Rajarshi Shahu Education Society's

Sahakar Maharshi Manikrao Palodkar College, Ajintha

Programme Outcomes (PO)

Bachelor of Arts (BA)

PO1: Students will gain the Knowledge of Humanities.
PO2: Students will understand the grammar and syntax of the language.
PO3: Students will understand linguistic, cultural, and political significance of languages and social sciences.
PO4 : Students will understand intercultural awareness and competence.
PO5 : Students will find out solutions to complex problems with logical reasoning and innovative thinking.
PO6 : Students will be capable of logical arguments and innovative thinking.
PO7 : Students will practice creative thinking and expression.
PO8 : Students will gain knowledge in one or more disciplines and integrate knowledge and perspectives across disciplinary boundaries.

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Bachelor of Science (B.Sc)

PO1: Students will be able to identify, formulate, and analyze complex scientific problems reaching substantiated conclusions using scientific principles.
PO2: Students will be able to develop a scientific temperament and gain basic scientific knowledge.
PO3: Students will be able to develop technical and scientific competence and practical skills.
PO4: Students will be able to conduct investigations in complex problems by using research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
PO5: Students will be able to select and apply appropriate techniques, resources, and modern tools in carrying out scientific study.
PO6: Students will be able to develop a keen understanding of environment and sustainability and related issues.

Rajarshi Shahu Education Society's

Sahakar Maharshi Manikrao Palodkar College, Ajintha

Programme Specific Outcomes (PSO)

B.A. Marathi

PSO1: To understand the nature, scope, values and basic concepts in Marathi.
PSO2: Analyze the relationship among various genres of literature like poetry,Biography, autobiography, novel, drama, short stories, travel writing, one act play etc.
PSO3: Creates awareness among the students about socio-economic,political, cultural situations through the history of Marathi literature.
PSO4: Promotes the values through the literature of Mukundraj, Dnyaneshwar,Dnyandev, Tukaram, Ramdas etc.
PSO5: Understand the spiritual and religious aspects from the writers like theSaint Janabai, Chokhamela, Karmmela, Gora kumbhar, Visobakhechar,Savtamali etc.
PSO6: Develop an interest in Reading-writing skills, critical approaches,research ability.
PSO7: Determine and analyze various literary types like, Dalit, Rural, feminist, tribal, folk literature etc.
PSO8: Understand the literary process through literary criticism.

B.A. Hindi

PSO1: Understand the nature, scope and basic concepts in Hindi.
PSO2: Analyze the relationship among various genres of literature like poetry,autobiographical novel, drama, story one act play etc.
PSO3: Creates an awareness among the students about economical, socio-political and communal issues.
PSO4: Understand how applied Hindi is important in various sectors of societylike banks, govt. and semi govt. offices etc.
PSO5: Analyze various theories like modernism, feminism, realism, Romantism etc.
PSO6: Students will be benefitted from saint poetry. Through saints, theirphilosophies can be understood from poetry.
PSO7: Understand the process of literature in Hindi.
PSO8: Develop the creativity and mental set up.

B.A. English

PSO1: To help students towards better pronunciation.

PSO2: To enable students to acquire the structure of English.
PSO3: To introduce students to appreciate various forms of literature such as poetry, novels, drama, short stories etc.
PSO4: To identify multi-layer meanings in verses like lyric, sonnet, elegy, ballad etc.
PSO5: To familiarize the students with the literary terms like, metaphor,allegory, myth, bathos, irony, poetic license, caricature, burlesque etc.
PSO6: Introduce students to understand literary criticism and critics like, Plato,Aristotle, Wordworth, Coleridge, T. S. Eliot and many more.
PSO7: Introduce students to American Literature, Indian, British, African-literature etc.
PSO8: To make students aware about recent developments in literature tomodernism, Marxism, feminism, structuralism, psycho analytic,myth criticism etc.
PSO9: To make students aware about various literary ages such asChaucerian, Elizabethan, Renaissance, Restoration, Neo classic,Romantic, Victorian, Modern and Post modern ages.

