resources and classified the resources.
		CO2. Student learnt about human resources.
		CO3. Students aware the relationship between resources and development and planning of resources.
S. Y .BSc. Paper II Sem I	Watershed Management I	CO1. Student understood the concepts in the watershed management.
		CO2. Characteristics of watershed, introduced geo-morphological characteristics
		CO3. Introduced hydrological process in watershed
S. Y .B. Sc. Paper I Sem II	Geography of resources II	CO1. Students understood about resource appraisal of watershed methods
		CO2. Student introduced to watershed planning – importance
		CO3. Student understood about water and soil conservation methods
S. Y .B. Sc. Paper II Sem II	Watershed Management II	CO1. Students introduced to watershed Planning
		CO2. Students understood the importance of soil and water conservation
		CO3. Students introduced watershed development Programme

S. Y .B. Sc. Paper III	Fundamentals of geographical analysis	CO1. Student knows about how to present data and analysis
		CO2. They also know about map, types of map and projections
		CO3. Students know the types of serving
T.Y. B.Sc. Sem III	Fundamentals of Human Geography (Part I)	CO1. To acquaints the students with theoretical concepts of Human Geography and models.
		CO2. To familiarize the students with Environmental issues related with population growth and Human development index
	Geography of Travel and Tourism (Part I)	CO1. To acquaint the students with Concepts in tourism.
		CO2. To make the students aware of the tourism potential of the area.
	Fundamentals of Geo-informatics (Part I)	CO1. To acquaint the students with new concepts and approaches in Geography
		CO2. To familiarize the students with the wide application fields in Geography
	Geography of India (Part 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.
	Geography of Soils (Part I)	CO1. To acquaint the students with concepts in Soil Science.
		CO2. To familiarize the students with the importance of soil science in Geography.
	Fundamentals of Geo-informatics (Part I)	CO1. The objectives of this course are to acquaint the students with the nature of man environment relationship and human capability to adopt and modify the environment under its varied conditions from primitive life style to the modern living.
		CO2. To identify and understand environment and population in terms of their quality and spatial distribution pattern and to comprehend the contemporary issues facing the global community.
	Fundamentals of Human Geography (Part II)	CO1. To acquaints the students with theoretical concepts of Human Geography and models.
		CO2. To familiarize the students with Environmental issues related with population growth and Human development index
	Geography of Travel and Tourism (Part II)	CO1. To acquaint the students with Concepts in tourism
		CO2. To make the students aware of the tourism potential of the area.

ARTS, SCIENCE & COMMERCE COLLEGE INDAPUR DIST PUNE

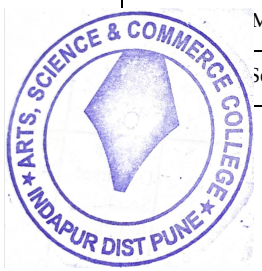
T. Y. B. Sc. Sem IV	Fundamentals of Geo-informatics (Part II)	CO1. To acquaint the students with new concepts and approaches in Geography
		CO2. To familiarize the students with the wide application fields in Geography
	Geography of India (Part II)	CO1. To acquaint the students with geography of India.
		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.
	Geography of Soils (Part II)	CO1. To acquaint the students with concepts in Soil Science.
		CO2. To familiarize the students with the importance of soil science in Geography.
	Fundamentals of Geo-informatics (Part II)	CO1. To acquaint the students with new concepts and approaches in Geography
		CO2. To familiarize the students with the wide application fields in Geography
T. Y. B. Sc Practical Annual	Map Analysis and Field Work (Practical I)	CO1. To acquaint the students with new concepts and approaches in Geography
		CO2. To familiarize the students with the wide application fields in Geography
	Techniques of Spatial Analysis (Practical II)	CO1. To introduce some basic statistical procedures to the students to be applied to various themes in geography
		CO2. To indicate the assumptions, limitations and interpretation of these procedures and results.
		CO3. To train the students to handle these statistics towards analyzing the geographical problems.
	Techniques in Geomorphology and Soil Analysis (Practical III)	CO1. To acquaint the students with various techniques in geomorphic analysis.
		CO2. To familiarize the students with the basic methods of soil analysis.
Geography M.A.		
	Principles of geomorphology	CO1. Student understood the history of geomorphology and studies geological time scale.
		CO2. Student understood the interior of the earth with various sources and theories like Isostasy.
		CO3. Student able to define weathers of mass movements in nature.
M.A –I Sem-I	Practical's of serving	CO1. Student know the difference between geodetic and plane survey.
		CO2. Students learnt terms used in leveling like spot height.
-I		CO3. Student able to identified the parts of dumpy levels.

ARTS, SCIENCE & COMMERCE COLLEGE
INDAPUR DIST PUNE

(Sem-II)	Principals of climatology	CO1. Students learnt the nature, scope, sub-divisional development.
		CO2. Students understands the atmospheric Composition and structure.
M.A-I		CO3. Students were aware the atmospheric motion.
(Sem-I)	Principles of economic geography	CO1. Understood nature and scope of economic geography.
		CO2. Students understood formation and testing of hypothesis.
M.A._I		CO3. Students understood various types of economics such as homestead and tribal.
(Sem-I)	Principles of population.	CO1. Student understood the evaluation of settlement and population geography.
		CO2. Student learnt various factors influencing the growth and distribution.
M.A._I	`	CO3. Student understood the various factors in influencing the dispersion and nucleation.
(Sem-I)	Practices in Physical Geography	CO1. Students learn the drainage network and drainage stream.
		CO2. Students understood few climatic elements.
M.A._I(Sem-I)		CO3. Students understand the few climatic classification schemes.
	Particles in human geography	CO1. Students learn the crop combination method by weavers.
		CO2. Student acquired the knowledge measure the network indices & Ratio measure
		CO3. Student aware the method of calculations of urban data.
M.A._I(Sem-I)	Quantitative techniques in geography	CO1. Students introduced about geographical data.
		CO2. Student understood the analytical methods of descriptive statistics.
M.A._I		CO3. Student learnt concept of probability and methods of determination.
(Sem-II)	Particles in cartography	CO1. Student learnt the data representation by various techniques and data measurement.
		CO2. Student aware about the plotting the semi log on X & Y with whisker.
M.A._I		CO3. Student leant fundamental concepts of Math projection definition.
(Sem-II)	Geography of tourism	CO1. Student learnt the basic concept of tourism geography.
		CO2 .Student learnt the types of tourism & Adventure of Tourism.

ARTS, SCIENCE & COMMERCE COLLEGE
INDAPUR DIST PUNE

M.A._I		CO3. Student learnt impact of tourism physical economic and social tourism.
(Sem-II)	Geography of Disaster management	CO1. Students introduced the concept and definition of disaster.
		CO2. Student understood the classification of disasters.
M.A._I		CO3. Student understood the impact of disaster.
(Sem-II)	Geo -informatics -I	CO1. Student learnt basic of GIS history of GIS & element of GIS.
		CO2. Student understood special relationships, functional relationships and logical relationships.
M.A._I		CO3. Student studied geometric primitives raster, vector. quad tree etc.
(Sem-II)	Geo-informatics-II	CO1. Student learnt field work and survey published data and reports.
		CO2.Student studied the principles of remote sensing.
M.A._I		CO3. Student understood atmosphere and surface.
(Sem-II)	Population geography	CO1. Student learnt the nature and scope of population geography.
		CO2. Student studies various factors of affecting growth on population theories.
M.A._I		CO3. Student learnt various factors affecting on distributions of world population.
(Sem-II)	Geography of rural settlement	CO1.Students studied evaluation of settlement.
		CO2. Student understood various factors of affecting site of distribution and growth of settlement
M.A._I		CO3.Student learnt various rural services.
(Sem-II)	Geography of India with special references of Maharashtra.	CO1. Student introduced about geography of India and Maharashtra.
		CO2 .student learnt the physiography of India And Maharashtra.
M.A._II		CO3. student aware of climate of India and Maharashtra.
(Sem-II)	Interpretation of topographical maps and village survey.	CO1. Student learnt Interpretation of topographical maps and village survey.
		CO2. Student understood the location of village extension and physical future
M.A-II		CO3. Students understood how to fill the questionnaire in the village survey
Sem-III	Research method in geography	CO1. Student introduced about surveying and map projections.



		CO2. Student learnt about the creation of database of physical and cultural features.
M.A-II		CO3. Student understood geometry of aerial photographs and database creations.
Sem-III	Social and cultural geography	CO1. Student understand the nature and scope ,definition of social and cultural geography
		CO2. Student aware the basic concept of materialism and discussion of culture.
M.A-II		CO3. Student understand social wellbeing quality of life and human development.
Sem-III	Practical of watershed analysis	CO1. Student learnt delineate the water shed from top sheet.
		CO2. Student calculated the basin perimeter, shape and area.
M.A-II		CO3. Student calculated linear aspects of drainage basin.
Sem-III	Urban Geography	CO1. Student understand the nature and scope and definition of urban geography.
		CO2. Student understood the few theories of urban geography like center place
M.A-II		CO3. Student understand the concept of urbanization and urban demography.
Sem-III	Political Geography	CO1. Student learnt nature and scope of political geography.
		CO2. Student studied various approach to study of political geography.
M.A-II		CO3. Student understand the concept of nation, state and nation building. .
Sem-III	Practical in population and settlement geography	CO1. Student leant various demography Indices such as mortality.
		CO2. student understood demographic transactions applied to Maharashtra.
M.A-II		CO3. Student studied the various indices related settlement geography.
Sem-III	Theoretical and applied geography	CO1. Student learnt different Geographers such as Greek, Roman & Indian.
		CO2. Student understand the paradigms, systems and models and types.
M.A-II		CO3. Student understood from this topic field survey.
Sem-IV	Principles of remote sensing	CO1. Student understood definition, history and principles of development.
		CO2. Student understood concept of radiation principles.
M.A-II		CO3. Student understood platforms types of their characteristics.

Sem-IV	Practical in remote sensing & GIS	CO1. Student understand the basic concept of remote sensing & GIS.
		CO2.Student understand principle point, judicial marks
M.A-II		CO3. Student prepare the packet and mirror stereoscope to interpretation of aerial photograph.
Sem-IV	Geography of food security	CO1. Student learnt the economic growth factors affecting food security.
		CO2. Student acquired the knowledge of food justice.
M.A-II		CO3. Student learnt food security bill 2013
Sem-IV	Geography of health	CO1. Student understand the definition and development & achievement of health geography.
		CO2.Student understand the geographical factor attending human health
M.A-II		CO3. Student understood the health care system in India.
Sem-IV	Regional geography of SAARC countries	CO1. Student introduced about history of SAARC organization.
		CO2. Student understood geography of India.
M.A-II		CO3. Student learnt geography of Pakistan & Bangladesh.
Sem-IV	Natural and manmade Hazards	CO1. Student introduced about natural hazards and disasters.
		CO2. Students understood climatic hazards, storms, drought and floods.
M.A-II		CO3. Student learnt geological hazards.
Sem-IV	Principles of regional geography & project work	CO1. Student understood the concept of regional geography, regionalization and planning.
		CO2.Student understood central place theory and growth pole
M.A-II		CO3. Students worked on various projects and presented.
		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, carbocation's, and carnations, based on structural considerations such as orbital hybridization, hyper conjugation, and resonance stabilization.

ARTS, SCIENCE & COMMERCE COLLEGE
INDAPUR DIST PUNE

		CO6.Describe stereo chemical problems in relation to chemical transformations.
		CO7. Correlate the chemical structure of biomolecules to reactivity: Functional groups, acid-base properties, Biochemical as well as synthetic routes.
		CO8. Describe different approaches to the formation of carnations; discuss their structures,
		Stabilities/reactivates and applications in synthesis.
		CO9. Student should be able to plan syntheses using carnations as nucleophiles
		CO10. Explain the origins of the observed Dia stereoselectivity.
Department of Psychology		
Programme: B.A. (Psychology)		
Programme Outcomes (POs)		
PO1		Understand basic concepts, principles and theories of Psychology.
PO2		Accomplish to understand the basic steps in scientific research and psychology.
PO3		Understand recent clarification, the causes, symptoms and treatment of various Psychological disorders.
PO4		Knowledge of psychological testing, its administration, scoring and interpretation.
PO5		Undertake an independent small-scale research projects or projects related with social works.
PO6		Understand the basic concepts of psychology for example learning, personality, motivation, memory,IQ, EQ etc.
PO7		Understand the application of psychological concepts in day to day life
PO8		Understand the behavior of surrounding people.
PO9		Undertake an independent small-scale research projects or projects related with social works.
PO10		Understand the importance society socialization process
Programme Specific Outcomes (PSOs)		
PSO 1		Understand the biological cognitive and social emotional process.
SO 2		Understand the importance of heredity and environment in human development.

