

**Course Outcomes, Program Specific Outcomes and Program Outcomes****Faculty of Arts**

Program Specific Outcome of English	
PSO1	Reading
PSO2	Nation and Tradition
PSO3	Critical Insight in Literary Texts
PSO4	Issues and awareness of Sexuality and Gender: Arts
PSO5	Realizing Moral Values
PSO6	Writing skills.
PSO7	Learning Effective Communication
Objectives:	
PO1	To expose students to the best examples of prose and poetry in English so that they realize the beauty and communicative power of English
PO2	To instill human values and develop the character of students as responsible citizens of the world
PO3	To develop the ability to appreciate ideas and think critically
PO4	To enhance employability of the students by developing their linguistic competence and communicative skills
PSO5	To revise and reinforce structures already learnt in the previous stages of learning.
F. Y. B. A-	
Optional English (General Paper-1)	
After studying this course student will be able to:	
CO1	To expose students to the basics of literature and language and develop an integrated view about language and literature in them
CO2	To acquaint them with minor forms of literature in English and help them to appreciate the creative use of language in literature
CO3	To introduce them to the basics of phonology of English so that they can pronounce better and speak English correctly.
CO4	To prepare students to go for detailed study and understanding of Literature and language
CO5	To enhance the job potential of students by improving their language skills
F. Y. B. Com	
Compulsory English	
After studying this course student will be able to:	
CO1	To offer relevant and practically helpful pieces of prose and poetry to students so that they not only get to know the beauty and communicative power of English but also its practical application

CO2	To expose students to a variety of topics that dominate the contemporary socioeconomic and cultural life
CO3	To develop oral and written communication skills of the students so that their employability enhances d) To develop overall linguistic competence and communicative skills of students.
S. Y. B. A English Compulsory English	
CO1	To familiarize students with some excellent pieces of drama and poetry in English so that they realize the beauty and communicative power of English.
CO2	To enable students to become competent and effective users of English in real life situations
CO3	To contribute to the overall personality development of the students
CO4	To instil humanitarian values and foster sympathetic attitude in the students
CO5	To acquaint the students with the verbal and nonverbal communication
CO6	To impart knowledge of some essential soft skills to enhance their employability
Skill Enhancement Course (SEC 1-A & SEC 2A)	
Course Outcomes: After studying the paper successfully, the learners will be able:	
CO1	To get the awareness of phonological aspects of English.
CO2	To identify the career opportunities suitable to them.
CO3	To understand the effective use of English in different careers.
CO4	To develop competence in using English for the career of their choice.
CO5	To enhance skills required for their placement
CO6	To exercise verbal as well as nonverbal communication effectively for their career.
CO7	To use English in society for interacting and guiding people.
CO8	To enhance students' performance in career/society.
3) Discipline Specific Course (DSC-1A & DSC-2A)	
Discipline Specific Course (DSC-1A & DSC-2A) (Old S-I/II)	
Skill Enhancement Course (SEC 2-A & SEC 2-B) (w. e. f. 2020- 2021)	
CO1	To introduce Drama and Poetry as a major forms of literature
CO2	To develop interest among the students to interact in English.
CO3	To develop interest among the students to appreciate and analyze drama independently
CO4	To acquaint and familiarize the students with the elements and the types of Poetry/ Drama
CO5	To enhance students awareness in the aesthetics of poetry and to empower them to read, appreciate and critically evaluate poetry independently.
CO6	To enhance students' awareness regarding aesthetics of Drama and to empower them to evaluate drama independently
CO7	To aware the students about universal human values.
CO8	To create opportunities to access exposure of speaking in various contexts
CO9	To acquaint and familiarize the students with soft skills.

T. Y. B. A. Compulsory ENGLISH	
CO1	To familiarize students with some excellent pieces of prose and poetry in English so that they realize the beauty and communicative power of English.
CO2	To enable students to become competent and effective users of English in real life situations
CO3	To contribute to the overall personality development of the students.
CO4	To instill humanitarian values and foster sympathetic attitude in the students.
CO5	To train the students in practical writing skills required in work environment.
CO6	To impart knowledge of some essential soft skills to enhance their employability
Skill Enhancement Course (SEC 1-C & SEC 1-D)	
Course Outcomes: After studying the paper successfully, the learners will be able:	
CO1	To get the awareness of career opportunities available to them.
CO2	To identify the career opportunities suitable to them.
CO3	To understand the use of English in different careers.
CO4	To develop competence in using English for the career of their choice.
CO5	To enhance skills required for their placement.
CO6	To use English effectively in the career of their choice.
CO7	To exercise verbal as well as nonverbal communication effectively for their career.
CO8	To use English in society for interacting and guiding people.
CO9	To enhance students performance in career/society.
Discipline Specific Elective (DSE-1C& DSE-1D)	
Discipline Specific Elective (DSE-2C & DSE-2D) (Old S-4)	
Skill Enhancement Course (SEC 2-C & SEC 2-D) (w. e. f. 2021- 2022)	
Title of the Paper: Mastering Life Skills and Life Values	
CO1	To equip the students with the social skills
CO2	To train the students interpersonal skills
CO3	To build self-confidence and communicate effectively
CO4	To encourage the students to think critically
CO5	To learn stress management and positive thinking
CO6	To enhance leadership qualities
CO7	To aware the students about universal human values
CO8	To develop overall personality of the students

F.Y.B.A Economic	
INDIAN ECONOMIC ENVIROMENT)	
CO1	Develop ideas of the basic characteristics of Indian economy; its potential on natural resources.
CO2	Understand the importance, causes and impact of population of growth and its distribution, translate and related them with economic development.
CO3	Grasp the importance, of planning undertaken by the government of India, have knowledge on the various objectives, failures and achievements as the foundation of the ongoing planning and economic reforms taken by the government
CO4	Understand agriculture as the foundation of economic growth and development, analyses the progress and changing nature of agricultural sector and its contribution to the economy as a whole.
CO5	not only be aware of the economy as a whole, they would understand the basic features of mizoram`s economy, sources of revenue, and how the state government finance its programmes and projects.

B.A. Economics	
Program Specific Outcomes	
The principal aims of objective of the BA Economics programme are To provide students a well-founded education in Economics	
PSO1	To provide structured curricular which support the academic development of students
PSO2	To provide and adapt curricular that prepare our graduated for employment and further study as economists.
PSO3	To provide students with the opportunity to pursue courses that emphasizes quantitative and theoretical aspects of Economics.
PSO4	To provide students with the opportunity to focus on applied and policy issues in Economics
PSO5	To provide students programmers that allows the students to choose from a wide range of economics specialization.
PSO6	To provide a well –resourced learning environment for Economics.

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PSO6	To provide a well –resourced learning environment for Economics.

T.Y.B.A. (INDIAN ECONOMIC DEVELOPMENT)	
On completion of the course students will be able to:	
CO1	To relate and recognize the concept and indicators of Economic Development
CO2	To describe and analyze the concept and indicators of Human Development
CO3	To explain the characteristics of Developing and Developed Countries.
CO4	To describe the constraints to the process of Economic Development
CO5	To describe and explain the process of Economic Planning.
CO6	To describe and examine the changing structure of planning process in India.
CO7	To describe and explain the relation between Economic Development and Environment

F.Y.B.A.	
Gg- 110 (A) Physical Geography Semester I	
On completion of the course students will be able to	
CO1	To introduce the students to the basic concepts in Physical geography.
CO2	To introduce latest concept in Physical geography
CO3	To acquaint the students with the utility and application of Physical geography in different Regions and environment.
CO4	To make the students aware about Earth system (Lithosphere, Atmosphere, Biosphere and Hydrosphere)
Human Geography Semester II	
On completion of the course students will be able to	
CO1	To introduce the students to the basic concepts in Human geography.
CO2	To introduce latest concept in Human geography
SYBA	Environmental Geography
CO1	To Understand key concepts from economic, political, and social analysis
CO2	To important set of spatial and analytical tools for assessing the impact of human presence in the environment
CO3	To study scope and contents of the subject, environmental geography can prepare students for careers in environmental planning and conservation, environmental assessment and monitoring, resource management, environmental hazards and their management
TYBA	
Geography of Disaster Management (G3)	
On completion of the course students will be able to	
CO1	To introduce students the concept of disaster & its relation with Geography.
CO2	To acquaint the students with the utility & application of hazards in different areas its management.
CO3	To make the students aware of the need of protection & disaster management.

F.Y.B.A. Hindi	
सामान्य हिंदी जी-1	
CO1	छात्र को हिंदी काव्य साहित्य का परिचय हुआ ।
CO2	छात्र हिंदी कहानी साहित्य से अवगत हुए ।
CO3	हिंदी भाषा द्वारा संवाद कौशल विकसित हुआ ।
CO4	छात्रों का मौलिक लेखन की और ऋजु बड़ा ।
S.Y.B.A Hindi	
CC-1C (G-2) आधुनिक काव्य कहानी तथा व्यवहारीक हिंदी	
CO1	छात्र को काव्य साहित्य से परिचित हुए ।

CO2	छात्र को हिंदी कारक व्यवस्था का परिचय हुआ I
CO3	छात्र कारक साहित्य से पररहचत हुए I
CO4	छात्र संक्षेपण लेखन करने के काबिल हुए I
CO5	छात्रो मे सजनात्मक विकास I
T.Y.B.A Hindi	
हिंदी साहित्य का इतिहास	
CO1	आधुनिक काल की पृष्ठभूमी से छात्र अवगत हुए I
CO2	आधुनिक काल की रचनाकारो और रचनाओ से छात्रपरिचित हुए I
CO3	हिंदी गद्यकीय उद्भव और विकास से छात्र अवगत हुए I

Department Of Marathi

PROGRAMME OUTCOMES

B . A	
After successful completion of three year bachelor and two year master degree program in Marathi a student should be able to	
PO1	हिषयाचा अभ्यास करणारया हिद्यार्थास थलूलपणे मराठी साहल्य ,मराठी भाषा आहण मराठी सस्कृती याचा क्रमशः पररचय होतो
PO2	साहल्यसबधी - हिशेषतः मराठी साहल्यसबधी रुची हनमाण होते
PO3	.हिद्यार्थाया िाडमयीन अहभरुचीचा हिकास होतो .
PO4	आस्वाद घेण्याची डोळस क्षमता हिकहसत होते .
PO5	साहल्यभासातून जीनि हिषयक समज हिकहसत होते
PO6	मराठी साहल्यातील हभ्र हभ्र परिाह आहण प्रकार लक्षात येतात
PO7	जागतकीकरणात हिहिध क्षेत्राना सामोरे जाण्यासाठी भाषक क्षमता हिकहसत होते .
After successful completion of three year bachlour and two year master degree program in Marathi a student should be able to	
PO1	िाडमयीन आहण जीनिािशयक जाहणा समृध होतात
PO2	. साहल्य कृतीय हचहकसक अभ्यासाची परिृिी रिृिधगत होते
PO3	भाषक जाहणा हिकहसत करून कौशल्लात्मक उपाययोजनाची हिद्यार्थात पात्रता येते .
PO4	हिहिध जीनिक्षेत्रातील भाषाहिषयक कौशल्ल ग्रहनानतर रोजगारक्षमताची आहण पािीन्याची हनमतती होते .
PO5	िाडमयीनमूलाचे आहण जीनिमूलाचे सस्कार होतात .
PO6	हिहशि कालखडातील साहल्यहनमतीया परेणा परिृिी लक्षात घेऊन साहल्याचे नेमके आकलन करता येते .
PO7	लेखकाया समग्र अभ्यासातून लेखकाया साहल्यकृती , आशयसूत्रे , भाषक प्रयोग ,जीनिटिी इत्यादीचे िाडमयीन पािािाहातील मूलमापन ििथान हनधारण करता येते
FYBA Marathi	
मराठी साहल्य कथा आहण भाषक कौशल्ल हिकास सत्र दुसरे -मराठी साहल्य एकाहकका आहण भाषक कौशल्ल हिकास	
CO1	साहल्य सबधी रुची हनमाण होते.
CO2	मराठी भाषा िि सस्कृती हिषयी िान प्राप्त होते.
CO3	कथा िि कहिता या साहल्य प्रकारचा आस्वाद घेण्याची क्षमता हनमाण होते.
CO2	कायालयीन मराठी भाषा िापरण्याचे त्र हिकहसत होते.
SYBA GEN.	
भाषक कौशल्लाहिकास ि आधुहनक मराठी साहल्यप्रकार	
CO1	भाषक कौशल्ल हिकहसत होतात.
CO2	चरत्र िि आत्मचरत्र या साहल्य प्रकारचे िान प्राप्त होते.
CO3	आस्वाद िि मूलमापन करण्याची क्षमता िाढते
SYBA S1	
आधुहनक मराठी साहल्यः प्रकाशिटा	
CO1	ििंगििंगळ्या कालखडातील परपरा िि सस्काराचा पररचय होतो.
CO2	नाटक िि कादबरी या साहल्य प्रकारचे आस्वाद िि आकलन होण्याची क्षमता हनमाण होते.
SYBA S2	
साहल्यहिचार	
CO1	हिहशि कालखडातील साहल्यया परेणा समजतात