ARTS, SCIENCE & COMMERCE COLLEGE INDAPUR DIST PUNE

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 outcomes (COs)**
F.Y.B.A	Foundation of Psychology	CO1. Understand the basic psychological processes and their applications in day to day life.
Semester		CO2.Develop the ability to evaluate cognitive processes, learning and memory of an individual.
		CO3.Understand the importance of motivation and emotion of the individual.
		CO4.Understand the personality and intelligence of the individuals by developing their psychological processes and abstract potentials
	Introduction to Social Psychology	CO1. Understand the basics of social psychology.
		CO2.Understand the nature of self, concept of attitude and prejudice of the individual.
		CO3. Assess the interactional processes, love and aggression in our day today life.
		CO4.Understand group dynamics and individual in the social world.
F. Y. B. Sc.	Foundations of Psychology	CO1.Understand the basic psychological processes and their applications in day to day life.
Semester		CO2.Develop the ability to evaluate cognitive processes, learning and memory of an individual.
		CO3.Understand the importance of motivation and emotion of the individual.
		CO4.Understand the personality and intelligence of the individuals by developing their psychological processes and abstract potentials.
	Experimental Psychology	CO1.Understand basic concepts of Experimental Psychology.
		CO2.Understand the different methods of psychophysics, learning, reaction time.
		CO3.Understand psychological tests, intelligence, aptitude and personality.
	Psychology Practical: Experiments	CO1.To acquaint the students the basic concepts of Experiments in Psychology.
		CO2.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	CO1. Understand the basics of social psychology.

ARTS, SCIENCE & COMMERCE COLLEGE INDAPUR DIST PUNE

		CO2.Understand the nature of self, concept of attitude and prejudice of the individual.
		CO3.Assess the interactional processes, love and aggression in our day today life.
		CO4.Understand group dynamics and individual in the social world.
	Psychological Testing	CO1.Understand the basics of psychological testing.
		CO2.Understand and assessing the human abilities.
		CO3. Understand and evaluate behavior analysis.
	Psychology Practical: Test	CO1.To acquaint the students the basic concepts of Tests in Psychology.
		CO2.To acquaint the students how to administer the tests and to understand its practical applications
		CO3.To introduce the students about basic knowledge of elementary statistics
SYBA	Abnormal Psychology	CO1. To acquaint students with the recent classification of abnormality
(Annual)		CO2.To help students to acquire the knowledge about the causes, symptoms and treatments of various types of psychological disorders.
	Developmental Psychology	CO1.To acquaint the students with the basic concepts of human development processes.
		CO2.To help the students to understand influences of various factors on development.
	Social Psychology	CO1.Acquaint Students with basic concepts, theories and applications of Social psychology
TYBA	Industrial and Organizational Psychology	CO1.The emergence of Industrial and Organizational Psychology
(Annual)		CO2.The work done in Industrial and Organizational Psychology
		CO3.The significance of training, performance appraisal, leadership models
		CO4.The importance of Engineering Psychology
	Scientific Research and Experimental Psychology	CO1.To acquaint the students with the basic concepts of experimental psychology and research methodology
		CO2.To develop the spirit of scientific inquiry in the students,
		CO3.To help them generate ideas for research, as well as develop hypotheses and operational definitions for variable.
		CO4.To help students understand the basic steps in scientific research.
		CO5.To equip the students with the basic information and knowledge about test-administration and scoring, and interpretation of the obtained results

ARTS, SCIENCE & COMMERCE COLLEGE
INDAPUR DIST PUNE

		CO6.To enable the students to undertake an independent small-scale research project.
	Psychology Practical: Test and Experiments	CO1.To familiarize the students with the use of elementary statistical techniques
		CO2.To give practical experience to the students in administering and scoring psychological tests and interpreting the scores
		CO3.To acquaint the students with the basic procedure and design of psychology experiments
		CO4.To encourage and guide the students to undertake a small-scale research project
		CO5.To encourages students to learn practical application through study tour and visit.
Department of Economics		
Programme 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.
Programme Specific Outcomes (PSOs) for B.A. 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.
PSO 5		Students understand the financial environment of the family

ARTS, SCIENCE & COMMERCE COLLEGE INDAPUR DIST PUNE

Department of Economics		
Programme Outcomes(POs) for M. A. Economics		
PO1		Ability to apply the concepts of micro economics such as demand, supply, revenue, cost, elasticity, etc.
PO2		To develop an understanding of the changing role of the government and the fiscal functions of the modern governments.
PO3		Ability to appraise and assess the theory of public economics in real life situations.
PO4		Ability to understand the concepts of international economics such as comparative cost, terms of trade, trade policies and trade agreements
PO5		Ability to interpret and apply theory relating to understand international trade
PO6		Ability to analyze and evaluate the subject with reference to various aspects of agrarian economies.
PO7		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
PO8		To provide the students with the background of the Indian Economy with focus on contemporary issues like economic environment.
PO9		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.
PO10		Ability to develop awareness on the various new developments in the different sectors of an economy –agriculture, industry, services, banking, etc.
Programme Specific Outcomes (PSOs) for M.A. Economics		
PSO1		To promote the student for skill based Business
PSO2		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.
PSO3		Ability to develop awareness on the various new developments in the different sectors of an economy –agriculture, industry, services, banking, etc.
PSO4		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.
PSO5		To develop the research attitude among the students

ARTS, SCIENCE & COMMERCE COLLEGE
INDAPUR DIST PUNE

		Course Outcomes
F.Y.B.A	**Subject: - G-1 Indian Economic Environment**	CO1. Developed an understanding of the economic environment and the factors affecting economic environment.
		CO2. Developed awareness on the various new developments in the different sectors of an economy –agriculture, industry, services, banking, etc.
		CO3. Ability to compare and contrast Indian Economy with other world economies.
		CO4. At the end of the course, the students are able to discuss and debate on the various issues and challenges facing the Indian Economic Environment.
S.Y.B.A.	**Subject: -G -2 Financial System**	CO1. Understand fundamentals of modern financial system.
		CO2. Understand the recent trends and developments in banking system.
		CO3. Understand the role of the Reserve Bank of India in Indian financial system.
		CO4. Provided the knowledge of various financial and non-financial institutions.
		CO5. Provided the students the intricacies of Indian financial system for better financial decision making.
S.Y.B.A.	**Subject: - S – 1 Micro Economics**	CO1. Developed an understanding about subject matter of Economics.
		CO2. Impart knowledge of micro economics.
		CO3. Clarified micro economic concepts
		CO4. Analyzed and interpret charts, graphs and figures
		CO5. Developed an understanding of basic theories of micro economics and their application.
		CO6. demonstrated that the theories discussed in class will usually be applied to real-life situations.
		CO7. Helped the students to prepare for varied competitive examinations
	Subject: - S – II Macro Economics	CO1. Introduced students to the historical background of the emergence of macroeconomics
		CO2. Familiarized students with the differences between microeconomics and macroeconomics
		CO3. Familiarized students with various concepts of national income

ARTS, SCIENCE & COMMERCE COLLEGE
INDAPUR DIST PUNE

S.Y.B.A.	Subject: - S – II Macro Economics	CO4. Familiarized students with Keynesian macroeconomic theoretical framework of consumption and investment functions
		CO5. Introduced students to the role of money in an economy.
		CO6. Introduced students to the conceptual and theoretical frameworks of inflation, deflation and stagflation, Business Cycle. 13
		CO7. Familiarized students with the conceptual and theoretical framework of business cycles
		CO8. Introduced students to the role of monetary and fiscal policies in fulfilling the macroeconomic objectives of stability, full employment and growth.
		CO9. Introduced students to the various instruments of monetary and fiscal policies
T.Y.B.A.	Subject: G-3 Indian Economic Development	CO1. Related and recognized the concept and indicators of Economic Development.
		CO2. Described and analyzed the concept and indicators of Human Development.
		CO3. Explained the characteristics of Developing and Developed Countries.
		CO4. Described the constraints to the process of Economic Development.
		CO5. Described and explained the process of Economic Planning.
		CO6. Described and examined the changing structure of planning process in India.
		CO7. Described and explained the relation between Economic Development and Environment
T.Y.B.A.	S III International Economics-I	CO1. To relate and recall the concepts of International Economics and International Trade.
		CO2. To describe and apply the theories of international trade.
		CO3. To explain and comprehend the issues relating to Terms of trade and Balance of Payment.
T.Y.B.A.	S IV Public Finance -I	CO1. To relate and recognize the Nature and Scope of Public Finance.
		CO2. To describe and analyze the concept of Public Revenue and its components.
		CO3. To explain types of Public Expenditure and reasons for rising Public Expenditure.
		CO4. To explain the types of Public Debt and its effects.

ARTS, SCIENCE & COMMERCE COLLEGE
INDAPUR DIST PUNE

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.
M.A – I ECONOMICS	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
M.A – I ECONOMICS	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
		CO3. Ability to discuss and debate the effects of trade policy, trade agreements, exchange rate policies on the world economy/trade
		CO4. Ability 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 tobe able to construct intellectual dialogue on the challenges of agriculture.

M.A – I ECONOMICS		CO3. Ability to analyzed and evaluate the subject with reference to various aspects of Labor economics.
		CO4. Ability to develop an understanding of the labor with its intricacies and imperfections and to be able to construct intellectual dialogue on the challenges of labor w.r.t. the Indian Economy.
M.A.-II ECONOMICS	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
M.A.-II ECONOMICS	Subject:- RESEARCH METHODOLOGY & RESEARCH PROJECT	CO1. Ability to develop demonstrated and examined topics under Economics to pursue research.
		CO2. Ability to evaluated and examined subject areas in economics and explore possibilities of research.
		CO3.Ability 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.
M.A.-II ECONOMICS	Subject:- DEMOGRAPHY & ECONOMICS OF ENVIRONMENT	CO1. Ability to developed, demonstrate and examine various topics under Demography.
		CO2. Ability 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

ARTS, SCIENCE & COMMERCE COLLEGE
INDAPUR DIST PUNE

DEPARTMENT OF HINDI		
PROGRAMME 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:		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 Nigh 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.
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		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.

ARTS, SCIENCE & COMMERCE COLLEGE
INDAPUR DIST PUNE

PO-10		Students get to know the vocabulary of Hindi. Students get acquainted with state language, national language, contact language and international language. Students get 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.
PROGRAMME OUTCOMES (POs) OF Hindi		
M.A. Hindi		
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.
O-7		To introduce the students to the official Hindi used in government offices through technical terms and abbreviations.

ARTS, SCIENCE & COMMERCE COLLEGE INDAPUR DIST PUNE

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 get 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.
PSO-5		Studies to explain the applied aspect of linguistics. To explain the utility of linguistics in literary s.
COURSE OUTCOMES (COs)		
F.Y.B.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

ARTS, SCIENCE & COMMERCE COLLEGE INDAPUR DIST PUNE

F.Y.B.A	SEMESTER -II = VAIKALPIK PRASHANPATRA 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 get information about phonetics and semantics.
S.Y.B.A Annual Course	HINDI BHASHA KA VIKAS: S1	
		CO1. Students get acquainted with the nature of linguistic. Students get acquainted with the conditions of study of linguistics.
		CO2. Students should understand the applied aspects of linguistics. Students started understanding the usefulness of Students became aware of memoir literature.
		CO3. Students get to know the vocabulary of Hindi. Students get acquainted with state language, national language, contact language and international language.
		CO4. Students get information about phonetics and semantics. Students get acquainted with the branches of linguistics.
		CO5. Students get acquainted with the science of phonetics. Students get acquainted with the conditions of study of linguistics.
S.Y.B.A Annual Course	UPANYAS, NATAK TATHA MADHYAYUGIN HINDI KAVYA: S2	
		CO1. Students get to know the vocabulary of Hindi. Students get acquainted with state language, national language, contact language and international language.
		CO2. Students get 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 Annual Course: :	SAMANYA HINDI •• G2 (2019-20)	
		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 a 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
T.Y.B.A Annual Course	HINDI SAHITYA KA ITIHAS: S3	
		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: To 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 get acquainted with the nature of linguistic. Students get acquainted with the conditions of study of linguistics.

ARTS, SCIENCE & COMMERCE COLLEGE
INDAPUR DIST PUNE

T.Y.B.A. Annual Course:	BHASHA VIGYAN: S4	CO2. Students should understand the applied aspects of linguistics. Students started understanding the usefulness of Students became aware of memoir literature.
		CO3. Students get to know the vocabulary of Hindi. Students get acquainted with state language, national language, contact language and international language.
		CO4. Students get information about phonetics and semantics. Students get acquainted with the branches of linguistics.
		CO5. Students get acquainted with the science of phonetics. Students get acquainted with the conditions of study of linguistics.
T.Y.B.A. Annual Course:	SAMANAY HINDI: G3	
		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 a 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.
	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.

ARTS, SCIENCE & COMMERCE COLLEGE * INDAPUR DIST PUNE *

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

ARTS, SCIENCE & COMMERCE COLLEGE
INDAPUR DIST PUNE

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 get 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.
		CO5: Students became aware of the socio-cultural background and major trends of the period. Students became aware of folk proverbs, idioms, proverbs, riddles aware of the collection.
FIRST SEMESTER Course M.A.I	**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 Oder 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.

ARTS, SCIENCE & COMMERCE COLLEGE
INDAPUR DIST PUNE

		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, folksongs, 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 a 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.

ARTS, SCIENCE & COMMERCE COLLEGE
INDAPUR DIST PUNE

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	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.

ARTS, SCIENCE & COMMERCE COLLEGE INDAPUR DIST PUNE

M.A .II	BHASHA VIGNYAN	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. Get acquainted with the poetic characteristics of progressivism, experimentalism.

ARTS, SCIENCE & COMMERCE COLLEGE INDAPUR DIST PUNE

FOURTH SEMESTER Course 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. Get 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.
THIRD SEMESTER Course M.A.II	Hindi Alochana	
		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 get 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.
		CO5: Students became aware of the socio-cultural background and major trends of the period. Students became aware of folk proverbs, idioms, proverbs, riddles aware of the collection.
FOURTH SEMESTER Course A.II	BHARATIY LOKSAHITYA	
		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, folksongs, folk drama, folk tales

ARTS, SCIENCE & COMMERCE COLLEGE INDAPUR DIST PUNE

		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.
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
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
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) Analyze 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	1) 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
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
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		
		Understand the nature and basic concepts of phycology, Mycology, Lichenology and Taxonomy.
		Understand the nature and basic concepts of instrumentation and Laboratory Techniques.
		Understand the nature and basic concepts of cytology, genetics, Molecular biology, Microbiology, Plant physiology, Ecology and Phytogeography.

ARTS, SCIENCE & COMMERCE COLLEGE INDAPUR DIST PUNE

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	**Course**	**Botany course Outcomes (COs)**
F. Y. B. Sc. (CBCS)	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.
	Bo 113 Practical based on Bo 111and Bo 112	Co1 – Students understand the life cycle of algae, fungi, lichen, 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	

ARTS, SCIENCE & COMMERCE COLLEGE INDAPUR DIST PUNE

	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, Gymnonosperms and Angiosperms.
		Co4- Students understands and compare monocots and dicots.
		Co5- Students will be able to communicate.
	Bo - 122 : Principles of Plant Sciences	Co1- Students gain the Knowledge of various Metabolic and physiological processes unique to plants.
		Co2 – Students understand process of osmosis, diffusion and Plasmolysis.
		Co3 – Students Know about the plant growth and plant growth regulators.
		Co4- Understands the interaction between the environment and plant growth and development.
		Co5- Students understand the importance and scope of plant physiology.
		Co6- Understands the plant cell and difference between prokaryotic and eukaryotic cell.
		Co7- Students learn about structure and functions of plant cell and cell organelles.
		Co8- Students understands cell cycle in plants.
	Bo - 123	Co1 – Students achieve up to 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-III	
		CO1. Knowledge regarding Angiosperm Taxonomy.
		CO2. Understanding of Systems of classification with their merits and limitations- a) Artificial system- Carl

ARTS, SCIENCE & COMMERCE COLLEGE
INDAPUR DIST PUNE

	Bo.211- Taxonomy and plant community	Linnaeus, b) Natural system -Bentham and Hooker,c) Phylogenetic system- Engler and Prantl
		CO3. Awareness of Taxonomic literatures w.r.t. Flora, monograph, revisions, manuals, journals, periodicals and references books.
		CO4. Study of Sources of data for Systematics such as Morphology, Anatomy, Cytology, Embryology And Phytochemistry
		CO5. Study of Botanical Nomenclature
		CO6. Study of Plant Families with reference to systematic position, salient features, formula, floral diagram and any five examples with their economic importance – Annonaceae.
		CO7. Meliaceae, Myrtaceae, Rubiaceae, Solanaceae, Asclepiadaceae, Euphorbiaceae
		CO9. Study of Computer in taxonomy
		CO10. Introduction to ecology includes Definition, Concept, Autecology and Synecology.
	Bo. 212 Plant Physiology	Co1- Student learn basic introduction about plant physiology.
		Co2 - Understanding of the Scope and applications of plant physiology.
		CO3. Learning of the Physico-chemical properties of water.
		CO4. Study of the phenomenon like Diffusion, Osmosis, Plasmolysis, Imbibition.
		CO5. Understanding of Mechanisms of water absorption.
		CO6.Study of the Physical force theories of Ascent of sap.
		CO7. Learning of the Mechanism of opening and closing of stomata.
		CO8. Study of processes like Guttation and Exudation and their significance in plant metabolism.
		CO9. Study of Factors affecting growth.
		CO10.Knowledge of Properties and to understand practical applications of auxins, cytokines, Gibberellins, ethylene gibberellins, ethylene and abscisic acid.
		CO11. Learning of types of seed dormancy Methods to break seed dormancy.
		CO12. Study of physiology of flowering with respect to Photoperiodism, Phytohormones, and Verbalization.
		CO1. Development of various techniques in the field of Taxonomy, Anatomy, Physiology, Embryology,
		Ecology and Biotechnology
		CO2. Elaboration of Plant Systematics with description of flowering plants in botanical terms for Plant

ARTS, SCIENCE & COMMERCE COLLEGE INDAPUR DIST PUNE

S.Y.B.Sc.	Paper-III Practical Practical based on Bo.211 & Bo.212	families like : i. Myrtaceae, ii. Rubiaceae, iii. Solanaceae, iv. Asclepidaceae, v. Amaryllidaceae
		CO3. Study of Ecological adaptations in Hydrophytes and Xerophytes.
		CO4. Study of Vegetation by List-count Quadrat method.
		CO5. Study of tools of Taxonomy and Ecological instruments, Spectrophotometer, Centrifuge and pH meter.
		CO6. Determination of WHC and pH of soil
		CO7. Verification of Plasmolysis, DPD, rate of transpiration, Curling Experiment, Imbibition Pressure, Arc
		Auxanometer with experimental proofs.
		CO8. Testing seed viability by TTC method
		CO9. Study of Plant Anatomy with respect to Epidermal tissue system, mechanical tissues and their distribution in root, stem and leaves, normal secondary growth in dicot stem – Annona , Moringa,
		Moringa, anomalous secondary growth in Bignonia and Dracaena stem
		CO10. Study of Plant Embryology with respect to tetrasporangiate anther, types of ovules and dicot and monocot embryo.
		CO11. Estimation of Citric acid in Aspergillus fermentation.
		CO12. Study of the production of single cell protein production i.e. Spirulina, Yeast and study of
		of commercial products
		CO13. Demonstration of fermentation and fermentation products, separation of plasmid
		DNA by agarose gel electrophoresis and enzyme immobilization
	SEM-IV	
	Bo.221 – 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 Anamalous 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.

ARTS, SCIENCE & COMMERCE COLLEGE
INDAPUR DIST PUNE

		Co9- Students understand types of endosperm and types of embryo and seed formulation.
		Co10- Understand the development of Male and Female gametophyte.
	Bo.222 - 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.
	Paper-III Practical Practical based on Bo.221 & Bo.222	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 tetrosporangiate 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.
	Sem. V	
T. Y. B.Sc. (2015)	BO-331 Cryptogamic Botany	CO1. Students understand the diverse group of lower plants.
		CO2. Students the evolutionary significance of these groups.
		CO3. Students learn about the structural features including vegetative and reproductive structures.
		CO4. Students recognize the economic importance of lower plants.
	BO-332 Cell and Molecular Biology	CO1. Students gain knowledge about the basic structure and functions of cells.
		CO2. Understand the mechanism of gene regulation and expression.
		CO3. Students know the energy production and utilization in cells.

ARTS, SCIENCE & COMMERCE COLLEGE
INDAPUR DIST PUNE

		CO4. Understand the various concepts of cell
	BO-333 Genetics and Evolution	CO1. Students understand the basic principles.
		CO2. Students analyze patterns of inheritance.
		CO3. Students know the structure and function of DNA and RNA.
		CO4. Students know the DNA, RNA processes.
	BO-334 Spermatophyta and Paleobotany	CO1. Students understand classification system.
		CO2. Students understand the concepts of alternation of generation.
		CO3. Recognize the economic significance.
		CO4. Understand the fossilization process and the types of plant fossils.
	BO-335 Horticulture And Floriculture	CO1. Know the classification and identification of important floriculture plants.
		CO2. Understand the reproductive biology of plants.
		CO3. Know the importance of soil fertility and nutrient management.
		CO4. Understand the various types of plant growth regulators and their applications.
	BO-336 Computational Botany	CO1. Students the fundamental biological concepts.
		CO2. Students develop computational skills, tools and techniques commonly used in plant sciences including data analysis and bioinformatics tools.
		CO3. Students able to identify and solve biological problems using computational approaches.
		CO4. Students develop models beneficial to plants life.
	Sem. VI	
	Bo.341- Plant physiology and Biochemistry	Co1- Students learn about Photosynthesis, Respiration, Translocation of organic solutes, stress physiologyetc.
		Co2- Students understand the concept of Carbohydrates, Amino acids and proteins, lipids, enzymology, secondary metabolites.
	Bo.342- Plant Ecology and Biodiversity	Co1- Students know about Plant Ecology, Environmental crisis.
		Co2- Students gain the knowledge about Environmental Impact Assessments.
		Co3- Students develop skill of Environmental Audit, Ecology and Economics.
		Co4- Students able to gain knowledge of Remote sensing.
		Co5- Students learn the concept of Biodiversity characterization, Biodiversity loss, Inventorying and Monitoring of Biodiversity, conservation of Biodiversity, In-situ and Ex-situ conservation.
	Bo.343-Plant Pathology	Co1- Understands fundamental of plant Pathology, Disease development, defense mechanisms.
		Co2- Students learn methods of studying Plant diseases.
		Co3- Students gain the knowledge about Fungal Plant Diseases, Bacterial Plant diseases, Mycoplasma Plant Diseases, Nematodal plant diseases, viral Plant diseases, non-parasitic diseases.
		Co4- Students develop skill of principles of plant disease control, molecular Diagnostics and Transgenic in crop protection.
		Co1- Students understand the concept of pharmacognosy, Ayurvedic pharmacy.

ARTS, SCIENCE & COMMERCE COLLEGE
INDAPUR DIST PUNE

T. Y. B.Sc. (2015)	Bo.344- Medicinal and Economic Botany	Co2- Understands analytical Medicinal botany.
		Co3- Students develop the skill of cultivation and processing of herbal drugs.
		Co4- Students gain the knowledge about medicinally important drugs.
		Co5- Students know about Ethnology, Economic Botany.
	Bo.345- Plant Biotechnology	Co1- Students understand about Biotechnology, Plant tissue culture, Germplasm and cryopreservation.
		Co2- Understands the transgenic Plants as Nonreactors.
		Co3- Students gain knowledge about Biotechnology of biological nitrogen fixation.
		Co4- Students Know about Biotechnology and Society.
		Co5- Students understands the concept of Bioinformatics, Genomics and Proteomics.
		Co1 -Understands the plant introduction concept Plant Breeding scope and importance and acclimatization.
		Co2 – Students learn the selection methods.
	Bo.346- Plant Breeding and Seed Technology	Co3- Students gain the knowledge about Hybridization.
		Co4- Students Know about Heterosis and hybrid vigour.
		Co5- Students learn about Mutation breeding, importance of polyploidy and Aneuploidy in crop Improvement.
		Co6- Students know the Breeding for stress tolerance.
		Co7- Understands the seed certification, seed processing, seed sampling, storage and packaging, Physical purity analysis, seed Testing, Germination Testing, seed marketing.
	Practical 1 Bo.347	CO1- Students achieve the knowledge of Algae, Fungi, Bryophytes, Pteridophytes.
		Co2 – Students understand the various stages of mitosis and meiosis.
		Co3- Students learn chromosome Morphology and maceration technique.
		Co4- Students achieve the knowledge about polygene chromosome, plant Genomic DNA extraction.
		Co5- Understands estimation of DNA.
		Co6- Students learn the estimation of chlorophyll-a and chlorophyll-b by spectrometric method.
		Co7- Understands the separation of photosynthetic pigments by paper chromatography.
		Co8- Students gain estimation of soluble proteins, separation of amino acids.
		Co9- Students achieve the Ringing experiment, Hill reaction, perform qualitative test.
		Co10 – Understands the callus induction, application of bio fertilizers, transgenic plants.
	Practical 2 Bo. 348	Co1- Students learn the structural heterozygetes, induction of tetraploudy
		Co2- Understands preparation of salivary gland chromosome.
		Co3- Students gain frequency of PTC taste Sensitivity.
		Co4- Students understands how to solve genetic problems.
		Co5- Students learn Morphology and internal structure *of Pinus* and *Gnetum*.
		Co6- Students understand the eight families.
		Co7 -Students achieve the knowledge of identification of plant with the help of flora.
		Co8- Understands the polluted water bodies, physiological properties of water body.
		Co9- Students learn the acquisition of ecological data by using GPS.