CO2	ऐहतहासक परंपराचे ज्ञान होते.
SYBSC	
मराठी साहित्य आहण उपयोह्यत मराठी	
CO1	हिज्ञान साहित्य हिषयी आर्िड इनमाण होते.
CO2	भाषक कोशल हिकहसत होतात.
TYBA G3	
आधुनक मराठी साहित्य आहण व्यािहारक मराठी	
CO1	हिहिध साहित्य प्रकाराचा पररचय होतो.
CO2	ग्रथ पररक्षणाची आर्िड इनमाण होते.
TYBA S3	
साहित्य हिचार	
CO1	साहित्याचे हिहिध स्वरूप समजते.
CO2	साहित्याची िाड्मयीन मूल्े समजतात.
TYBA S4	
िणनात्मक भाषाहिज्ञान	
CO1	भाषेहिषयी सखोल ज्ञान हमळते.
CO2	भाषेतील "स्वहनम " सकल्पना समजते.

Department History

Programme Specific Outcomes,	
PSO1	After completion of this course they gather knowledge about the socio-cultural heritage of India and world as well.
PSO2	Help to grow national and international understanding among history students.
PSO3	Careers options for students to engage as MPSC ,UPSC and other Competitive exam. educators, archivists, producers of multimedia material and even as a researcher in historic Sites and Museums, Historical Organizations, Cultural Resources Management and Historic Preservationetc.
PSO4	History helps them in knowing the past people, their culture, their religions, and their social systems, and transforms them into responsible citizens to make a better future.
F.Y BA Semester –I	
Early India: From Prehistory to the Age of the Mauryas	
On completion of the course students will be able to	
CO1	The history of Early India is a crucial part of Indian history. It is a base for understanding the entire Indian history. The course is aimed at helping the student to understand the history of early India fromthe prehistoric times to the age of the Maury"s.
CO2	It attempts to highlight the factors and forces behind the rise, growth and spread of civilization and culture of India along with the dynastic history. It also attempts to help the students to understand the contribution of Early Indians to polity, art, literature, philosophy, religion and science and technology.
CO3	It also aims to foster the spirit of enquiry among the students by studying the major developments inearly Indian history.
F.Y BASemester-II	
Early India: Post Mauryan Age to the Rashtrakutas	
On completion of the course students will be able to	
CO1	The history of India after the Mauryas is very important to understand the developments in early Indiaafter the Mauryas, which finally led to the transition to medieval India.
CO2	.The course is aimed at introducing the students to the developments in different parts of India through a brief study of regional kingdoms up to the tenth century C.E. It attempts to highlight the consequencesof the foreign invasions, particularly on the polity, economy, society and art and architecture. The attempt is also to instill the spirit of enquiry among the students.
S.Y BA-III	
G-II Modern India (1857-1950)	
On completion of the course students will be able to	
CO1	The course is designed to help the student to know- History of freedom movement of India, aims, objectives problems and progress of Independent India. It aims at enabling the student to understand the processes of rise of modern India.
CO2	The Course attempts to acquaint student with fundamental aspects of Modern Indian History.
CO3	To explain the basic concepts/ concerns/ frame work of Indian History.
CO4	Appreciate the skills of leadership and the administrative system of the Marathas
CC-2(3)History of the Marathas: (1707-1818)	
On completion of the course students will be able to	
CO1	Students will be able to analyze the Marathas policy of expansionism and its consequences

CO2	They will understand the role played by the Marathas in the 18th century India..
CO3	They will be acquainted with the art of diplomacy in the Deccan region.
CO4	It will help to enrich the knowledge of the administrative skills and profundity of diplomacy
S.Y BA-III	
S-I DSE-1A (3)1.Medieval India - Sultanate Period	
CO1	Provides examples of sources used to study various periods in history
CO2	Relates key historical developments during medieval period occurring in one place with another .
CO3	Analyses socio - political and economic changes during medieval period
CO4	Estimate the foreign invasion and the achievement of rulers
S.Y BA Sem-IV	
S-I DSE-1B (3)4.Medieval India: Mughal Period	
CO1	Draws comparisons between policies of different rulers.
CO2	Understanding Role of Akbar in the consolidation of Mughal rule in India.
CO3	Understand Aurangzeb's conflict with Rajputas, Maratha and weakening Mughals age.
CO4	Analyses factors which led to the emergence of new religious ideas and movements (bhakti and Sufi)
S.Y BA-III	
S- IIDSE-2A (3)2.Glimpses of the Modern World - Part I	
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.
S.Y BA Sem-IV	
S- II DSE-2B (3)5. Glimpses of the Modern World - Part II	
CO1	It will enable students to develop the overall understanding of the Modern World.
CO2	The students will get acquainted with the major nationalist movements, the World War II and its consequences, the Cold War and its Consequences.
CO3	It will enhance their overall perception of the history of the Modern World.
CO4	It will enable students to understand the significance of the strategic political developments in the Modern World.
S.Y BA-III	
Art &Architecture in Early India	

CO1	Students will get an overall understanding of the emergence and development of the art and architecture in Early India.
CO2	They will understand the emergence of the Pottery, Terracotta figures, Ornaments, Town Planning, preparation of seals and coins.
CO3	They will have an understanding of the art and architecture in early India
S.Y BA-III	
6.Medieval Indian, Art &Architecture	
CO1	Students will get an overall understanding of the development of the Medieval Art and Architecture.
CO2	They will understand the changing patterns of the Art and Architecture during the Medieval India.
CO3	They will have an understanding of the impact of Persian Art on Islamic Art and Architecture in Medieval India.
T.Y BA Sem-V	
G-III CC- 3(3)Indian National Movement (1885-1947)	
On completion of the course students will be able to	
CO1	It will enable students to develop an overall understanding of Modern India.
CO2	It will increase the spirit of healthy Nationalism, Democratic Values and Secularism among the Students
CO3	Students will understand various aspects of the Indian Independence
CO4	Movement and the creation of Modern India.
T.Y BA Sem-VI	
G-III CC- 4(3)India After Independence- (1947-1991)	
CO1	It will enable students to develop an overall understanding of the Contemporary India.
CO2	To increase the spirit of healthy Nationalism, Democratic Values and Secularism among the students.
CO3	Students will understand various aspects of India's domestic and foreign policies that shaped Post-Independence India.
T.Y BA Sem-V	
S-III DSE-3 C (3).Introduction to Historiography	
CO1	Students will be introduced to the information and importance of Historiography.
CO2	Students will be introduced to the different Methods and Tools of data collection.
CO3	Students can study the interdisciplinary approach of History.
CO4	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.
T.Y BA Sem-VI	
S-III DSE-3 C (3)10 Applied History	
CO1	Students will be introduced to the information and importance of applied history

CO2	Student will learn about the Historical significance of Archaeology and Archives and opportunities in the field of Archaeology and Archives.
CO3	Through this course, students will be informed about the opportunities in the field of Media, Museums
CO4	the about learn will Students 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.
T.Y BA Sem-V	
S-IV DSE-4 D (3)8.Maharashtra in the 19th Century	
CO1	Student will develop the ability to analyse sources for 19th century Maharashtra History.
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
T.Y BA Sem-VI	
S-IVDSE-4 D (3)11 Maharashtra in the 20th Century	
CO1	Student will develop the ability to analyses sources for 20th Century Maharashtra History
CO2	Student will learn significance of regional history and Socio- Religious Reformism foundation of the region
CO3	It will enhance their Perception of 20th Century Maharashtra
CO4	Appreciate the skills of leadership and the Socio-Religious System of the Maharashtra
T.Y BA Sem-V	
Skill Enhancement Course (SEC)-10.Research Paper Writing	
CO1	Students will be introduced to the information and importance of Historiography.
CO2	Students can study the interdisciplinary approach History
CO3	This curriculum Will help to develop Resrech ability and process of research paper Writing
T.Y BA Sem-VI	
Skill Enhancement Course (SEC)-13.Archaeology	
CO1	Students will learn to understand the definition, aims and scope of Archaeology so as to understand its applications in interpreting the human past.
CO2	They will be able to understand the nature of the archaeological record and the unique role of science in archaeology
CO3	They will have an overall understanding of the Archaeology

Department of Political Science

Programme Specific Outcome	
PSO1	Understanding the nature and developments in national and international politics
PSO2	Analysing the Indian constitutional provisions, major legislations and reforms
PSO3	Critical evaluation of social, economic and political variables for a proper understanding of the plurality of Indian society
PSO4	-Building overall consciousness regarding national political history, international relations and present Indian and Western political thinkers.
PSO5	- Developing knowledge of administrative studies with special reference to Indian administrative structures and practices.
PSO6	Examining India's foreign relations with her neighbours and great powers.
PSO7	Use of case study method for analysing the working of important international and regional organisations

F. Y. B. A. (G-1) Semester-I

INTRODUCTION TO INDIAN CONSTITUTION Total Credits : 03	
CO1	. To acquaint students with the important features of the Constitution of India andwith The basic framework of Indian government
CO2	To familiarize students with the working of the Constitutionof India.

F. Y. B. A. (G-1) Semester-II

INTRODUCTION TO INDIAN CONSTITUTION	
CO1	To acquaint students with the important features of the Constitution of India andwith The basic framework of Indian government
CO2	To familiarize students with the working of the Constitutionof India.