ARTS, SCIENCE & COMMERCE COLLEGE INDAPUR DIST PUNE

		Co10- Students achieve applications of diversity indices, measure latitude, and longitude by GPS.
		Co11- Students develop skill of Hybridization techniques.
		Co12- Understands the effect of chemical mutagens on seed germination, Polyploidy induction.
	Practical 3 Bo.349	Co1- Understands the phenology of fruit, Vegetables crops.
		Co2- Students gain knowledge about garden tools, garden containers, cutting, layering, budding Techniques.
		Co3- Students develop skill about training and pruning, harvesting of cut flowers, preservation methods, making dry flowers methods.
		Co4- Students gain the knowledge of central tendency, representations of data.
		Co5- Students solve able to statistical problems.
		Co6- Students develop skill to preparation culture media, culture techniques.
		Co7- Students gain the knowledge of fungal, bacterial, Mycoplasma, viral diseases of plants.
		Co8- Students understand the drug plants Morphology and internal characters, economic importance.
		Co9 – Students develop skill preparation of ayurvedic formulations, Qualitative analysis.
		Co10- Students learn to calculate stomatal index.
DEPARTMENT OF STATISTICS		
POs		**Programme 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
Programme Specific Outcomes(PSOs)		
PSO1		Develop an understanding of various statistical tools, techniques and software.
		Apply critical and contextual approaches across wide variety of subject matter.
		Develop logical thinking to comprehend key facts leading to formulation of the solution process.
		Develop self-confidence and awareness of general issues prevailing in the society.
		Integrate knowledge, skill and attitude that will sustain an environment of learning and creativity.
		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

ARTS, SCIENCE & COMMERCE COLLEGE
INDAPUR DIST PUNE

		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
		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.
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
		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-211 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-221 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-212 Continuous probability	CO1. Study of the standard univariate continuous probability distributions.
	Distributions.	CO2. Knowledge and study of bivariate continuous probability distributions.
	ST-222 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.
	Paper I Distribution Theory (ST:331)	CO1. Knowledge and study of standard univariate& bivariate continuous probability distributions like Beta Distribution.
		of first and 2nd type, Laplace, Cauchy, Waybill& Bivariate normal distribution type, Laplace, Cauchy, Waybill& B bivariate normal distribution.
		CO2. Knowledge and study of probability distributions of different Order statistics.
	Paper II Actuarial Statistics (ST:341)	CO1. Develop a high-quality training in Actuarial statistics locally and internationally.

ARTS, SCIENCE & COMMERCE COLLEGE
INDAPUR DIST PUNE

		CO2. Provision of an opportunity for research in actuarial statistics and development of Insurance (n-year term life insurance,
		Endowment Insurance, Whole life insurance) product.
		CO3. Knowledge and study of Annuities (Annuity certain, Annuity Immediate, Discrete life annuities).
		CO4. Knowledge and study of Premiums for a variety of insurances products
		CO1. Knowledge and study of point and interval estimation methods for making inferences about unknown population parameters on the basis of samples.
	Paper II Estimation Theory (ST:332)	CO2. Study and estimation of methods like Method of moments & Maximum likelihood method.
		CO3. Study of different criterion of estimators like biasedness, variance of the estimator
		(UMVUE and MVBUE), Sufficiency, Efficiency, Consistency.
		CO4. Study of interval estimation
	Paper III Testing of	CO1. Knowledge and study of parametric tests :- MP, UMP tests, Likelihood ratio tests and sequential Probability ratio tests (SPRT).
	Hypotheses (ST:342)	
		CO2. Study of Non- Parametric tests:- Sign test, Wilcoxon signed rank test, Mann-Whitney test, Run test and Kolmogorov-Smirnov test.
	Paper IV Sampling Methods (ST:333)	Estimation of standard error.
		CO2. Knowledge and study of determination of sample size.
		CO3. Knowledge and study of the role of sample survey in research methodology.
	Paper V Statistical Quality	CO1. Knowledge and study of online and offline process control methods.
	Control (ST:343)	CO2. Knowledge and study of control chart for variables (X-bar, R-chart) and Attributes (P-chart, C-chart)
		CO3. Knowledge and study of capability, capability ratio, capability indices (Cp and Cpk).
		CO4. Knowledge and study of acceptance sampling plans for attributes.
	Paper VI Design Of	CO1. Knowledge and study of the ANOVA: Concepts and Techniques.
	Experiments (ST:334)	CO2. Study and knowledge of different design of experiments like CRD, RBD and LSD.
		CO3. Study and knowledge of efficiency of design (RBD over CRD, LSD over CRD and LSD over RBD)
		CO4. Study and knowledge of analysis of covariance in CRD and RBD.
		CO5. Study and knowledge of factorial experiments and confounding (Total and Partial).
	Paper VII Operations	CO1. Study and knowledge of formulation of linear programming problems (LPP).
	Research (ST:344)	CO2. Study and knowledge of graphical method for obtaining optimal solutions to LPP.
		CO3. Study and knowledge of simplex method, Big-M method and Duality for obtaining optimal solutions to LPP.
		CO4. Study and knowledge of Transportation Problem (T.P.) and Assignment Problem (A.P.).
		CO5. Study of Critical Path Method (CPM) and Project Evaluation and Review Techniques (PERT).
	Paper VIII C Programming (ST:335)	CO1. Study basic concepts of C- language.
		CO2. Development of logic and programming skills.
		CO3. Development of various C Programs for descriptive statistics and C Programs for correlation Coefficient and regression equation.
	Paper IX Stochastic Process. (ST:345)	CO1. Study of finite Markov chain and transition probability matrix.
		CO2. Study of classification of states (Recurrent, transient and erotic) .
		CO3. Knowledge and study of periodicity of Markov chain and stationary distribution.

ARTS, SCIENCE & COMMERCE COLLEGE
INDAPUR DIST PUNE

		CO4. Knowledge and study of Poisson process and Compound Poisson process.
	Paper X Regression analysis (ST:336)	CO1. Explanation of variability in dependent variable by means of one or more independent variable.
		CO2. Estimation of the least square parameters of simple, multiple and logistic regression equation and interpret parameters
		CO3. Estimating the parameters of weighted least squares and interpret residual plot.
	Paper XI Statistical computing	CO1. Knowledge and study of the basic concepts of R- Software and graphical presentation of data using R- software.
	using R-Software (ST:346)	CO2. Study different measures of central tendency, dispersion, Coefficients of skewers, kurtosis, correlation,
		Regression and probability and probability distributions using R- Software.
		CO3. Study parametric and non- parametric tests using R –Software.
	Paper XII Practical Paper -I (ST:347)	CO1. Fitting the lognormal distribution and model sampling from Cauchy and Laplace distributions.
	Paper XIII Practical Paper -II (ST:348)	CO2. Testing the parametric and non- parametric hypotheses.
		CO3. Estimation of population mean, population total and population proportion with standard errors Using Sampling methods.
		CO4. Construction of life tables and computation of benefit premiums for insurance products
Department of Mathematics		
Programme 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.
		Computing with applications related to Industrial, Engineering, Biological and Ecological problems.

ARTS, SCIENCE & COMMERCE COLLEGE INDAPUR DIST PUNE

Programme 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.
F. Y. B. Sc.		**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.
Sem-II	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 dimensions
	(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.	Multivariable Calculus.	CO1.Study calculus of functions of several variables.
Semester-I	Paper I	CO2.Applications of double and triple integration.
	Discrete Mathematics. Paper II	CO1.Permutation and combination
		CO2.Prepare truth table.
	Practical Course.	CO1.Imparting skill to solve problems.
Semester-II	Linear Algebra Paper II	CO1.Knowledge of vector spaces and subspaces.
		CO1.Finding of the basis and dimension of vector spaces.
		CO1.Knowledge and study Linear Operators on vector spaces and their properties.
		CO1.Study Inner Product spaces and properties, Gram-Schmidt Process.
	Multivariable Calculus Paper II	CO1. Limit, continuity and differentiation of vector valued function
		CO2.linear transformation
	Practical Course.	CO1.Imparting skill to solve problems.
	Metric Spaces	CO1.Introductory Concepts

ARTS, SCIENCE & COMMERCE COLLEGE * INDAPUR DIST PUNE *

Semester-III	Paper I	CO2. Study continuous functions on metric spaces.
	MT 231	CO3. Knowledge and study of connectedness and completeness property of Metric Spaces.
	Real Analysis I Paper II	CO1.Knowledge and study Sets and Functions.
	MT 352	CO2.Study of convergence of sequences and series of Real Numbers.
	Problem course based on	CO1. Imparting skill to solve problems.
	paper I & II Paper III	
	Group Theory Paper IV	CO1.Learning of groups and subgroups.
		CO2.Knowledge and study of Permutation groups.
		CO3.Knowledge and study Homomorphism's of groups and factor groups.
	Ordinary Differential	CO1.Linear Differential Equation's 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.
	Partial Differential Equations Paper V	CO1.Knowledge of Ordinary Differential equations in more than two variables and their methods of substitution.
		CO2.First order partial differential equations, Types and methods of solution.
	Problem course based on	CO1.Imparting skill to solve problems.
	Paper III & IV (Paper VI)	
	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 Physics		
Programme 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,
PO3		participation in scientific events, study visits, etc.
PO4		To familiarize with recent scientific and technological developments.
PO5		To create foundation for research and development in Physics.
PO6		To help students to learn various experimental computational tools thereby developing analytical Abilities to address real world problems.
PO7		To train students in skills related to research, education, industry, and market.
PO8		To help students to build-up a progressive and successful career in Physics.
PO9		To help students in understanding theoretical and mathematical development of physics
PO10		To learn Physics through experimentation
Programme 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		Possess advanced knowledge and skills in job market for various technical industries.
Programme Outcomes (POs) M.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.
[illegible]		To help students to learn various experimental and computational tools thereby developing analytical abilities to address real world problems.
[illegible]		To train students in skills related to research, education, industry and market.
[illegible]		To help students to build-up a progressive and successful career in Physics.
[illegible]		To help students in understanding theoretical and mathematical development of physics
[illegible]		To help students to build-up a progressive and successful career in Physics.

ARTS, SCIENCE & COMMERCE COLLEGE INDAPUR DIST PUNE

PO10		To train students in skills related to research, education, industry, and market.
		Programme Specific Outcomes (PSOs)
PO1		Understanding core knowledge on various papers of Physics. Clear the concepts which help them in understanding physical phenomenon in nature.
PO2		Demonstrate skills and competencies to conduct scientific experiments related to Physics.
PO3		Identify their area of interest and further specialize in the Physics.
PO4		Analyze situations, search for truth and extract information, formulate and solve problems in a systematic and logical manner.
PO5		Possess advanced knowledge and skills in job market for various technical industries.
Course Outcomes (COs) for B.Sc. Physics		
Class	**Course**	**Course outcomes**
	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, and 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.
	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
F.Y. B.Sc. Semester II	**PHY-121 Heat and Thermodynamics**	To understand concepts in topic Fundamentals of Thermodynamics, Applied Thermodynamics, Heat Transfer Mechanisms, 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.To 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
	PHY 211 Mathematical Methods	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.

ARTS, SCIENCE & COMMERCE COLLEGE INDAPUR DIST PUNE

S.Y. B.Sc. Semester I		CO5.Understand the singular points of differential equation.
	(PHY 212) Electronics I (Paper-II)	CO1. Apply laws of electrical circuits to different circuits.
		CO2. Understand the relations in electricity and properties and working of transistors.
		CO3. Understand the functions of operational amplifiers.
		CO4. Design circuits using transistors and operational amplifiers.
		CO5. Understand the Boolean algebra and logic circuits.
	OR	
	PHY-222: 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 II	**(PHY221) Oscillations, Waves and Sound (Paper-I)**	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 222) Optics (Paper-II)	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.
	(PHY 223) Practical Paper III (Annual)	CO1. Use various instruments and equipment
		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.
	PH331 : 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.
		CO1. Have a basic knowledge of crystal systems and spatial symmetries.
. Semester III	**PH332: Solid State Physics**	CO2. Be able to perform structure determination of simple structures.
		CO3. Know the significance of Brillion zones,
		CO4. Know Bloch's theorem and what energy bands.
		CO5.Know the fundamental principles of semiconductors, including pn-junctions, and be able to estimate the charge carrier mobility and density.
		CO6. Be able to account for what the Fermi surface is and how it can be measured.
	PH 333: 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.

ARTS, SCIENCE & COMMERCE COLLEGE INDAPUR DIST PUNE

	PH334: 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
	PH335: 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-336 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
		CO1. To understand Electrostatics and Magneto statics
		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-342: 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-343: 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 344 : Nuclear Physics	CO1. To understand the Basic Properties of Nucleus
		CO2. To understand the concepts of Radioactivity
		CO3. To study Nuclear forces
		CO4. To study Particle Accelerator and Detectors
	PH345 : Electronics	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	
	PH345: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
	PH346 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

ARTS, SCIENCE & COMMERCE COLLEGE
INDAPUR DIST PUNE

	PH347 Laboratory Course I	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.
	PH348: Laboratory Course II	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
	PHY-349: Physics Project	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
Course Outcomes (COs) M.Sc.		
	PHYUT 501 Classical Mechanics	CO1. Constrained motion and lagrangian formulation
		CO2. Vibrational principles and Hamilton formulation
		CO3. Canonical transformation and poisson bracket
	PHYUT 502 Electronics	CO1. To study Semiconductor Devices and its Applications
		CO2. To study Special Function ICs and their Applications
Semester I		CO3. To study Digital Logic Circuits : Combinational Logic & Sequential logic
	PHYUT 503 Mathematical Methods In Physics	CO1- To understand the linear spaces and operators
		CO2- To understand the Matrix Algebra
		CO3- To understand the Special Functions
		CO4- To understand the Fourier series and Integral transforms
	PHYUT504 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
	PHYUT505: 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
	(PHYUT601) 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.
	(PHYUT602) Solid State Physics	CO1- To understand the Band Theory of Solids
		CO2- To understand the Diamagnetism and Para magnetism
		CO3- To understand the Ferromagnetism, Antiferromagnetic and Ferrimagnetism
		CO4- To understand the Superconductivity

ARTS, SCIENCE & COMMERCE COLLEGE INDAPUR DIST PUNE

Semester-II	**(PHYUT 603) Quantum Mechanics**	CO1- To understand the Revision and general formalism
		CO2- To understand the Representation of States – Dirac notation
		CO3- To understand the Angular Momentum
		CO4- To understand the Approximation Methods
	PHYUT604: LASERS	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
	(PHYUT 605) Experimental Techniques in Physics II	CO1- To understand the Radiation Sources, Detectors and Sensors
		CO2- To understand the Structural Characterization and Thermal Analysis
		CO3- To understand the Morphological and Magnetic Characterization
		CO4- To understand the Spectroscopic Analysis
	(PHYU P606) Physics Lab II	CO1. Laboratory course II deals with the experiments based on fundamental concepts in Physics
Semester-III	**(PHYUT701) Statistical Mechanics In Physics**	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
	(PHYUT702) Quantum Mechanics	CO1. Understanding the basic principles of quantum mechanics.
		CO2. Solve the Schrodinger equation to obtain wave functions for some basic, physically Important potential, and estimate the shape of the wave function based on the shape of the potential.
		CO3. Understand the role of uncertainty in quantum physics, and use the commutation
		relations of operators to determine whether or not two physical properties can be simultaneously Measured.
		CO4. Develop a knowledge and understanding of perturbation theory and level splitting.
	(PHYDT703) Energy Studies I	CO1. The outcome of the course on Science of renewable Energy Sources is to students to the basics of the alternative energy sources like solar energy, hydrogen energy, etc.
		CO2- To understand the Radiation and Its Measurements
	(PHY DT 704) Astronomy And Astrophysics I	CO1- To Understand the Astronomical Scales & Basic Concepts of Positional Astronomy
		CO2- To Understand the Astronomical Techniques and Physical Principles
		CO3- To Understand the Sun and Stellar Structure
		CO4- To Understand the Star Formation, Nucleosynthesis and Stellar Evolution
	PHYDT705: SPECIAL LAB I	1) ASTRONOMY
		CO1- To understand the polar align an astronomical telescope
		CO2- To understand the Computation of a lunar eclipse
		CO3- To understand the Computation of a solar eclipse
		2) ENERGY STUDIES
		CO1- To understand the Determination of Calorific value of Wood/Cow dung
		CO2- To understand the Study of Photovoltaic a Characteristics of Solar Cell
		CO3- To understand the Study of power versus load characteristics of Solar Power
		Photovoltaic Systems
	(PHYDP 706) Physics Lab III (5 Credits)	CO1. Understanding of the general concepts in C language.
		CO2. Application of Physics concepts in solving problems.
		CO3. Familiarization of statements and array of C language.
		CO4. Emphasis on the significance of C+ theory.

ARTS, SCIENCE & COMMERCE COLLEGE
INDAPUR DIST PUNE

		CO1. Understand the fundamental principles and concepts governing nuclear and particle physics.
Semester IV	**(PHYUT801) Nuclear 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,
		and understand how small number fundamental physical principles underlie a huge variety of Interconnected natural phenomena.
		CO4. Able to explain the Rutherford's experiment, Nuclear Radiation and Charged Particle Accelerators.
	(PHYUT802) Material Science	CO1. Various production techniques and applications.
		CO2. Fracture analysis for different metals.
		CO3. Strengthening mechanisms and Applications of metallic and nonmetallic materials.
	(PHYDT803) Energy Studies II	CO1. The outcome of the course on Science of renewable Energy Sources is to expose the students to the basics of the alternative energy sources like solar energy, hydrogen energy, etc.
		CO2- To understand the Photo thermal applications of Solar Energy
		CO3- To understand the Hydrogen Energy
		CO4- To understand the Wind and Bio Energy
	(PHYDT804) Astronomy And Astrophysics II	CO1- To understand the Basic Structure and Properties of the Milky Way
		CO2- To understand the Galaxy Morphology, Hubble's Classification of Galaxies
		CO3- To understand the Astronomical Techniques
		CO4- To understand the Large-Scale Structures & the Expanding Universe
	(PHYUP805) Special Lab II	1) Astronomy and Astrophysics
		CO1- To understand the to study the characteristics of CCD camera
		CO2- To understand the two polar align an astronomical telescope
		2) Energy Studies
		CO1- To understand the Determination of heat Loss Coefficient in Flat Plate Collector
		CO2- To understand the Study of Hot Water system
	(PHYUP806) Project (5 Credits)	CO1. Creation of opportunity to participate in some ongoing research activity
DEPARTMENT OF CHEMISTRY		
Class	**Course Name**	**M.Sc. Programme outcomes (POs)**
M.Sc.- I & II	**PG**	
		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.

ARTS, SCIENCE & COMMERCE COLLEGE ★ INDAPUR DIST PUNE ★

Class	Course Name	M.Sc. Programme Specific outcomes (PSOs)
M. Sc. - I & II	PG	
		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.

PROGRAMME 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-based 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)**
	Semester -I	
F. Y. B. Sc	**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	
	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 Fijians rule, bond moment, dipole moment and percent ionic character.
		CO.1.Perspectives of analytical Chemistry
		CO.2. Stoichiometric calculation

ARTS, SCIENCE & COMMERCE COLLEGE INDAPUR DIST PUNE

	CH- 202: Analytical Chemistry	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-211 : Physical and Analytical Chemistry	Co1 – Student should learn Concept of kinetics, terms used, rate laws, types of order
		Co2 –Understand difference between thermal and photochemical reactions
		Co3 – Students should learn Concept of distribution of solute amongst pair of immiscible solvents
		Co4 – Students should learn Meaning of error and terms related to expression & estimation of errors
		Co5 – A student should know Basic principles in qualitative analysis
	CH-212 :Organic & Inorganic Chemistry	Co1 -Able to find R/S configuration in compounds containing two chiral centers.
		Co2 – Suggest synthetic route for preparation of various heterocyclic compounds.
		Co3- Write and complete various reactions of heterocyclic compounds.
		Co4 –To know the different methods for separation of gangue or matrix from metallic compounds.
		Co5- To know physico-chemical principles involved in electrometallurgy.
	Semester-II	
S.Y. B. Sc.	**CH-221 : Physical and Analytical Chemistry**	Co1 – The student should able to know Free energy. The student should able to know
		Co2- Interpret the experimental data on the basis of theoretical principles.
		Co3 – Interpretation of temperature composition diagram.
		Co4- Meaning of equivalent weight, molecular weight, normality, molality, primary and secondary standards.
	CH-222 : Organic & Inorganic Chemistry	
		Co1- Student should understand Concept of different reagents used in the one type of conversion
		Co2- Suggest synthetic route for preparation of various heterocyclic compounds.
		Co3-Suggest synthetic route for preparation of various heterocyclic compounds.
		Co4-To know position of d-block elements in periodic table.
	CH-223 : Chemistry Practical	Co1- After completion of practical course student should be able to Verify theoretical principles experimentally
		Co2- Interpret the experimental data
		Co3-Improve analytical skills
		Co4 – Correlate the theory and experiments and understand their importance
	SEMESTER-III	
	CH-331: Physical Chemistry	CO1.Apply mathematical equation for order of reaction.
		CO2.Estimate the energy of activation and order of reaction.
		CO3.Understand the Interionic Attraction theory.
		CO4.Study basic terms and subject application in molecular spectroscopy.
		CO5.Use of different spectra for understanding of molecular structure.
		CO6.Understand the phase rule and terms involved in it.
		CO1.Differentiate AO„s and M.O„s, BMO and ABMO, VBT and MOT

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	CH-332: Inorganic Chemistry	CO2.Draw of molecular orbital and calculate bond order and explain stability.
		CO3.Know the various types of Ligands and meaning of the terms used in co-ordination chemistry
		CO4.Classify the various types of isomerism.
		CO5.Explain different complexes, electro neutrality principle and multiple bonding
		CO6.Know Strong field and weak field splitting, calculation of CFSE and evidence of CFSE.
	CH-333: Organic Chemistry	CO1.Compare the strength of organic acids and Bases
		CO2.Draw the conformational isomers and compare its stability.
		CO3.Understand stereochemistry of substitution reactions
		CO4.Learn the mechanism of nucleophilic and Electrophilic substitution reactions
		CO5.Compose synthetic applications of some important synthetic reagents
		CO6.Understand the Retrosynthetic analysis
	CH-334: Analytical Chemistry	CO1.Understand the principles of common ion effect and solubility product
		CO2.Conceptual understanding of electro gravimetric principle.
		CO3.Explain methods of thermo gravimetric analysis.
		CO4.Demonstrate the applications of Spectrophotometric analysis.
T. Y. B. Sc.		CO5.Apply different analytical techniques for analysis.
		CO6.Understand the efficiency of solvent extraction.
	CH-335: Industrial Chemistry	CO1.Memorize the modern approach to chemical industry.
		CO2.Describe the scope of agrochemicals.
		CO3.Discuss the preservation and processing of foods.
		CO4.Names the Fuels and eco-friendly fuels and use of solar energy.
		CO5.Understand nutritive aspects of food constituents
		CO6.Recognize importance of different industries.
	CH-336-E Agriculture Chemistry	CO 1. Know the role of agriculture chemistry and its potential
		CO 2. Understand basic concept of soil, properties of soil & its classification on the basis of pH
		CO 3. Know the different plant nutrients, Their functions and deficiency symptoms
		CO 4. Understand importance of manures as compared to chemical fertilizers"
		CO 5. Understand the importance of green manuring
		CO 6. Have the knowledge of the use of proper the plants
	SEMESTER-IV	
	CH-341: Physical Chemistry	CO1.What is mean by Electrochemical cell with specific example
		CO2. Origin of EMF of electrochemical cell.
		CO3.Distinguish between crystalline and amorphous solids / anisotropic and isotropic solid
		CO4. Explain the term crystallography and laws of crystallography
		CO5. Derivation of time independent Schrodinger wave equation.
		CO6. Wave function and its Interpretation
	CH-342: Inorganic Chemistry	CO1. The meaning of term f-block elements, Inner transition elements, lanthanides, actinides.
		CO2. Electronic configuration of lanthanides and actinides.
		CO3. Oxidation states of lanthanides and actinides and common oxidation states.
		CO4. Separation lanthanides by modern methods.
		CO5. Lanthanide contraction and effects of lanthanide contraction on post-lanthanides.
		CO6. Use of lanthanide elements in different industries.
	CH-343: Organic Chemistry	CO 1. Definition and formation of carbanions
		CO 2. Possible mechanism of some known name reactions involving carbanions
		CO 3. Various steps involved in the synthesis of some molecules
		CO 4. What is the interaction of radiation with matter

ARTS, SCIENCE & COMMERCE COLLEGE ★ INDAPUR DIST PUNE ★

		CO 5. Types of energy levels with diagram
		CO 6. Brief idea about the advantages of spectroscopic methods
	CH-344: Analytical Chemistry	CO 1. Principles of solvent extraction.
		CO 2. Difference between KD and D
		CO 3. Technique and applications of- Column Chromatography,
		CO 4. Technique and applications of- Thin layer Chromatography
		CO 5. Advantages of supercritical fluid chromatography
		CO 6. Difference between Nephelometry and Turbidimetry
	CH-345: Industrial Chemistry	CO 1. Classification of polymerization reactions,
		CO 2. Thermodynamic and transport properties of polymer,
		CO 3. Commercial polymers and their importance,
		CO 4. Importance of sugar industry,
		CO 5. Manufacturing of ethyl alcohol by using molasses.
		CO 6. Consumption (plantation white) sugar with flow diagram.
	CH-346-E Dairy Chemistry	CO 1. Knowing importance of the subject from the point of rural economy.
		CO 2. Knowing the composition of milk, its food & nutritive value
		CO 3. Understanding the Microbiology of the milk
		CO 4. Understanding various preservation and adulterants, various milk proteins and their role for the human body.
		CO 5. Knowing various milk products, their composition, manufacture and uses.
	CH-347: Physical Chemistry Practical's	CO1To determine the specific refractivity's of the given liquids A and B and their mixture and hence determine the percentage composition their mixture C. C
		CO-2 To determine the molecular refractivity of the given liquids A, B, C and D.
		CO-3 To determine the order of reaction for the oxidation of alcohol by potassium dichromate and potassium permanganate in acidic medium calorimetrically
		CO-4 Simultaneous determination of Cu2+ and Ni2+ ions by colorimetry/spectrophotometry method
	CH-348: Inorganic Chemistry Practical's	CO-1 Estimate of Fe asFe2O3 Gravimetrically.
		CO-2 Estimate of Ba asBaSO4usinghomogeneousprecipitationmethod.
		CO-3 Estimate of Nickel as Ni –DMG Gravimetrically
		CO-4 Analyze of sodium bicarbonate from mixture by thermal decomposition method.
	CH-349: Organic Chemistry Practical's	CO-1 Systematic working skill in laboratory will be imparted in student
		CO-2Learnthebasicprinciplesofgreenandsustainablechemistry
		CO-3 Synthesis of various organic compounds through greener approach
		CO-4. Functional group interconversions and structural problems using chemical reactions
M. Sc. -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
		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.
	CCTP-2 Inorganic Chemistry-I	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.