FYBA (2 Extra Credit)

Democracy Election and Governance

CO1	To introduce the student meaning of democracy and the role of the governance.
CO2	2to help them understand the various approaches to the study of democracy and governance

S. Y. B. A. (G-2) SEMESTER III PERIOD CC-I C (3)

INTRODUCTION TO POLITICAL IDEOLOGIES	
This course is designed to acquaint students with the	
CO1	Role of different political ideologies and their impact in politics
CO2	Close link between an idea and its actual realization in public policy
CO3	Legacy of all the major ideologies

S. Y. B. A. (G-2) SEMESTER IV CC-1 D (3)

INTRODUCTION TO POLITICAL IDEOLOGIES	
This course is designed to acquaint students with the –	
CO1	Role of different political ideologies and their impact in politics
CO2	. Close link between an idea and its actual realization in public policy

CO3	Legacy of all the major ideologies
S. Y. B. A.(S-1) PERIOD DSE-1A (3)	
WESTERN POLITICAL THOUGH Total Credits : 03	
This course is designed to acquaint students with the –	
CO1	Major traditions of thought that have shaped political discourse in different parts of the world.
CO2	The great diversity of social contexts and philosophical visions.
CO3	The history of political thought as a series of critical, interconnected and open-ended conversations about the ends and means of the good life.
S. Y. B. A. SEMESTER IV DSE-1B (3)	
WESTERN POLITICAL THOUGH	
This course is designed to acquaint students with the	
CO1	Major traditions of thought that have shaped political discourse in different parts of the world.
CO2	The great diversity of social contexts and philosophical visions
CO3	The history of political thought as a series of critical, interconnected and open-ended conversations about the ends and means of the good life
S. Y. B.A SEMESTER III PERIOD DSE-2A (3)	
POLITICAL JOURNALISM	
This course is designed to acquaint students with the –	
CO1	Complex relationship between the communication, media and power politics
CO2	Critical appraisal of practices of political image management, campaigns, propaganda and censorship.
CO3	Indian context of political Journalism
S. Y. B. A. SEMESTER IV DSE-2B (3)	
POLITICAL JOURNALISM	
This course is designed to acquaint students with the –	
CO1	Complex relationship between the communication, media and power politics.
CO2	Critical appraisal of practices of political image management, campaigns, propaganda and censorship.
CO3	Indian context of political Journalism
S. Y. B. A. (Extra Credit)	
BASICS OF INDIAN CONSTITUTION	
CO1	To acquaint students with the important features of the Constitution of India and with the basic framework of Indian government.
CO2	To familiarize students with the working of the Constitution of India.
T. Y. B. A. CC-1 E (3) (G-3)	
POLITICAL IDEALOGIES	
CO1	This course will introduce the overall scope of the sub-discipline of Modern Political Analysis. The focus of the course will be on the Modern Political Analysis of power. The emphasis is on the nature of power in modern societies- more in the form of organizations and social formations than as individual power. Students are also expected to understand different forms of justifications of power and the role of ideology in this regard. State will be studied as a repository of power in society while class and patriarchy are two instance of how the nature of power is shaped by social factors. SEM
T. Y. B. A. CC-2 E (3) (G-3)	
POLITICAL IDEALOGIES	
CO1	This course will introduce the overall scope of the sub-discipline of Modern Political Analysis. The focus of the course will be on the Modern Political Analysis of power. The emphasis is on the nature of power in modern societies- more in the form of organizations and social formations than as individual power. Students are also expected to understand different forms of justifications of power and the role of ideology in this regard. State will be studied as a repository of power in society while class and patriarchy are two instance of how the nature of power is shaped by social factors. SEM
T. Y. B. A. DSE 1 C (3)+1 (S-3)	

PUBLIC ADMINISTRATION	
CO1	This paper is an introductory course in Public Administration. The essence of Public Administration lies in its effectiveness in translating the governing philosophy into programmes, policies and activities and making it a part of community living. The paper covers personnel public administration in its historical context thereby proceeding to highlight several of its categories, which have developed administrative salience and capabilities to deal with the process of change. The recent developments and particularly the emergence of New Public Administrations are incorporated within the larger paradigm of democratic legitimacy. The importance of legislative and judicial control over administration is also highlighted
T. Y. B. A. DSE 2 C (3)+1 (S-4)	
INTERNATIONAL POLITICS	
CO1	This paper deals with concepts and dimensions of International Relations and makes an analysis of different theories highlighting the major debates and differences within the different theoretical paradigms. The dominant theories of power and the question of equity and justice, the different aspects of balance of power leading to the present situation of a unipolar world are included. It's highlights various aspects of conflict and conflicts resolution, collective security and in the specificity of the long period of the post second world war phase of the cold war, of Detent and Deterrence leading to theories of rough parity in armaments.
T. Y. B. A. DSE 2 D (3)+1 (S-4)	
INTERNATIONAL POLITICS	
CO1	This paper deals with concepts and dimensions of International Relations and makes an analysis of different theories highlighting the major debates and differences within the different theoretical paradigms. The dominant theories of power and the question of equity and justice, the different aspects of balance of power leading to the present situation of a unipolar world are included. It's highlights various aspects of conflict and conflicts resolution, collective security and in the specificity of the long period of the post second world war phase of the cold war, of Detent and Deterrence leading to theories of rough parity in armaments.
T.Y.B.A. SEC 2C (2) (2 Extra Credit)	
SAMYUKTA MAHARASHTRA MOVEMENT	
CO1	. This Course is an introduction to the political process in Maharashtra with special reference to regionalism sub-regionalism and Samyukta Maharashtra Movement
CO2	The aim of the course is that students are expected to understand both the historical evolution of Maharashtra's politics and different analyses of politics of the state.
CO3	. It tries to acquaint students with the main issues and concerns in the public life of a regional society as it shaped in the concept of colonialism, nationalism and modernity.
T.Y.B.A. SEC 2D (2) (2 Extra Credit)	
SAMYUKTA MAHARASHTRA MOVEMENT	
CO1	This Course is an introduction to the political process in Maharashtra with special reference to regionalism sub-regionalism and Samyukta Maharashtra Movement.
CO2	The aim of the course is that students are expected to understand both the historical evolution of Maharashtra's politics and different analyses of politics of the state
CO3	. It tries to acquaint students with the main issues and concerns in the public life of a regional society as it shaped in the concept of colonialism, nationalism and modernity.

Department of Sociology

FYBA Sociology (Semester I &II)	
PSO1	To acclimatize Family and kinship, Marriage – meaning, forms and changing trends.
PSO2	To understand religion, education, media, etc.
PSO3	To accept Modernization, Development and Globalization
PSO4	To know Significance of Human Rights and Social Justice
1. Introduction to Population and Society	
2. Population and Indian Society	
CO1	To understand the social context of emergence of Sociology
CO2	To introduce basic sociological concepts and subject matter and perspectives of Sociology
CO3	To familiarize students with new avenues in Sociology.
CO4	To study Emergence of Sociology - Western and Non-Western background, Enlightenment (French and industrial Revolution)
CO5	To expose students to diverse fields and career opportunities in Sociology.
CO6	To acquaint students with basic institutions of Society with its newer
CO7	To develop critical understanding of the functioning of social institutions.
SYBA Sociology (semester III & IV)	
1. Crime and Society	
2. Introduction to Human Rights and Social Justice	
CO1	To introduce the significance of population studies and explain theories and basic concepts.
CO2	To understand the impact of population on various institutions of society.
CO3	To introduce students to various debates around sources of population data.
CO4	To understand the importance of population studies for policy and development.
CO5	To familiarize students to the dynamics of Indian Population.
TYBA Sociology (semester V & VI)	
CO1	To acquaint the students with recent trends in criminology, changing profile of crime and criminals.
CO2	To acquaint the students with different sociological approaches to crime.
CO3	To prepare the students for professional roles as correctional agents in agencies of criminal justice administration.
CO4	To enhance the knowledge, understanding and awareness of students about human rights and social justice
CO5	To develop skills related to protection of human rights and ensuring of social justice
CO6	To promote respect for all through knowledge of human rights.

(A) Faculty of Science

1. Department of Chemistry

After successfully completing **B.Sc. Chemistry** Programme students will be able to:

Programme : B.Sc. (Bachelor of Science)	
Knowledge outcome	
PO1	Transfer and apply the acquired fundamental knowledge of chemistry, including basic concepts and principles of 1) Physical, Analytical Chemistry, organic chemistry, Inorganic chemistry and biochemistry; (2) analytic techniques and experimental methods for chemistry to study different branches of chemistry;
PO2	Demonstrate the ability to explain the importance of the Periodic Table of the Elements and represent key aspects of it and its role in organizing chemical information.
Skills Outcomes	
PO1	Apply and demonstrate knowledge of essential facts, concepts, laws, principles and theories related to chemistry.
PO2	Demonstrate the learned laboratory skills, enabling them to perform qualitative and quantitative analysis of given samples and able to make conclusions on it.
PO3	Set procedure and synthesize simple compounds like soap of commercial importance.
PO4	Engage in oral and written scientific communication, and will prove that they can think and work independently.
PO5	Respond effectively to unfamiliar problems in scientific contexts
PO6	Plan, execute of design experiment, make documentation of it, interpret data at entry level of chemical industry and report the results.

After successfully completing **B.Sc. Chemistry** Programme students will be able to:

Programme : B.Sc. (Bachelor of Science)	
PSO1	Understand the nature and basic concepts of Physical, Organic and Inorganic chemistry
PSO2	Analyze Organic and inorganic compounds qualitatively and quantitatively;
PSO3	Understand the applications of physical, organic, inorganic and analytical chemistry in pharmaceutical, agriculture and chemical industries.
PSO4	Able to perform experimental procedures as per laboratory manual in the area of physical, Inorganic and organic chemistry;
PSO5	Interpretation and synthesis of chemical information and data obtained from chemical and instrumental analysis

CH- 101: Physical Chemistry

The student who successfully completes this course students will be able to:

CO1	Students will be able to apply thermodynamic principles to physical and chemical process.
CO2	Calculations of enthalpy , Bond energy, Bond dissociation energy , resonance energy
CO3	Maintain records of quantitative and qualitative analysis.
CO4	Variation of enthalpy with temperature –Kirchoff's equation
CO5	Third law of thermodynamic and its applications, Knowledge of Chemical equilibrium will make students to understand
CO6	Relation between Free energy and equilibrium and factors affecting on equilibrium constant.