ARTS, SCIENCE & COMMERCE COLLEGE INDAPUR DIST PUNE

M. Sc. -I (CBCS)		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 General Chemistry-I, Theory Course	**Elective Option-A: Introduction to Solid State of Matter**
		CO 1. Bonding in solids – band theory
		CO 2. Electronic conductivity
		CO 3. Semiconductors, photoconductivity
		CO 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)	
	Semester - II	
	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 radio activity
		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.
		CO1. Know the basic mechanism of oxidation in organic compounds.
		CO2. Acquire knowledge about the reagents which causes oxidation in various compounds

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	CCTP-6 (CHO-250) Organic Chemistry-II	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, carbocation's, and carbanions, based on structural considerations
		such as orbital hybridization, hyper conjugation, and resonance stabilization.
		CO6.Describe stereo chemical 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: Electro analytical 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.
		Semester- III
		Electrochemical and Thermo gravimetric Methods of chemical analysis.
		CO -1 Define various terms in electrochemistry and Thermogravimetry.
	CHA-390	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 polar gram, cyclic voltammogram, pulse polar gram, Thermo gram
		differential thermo gram and DSC thermo gram.
		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.

ARTS, SCIENCE & COMMERCE COLLEGE INDAPUR DIST PUNE

		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.
M. Sc. - II Analytical Chemistry	**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.
	CHA-394	**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.
		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.

ARTS, SCIENCE & COMMERCE COLLEGE INDAPUR DIST PUNE

		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**
M.Sc. II **Analytical Chemistry**		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.
		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.
	CHA-492 B)	**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.

ARTS, SCIENCE & COMMERCE COLLEGE INDAPUR DIST PUNE

	CHA-493 A)	**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 analyze 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 analyze 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 analyze 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.

ARTS, SCIENCE & COMMERCE COLLEGE
INDAPUR DIST PUNE

Department of Electronics		
Programme 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.
Programme 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
		CO3To 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
. Semester II		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

ARTS, SCIENCE & COMMERCE COLLEGE INDAPUR DIST PUNE

		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
		CO1. Distinguish between different logic families based on their performance parameters
		CO2. Analyze basic combinational logic circuits for simple applications
	EL-232: Digital Circuit Design	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
S.Y. B.Sc. Semester 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/Programme 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 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, Genetics, Systems Biology, Immunology and Molecular biology, in addition to becoming aware of the applied aspects of microbiology such as Industrial Microbiology, Food and Dairy Microbiology, Environmental Microbiology and Medical Microbiology to name just a few.

ARTS, SCIENCE & COMMERCE COLLEGE * INDAPUR DIST PUNE *

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 play in maintenance of a clean and healthy environment. They will learn of the role of microorganisms in plant, animal and human health and disease.
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.
PO4		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.
PO5		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 careers in public and global health, scientific writing, environmental organizations, and food, pharmaceuticals and biotechnology industries.
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 microorganisms; in particular bacteria.
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
Programme Specific Outcome (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.
PSO4		Appreciate the versatility and significance of microorganisms in the various fields such as Agriculture, Pharmaceuticals, Medical, Food, Dairy and Fermentation technology, Immunodiagnostics
		Develop the different research / entrepreneurship skills in industries to understand the significance of research in Microbiology.
COURSE OUTCOMES (COs)		
CLASS		**COURSE OUTCOMES**
	Introduction to Microbiology 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.

ARTS, SCIENCE & COMMERCE COLLEGE
INDAPUR DIST PUNE

		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.
	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.
	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.
		CO 12. Assessment of the optimization of the growth conditions and to test the effect of each factor at different limits.
	(MB-211) Bacterial systematic and physiology	CO 1. Study the principles of bacterial taxonomy, classification, identification based on Bergey's manual.

ARTS, SCIENCE & COMMERCE COLLEGE
INDAPUR DIST PUNE

		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) Microbial Genetics	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, bio inoculants, 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.
	(MB221) Analytical Microbiology	CO 1. Knowledge of the basic's principles of genetics with focus on discoveries, experiments of scientists.
		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 and Water Microbiology	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 portability.
		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.
	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, portability 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.
	MB331 Medical Microbiology I ,	CO 1. Study about Introduction to infectious diseases of human body systems
	MB341 Medical Microbiology II	CO 2. Epidemiology.
		CO 3. To Study of groups of bacterial Pathogens.
		CO 4. Understand Chemotherapy.
		CO 5. Study about Introduction to cultivation of viruses, Study groups of viral Pathogens.

ARTS, SCIENCE & COMMERCE COLLEGE INDAPUR DIST PUNE

		CO 6. To Study groups of parasites
		CO 7. To Study groups of *Candida and Non - Candida.*
	MB-332 Genetics and Molecular Biology. I	CO 1. Study of Gene Linkage and crossing over.
	MB- 342 Genetics and Molecular Biology. II	CO 2. DNA Replication. Prokaryotic and Eukaryotic Translation. Prokaryotic and Eukaryotic Translation.
		CO 3. To understand Guidelines for gene manipulation
		CO 4. Study the Technique used in recombinant DNA technology. Gene transfer by transformation. Gene transfer by transduction.
		CO 5. Gene transfer by conjugation. DNA damage and repair.
		CO 6. Recombination and Mutants in Bacteriophages.
		CO 7. To Understand tools of Recombinant DNA technology.
		CO 8. Generation of Recombinant DNA molecule.
	MB-333 Enzymology	CO 1. To study Enzymes, Structure of Enzymes, Role of cofactors in metabolism.
		CO 2. Enzyme assays.
		CO 3. Understand Principles and Methods of Enzyme purification.
		CO 4. To study Enzyme Kinetics.
		CO 5. Metabolic Regulations
		CO 6. Immobilization of enzymes.
	MB-343 Metabolism	CO 1. To study Membrane transport mechanisms.
		CO 2. Bioenergetics.
		CO 3. Biosynthesis and Degradation.
		CO 4. Bacterial Photosynthesis.
	MB - 334 Immunology I	CO 1. Study About Immunity.
	MB-344 Immunology II	CO 2. Formation of blood cell.
		CO 3. Organs of immune system.
		CO 4. Innate immunity Nonspecific mechanism of defense
		CO 5. Antigen.
		CO 6. Immunoglobulin's
		CO 7. Adaptive / Acquired Immunity.
		CO 8. To understand Transplantation and Immunity.
		CO 9. Major Histocompatibility complex.
		CO 10. Cytokines
		CO 11. Antigen-Antibody Interactions
		CO 12. Immunohematology
		CO 13. Public health immunology.
		CO 14. Hypersensitivity
		CO 15. To study Hybridism Technology and Monoclonal Antibodies.
	MB-335 Fermentation Technology I	CO 1. Study the Strain Improvement.
	MB - 345 Fermentation Technology II	CO 2. Media Optimization.
		CO 3. Sterilization Of media
		CO 4. Scale up and scale down
		CO 5. To understand Principles and Methods of downstream Processing.
		CO 6. Study about Quality assurance of fermentation Product.
		CO 7. To Understand Fermentation Economics.

ARTS, SCIENCE & COMMERCE COLLEGE
INDAPUR DIST PUNE

		CO 8. Introduction to solid state fermentation submerged fermentation. Large Scale production of - a) Primary Metabolites. b) Secondary Metabolites c) Enzymes d) Microbial transformation of steroids .e) Biomass based products') Milk Products g) vaccines h) Immune sera
	MB -336 Food and dairy Microbiology	CO 1. To understand Dairy Development in India.
		CO 2. Milk Chemistry and constituent 3 Microbiology of Milk
		CO 3. To study technics Preservation of Milk by Pasteurization & its storage
		CO 4. Microbial analysis of milk
		CO5. To study Classification of Foods based on stability
		CO 6. Food spoilage**:**
		a. Chemical and physical properties of food affecting microbial growth
		b. Sources of food spoilage micro-organisms
		CO 7. Study about Food preservation
		CO 8. Microbial food poisoning and food infection
		CO 9. Fermented foods**:**
		CO 10. Applications of genetically modified microorganisms
		CO 11. Food Sanitation and regulation
	MB-346: Soil And Agricultural	CO 1. Study about Agriculture Technology
	Microbiology	CO 2. a Plant growth improvement b Methods of plant disease control
		CO 3. To understand about Biochemistry and production of bio-fertilizers
		CO4. Study about Bioremediation and Waste Water Treatment
		CO 5. Bioleaching:
		CO 6. Introduction to Nano biotechnology
		CO 7. Microbial Biosensors and Biochips in Environmental Monitoring
	MB – 347: PRACTICAL COURSE – I APPLIED MICROBIOLOGY	CO 1. Screening and isolation of pesticide degrading microorganisms from soil.
		CO 2. Isolation and identification of lactic cultures up to genus level
		CO 3. Laboratory scale fermentation, estimation, product recovery and yield
		calculation of ethanol / organic acid (any one*)*
		CO 4. Quality assurance tests:
		a. Antibiotic and growth factor assay (agar gel diffusion technique)
		b. Sterility testing of non-biocidal injectable
		CO 5. MIC and MBC of Antibacterial compounds
		CO 6 Tests for Milk and Dairy products
		CO 7. Enrichment, Isolation, Preparation and Application of Bio inoculants
		CO 8. Isolation and identification of *Xanthomonas* spp. from infected sample
		CO 9. Isolation and identification of *Aspergillus* spp. from onions infected with
		Black Mold
		CO 10. Antifungal activity of Lactic acid bacteria.
		CO 11. Microscopic examination of Fungi causing Rust and Smut infections in
		Plants (Demonstration)
		CO 12. Dye removal from wastes by dead microbial Biomass
		CO 13. Biosynthesis of nanoparticles
	MB – 348: PRACTICAL COURSE – II	CO 1. Determination of absorption spectra and molar extinction co-efficient
	BIOCHEMISTRY AND GENETICS	CO 2. Clinical Biochemistry - Estimations of:
		a. blood sugar
		b. blood urea
		c. serum cholesterol

ARTS, SCIENCE & COMMERCE COLLEGE INDAPUR DIST PUNE

		d. serum proteins and albumin
		CO 3. Qualitative analytical tests for proteins and carbohydrates
		CO 4. Preparation of buffers
		CO 5. Paper chromatography
		CO 6. Quantitative biochemical techniques:
		a. Estimation of total carbohydrates by Phenol-sulfuric acid method
		b. Estimation of reducing sugar by DNSA method
		c. Estimation of proteins by Folin Lowry method
		CO 7. Enzyme production:
		a. Screening of amylase producing organisms
		b. Production of amylase using these isolates
		c. Precipitation of amylase from fermentation broth
		d. d. Determination of specific activity of crude and purified amylase
		CO 8. Isolation and enumeration of bacteriophages and study of phage morphology
		CO 9. Genomic (bacterial) DNA isolation and detection
		CO 10. Isolation of plasmid DNA and gel electrophoresis (demonstration)
		CO 11. Transformation of *E. coli* and selection of recombinants
	MB - 349 : Practical Course -III	CO 1. Clinical Microbiology
	Diagnostic Microbiology & Immunology	CO 2. Isolation & Identification of Pathogen from clinical sample
		CO 3. Hematological test
		CO 4. Agglutination test
		CO 5. Immuno precipitation
Department of Zoology **Programme 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
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
Programme Specific Outcomes (PSOs) for B.Sc.		
PSO1		Acquire the knowledge of animal science, natural phenomenon, and manipulation of nature and
		environment by man.
		Understanding the scientific terms, concepts, facts, phenomenon and their interrelationship.
		Students followed and understood general laboratory practice guidelines, including safety
		Develop scientific attitude which is the major objective this makes the students open minded,
		critical observations, curiosity, thinking etc.
		Abilities to apply scientific methods, collection of scientific data, problem solving.
Programme Outcomes (POs) for M.Sc.		
		Zoology knowledge: Apply the knowledge of Zoology, Life Sciences
		Subjects to the understanding of complex life processes and phenomena.