F. Y. B.Sc. Chemistry

CH- 102: Organic Chemistry	
The student who successfully completes this course students will be able to:	
CO1	The students are expected to understand the fundamentals, principles, and recent Developments in the subject area.
CO2	It is expected to inspire and boost interest of the students towards chemistry as The main subject
CO3	To create foundation for research and development in Chemistry
F. Y. B.Sc. Chemistry	
CH- 103: Chemistry Practical Course	
The student who successfully completes this course students will be able to:	
CO1	Importance of chemical safety and Lab safety while performing experiments in laboratory
CO2	Determination of thermochemical parameters and related concepts
CO3	Elemental analysis of organic compounds (non-instrumental)
CO4	Techniques of pH measurements
CO5	Chromatographic Techniques for separation of constituents of mixture

F. Y. B. Sc. Chemistry	
CH-201: Inorganic Chemistry	
The student who successfully completes this course students will be able to:	
CO1	Various theories and principles applied to reveal atomic structure.
CO2	Origin of quantum mechanics and its need to understand structure of hydrogen Atom.
CO3	Schrodinger equation for hydrogen atom
CO4	Shapes of orbital's identification
CO5	Explain rules for filling electrons in various orbital's- Aufbau's principle, Pauli exclusion principle, Hund's rule of maximum multiplicity
CO6	Discuss electronic configuration of an atom and anomalous electronic configurations.
CO7	Describe stability of half-filled and completely filled orbital's
CO8	Discuss concept of exchange energy and relative energies of atomic orbital's
CO9	Design Skeleton of long form of periodic table.
CO10	Describe Block, group, modern periodic law and periodicity
CO11	Classification of elements as main group, transition and inner transition elements
CO12	Explain characteristics of ionic bond, types of ions, energy consideration in ionic bonding, lattice and solvation energy and their importance in the context of stability and solubility of ionic compounds
CO13	Explain characteristics of ionic bond, types of ions, energy consideration in ionic bonding, lattice and solvation energy and their importance in the context of stability and solubility of ionic compounds.
CO14	Define Fajan's rule, bond moment, and dipole moment and percent ionic character.
F. Y. B.Sc. Chemistry	
CH- 202: Analytical Chemistry	
The student who successfully completes this course students will be able to:	
CO1	Calculations of mole, molar concentrations and various units of concentrations which will be helpful for preparation of solution.
CO2	Relation between molecular formula and empirical formula
CO3	Stoichiometry calculation and explanation

CO4	Define term mole, mill mole, molar concentration, molar equilibrium concentration and Percent Concentration.
CO5	SI units, distinction between mass and weight
CO6	Basics of type determination, characteristic tests and classifications, reactions of different functional groups.
CO7	Elemental analysis -Detection of nitrogen, sulfur, halogen and phosphorous by Lassaigne's test

S.Y.B.Sc. Chemistry	
CH- 301: Physical Chemistry	
The student who successfully completes this course students will be able to:	
CO1	Define / Explain concept of kinetics, terms used, rate laws, molecularity, order.
CO2	Explain factors affecting rate of reaction. Explain / discuss / derive integrated rate laws, characteristics, expression for half-life and examples of zero order, first order, and second order reactions
CO3	Determination of order of reaction by integrated rate equation method, graphical method, half-life method and differential method.
CO4	Explain / discuss the term energy of activation with the help of energy diagram.
CO5	Explanation for temperature coefficient and effect of temperature on rate constant k.
CO6	Derivation of Arrhenius equation and evaluation of energy of activation graphically.
CO7	Derivations of collision theory and transition state theory of bimolecular reaction and comparison.
CO8	Solve / discuss the problem based applying theory and equations.
CO9	Define / explain adsorption, classification of given processes into physical and chemical adsorption.
CO10	Discuss factors influencing adsorption, its characteristics, differentiates types as physisorption and Chemisorption
CO11	Classification of Adsorption Isotherms, to derive isotherms.
CO12	Explanation of adsorption results in the light of Langmuir adsorption isotherm, Freundlich's adsorption Isotherm and BET theory.
CO13	Apply adsorption process to real life problem.
CO14	Solve / discuss problems using theory.
S. Y. B.Sc. Chemistry	
CH- 301: Analytical Chemistry	
The student who successfully completes this course students will be able to:	
CO1	Define, explain and compare meaning of accuracy and precision.
CO2	Apply the methods of expressing the errors in analysis from results.
CO3	Explain / discuss different terms related to errors in quantitative analysis.
CO4	Apply statistical methods to express his / her analytical results in laboratory. Solve problems applying equations
CO5	Explain / define different terms in volumetric analysis such as units of concentration, indicator, equivalence point, end point, standard solutions, primary and secondary standards, completing agent, precipitating agent, oxidizing agent, reducing agent, redox indicators, acid base indicators, metallochrome indicators, etc.
CO6	Perform calculations involved in volumetric analysis. Explain why indicator show colour change and pH range of colour change.
CO7	To prepare standard solution and b. perform standardization of solutions.
CO8	To construct acid – base titration curves and performs choice of indicator for particular

CO9	titration.
	Explain / discuss acid-base titrations, complex metric titration / precipitation titration / redox
	titration.
	Apply volumetric methods of analysis to real problem in analytical chemistry / industry

S. Y. B.Sc. Chemistry

CH- 302: Inorganic Chemistry

The student who successfully completes this course students will be able to:

CO1	Define terms related to molecular orbital theory (AO, MO, sigma bond, pi bond, bond order, magnetic property of molecules, etc.).
CO2	Explain and apply LCAO principle for the formation of MO's from AO's.
CO3	Explain formation of different types of MO's from AO's.
CO4	Distinguish between atomic and molecular orbitals, bonding, anti-bonding and nonbonding molecular orbitals.
CO5	Draw and explain MO energy level diagrams for homo and hetero diatomic molecules
CO6	Define different terms related to the coordination chemistry (double salt, coordination compounds, coordinate bond, ligand, central metal ion, complex ion, coordination number, magnetic moment, crystal field stabilization energy, types of ligand, chelate effect, etc.)
CO7	Explain Werner's theory of coordination compounds. Differentiate between primary and secondary Valency. Correlate coordination number and structure of complex ion.
CO8	Apply IUPAC nomenclature to coordination compound.

S.Y.B.Sc. Chemistry

CH- 302: Organic Chemistry

The student who successfully completes this course students will be able to:

CO1	Identify and draw the structures aromatic hydrocarbons from their names or from structure name can be assigned.
CO2	Explain / discuss synthesis of aromatic hydrocarbons.
CO3	Give the mechanism of reactions involved.
CO4	Explain /Discuss important reactions of aromatic hydrocarbon.
CO5	To correlate reagent and reactions.
CO6	Write / discuss the mechanism of Nucleophilic Substitution (SN1 , SN2 and SNi) reactions.
CO7	Explain /Discuss important reactions of alkyl / aryl halides.
CO8	To correlate reagent and reactions.
CO9	Give synthesis of expected alkyl / aryl halides.
CO10	Identify and draw the structures alcohols / phenols from their names or from structure name can be assigned.
CO11	Able to differentiate between alcohols and phenols
CO12	Explain / discuss synthesis of alcohols / phenols.
CO13	Write / discuss the mechanism of various reactions involved.
CO14	Explain /Discuss important reactions of alcohols / phenols.
CO15	To correlate reagent and reactions of alcohols / phenols
CO16	Give synthesis of expected alcohols / phenols.
CO17	Write / discuss the mechanism of Nucleophilic Substitution (SN1 , SN2 and SNi) reactions.
CO18	Explain /Discuss important reactions of alkyl / aryl halides.
CO19	To correlate reagent and reactions.
CO20	Give synthesis of expected alkyl / aryl halides.

S.Y.B.Sc. Chemistry

CH- 303: Chemistry Practical – III	
The student who successfully completes this course students will be able to:	
CO1	Verify theoretical principles experimentally.
CO2	Interpret the experimental data on the basis of theoretical principles.
CO3	Correlate theory to experiments. Understand/verify theoretical principles by experiment observations; explain practical output / data with the help of theory.
CO4	Understand systematic methods of identification of substance by chemical methods.
CO5	Write balanced equation for the chemical reactions performed in the laboratory.
CO6	Perform organic and inorganic synthesis and is able to follow the progress of the chemical reaction by suitable method (colour change, ppt. formation, TLC).
CO7	Set up the apparatus / prepare the solutions - properly for the designed experiments.
CO8	Perform the quantitative chemical analysis of substances explain principles behind it.
CO9	Systematic working skill in laboratory will be imparted in student.
CO10	Verify theoretical principles experimentally.
CO11	Interpret the experimental data on the basis of theoretical principles.
CO12	Correlate theory to experiments. Understand/verify theoretical principles by experiment
S. Y. B. Sc. Chemistry (Semester :IV)	
CH- 403:Physical Chemistry	
The student who successfully completes this course students will be able to:	
CO1	Define the terms in phase equilibria such as- system, phase in system, components in system, degree of freedom, one / two component system, phase rule, etc.
CO2	Explain meaning and Types of equilibrium such as true or static, metastable and unstable equilibrium
CO3	Discuss meaning of phase, component and degree of freedom.
CO4	Derive of phase rule.
CO5	Explain of one component system with respect to: Description of the curve, Phase rule relationship and typical features for i) Water system ii) Carbon dioxide system iii) Sulphur system
CO6	Define the terms in phase equilibria such as- system, phase in system, components in system, degree of freedom, one / two component system, phase rule, etc.
CO7	Explain meaning and Types of equilibrium such as true or static, metastable and unstable equilibrium
CO8	Discuss meaning of phase, component and degree of freedom.
CO9	Derive of phase rule.
CO10	Explain of one component system with respect to: Description of the curve, Phase rule relationship and typical features for i) Water system ii) Carbon dioxide system iii) Sulphur system
CO11	Define the terms in phase equilibria such as- system, phase in system, components in system, degree of freedom, one / two component system, phase rule, etc.
CO12	Explain meaning and Types of equilibrium such as true or static, metastable and unstable equilibrium
CO13	Discuss meaning of phase, component and degree of freedom.
CO14	Define various terms, laws, differentiate ideal and no-ideal solutions.
CO15	Discuss / explain thermodynamic aspects of Ideal solutions-Gibbs free energy change, Volume change, Enthalpy change and entropy change of mixing of Ideal solution.
CO16	Differentiate between ideal and non-ideal solutions and can apply Raoult's law.
CO17	Interpretation of i) vapour pressure–composition diagram ii) temperature- composition diagram.

CO18	Explain distillation of liquid solutions from temperature – composition diagram.
CO19	Explain / discuss azeotropes, Lever rule, Henry's law and its application.
CO20	Discuss / explain solubility of partially miscible liquids- systems with upper critical. Solution temperature, lower critical solution temperature and having both UCST and LCST.
CO21	Explain / discuss concept of distribution of solute amongst pair of immiscible solvents.
CO22	Derive distribution law and its thermodynamic proof.
CO23	Apply solvent extraction to separate the components of from mixture interest.
CO24	Solve problem by applying theory.
S. Y. B. Sc. Chemistry (Semester :IV)	
CH- 403 :Analytical Chemistry	
The student who successfully completes this course students will be able to:	
CO1	Conductance, Ohm's law, cell constant, specific and equivalent conductance, molar conductance, Kohlrausch's law, etc. □ Discuss / explain Kohlrausch's law and its Applications, Conductivity Cell, Conductivity Meter, Wheatstone Bridge.
CO2	Explain / discuss Conductometric titrations.
CO3	Apply Conductometric methods of analysis to real problem in analytical laboratory.
CO4	Solve problems based on theory / equations.
CO5	Correlate different terms with each other and derive equations for their correlations
CO6	absorbance, molar, Lambert's Law, Beer's Law, molar absorptivity
CO7	Discuss / explain / derive Beer's law of absorptivity.
CO8	Explain construction and working of colorimeter.
CO9	Apply colorimetric methods of analysis to real problem in analytical laboratory.
CO10	Solve problems based on theory / equations.
CO11	Correlate different terms with each other and derive equations for their correlations
CO12	Explain / define different terms in column chromatography such as stationary phase, mobile phase, elution, adsorption, ion exchange resin, adsorbate, etc.
CO13	Explain properties of adsorbents, ion exchange resins, etc.
CO14	Discuss / explain separation of ionic substances using resins.
CO15	Discuss / explain separation of substances using silica gel / alumina.
CO16	Apply column chromatographic process for real analysis in analytical laboratory.
CO17	Explain / define different terms in column chromatography such as stationary phase, mobile phase, elution, adsorption, ion exchange resin, adsorbate, etc.
CO18	Explain properties of adsorbents, ion exchange resins, etc.
S. Y. B. Sc. Chemistry (Semester :IV)	
CH- 404 :Inorganic Chemistry	
The student who successfully completes this course students will be able to:	
CO1	Isomerism in coordination complexes
CO2	Explain different types of isomerism in coordination complexes.
CO3	Apply principles of VBT to explain bonding in coordination compound of different geometries.
CO4	Correlate no of unpaired electrons and orbitals used for bonding.
CO5	Identify / explain / discuss inner and outer orbital complexes.
CO6	Explain principle of CFT.
CO7	Apply crystal field theory to different type of complexes (Td, Oh, Sq. Pl complexes)
CO8	Explain: i) strong field and weak field ligand approach in Oh complexes ii) Magnetic properties of coordination compounds on the basis of weak and strong ligand field
CO9	Ligand concept. iii) Origin of color of coordination complex.
CO10	Calculate field stabilization energy and magnetic moment for various complexes.
S. Y. B. Sc. Chemistry (Semester :IV)	

CH- 404: Organic Chemistry	
The student who successfully completes this course students will be able to:	
CO1	After studying the aldehydes and ketones student will able to
CO2	Identify and draw the structures aldehydes and ketones from their names or from structure name can be assigned
CO3	Explain / discuss synthesis of aldehydes and ketones.
CO4	Write / discuss the mechanism reactions aldehydes and ketones.
CO5	Explain /Discuss important reactions of aldehydes and ketones.
CO6	To correlate reagent and reactions of aldehydes and ketones
CO7	Give synthesis of expected aldehydes and ketones.
CO8	Identify and draw the structures carboxylic acids and their derivatives from their names or from structure name can be assigned.
CO9	Explain / discuss synthesis of carboxylic acids and their derivatives.
CO10	Write / discuss the mechanism reactions carboxylic acids and their derivatives.
CO11	Explain /Discuss important reactions of carboxylic acids and their derivatives.
CO12	Correlate reagent and reactions of carboxylic acids and their derivatives
CO13	Give synthesis of expected carboxylic acids and their derivatives.
CO14	Identify and draw the structures amines from their names or from structure name can be assigned.
CO15	Explain / discuss synthesis of carboxylic amines.
CO16	Write / discuss the mechanism reactions carboxylic amines.
CO17	Explain /Discuss important reactions of carboxylic amines.
CO18	To correlate reagent and reactions of carboxylic amines.
CO19	Give synthesis diazonium salt from amines and reactions of diazonium salt.
CO20	Draw the structures of different conformations of cyclohexane.
CO21	Define terms such as axial hydrogen, equatorial hydrogen, and confirmation, substituted Cyclohexane, etc.
CO22	Convert one conformation of cyclohexane to another conformation and should able to
CO23	Identify governing structural changes.
CO24	Explain / discuss stability with respect to potential energy of different conformations of Cyclohexane.

S.Y.B.Sc. Chemistry (Semester :IV)	
CH- 405: Practical Chemistry	
The student who successfully completes this course students will be able to:	
CO1	Verify theoretical principles experimentally
CO2	Interpret the experimental data on the basis of theoretical principles.
CO3	Correlate the theory to the experiments. Understand / verify theoretical principles by experiment or explain practical output with the help of theory
CO4	Understand systematic methods of identification of substance by chemical methods.
CO5	Write balanced equation for all the chemical reactions performed in the laboratory.
CO6	Perform organic and inorganic synthesis and able to follow the progress of the chemical reaction.
CO7	Set up the apparatus properly for the designed experiments.
CO8	Perform the quantitative chemical analysis of substances and able to explain principles
Course CH:505: Industrial chemistry, Sem.-V (Credit:02)	
The student who successfully completes this course students will be able to:	
CO1	After studying the chapter basic concepts of Industrial Chemistry, understood the concept of basic industrial chemicals, their uses and manufacturing process.

CO2	Raw material required for manufacturing of basic industrial chemicals, source of the raw materials, manufacturing process of basic chemicals with the help of flow chart, also the physico-chemical principals involved in manufacturing process
CO3	Understood the Process of manufacture of raw and refined sugar with help of flow chart. Can understand use of valuable byproduct obtained during manufacturing of sugar as an desired product.
CO4	Fermentation: After careful study of fermentation, get an idea about the basic requirement of fermentation process, condition required for fermentation, raw material for production of Alcoholic beverages. The manufacture of ethyl alcohol using molasses (which is a byproduct of sugar industry) and fruit juice. Manufacturing of wine, beer, Vicky etc. from food grain. Also importance of power alcohol as an alternative of petrochemical fuel.
CO5	Can understand raw materials required for manufacturing of soap and detergents. Types of soap products, chemistry of soap. Meaning of the term's Surfactants, Types of surfactants, Raw materials for detergents Detergent builders, additives Washing action of soap and detergent. Cleaning action of soap and detergents, Adverse Effect of both soap and detergent on environment, toxicity of surfactants.
CO6	Dye: After studying the chapter Dyes, students got an idea about what are Dye intermediates, Structural features of various dyes; can classify dyes using various methods, get an detailed knowledge about Synthesis, Structures, properties and applications of dye. Pigments: Can classify the Classification; compare the difference between dyes and pigments, properties of pigment, Production processes of zinc oxide and iron oxide.
CH-511 (A) : Environmental Chemistry ((Credit:02))	
The student who successfully completes this course students will be able to:	
CO1	Importance and conservation of environment. ii. Importance of biogeochemical cycles Water Pollution: Get an deep knowledge about Water resources, what is Hydrological Cycle,
CO2	Types of pollutants i.e. Organic and inorganic pollutants iv. Water quality parameters Analytical Techniques in water Analysis: Can analyse water samples, predict the analysis result. Can understand drinking water quality parameters, water required for various industries.
CO3	Explain / describe various terms related to electrochemistry, nuclear chemistry and application of radioactivity, crystallography and basics of quantum chemistry
CO4	Derive relations between / among various terms / quantities related to electrochemistry, nuclear chemistry and application of radioactivity, crystallography and basics of quantum chemistry.
CO5	Apply his knowledge to explain experimental observation and should able to correlate theory and particle or observed facts. Can study the industrial pollution and its adverse effect.
Course CH-604 Inorganic Chemistry Sem-VI (Credit:02)	
	Understand the phenomenon of catalysis, its basic principles and terminologies
	Define and differentiate homogeneous and heterogeneous catalysis.
	Give examples and brief account of homogeneous catalysts.
	Understand the essential properties of homogeneous catalysts-Give the catalytic reactions for Wilkinson's Catalysis, hydroformylation reaction, Monsanto acetic acid synthesis, Heck reaction
	Understand the principle of heterogeneous catalyst and development in it.
	Give examples of heterogeneous catalysts.
	Understand the classification and essential properties of heterogeneous catalysts.

T.Y.B. Sc. Chemistry
CH-610 (A) : Chemistry of Soil and Agrochemicals (Credit:02)
The student who successfully completes this course students will be able to:

CO1	Understood various components of soil and soil properties and their impact on plant growth
	Understood the Reclamation and management of soil physical and chemical constraints.
CO2	Understood the classification of the soil.
	Understood the Reclamation and management of soil physical and chemical constraints
CO3	Useful in making decisions on nutrient dose, choice of fertilizers and method of application etc. practiced in crop production.
CO4	Got experience on advanced analytical and instrumentation methods in the estimation of soil.
CO5	Understood various Nutrient management concepts and Nutrient use efficiencies of major and micronutrients and enhancement techniques
CO6	Proper understanding of chemistry of pesticides will be inculcated among the students.
CO7	Derive names of super heavy elements and symbols form IUPAC rules
CO8	Imparts knowledge on different pesticides, their nature and, mode of action and their fate in soil so as to monitor their effect on the environment.

Department of Physics

F.Y.B.Sc Paper- I Semester – I	
Physics Paper – I (PHY-111) Mechanics and Properties of Matter	
On successful completion of this course students will be able to do the following	
CO1	Demonstrate an understanding of Newton's laws and applying them in calculations of the motion of simple systems
CO2	Use the free body diagrams to analyses the forces on the object.
CO3	Understand the concepts of energy, work, power, the concepts of conservation of energy and be able to perform calculations using them.
CO4	Understand the concepts of elasticity and be able to perform calculations using them
CO5	Understand the concepts of surface tension and viscosity and be able to perform calculations using them.
CO6	Use of Bernoulli's theorem in real life problems.
CO7	Demonstrate quantitative problem solving skills in all the topics covered.
F.Y.B.Sc Paper- I Semester – II	
Physics Paper – I (PHY-121) Heat and Thermodynamics	
After successfully completing this course, the student will be able to do the following:	
CO1	Describe the properties of and relationships between the thermodynamic properties of a pure substance
CO2	Describe the ideal gas equation and its limitations
CO3	Describe the real gas equation
CO4	Apply the laws of thermodynamics to formulate the relations necessary to analyze a thermodynamic process
CO5	Analyses the heat engines and calculate thermal efficiency
CO6	Analyze the refrigerators, heat pumps and calculate coefficient of performance.
CO7	Understand property „entropy“ and derive some thermo dynamical relations using entropy concept.
CO8	Understand the types of thermometers and their usage.
F.Y.B.Sc Paper- II Semester – I	
Physics Paper – II (PHY-112) Physics Principles and Applications	
On successful completion of this course students will be able to do the following:	
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.
CO5	Understand the types and sources of electromagnetic waves and applications.
CO6	To demonstrate quantitative problem solving skills in all the topics covered
F.Y.B.Sc Paper- II Semester – II	
Physics Paper – II (PHY-122) Electricity and Magnetism	
On successful completion of this course students will be able to do the following:	
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's and Ampere's Circuital laws
CO5	To study magnetic materials and its properties.
CO6	Demonstrate quantitative problem solving skills in all the topics covered.
S.Y.B.Sc Paper- I Semester – III	
Course Physics Paper – I (PHY-231) Mathematical Methods in Physics-I	
After the completion of this course students will be able to	
CO1	Understand the complex algebra useful in physics courses.
CO2	Understand the concept of partial differentiation.
CO3	Understand the role of partial differential equations in physics.
CO4	Understand vector algebra useful in mathematics and physics.
CO5	Understand the concept of singular points of differential equations
S.Y.B.Sc Paper- I Semester – IV	
Course Physics Paper – I (PHY-241) Oscillations, Waves, and Sound	
On completion of this course, the learner will b	
CO1	To study underlying principles of oscillations and it's scope in development.
CO2	To understand and solve the equations / graphical representations of motion for simple harmonic, damped, forced oscillators and waves.
CO3	To explain oscillations in terms of energy exchange with various practical applications
CO4	To solve numerical problems related to un damped, damped, forced oscillations and superposition of oscillations
CO5	To study characteristics of sound, decibel scales and applications.
S.Y.B.Sc Paper- II Semester – III	
Course Physics Paper – II (PHY-232) Electronics	
On successful completion of this course the students will be able to	
CO1	Apply different theorems and laws to electrical circuits.
CO2	Understand the relations in electricity.
CO3	Understand the parameters, characteristics and working of transistors.
CO4	Understand the functions of operational amplifiers
CO5	Design circuits using transistors and applications of operational amplifiers
CO6	Understand the Boolean algebra and logic circuits
S.Y.B.Sc Paper- II Semester – IV	

Course Physics Paper – II (PHY-242) Optics	
On successful completion of this course the students will be able to	
CO1	Acquire the basic concept of wave optics.
CO2	Describe how light can constructively and destructively interfere.
CO3	Explain why a light beam spread out after passing through an aperture
CO4	Summarize the polarization characteristics of electromagnetic wave
CO5	Understand the operation of many modern optical devices that utilize wave optics
CO6	Understand optical phenomenon such polarization, diffraction and interference in terms of the wave model
CO7	Analyze simple example of interference and diffraction

Department of Botany

Knowledge outcomes:	
After completing B.Sc. Botany Programme students will be able to:	
PO1	Students will get the fundamental knowledge of the basic principles of major fields of Botany.
PO2	They can use their knowledge to solve the issues related to botany with the help of computer technology
PO3	Student will learn how to conserve the endemic and endangered plant species
Skill outcomes:	
After completing B.Sc. Botany Programme students will be able to:	
PO4	They can have effective collaboration with team-oriented projects in the field of Plant sciences
PO5	They can learn communication skills in a clear and concise manner both orally and in writing
PO6	Explain Biodiversity, climate change and plant pathology.
PO7	They have scope in applied botany such as Biotechnology, Ecology, Genetics and Plant breeding techniques in plant sciences
PO8	apply knowledge of Medicinal and Economic botany in day to day life.
PO9	apply the knowledge to develop the sustainable and ecofriendly technology in Industrial Botany
PO10	Generic outcomes: Students will
PO11	They will develop their critical reasoning, judgment and communication skills.
PO12	Can study the recent developments in the field of Molecular and cell Biology, Biotechnology, Computational Botany and relevant fields of research and development.
	Enhance the scientific temper among the students so that to develop a research culture and Implementation the policies to tackle the burning issues at global and local level.
Programme Specific Outcomes	
PSO1	Students will learn the techniques which are used in industrially important plant products
PSO2	Students get conceptual knowledge of entrepreneurship in mushroom industry, Biofertilizers and Biopesticides production, plant tissue culture laboratories, Enzyme production, Fermentation, Single cell proteins etc.