ARTS, SCIENCE & COMMERCE COLLEGE
INDAPUR DIST PUNE

PO3		Analyse complex situations of living forms.
PO4		The cultural, societal, and environmental considerations.
PO5		Design processes/strategies that meet the specified needs
PO6		Interpretation of data, and synthesis of the information to provide valid conclusions in real situations.
PO7		Problem analysis: Identify, review research literature
PO8		Design/development of solutions: with appropriate consideration for the public health and safety.
PO9		Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis.
PO10		Modern tool usage: Create, select, and apply appropriate techniques, resources, and ICT tools for understanding of the subject.
Programme Specific Outcomes (PSOs) for M.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.
Course Outcomes (COs)		
Class	**Course**	**Course Outcomes**
F.Y.B.Sc. (semester pattern)	Animal Diversity I (ZO 111)	CO1: The student will be able to understand classify and identify the diversity of animals.
Semester 1		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, analyses 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
	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
Semester 2	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.

ARTS, SCIENCE & COMMERCE COLLEGE INDAPUR DIST PUNE

		CO 8. Study of cancer cell & cancer-causing agents.
	Zoology Practical Paper (ZO123)	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. Study of the concepts of cell Biology.
S.Y.B.Sc.	ZY-221: ANIMAL SYSTEMATICS AND DIVERSITY – IV	CO 1. Study of invertebrate phyla like Arthropoda, Mollusca & Echinodermata
Semester-I		CO 2. Study of Arthropoda, Mollusca Echinodermata with reference to their specific characteristics like mimicry larval forms, shell and foot modification and pedicellariae.
		CO 3. Detailed study of morphology and physiology of various system of Asterius.
	ZY- 212 Applied Zoology	CO 1. Study of different types of fisheries and ponds.
	(Fisheries & Agricultural Pests	CO 2. Study of culture of freshwater fishes like Rohu, Catla, Mrigal and Prawn.
	and their Control) Paper II	CO 3. Study of harvesting methods of some marine forms like Harpedon, Mackerel, lobster, Pearl oyster.
		CO 4. Study of fishery byproducts and different fish preservation techniques.
		CO 5. Study the Introduction to Pests and Various types of Pests.
		CO 6. Study the Insect pests of Agricultural Importance. (Marks of Identification, Life cycle, Nature of damage, and Control measures.)
		CO 7. Study of Non-insect Pests.
		CO 8. Study of the pest control practices in brief.
		CO 9. Study of the plant protection appliances.
		CO 10. Study of pesticides.
	(ZY 221) Animal Systematics and	CO 1. Study of invertebrate phyla like Arthropoda, Mollusca & Echinodermata
	Diversity V (Paper-I)	CO 2. Study of Arthropoda, Mollusca Echinodermata with reference to their specific characteristics like mimicry, larval forms, shell and foot modification and pedicellariae.
		CO 3. Detailed study of morphology and physiology of various system of Asterius.
	(ZY 222) Applied Zoology II	CO 1 Study the concept of Apiculture and nesting behavior of A. dorsata, A. florae, A. indica and A. mellifera.
	(Apiculture & Sericulture)	CO 2. Study of bee keeping equipment.
		CO 3. Study of bee keeping and seasonal management.
		CO 4. Study of different types of bee products.
		CO 5. Study of bee diseases and enemies.
		CO 6. Study the concept of Sericulture and different types of silk moth like Mulberry, Taser, Eri and Muga silkworms in India.
		CO 7. Study of morphology and life cycle of Bombyx Mori.
		CO 8. Study of cultivation and harvesting of mulberry plant.
		CO 9. Study of silkworm rearing and postharvest processing
	Paper III- ZY-223: Practical course	CO 1. Study of different types of fisheries and ponds.
		CO 2. Study of culture of freshwater fishes like Rohu, Catla, Mrigal and Prawn.
		CO 3. Study of bee keeping and seasonal management.
		CO 4. Study of different types of bee products.
	(ZY 331) Animal Systematics	CO 1. Study of the morphology and physiology of Pilaglobosaand Calotesversicolor.
	and Diversity V (Paper I)	CO 2. Description, locomotion and nutrition of Phylum – Protozoa.
		CO 3. Description of the phylum Coelenterate and its polymorphism
		CO 4. Description of Canal System of phylum- Porifera.

ARTS, SCIENCE & COMMERCE COLLEGE INDAPUR DIST PUNE

		CO 5. Description of Phylum Nematoda and give examples of pathogenic Nematodes
		CO 6. Identification and study of the characters of class - Dipnoi with its example.
		CO 7. Comparative studies of Heart, Kidney, Brain and Arterial System in different vertebrates.
		CO 8. Study of the Dentition in mammals.
		CO 9. Description of the Accessary Respiratory organs in fishes.
	(ZY 332) Mammalian Histology	CO 1. Study of the epithelial, connective, nervous and muscular tissue.
	(Paper-II)	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.
	(ZY 333) Biological Chemistry Paper III	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, Sorenson's 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
		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.
	(ZY 334) Environmental Biology	CO1 Understanding of Basic concepts of Environmental science & its Scope.
	&Toxicology (Paper IV)	CO 2. Study of Biotic & Abiotic factors.
		CO 3. Study of types of Ecosystems, Food web/chain & Ecological Pyramid.
		CO 4. Understanding of Different Types of Environmental pollution.
		CO 5. Study of Effects of pollution on Environment & Ecosystem.
		CO 6. Study of Bio-indicators & Environmental monitoring.
		CO 7. Understanding the Environmental challenges in India.
		CO 8. Study of Toxicants & their effect.
	(ZY 335) Parasitology (Paper V)	CO 1. Study of types of parasites like endoparasites and ectoparasites.
		CO 2. Study of types of hosts like intermediate, definitive paratenic and reservoir.
		CO 3. Study of host parasite relationship.
		CO 4. Detailed study of endoparasite of Plasmodium vivax, Entamoeba histolytica,
		Ascariuslumbricoide sand Taeniasolium.
		CO 5. Detailed study of the ectoparasite of Head louse, Tick, Mite.
		CO 6. Study of parasitological significance of Zoonosis.
		CO 7. Study of epidemic diseases.
	(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.

ARTS, SCIENCE & COMMERCE COLLEGE
INDAPUR DIST PUNE

		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.
	(ZY 341) Biological Techniques	CO 1. Study of preparation of different solutions/ strength of chemicals in percentage, normality, ppm, ppb etc.
	(Paper I)	CO2. Study of separation techniques like chromatography, electrophoresis, ultracentrifugation,
		colorimetric and spectroscopy.
		CO3. Study of hematological techniques like Blood cell count, Microscopy, Micrometry and Camera Lucida.
		CO 4. Study of micro technique procedure like procurement of tissues, fixatives, method of fixation and dehydration.
		CO 5. Detailed study of microtome: types & knives.
		CO 6. Study of different types of stain and staining procedure.
	(ZY 342) Mammalian Physiology	CO 1. Study of concept of nutrition and study of physiology of digestion related to digestive enzymes.
	and Endocrinology (Paper II)	CO 2. Study of circulation in relation to cardiac cycle, blood pressure and advanced techniques like electrocardiogram, angiography and coronary bypass.
		CO 3. Study of types of respiration pulmonary and tissue, transport of oxygen and carbon dioxide, RQ and BMR.
		CO 4. Study of excretion, its physiology, role of ADH and significance of renal failure and dialysis.
		CO 5. Study of striated muscles, theory of muscle contraction and response of muscles to various stimulations.
		CO 6. Study of conduction of nerve impulse, transmission and impulse stimulation, EEG, epilepsy.
		CO 7. Study of reproductive cycles with hormonal control related to pregnancy, parturition and lactation and male reproduction.
		CO 8. Study of hormone action and endocrine disorders like- gigantism, dwarfism, goiter, Myxedema etc.
	(ZY 343) Genetics & Molecular	CO 1. Study of Genetics & its study at molecular level.
	Biology (Paper III)	CO 2. Study of the fundamentals of Genetics.
		CO 3. Study the interrelationship between Genetics & Molecular Biology.
		CO 4. Study of awareness about Heredity & Inheritance of traits/ disease.
		CO 5. Study of applications & techniques of the Molecular Biology.
		CO 6. Study of the Molecular processes & activities of Genetic material.
	(ZY 344) Organic Evolution (Paper IV)	CO 1. Study of Origin Of Life.
		CO 2. Study of Evidences of Organic evolution.
		CO 3. Study of Theories of Organic evolution.
		CO 4. Study the Isolating Mechanism of species.
		CO 5. Understanding of the mechanism of speciation & their types.
		CO 6. Study the Geological Time Scale.
		CO 7. Study the Animal distribution according to the geographical area.
		CO 8. Study of Evolution of Man.
		CO 9. Study of Zoogeographical realms.

ARTS, SCIENCE & COMMERCE COLLEGE
INDAPUR DIST PUNE

	(ZY 345) General Embryology (Paper V)	CO 1. Study the Scope and Theories of general embryology.
		CO 2. Study the Concepts of Developmental Biology.
		CO 3. Study the Gametogenesis in brief.
		CO 4. Study the Fertilization in brief.
		CO 5. Study the Concepts of Cleavage, Gastrulation, and Blastula in brief.
		CO 6. Study the Chick Embryology in brief.
	(ZY 346) Medical Entomology	CO 1. Study of fundamentals of entomology.
	(Paper (Paper VI)	CO 2. Study of veterinary entomology.
		CO 3. Study of social insects such as wasp and termites and significance of social organization.
		CO 4. Study of household insect related to human such as cockroach, silverfish, ants and bottles.
		CO 5. Study of some insects as agent causing human diseases such as mosquito, housefly, bedbug, flea, tick, mite etc.
	ZY- 347 Practical Paper 1 (Semester III & IV)	CO 1. Description, locomotion and nutrition of different phylum.
		CO 2. Histological studies of the organs like- skin, tooth, tongue, alimentary canal and digestive gland, respiratory
		CO 3. Study of separation techniques like chromatography, electrophoresis, ultracentrifugation,
		CO 4. Study of circulation in relation to cardiac cycle, blood pressure and advanced techniques
	ZY- 348 Practical Paper 2 (Semester III & IV)	CO 1. Study the practical of biochemistry with classification and Significance.
		CO 2. Study of concept of nutrition and study of physiology of digestion related to digestive enzymes.
	ZY- 349 Practical Paper 3 (Semester III & IV)	CO 1. Study the Scope and Theories of general embryology.
		CO 2. Study of veterinary entomology.
M.Sc. Course Outcomes		
Class	**Course**	**Course Outcomes (COs)**
M. Sc. I , Zoology		
Semester-I	(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, Sorenson's 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
		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.

ARTS, SCIENCE & COMMERCE COLLEGE INDAPUR DIST PUNE

		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.
		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
Semester II	ZOUT 121	
	Molecular Biology and Bioinformatics	CO1: Explain the DNA structure & types, topology, Physical properties; chromatin structure and organization.

ARTS, SCIENCE & COMMERCE COLLEGE
INDAPUR DIST PUNE

		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 molting, change in body color 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 up to order level.
		CO4: Setup aquarium and manage it.
	ZOUP 125	CO1: Identify the various parasites and parasitic stages of common parasites, nitrogenous Waste products of animals, fresh water planktons and slides of endocrine glands.
	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.
M.Sc. II		
Semester III	(ZY 301) Animal Physiology I	CO 1 Study of Bioluminescence and animal electricity and concept of buoyancy.
		CO 2 Study of External and Internal Environment in Animal body.
		CO 3 Study of membrane physiology of animal.
		CO 4 Study of energy metabolism in animal.
		CO 5 Study of excretion, osmoregulation.
	(ZY 302) Immunology	CO 1 Detail Study of Immune system of human.
		CO 2 Study of humoral immunity, immediate response to infection in human.
		CO 3 Detail study of antibody structure and theories of antibody synthesis.
		CO 4 Study of antigen – antibody reaction and complement fixation pathway.