PSO3	Students will understand the diversity of the plants and structural organization of plants like Dicot & Monocot.
PSO4	Understand plant structures in the context of ecological, physiological and biochemical functions of plants.
PSO5	Students will be well trained with various mechanisms of GMOs and molecular techniques.
Course Outcomes FY B. Sc. Botany Semester-I	
BO-111: PLANT LIFE AND UTILIZATION-I	
After successfully completing this course, students will be able to:	
CO1	Outline Cryptogams And Phanerogams
CO2	Distinguish characters of cryptogams and Phanerogams.
CO3	Classify the plants in to cryptogams and Phanerogams
CO4	Describe the Life cycle of plant forms of cryptogams
CO5	Identify lichens and their economic value.
CO6	Discuss morphology of vegetative and reproductive parts of plants. Court
BO-112: PLANT MORPHOLOGY AND ANATOMY	
After successfully completing this course, students will be able to	
CO1	Define Plant anatomy & morphology.
CO2	Describe botanical concepts, including plant anatomy.
CO3	Differentiate with respect to tissue distinguishing.
CO4	Study reproductive structures in plant
CO5	Learn about the formation of fruits.
Course: Practical Botany -I	
After successfully completing this course, students will be able to:	
CO1	Recognize the live forms of Cryptogrammic and Phanerogamic plants.
CO2	Analyze and describe botanical concepts, including plant anatomy.
CO3	Illustrate the floral parts, fruits, leaves and their types.
CO4	Study the mushroom cultivation.
CO5	Categorize the plants into Monocot and Dicot on the basis of anatomical characters.
Course Outcomes FY B. Sc. Botany Semester-II	
BO-121: PLANT LIFE AND UTILIZATION-II	
After successfully completing this course, students will be able to	
CO1	Outline of vascular plants
CO2	utilization & economic importance of Vascular plants
CO3	Life cycle pattern in vascular plants.
CO4	Study reproductive structures in plant
CO5	Utilization and economic importance of Plant: In food, fodder, fibers, horticulture and medicines.
BO-122: Principals of Plant Sciences	
After successfully completing this course, students will be able to	
CO1	Know importance and scope of plant physiology
CO2	To understand the plants and plant cells in relation to water.
CO3	Understand the respiration in higher plants with particular emphasis on aerobic and anaerobic respiration.
CO4	Learn about the movement of sap and absorption of water in plant body.
CO5	Learn plant growth and plant growth regulators.
Course: Practical Botany -II	
After successfully completing this course, students will be able to:	

CO1	Study of utilization and economics importance of Pterido phytes and Gymnosperm
CO2	Study of utilization and economics importance of Angiosperm as food, fodder, fibers, horticultural and medicines.
CO3	To study of various stages in Mitosis and Meiosis.
CO4	To study Plasmolysis experiment.
CO5	Isolation of genomic DNA from given plant material.
Course Outcomes S Y B. Sc. Botany Semester-III	
BO 231: Taxonomy of Angiosperms and Plant Ecology	
After successfully completing this course, students will be able to:	
CO1	Define plant taxonomy and taxonomic related terminologies.
CO2	Explain different classification systems of angiosperms.
CO3	Use required data sources for classification of angiosperms.
CO4	Determine Botanical Nomenclature of angiosperm plants.
CO5	Recognize ecological plant groups with examples.
CO6	Learn plant families with examples.
CO7	Apply proper herbarium methods - collecting, mounting, and keeping records.
CO8	Execute computer knowledge in plant taxonomy and digital herbarium.

BO 232: Plant Physiology	
After successfully completing this course, students will be able to:	
CO1	Learn about Scope and applications of plant physiology, Absorption of water, Role of water in plants.
CO2	Explain processes of Ascent of Sap, Transpiration.
CO3	Learn nitrogen metabolism in plants.
CO4	Learn concept and mechanisms of Seed dormancy and germination, Physiology of flowering.
BO 233: Practical	
After successfully completing this course, students will be able to:	
CO1	Classify & identify the plant families.
CO2	Draw the floral diagram of plants belonging to specific families.
CO3	Demonstrate physiological experiments, and Fermentation products.
CO4	Demonstrate & perform pH, plasmolysis, osmosis, DPD
CO5	Describe internal structure of plant organs.
CO6	Describe the Transpiration process.
Course Outcomes S Y B. Sc. Botany Semester-IV	
BO 241: Plant Anatomy and Embryology	
After successfully completing this course	
CO1	Study Plant Anatomy, Embryology.
CO2	Describe various tissue systems in plants like epidermal, mechanical and vascular.
CO3	Interpret the Principles- incompressibility, inextensibility, shearing stress etc in plants.
CO4	Explain the process of normal and abnormal secondary growth in plants.
CO5	Identify the process of pollination and fertilization.
CO6	Discuss the Structure and development process of male and female gametophyte
CO7	The types of microspore, ovules, embryo, seed and endosperm.
BO 242: Plant Biotechnology	
After successfully completing this course, students will be able to:	
CO1	Understanding the terminologies related to plant biotechnology.
CO2	Understanding of Plant tissue culture technology.
CO3	Interpret the production of Single cell proteins.
CO4	Study method of gene isolation from the plants and their application

CO5	Learn Methods of gene transfer in plants.
CO6	Study the concept and type of Genomics, Proteomics and Bioinformatics- database, classification
CO7	Study the concept of Bioremediation and Befoul technology

BO 243: Practical Paper III

After successfully completing this course, students will be able to:

CO1	Know practical knowledge of plant family of angiosperms
CO2	Study of different ecological groups and methods to study vegetations in forests.
CO3	Study different parameters of plant physiology like WHC, DPD, Rate of transpiration and Different instruments used in physiology.
CO4	Study of Different tissue systems and normal and anomalous secondary growth.
CO5	Study of fermentation techniques, Spirullina cultivation for S
CO2	Develop critical understanding on morphology, anatomy and reproduction of Bryophytes, Pteridophytes and Gymnosperms
CO3	Understanding of plant evolution and their transition to land habitat.
CO4	Demonstrate proficiency in the experimental techniques and methods of appropriate analysis of Bryophytes, Pteridophytes, Gymnosperm
CO4	To make it students aware of the status of higher cryptogams and gymnosperms as a group of plant kingdom.

Department of Zoology

F. Y. B.Sc. Zoology Semester I	
ZO -111: Animal diversity I	
Course Outcomes After successfully completing this course, students will be able to:	
CO1	To understand the Animal diversity around us.
CO2	To understand the underlying principles of classification of animals.
CO3	To understand the terminology needed in classification.

CO4	To understand the differences and similarities in the various aspects of classification.
CO5	To classifies in vertebrates and to be able to understand the possible group of the invertebrate observed in nature.

ZO - 112: Animal Ecology

Course Outcomes After successfully completing this course, students will be able to:

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, analyse 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 syllabus to understand the local lifestyle and problems of the community.
CO4	The learner will be able to link the intricacies of food chains, food webs and link it with human life for its betterment and for non-exploitation of the biotic and abiotic components.
CO5	The working in nature to save environment will help development of leadership skills to promote betterment of environment.

ZO - 113: Practical Zoology -I

Course Outcomes After successfully completing this course, students will be able to:

CO1	Recognize the live forms of vertebrates and invertebrates
CO2	Analyse and describe zoological concepts, including morphology and anatomy.
CO3	Explain conservation and sustainable use of animals;
CO4	Explain and demonstrate the impact that animals have on human society.

F. Y. B.Sc. Zoology Semester II

ZO -111: Animal diversity II

Course Outcomes After successfully completing this course, students will be able to:

CO1	To understand the Animal diversity around us
CO2	To understand the underlying principles of classification of animals.

CO3	To understand the terminology needed in classification.
CO4	To understand the differences and similarities in the various aspects of classification.
CO5	To classifies in vertebrates and to be able to understand the possible group of the invertebrate observed in nature.

ZO - 122: Cell Biology

Course Outcomes After successfully completing this course, students will be able to:

CO1	The learner will understand the importance of cell as a structural and functional unit of life.
CO2	The learner understands and compares between the prokaryotic and eukaryotic system and extrapolates the life to the aspect of development
CO3	The dynamism of bio membranes indicates the dynamism of life. Its working mechanism and precision are responsible for our performance in life.
CO4	The cellular mechanisms and its functioning depend on endo-membranes and structures

ZO - 123: Practical Zoology – II

Course Outcomes After successfully completing this course, students will be able to:

CO1	Recgnize the live forms of vertebrates and invertebrates.
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CO2	Analyse and describe zoological concepts, including morphology and anatomy.
CO3	Explain conservation and sustainable use of animals;
CO4	Explain and demonstrate the impact that animals have on human society
S. Y. B.Sc. Zoology Semester III	
ZO - 231: Animal Systematic and Diversity – III	
Course Outcomes After successfully completing this course, students will be able to:	
CO1	Knowledge of classification of Non-chordates and chordates along with studies on various physiological functions and interactions of non-chordate organisms with type specimens
CO2	Knowledge of classification of chordates along with studies on various physiological functions and comparative anatomy of organs of chordate with example.
ZO - 232: Applied Zoology - I	
Course Outcomes After successfully completing this course, students will be able to:	
CO1	Understands processes of sericulture, along with crop pest management techniques.
CO2	Students gain knowledge about various disease related vectors and their impact on human.
ZO - 233: Practical course Paper – III – Practical	
Course Outcomes After successfully completing this course, students will be able to:	
CO1	First-hand knowledge about identification of non-chordate and chordate specimens (fresh and preserved) along with larval forms and study of endoskeleton of vertebrates
CO2	Understand the nature and basic concepts of cell biology, genetics, taxonomy, physiology, ecology and applied Zoology.
CO3	Analyse the relationships among animals, plants and microbes
S. Y. B.Sc. Zoology Semester - IV	
ZO 241: Animal Systematic and Diversity – IV	

Course Outcomes After successfully completing this course, students will be able to:	
CO1	. Knowledge of classification of Chordates along with studies on various physiological functions and interactions of chordate organisms with different types of specimens.
CO2	Knowledge of classification of chordates along with studies on various physiological functions and comparative anatomy of organs of chordate with example
ZO 242: Applied Zoology II	
Course Outcomes After successfully completing this course, students will be able to:	
CO1	. Understands processes of fisheries and management techniques.
CO2	Students gain knowledge about various disease related vectors and their impact on human
CO3	Understands concepts of apiculture and management techniques.
ZO 243: Practical course Paper – III – Practical	
Course Outcomes After successfully completing this course, students will be able to:	
CO1	. First-hand knowledge about identification of non-chordate and chordate specimens (fresh and preserved) along with larval forms and study of endoskeleton of vertebrates
CO2	. Understand the nature and basic concepts of cell biology, genetics, taxonomy, physiology, ecology and applied Zoology.
CO3	Analyse the relationships among animals, plants and microbes
T. Y. B.Sc. Zoology Semester-V	

Program Outcomes: B. Sc. Zoology	
PO1	Aware students about knowledge and skill in the fundamentals and systematic of animal kingdom.
PO2	Gain knowledge of anatomical structure and various metabolic functions of organisms.
PO3	Understand various physiological processes at molecular level of animals from different phyla.
PO4	Information and skill of advanced biological techniques for experimental purpose.
PO5	Awareness about environment and its conservation processes, pollution control and its importance and.
PO6	Gain knowledge of protection of vulnerable and endangered species.
PO7	Information and skill of applied zoology including sericulture, apiculture, fisheries, poultry, sericulture, agricultural pests and their control etc.
PO8	Understand about various concepts of genetics and its importance in social wellbeing.
PO9	Aware students about ethical principles and commit to professional ethics and responsibilities.
PSO1	Acquire knowledge on the various aspects of life sciences, cell biology,
	genetics, taxonomy, physiology, applied zoology, general embryology and public health.
PSO2	Understand good laboratory practices and safety, Carry out experimental techniques and methods of Physiology, Cell biology, pathology, Genetics, Applied Zoology, Biological techniques, Toxicology, Entomology, Sericulture, Biochemistry, microtomy.
PSO3	Understand the applications of biological sciences in Biotechnology, Apiculture, Poultry, Fisheries, Aquaculture, Agriculture and Sericulture.
PSO4	The students gained the knowledge to use modern sophisticated equipments and tools.
PSO5	Recognize the scientific facts behind natural phenomena.

Department of Mathematics

On successful completion of B.Sc Course (Mathematics), the students are able to	
PSO1	Explain the core ideas and the techniques of mathematics at the college level.
PSO2	Recognize the power of abstraction and generalization, and to carry out investigative mathematical work with independent judgment.
PSO3	Setup mathematical models of real world problems and obtain solutions in structured and analytical approaches with independent judgement.
PSO4	Carry out objective analysis and prediction of quantitative information with independent judgment.
PSO5	Communicate effectively about mathematics to both lay and expert audiences utilizing appropriate information and communication technology.
PSO6	Work independently, and to collaborate effectively in team work and team building.

PSO7	Conduct self-evaluation, and continuously enrich themselves through lifelong learning.
PSO8	Communicate to lay audiences and arouse their interest in the beauty and precision of mathematical arguments and science.
PSO9	Recognize the importance of compliance with the ethics of science and being a responsible citizen towards their community and a sustainable environment.
PSO10	Cultivate a mathematical attitude and nurture the interests

F.Y.B.Sc Maths Sem-1 & Sem-2 Math-1 MT-111 Algebra	
On successful completion of the course	
After successfully completing this course, students will be able to:	
CO1	Students are able to understand sets, relation and function.
CO2	Division & Euclidean Algorithm
CO3	Fermat's Theorem
CO4	Complex numbers
F.Y.B.Sc Maths Sem-1 & Sem-2 MT-121 Analytical Geometry	
On successful completion of the course	
After successfully completing this course, students will be able to:	
CO1	Analytical geometry of two & three dimensions
CO2	Lines in three dimensions
CO3	Sphere
F.Y.B.Sc Maths Sem-1 & Sem-2 Math-2 MT-112 Calculus-1 & MT-122 Calculus-2	
On successful completion of the course	
After successfully completing this course, students will be able to:	
CO1	Real numbers
CO2	Sequences
CO3	Series
CO4	Limit & Continuity
CO5	Differentiation
CO6	Ordinary differential equation
CO7	Exact differential equation
F.Y.B.Sc Maths Sem-1 & Sem-2 Math-3 MT-113 & MT-123 Practical Course	
After successfully completing this course, students will be able to:	
CO1	On successful completion of the course students are able to understand the theory course problem using maxima software
S.Y.B.Sc Maths Sem-3 & Sem-4 Math-1 MT-231 Calculus of several variables	
On successful completion of the course students are able to understand	
CO1	Limit & continuity of several variables.
CO2	Partial derivatives & differentiability
CO3	Extreme values
CO4	Double & Triple Integral
S.Y.B.Sc Maths Sem-3 & Sem-4 MT-241 Linear Algebra	
CO1	Matrices and system of linear equations
CO2	Vector spaces
CO3	Linear transformations

CO4	Linear isomorphism
S.Y.B.Sc Maths Sem-3 & Sem-4 Math-2 MT-232(B) Graph Theory	
CO1	Graph
CO2	Path & circuit
CO3	Trees & fundamental circuit
CO4	Cut sets & cut vertices
CO5	Connectivity & severability
S.Y.B.Sc Maths Sem-3 & Sem-4 MT-242(A) Vector calculus	
CO1	Vector valued functions
CO2	Integrals
CO3	Surface integrals
CO4	Applications of integrals
S.Y.B.Sc Maths Sem-3 & Sem-4 Math-3 MT-233 & MT-243 Practical Course	
On successful completion of the course students are able to understand	
CO1	On maxima software problems on theory courses will be solved by students
T.Y.B.Sc.	
Metric Spaces	
After completing this course student will be able to	
CO1	Learn the basic abstract ideas of analysis
CO2	Learn the basic ideas open sets, closed sets, limit point, isolated points, boundary points, subspace, product metric spaces and apply them to study the nature of sets.
CO3	Learn the theorems on completeness, compactness, connectedness and use them to solve the problems. identify the continuity of a function which is defined on metric spaces, at a given point and identify the set of points on which a function is continuous by using different theorems.
Real Analysis-I	
CO1	know sequence and series of real numbers and their convergence and divergence.
Group Theory	
CO1	Identify the various algebraic structures with their corresponding binary operations.
CO2	Generalize the groups on the basis of their orders, elements, order of elements and group relations
CO3	Compare two groups of same orders on the basis of isomorphism Criteria.
CO4	Compute the possible subgroups of given group of specific orders and will recognize them.
Ordinary Differential Equations	
CO1	Solve linear differential equations with constant coefficients, non-homogeneous differential equations, system of first order equations, solution of differential equations by Power series method
Operations Research	
CO1	Formulate and model a LPP from a word problem and solve them graphically in 2-D
CO2	Modify a primal problem and use the LPP to identify the new solution
CO3	Understand basic notions like feasibility, infeasibility, basic solutions, unbounded solutions etc
Number Theory	
CO1	Solve various problems on properties of integers and use the basic concepts of divisibility and their applications in basic algebra.
CO2	Apply Euclid's algorithm and backwards substitution.
CO3	Understand the definitions of congruence's, residue classes and least residues
Math lab I	

CO1	Learn the basic abstract ideas of analysis
CO2	To learn to solve the example on compactness & connectedness
CO3	To learn to solve the example on convergence & divergence of sequence and series
Math lab II	
CO1	Learn the basic abstract ideas of analysis on Group theory and Ordinary differential equation.
CO2	Learn how to find general solution and particular solution of Ordinary differential equation.
Math lab III	
CO1	Learn how to Formulate and model a LPP from a word problem and solve them graphically in 2-D
CO2	Learn the magic of numbers
CO3	Learn various techniques of problem solving.
Python I	
CO1	Basic concept of computer coding.
CO2	Learn OOP,s concept.
CO3	Learn about basic to advance technique in computer programming.
Latex for scientific writing	
CO1	Learn about basic technique of Latex for scientific writing.
CO2	Learn how to write mathematical language by using latex.
Complex Analysis	
CO1	Solve problems on basic concepts of modulus, argument of a complex number, deMoiver's theorem and use them to find roots of an algebraic equation.
CO2	Define continuity and differentiability for complex functions
CO3	Prove the Cauchy-Riemann equations and apply them to complex functions in order to determine whether a given continuous function is complex differentiable,
CO4	Evaluate integrals along a path - directly from the definition and also via the Fundamental Theorem of Contour Integration and Cauchy's Theorem,
CO5	Compute the Taylor and Laurent expansions of simple functions, determining the nature of the singularities and calculating residues,
CO6	Prove the Cauchy Residue Theorem and use it to evaluate integrals.
Real Analysis-II	
CO1	Know convergence of sequence and series of functions, Riemann integrals, Improper integrals and its applications,
Ring Theory	
CO1	Assess properties implied by the definitions of rings
CO2	Use various canonical types of rings
CO3	Analyse and demonstrate examples of ideals and quotient rings
CO4	Use the concept of isomorphism and homomorphism for rings
Partial Differential Equations	
CO1	Form the partial differential equations and Solve the problems on Pfaffian differential equations.
CO2	Solve the problems on first order and higher degree partial differential equations and its applications.
Optimization technique	
CO1	Solve the project management related problems by using the concepts of CPM, PERT so as to find out the project completion time.
Computational geometry	
CO1	Design, analyze and develop algorithm and method for solving geometric problems efficiently
CO2	Assess theoretical and practical problems that involves geometry

CO3	Generalize basic notions of reflection, rotation, projection with real life examples
Math lab I	
CO1	Learn about convergence of sequence and series of functions, Riemann integrals, Improper integrals and its applications.
CO2	Learn how to solve problems on basic concepts of complex analysis.
Math lab II	
CO1	Learn how to use various canonical types of rings.
CO2	Learn about the concept of isomorphism and homomorphism for ideal rings
CO3	Learn how to Solve the problems on first order and higher degree partial differential equations and its applications.
Math lab III	
CO1	Learn how to solve the project management related problems by using the concepts of CPM, PERT so as to find out the project completion time.
CO2	Learn how to solve theoretical and practical problems that involves geometry by using Computational geometry.
Python II	
CO1	To acquire object oriented skills in Python.
CO2	To learn concept of visualization
CO3	To develop the ability of database application in python.
Latex for Scientific writing	
CO1	To learn import figures that are stored in external files.
CO2	To learn typing of mathematical formulas.