ARTS, SCIENCE & COMMERCE COLLEGE
INDAPUR DIST PUNE

		CO 5 Detail study of immunogenetics.
		CO 6 Study of different immunological techniques.
	(ZY 304) Insect Physiology	CO 1. Study of Integument of insect.
	and Biochemistry	CO 2. Study of Digestion and absorption of proteins, Carbohydrates and lipids in insect.
		CO 3. Study of Fat body of insect.
		CO 4. Study of ventilatory mechanism and their control in insect.
		CO 5. Study of Haemolymph of insect.
		CO 6. Study of Muscle in insect.
		CO 7. Study of Excretion and water balance in insect.
		CO 8. Study of microsomal and extra microsomal enzymes insecticide degradation and detoxification in insect body
		CO 9. Study of Endocrine, neuroendocrine hormones, chemistry, function and physiology, other peptide and steroid hormones in insect.
	(ZY 305) Research Methodology	CO 1 Study of concept of research methodology.
		CO 2 Study of quantitative methods use in research.
		CO 3 Study of computer application in research work.
		CO 4 Study of different tools and techniques use in research projects.
	(ZY 307) Fundamentals of Systematic	CO 1 Detail study of systematics and living organism classification system.
		CO 2 Study of kingdoms of life.
		CO 3 Study of different methodology in systematic.
		CO 4 Study of taxonomical key, taxonomic procedure and molecular phylogeny.
	(ZY 308) Insect Ecology	CO 1. Detail study of insect ecology.
		CO 2. Study of insect and climate, herbivores insects.
		CO 3. Study of natural enemies of insect and insect population dynamics.
	ZY 308 P Research Project	CO 1. learn the project on different topic
		CO 2. Learn the methodology in research
	ZY 301 P Practical's in corresponding Course	CO 1. Estimation serum uric acid
		CO2. Body size and oxygen consumption in aquatic animals
	ZY 302 - 309 Practical's in Corresponding course	CO 1. Plankton identification and quantification from river / lake water samples.
		CO 2. Water analysis for physico-chemical characteristics.
		CO 3. Physico chemical analysis of soil.
Semester IV	(ZY 401) Animal Physiology II	
		CO 1 Detail study of concept of nutrition, digestion, respiration in animal.
		CO 2 Study of Blood and blood vessels of animal.
		CO 3 Detail study of cardiac physiology.
		CO 4 Study of neuronal physiology in animal.
		CO 5 Study of Animal muscle physiology.
		CO 6 Study of sensory physiology in animal.
	(ZY 402) Economic Zoology	CO 1. Study of Parasitic protozoans and their role in human welfare, soil protozoans and their role in agriculture.

ARTS, SCIENCE & COMMERCE COLLEGE
INDAPUR DIST PUNE

		CO 2. Study of Sponge culture and its importance in industry.
		CO 3. Study of Concept of Coral reefs and its significance.
		CO 4. Study of Helminthes as human and animal parasites.
		CO 5. Study of Nematodes- parasitic roundworms of animals and plants.
		CO 6. Study of Vermiculture industry in India.
		CO 7. Study of house hold insects, Apiculture, Lac culture, Sericulture, Prawn culture, Insects of commercial value and stored grain pests.
		CO 8. Study of Economic importance of amphibian, reptiles, and birds.
		CO 9. Study of Poultry, Piggery, Diary industry and wool industry.
		CO 10. Study of Model animals in Pharmaceutical industry.
	(ZY 403) Mammalian	CO 1 Study the Reproductive organ: male and female gonads, duct systems and sex accessories, external sexual dimorphisms.
	reproductive physiology	
		CO 2 Study of Sexual cycles: puberty, estrous and menstrual cycles.
		CO 3 Study of Hormonal regulation in Human body.
		CO 4 Study the conception and blastocyst formation, implantation and delayed implantation, placenta: formation, types and functions, hormones in pregnancy.
		CO 5 Study of birth process and its neuroendocrine control and Lactation.
		CO 6 Study of artificial control of reproduction.
	(ZY 404) Histology and Histochemistry	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 detection of glycogen, neutral acid, mucopolysaccharides, detection of basic proteins, and detection of specific and nonspecific lipids.
		CO 4. Detail study about tools in histology
	(ZY 406) Apiculture	CO 1 Study the concept of Apiculture and nesting behavior of A. dorsata, A. florae, A. indica and A. mellifera.
		CO 2. Study of bee keeping equipment.
		CO 3. Study of bee keeping and seasonal management.
		CO 4. Study of different types of bee products.
		CO 5. Study of bee diseases and enemies.
	(ZY 407) Pest Control	CO 1. Study of Introduction of the pest control, types of pests and their importance, Damage caused by pests.
		CO 2. Study of Brief outline of medical and veterinary entomology with reference to important measures to control the vectors. House hold and stored grain pest and their control measures.
		CO 3. Study of Principles and methods of pest control.
		CO 4. Study of Autocidalcontrol,Chemosterilents, Kniplings model, Pheromonal and hormonal control and Concept of Integrated pest management.
		CO 5. Study of Non- insect pest and their control: Rat, Bandicoots, Crabs, Snails, Slugs, Birds and Squirrels.
		CO 6. Study of Pesticide- Appliances: Sprayers and Dusters, Hazards of Pesticides and Antidotes.

ARTS, SCIENCE & COMMERCE COLLEGE
INDAPUR DIST PUNE

	ZY406 P Practical Apiculture	CO 1. Types of Honey bee
		CO 2. Cast in honey bee
	ZY308 P Research Project	CO 1. learn the project on different topic
		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 B. Com 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
PO4		Best career option After B.Com. Sales Manager.
PO5		MBA is the most popular course available for after B. Com
PO6		If you are wondering what to do after B. Com, Company Secretary (CS) IS one of the pivotal job roles from the B.Com.
PO7		CMA (certified management account) is about a career after B. Com in aboard.
PO8		A career options after B. Com Telecommunications series.
PO9		A Completion of B. Com and acquiring in direct and in direct taxes jobs for B. Com graduates.
PO10		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 graduate found to be great in Business management.
PSO3		B. Com Aspirants eligible for both Programs 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		Paper 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.
		After M. Com degree candidates need to qualify B. ED to teach commerce subjects to class 11 and class12.
		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 M.Com.		
		Empowers the students to choose a profession of their choice such as CA, CS, ICWA, MBA, M. Com etc.

ARTS, SCIENCE & COMMERCE COLLEGE INDAPUR DIST PUNE

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.
Course Outcomes (COs)		
Class	**Course**	**Course outcomes**
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.22. 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

ARTS, SCIENCE & COMMERCE COLLEGE * INDAPUR DIST PUNE *

		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 -201	CO1.Understanding of the concept, process and importance of communication.
(Annual)		CO2.Provision of knowledge of various media of communication.
		CO3. Development of business communication skills through the application and exercises
	Corporate Accounting (-202)	CO1.Awareness about the conceptual aspect of corporate accounting
		CO2.Enabling the students to develop skills for Computerized Accounting
	Business Management (204)	CO1.Provision of knowledge & understanding about business management concept.
	Elements of Company Law (205)	CO1.Imparting the students with the knowledge of fundamentals of Company Law.
		CO2. Knowledge of new concepts involving in company law regime.
		CO3.Awareness to students with the duties and responsibilities of Key Managerial Personnel.
		CO4. Imparting students the provisions and procedures under company law.
	Marketing Management –(I) (-206-h)	CO1. Orientation of the students with recent trends in marketing management
		CO2.Awareness about marketing of eco-friendly products in the society through students
		CO3. Knowledge and the use of E-Commerce in competitive environment
		CO4.Understanding the influences of marketing management on
	Business Economics	CO1 Understood micro economics
		CO2 Understood the concept of national income.
		CO3 understood the concept of money and banking.
T.Y.B.com	Auditing (Sem-1)	CO1 Understand the concept of auditing
Annual		CO2 Learnt the process of auditing.
		CO3 To know the concept of tax audit.
	Advance Accounting	CO1 To know the basic of accounting standards.
		CO2 To know the band final account and its uses in banking co.
		CO3 To know the insurance claim accounting & its types.
	Cost and works accounting	CO1 To know the basic of marginal costing.
		CO2 To know the cash budget and flexible budget.
		CO3 To know the standard costing and variances.
	Marketing management(Spl-3)	CO1 To know the detailing of marketing research.
		CO2To understand the role brand and distribution.
		CO3To inform about Marketing and economic development.
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.
	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.
	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.
	Capital market and financial services	CO-1 Understand the concept of Capital market.

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INDAPUR DIST PUNE

		CO2 To learn the process of stock market.
		CO3 To learn the financial services of co-operative sector.
M.C.om- II	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.
M.Com-II	Advanced auditing	CO1 To know the basic concepts of auditing.
		CO2To know the IFRS & standards.
		CO3 To know the audit under CIS Environment.
M.Com-II	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 BBACA		
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.
class	**Course**	**Course outcomes (COs)**
	CA-101: Business Communication	CO1: Student understand importance of communication in business.
BBA(CA)	Paper I	
	CA-102: Principle of Management	Students are understood different business organization.CO2: Students are familiar about recent trends of management
	Paper II	
	CA-103: C Language	CO1: Students can solve problem by analyzing and converting logical thinking to computer understandable format using C programming.
	Paper III	CO2: Student learns the basic terminologies of C language.
		CO3: Students will be able to design their own Programme to solve mathematical problems using C programming.

ARTS, SCIENCE & COMMERCE COLLEGE
INDAPUR DIST PUNE

	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 importance in business
	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.
		CO3: 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.
Semester II	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
	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.
	Relational Database Management	CO1. Understanding about how to use database as backend in software Development
	System (301) Paper I	
	Data Structure using „C" (302) Paper II	CO1. Developing, Organizing and Storing the data, Data Analysts
	Introduction to Operating	CO1. Knowledge of operating system concepts.
	System (303) Paper III	CO2. Skill to operate the different operating systems.
		CO3. Study of management of all resources in the O.S.
	Business Mathematics (304) Paper IV	CO1. Usage of Mathematical concepts in Computers
	Software Engineering (305) Paper V	CO1. Knowledge of Software tools, methods, types, phases, quality metrics Designing, Maintaining, Implementing, Testing Software Products.
	Lab Course-Practical (306) Paper VI	CO1. Developing Desktop Application software's, Logical and Analytical Skills,
	Object Oriented Programming	CO1. Developing System Software's
	Using C++ (401) Paper I	
	Programming Using Visual	CO1. Understanding about how to use VB as frontend in software Development
	Basic (402) Paper II	

ARTS, SCIENCE & COMMERCE COLLEGE INDAPUR DIST PUNE

	Computer Networking (403) Paper III	CO1. Awareness about Computer. User understands how to access remote Programs and
		remote databases either of the same organization or from other enterprises or public sources.
	Enterprise Resource	CO1. Knowledge of ERP.
	Planning (404) Paper IV	
	Human Resource Management	CO1. Development and implementation of employee training, development Programme and understanding process of
	(405) Paper V	Recruitment, selection.
Semester V	Lab Course-Practical (406) Paper VI	CO1. Development of Desktop Application software's, Logical and Analytical Problem-Solving Skills
	Java Programming (501) Paper I	CO1. Development System Software's
	Web Technology (502) Paper II	CO1. Knowledge of the Programming in JavaScript, VBScript and html syntaxes, methods for web application development
	Dot NET Programming (503) Paper III	CO1. It is helpful to students that how to develop Desktop Application.
	Object Oriented Software	CO1. Designing, Maintaining, Implementing, Testing Software Products
	Engineering (504) Paper IV	
	Lab Course-Project Practical	CO1. Project learning, also known as project-based learning, is a dynamic approach teaching in which students
	(505) Paper V	explore real-world problems and challenges, simultaneously developing cross-curriculum skills while working in small collaborative groups
	Lab Course-Project	CO1. Developing Desktop Application software's, Logical and Analytical Skills, Problem Solving Skills
	Practical (506) Paper VI	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 developer
Semester VI	Advanced Web Technology (601) Paper I	CO1. Developing Web Applications
	Advanced Java (602) Paper II	CO1. Design & Developing Web Application software.
	Recent Trends in IT (603) Paper III	CO1.Understanding of current trends in Software industries and corporate sectors.
	Software Testing (604) Paper IV	CO1.Testing of a developed Software.
	Lab Course-Project Practical	CO1. Project learning, also known as project-based learning, is a dynamic approach to teaching in which students explore real-world problems and challenges,
	(605) Paper V	simultaneously developing cross-curriculum skills
	Lab Course-Project Practical	CO1. Developing the Desktop Application software's, Logical and Analytical Skills, Problem Solving Skills.
	(606) Paper VI	CO1. Able to develop applets for web applications and design GUI based applications.
Department of Economics		
Programme 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.

ARTS, SCIENCE & COMMERCE COLLEGE INDAPUR DIST PUNE

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.
Programme 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.
PSO 5		Students understand the financial environment of the family
Course Outcomes (COs)		
F.Y.B.Com	**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
	Subject: - BANKING & FINANCE SEM-	CO 1. To provide knowledge of fundamentals of Banking
		CO 2. To create awareness about various banking concepts
	I&II	CO 3. To conceptualize banking operations.
S.Y.B.Com	**subject: Banking and Finance-I (Indian Banking System - I) SEM-III&IV CourseCode: 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 CourseCode: 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.
T.Y.B.Com	**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 sector in 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 Practicesin 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.

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