Department of BCA

Program Specific Outcome:-	
POS1	Programming
POS2	Software Development
POS3	Web Development
POS4	Data Analysis
Program Objectives:-	
PO1	To produce knowledgeable and skilled human resources that is employable in IT and ITES.
PO2	To impart knowledge required for planning, designing and building Complex Application Software Systems as well as to provide support for automated systems or applications.
PO3	To produce entrepreneurs
FYBCA	
BCA115: Fundamentals of Computer Laboratory	
At the end of the course, students will be able to	
CO1	Define working of computers and peripherals, types of software and languages
CO2	Troubleshoot the computer systems and use utility software
CO3	Choose commands and features of operating systems and application software
CO4	Use open source software
BCA116 C Programming Laboratory	
At the end of the course, students will be able to	
CO1	Define algorithms and explain their characteristics
CO2	Formulate algorithm and draw flow chart to solve a given problem
CO3	Explain use of appropriate data types, control statements
CO4	Demonstrate ability to use top-down program design
BCA117 Applied Mathematics Laboratory	
At the end of the course, students will be able to	
CO1	Relate and apply techniques for constructing mathematical proofs and make use of appropriate set operations, propositional logic to solve problems
CO2	Use function or relation models to interpret associated relationships
CO3	Apply basic counting techniques and use principles of probability
CO4	Given a data, compute various statistical measures of central tendency
CO5	Use appropriate Sampling techniques
BCA114: Business Communication	
At the end of the course, students will be able to	
CO1	Apply business communication strategies and principles to prepare effective communication for domestic and international business situations
CO2	Identify ethical, legal, cultural, and global issues affecting business communication
CO3	Participate in team activities using collaborative work skills.
CO4	Communicate via electronic mail, Internet, and other technologies.
CO5	Deliver an effective oral business presentation
BCA115: Fundamentals of Computers Laboratory	
At the end of the course, students will be able to	
CO1	Install operating system and execute various commands

CO2	Prepare effective Presentation
CO3	Create and use spreadsheets effectively
CO4	Effectively use various features of application software
BCA116: C Programming Laboratory	
At the end of the course, students will be able to	
CO1	Formulate an algorithm and draw flowchart for the given problem
CO2	Implement the given algorithm in C
CO3	Write programs using appropriate data types and control structures in C
BCA117: Applied Mathematics Laboratory	
At the end of the course, students will be able to	
CO1	Apply mathematical and statistical concepts to solve problems
CO2	Use R to perform statistical operations and data visualization
BCA118: Business Communication Laboratory	
At the end of the course, students will be able to	
CO1	Effectively listen to lectures, public announcements and news on TV and radio.
CO2	Engage in telephonic conversation.
CO3	Communicate effectively and accurately in English
CO4	Use spoken language for various purposes
CO5	Demonstrate ability to prepare documents used in business correspondence
BCA121: Computer Organization	
At the end of the course, students will be able to	
CO1	Design of combinational circuits
CO2	Design of sequential circuits
CO3	Explain block diagram of CPU, Memory and types of I/O transfers
BCA122: Advanced C Programming	
At the end of the course, students will be able to	
CO1	Write programs using pointers, structures and unions
CO2	Use Pre-processor directives
CO3	Manipulate strings using library functions
CO4	Write programs to perform operations on Files
BCA123: Operating Systems Concepts	
At the end of the course, students will be able to	
CO1	Explain basic concepts of operating system
CO2	Use basic Linux commands and Linux documentation
CO3	Write shell scripts
BCA124: Database Management Systems – I	
At the end of the course, students will be able to	
CO1	Design E-R Model for given requirements and convert the same into database tables.
CO2	Formulate database queries using SQL
CO3	Design a database in appropriate normal form
BCA125: Computer Organization Laboratory	
At the end of the course, students will be able to	
CO1	Design and implement combinational circuits
CO2	Design and implement sequential circuits
CO3	Translate real world problems into digital logic formulations
BCA126: Advanced C Programming Laboratory	
At the end of the course, students will be able to	
CO1	Write programs using pointers, structures and unions

CO2	Use Pre-processor directives
CO3	Manipulate strings using library functions
CO4	Write programs to perform operations on Files
BCA127: Operating Systems Laboratory	
At the end of the course, students will be able to	
CO1	Install Linux and packages, configure environment
CO2	Use commands and editors and use documentation
CO3	Configure Security and network environment
BCA128: Database Management Systems – I Laboratory	
At the end of the course, students will be able to	
CO1	Prepare E-R Diagram for the given problem statement
CO2	Formulate appropriate SQL DDL Queries
CO3	Formulate appropriate SQL DML Queries
SYBCA	
BCA231: Data Structures	
At the end of the course, students will be able to	
CO1	Apply appropriate data structures for the given problem.
CO2	Design an efficient algorithm for the given problem.
CO3	Determine the time and space complexity of a given algorithm.
BCA232 : Database Management Systems – II	
At the end of the course, students will be able to	
CO1	Formulate SQL queries using advanced SQL features.
CO2	Perform Database operations using PL/PostgreSQL.
CO3	Compare and contrast different concurrency control and recovery techniques.
CO4	Apply mechanisms for database security.
CO5	Analyse various database system architectures.
BCA233: Computer Networks	
At the end of the course, students will be able to	
CO1	Analyse the requirements for a given organization and select appropriate network architecture, topologies, transmission mediums and technologies.
CO2	Analyse data flow between TCP/IP model using Application, Transport and Network Layer Protocols.
CO3	Illustrate applications of Computer Network.
CO4	Compare and contrast different routing and switching algorithms
BCA234: Data Structures Laboratory	
At the end of the course, students will be able to	
CO1	Apply appropriate data structures for the given problem.
CO2	Design an efficient algorithm for the given problem and implement it using C Programming.
CO3	Determine the time and space complexity of a given algorithm.
BCA235: Database Management Systems-II Laboratory	
At the end of the course, students will be able to	
CO1	Formulate SQL queries using advanced features
CO2	Write stored procedures, cursors and triggers using PL/Postgre SQL.
CO3	Design a database using database normalization technique
BCA 236: Computer Networks and Web Programming Laboratory	
At the end of the course, students will be able to	
CO1	Use Networking commands, identify network devices and topology
CO2	Design a website using HTML and CSS.
CO3	Write java scripts
CO4	Interpret and formulate XML queries
BCA241: Object Oriented Programming and C++	

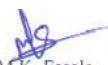
At the end of the course, students will be able to	
CO1	Compare and contrast procedural and object oriented programming
CO2	Apply principles of OOP
CO3	Design and develop applications using object oriented programming language C++
BCA242: Web Technology	
At the end of the course, students will be able to	
CO1	Develop web based application using suitable client side and server side web technologies.
CO2	Build Dynamic web site using server side PHP Programming and Database connectivity.
CO3	Build applications using AJAX and XML
BCA-233: Software Engineering	
At the end of the course, students will be able to	
CO1	Compare and contrast various Software Engineering models
CO2	Decide on appropriate process model for a developing a software project.
CO3	Classify software applications and Identify unique features of various domains.
CO4	Prepare System Requirement Specification (SRS) for the given problem
CO5	Design and analyze Data Flow diagrams.
BCA244 : C++ Programming Laboratory	
At the end of the course, students will be able to	
CO1	Compare and contrast procedural and object oriented programming
CO2	Apply principles of OOP
CO3	Design and develop applications using object oriented programming language C++
BCA245 : Web Technology Laboratory	
At the end of the course, students will be able to	
CO1	Design and implement static and dynamic websites using appropriate client side and server side technologies.
CO2	Build Dynamic web site using PHP Programming and Database connectivity.
CO3	Build applications using AJAX and XML and web services.
BCA246: Python Programming Laboratory	
At the end of the course, students will be able to	
CO1	Write programs using Python programming constructs.
CO2	Develop applications using Python programming.
TYBCA	
BCA 351: DSE I (Programming in Java)	
CO1	Identify classes, objects, class members and relationships for a given problem.
CO2	Design end to end applications using object oriented constructs.
CO3	Apply collection classes for storing java objects.
CO4	Use Java APIs for program development.
CO5	Handle abnormal termination of a program using exception handling.
BCA 352: DSE II - Data Mining and Data Science	
CO1	Identify the key processes of data mining, data warehousing and knowledge discovery
CO2	Design data warehouse with dimensional modeling and apply OLAP operations.

CO3	Identify appropriate data mining algorithms to solve real world problems
CO4	Compare and evaluate different data mining techniques like classification, prediction, clustering and association rule mining
CO5	Choose an appropriate method to perform exploratory analysis.
CO6	Interpret results by carrying out data visualization and formal inference procedures
BCA 353: DSE III (Principles of Operating Systems)	
CO1	Describe algorithms for process, memory and disk scheduling
CO2	Apply technique for inter-process communication and Multithreading.
CO3	Implement concept of critical-section
CO4	Compare and contrast deadlock avoidance and prevention.
CO5	Use functions for file system management
BCA354: Artificial Intelligence	
CO1	Apply the suitable algorithms to solve AI problems
CO2	Identify and apply suitable Intelligent agents for various AI applications
CO3	Build smart system using different informed search / uninformed search or heuristic approaches
CO4	Represent complex problems with expressive language of representation
BCA 355: SEC II (Cloud Computing)	
CO1	Explain the core issues in cloud computing such as security, privacy, and interoperability.
CO2	Choose the appropriate technologies, algorithms, and approaches for the given application.
CO3	Compare and contrast various cloud services
BCA356: DSE I Laboratory (Programming in JAVA)	
CO1	Identify classes, objects, class members and relationships for a given problem.
CO2	Design end to end applications using object oriented constructs.
CO3	Apply collection classes for storing java objects.
CO4	Use Java APIs for program development.
CO5	Handle abnormal termination of a program using exception handling.
BCA357: DSE II Laboratory (Data mining)	
CO1	Implement data mining tasks using R
CO2	Use the python packages to carry out data mining tasks.
CO3	Perform data analysis and data visualization using python packages.
BCA 358: DSE III Laboratory (Operating Systems and AI)	
CO1	Implement algorithms for Process scheduling and Memory management
CO2	Design a simple Expert system
CO3	Compare and contrast the algorithms for memory management and its allocation policies.
CO4	Use searching algorithms
CO5	Describe process synchronization and multithreading
BCA 361: Android Programming	
CO1	Describe the process of developing mobile applications.
CO2	Create mobile applications on the Android Platform.
CO3	Design and implement mobile applications involving data storage in SQLite database
CO4	Use location-based services while developing applications
BCA 362: DSE-V Programming in Go	
CO1	Describe the core features and concepts in Go
CO2	Write simple Go programs using functions

CO3	Apply defining methods and Go Interfaces
CO4	Use Go routines and Channels
CO5	Explore Go Packages
BCA 363: DSE VI Software Project Management	
CO1	Comprehend Software Project Management Concepts
CO2	Use various tools for Software Project Management Schedule various activities in software projects
CO3	Track a project and manage changes
CO4	Apply Agile Project Management concepts
CO5	Analyze staffing process for team building and decision making
BCA364: SEC III Management Information System	
CO1	Describe MIS, BPR, EMS
CO2	Compare MIS with BPR, DSS and EMS
CO3	Identify various ERP modules for a given application
CO4	List the applications of MIS in Manufacturing and service sectors
BCA365: SEC IV Internet of Things (IoT)	
CO1	Define Embedded Systems and the Internet of Things
CO2	Apply enabling technologies for developing IoT systems
CO3	Design simple IoT applications
CO4	Analyze protocols for communication among IoT devices
CO5	Describe cloud-based IoT systems
CO6	Comprehend security issues in IoT applications
BCA366: DSE IV Laboratory (Android Programming)	
CO1	Describe the process of developing mobile applications.
CO2	Create mobile applications on the Android Platform.
CO3	Design and implement mobile applications involving data storage in SQLite database
CO4	Use location-based services while developing applications
BCA367: DSE V Laboratory (Programming in GO and IoT)	
CO1	Write programs using features supported in GO
CO2	Handle errors and utilize Goroutines and Channels
CO3	Write programs on File handling
CO4	Compare and contrast features of GO with other object oriented languages
CO5	Design Simple IoT application
BCA368: DSE VI Project Laboratory	
CO1	Demonstrate a sound technical knowledge of selected project topic.
CO2	Apply techniques for project management
CO3	Create various documents used during the development of the project and a project report


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