B.A. Sociology

PSO1: Study the approaches, principles, concepts, methods and history of Sociology.
PSO2: Enable to describe the significance of social theory to society.
PSO3: Creates an awareness among the students about poverty, child labour,domestic violence and dowry etc.
PSO4: Study the social thinkers like AagustCompt, Max Weber, Karl Marx,Talcott Parson, Lewis Coser etc.
PSO5: Understand the basic concepts like society, social system, caste system,class system, family, marriage system, religiosity etc.
PSO6: Determine and analyze various approaches such as capitalist, mixed andsocialist.
PSO7: Develop an interest in carry out project integrating sociological theoryand methods.
PSO8: Makes able to substantively discuss the core theoretical perspectives ofthe society.

B.A. Political Science

PSO1: Understand the concept of state and its functions.
PSO2: Understand the functions and responsibilities of government.
PSO3: Understand the government work policies and decision making.
PSO4: Understand the relation between national and international politics.
PSO5: Understand the various political theories at national and international level.
PSO6: Analyze the basic concepts in political science.
PSO7: Makes aware about various political systems like dictatorship, democracy, Monarchy, etc.
PSO8: Becomes aware about local, state, and central government.
PSO9: Learns the thoughts of political thinkers like Plato, Aristotle, Machiavelli,Hobs, John Lock etc.
PSO10:Understand various isms such as liberalism, Communism, Imperialism,colonialism, fascism, Marxism etc.

B.A. History

PSO1: Understand the nature, scope, values and basic concepts in History.
PSO2: Analyze the relationship among History, Archeology, MuseologyTourism etc.
PSO3: Creates an awareness among the students about Historical monumentsSuch as caves, forts, temples etc.
PSO4: Promotes the social values through the history of social workers like Dr. B. R. Ambedkar, Mahatma Phule, LokmanyaTilak etc.
PSO5: Understand the thoughts of various thinkers like Karl Marx, Ranke, D.D.Kosambi, RomilaThaper, RanjitGuha etc.
PSO6: Understand the social, political, economical, religious, and cultural life ofAncient, Mediaeval, and Modern Indian History.
PSO7: Understand the process of Histography.
PSO8: Develop an interest in regional History.
PSO9: Understand the trends in History like Imperialism, Orientalism,feminism, colonialism and Subaltern etc.
PSO10: Understand the World History.

B.A. Economics

PSO1: Understand the nature, scope and basic concepts of Economics.
PSO2: Analyze the relationship among micro, macro, and welfare Economics.
PSO3: Understand the behavior of rural and urban economy.
PSO4: Learn the concepts like national and international trades.
PSO5: Determine various economic concepts like GDP, budget, structure of taxes, HDI, inclusive growth and sustainable development.
PSO6: Observe economic policies since 1950.

B.Sc. Physics

PSO1: Understand the basic concept of various physics branches such as Classical mechanics, Quantum Mechanics, Nuclear Physics, Statistical Mechanics and Electrodynamics.

PSO2: Analyses the relationships between different instruments used for same measurements.

PSO3: Perform experiment according to laboratory standard in the area of Classical Mechanics, Quantum Mechanics, Nuclear Physics and Electronics.

PSO4: Understand the application of Nuclear Physics, Spectroscopy and Electronics in field of Medical, Industry, Agriculture and daily life.

B.Sc. Chemistry

PSO1: Classification of organic compound in three dimensional way.

PSO2: Identification of acidic, basic radicals.

PSO3: Classification as organic or inorganic compounds.

PSO4: Nomenclature of organic and inorganic compounds.

PSO5: Identification of acidic, basic & neutral compounds.

PSO6: Determination of hardness of water and total dissolve solids.

PSO7: Determination of physical properties of matter such as viscosity, surface tension, magnetic susceptibility, boiling point, melting point, optical density.

B.Sc. Botany

PSO1: Understand and apply the basic principles and rules of botanical nomenclature, and use of taxonomic literature.

PSO2: Be familiar with methods of systematics, both traditional and modern.

PSO3: Apply for working vocabulary used in description of plant structures.

PSO4: Understand the history of classification, and recognize various systems of classifying angiosperms.

PSO5: Use dichotomous keys for the identification of Pacific NW plant species.

PSO6: Recognize representatives of local flora; applying floral formulas and descriptions of major plant families and representative species found here in Central Oregon.

PSO7: Apply proper herbarium methods - collecting, mounting, and keeping records.

PSO8: Analyze the scientific evidence for the explanations of the origin of life.

PSO9: Apply for understanding of the cell cycle to cellular abnormalities such as cancer.

PSO10: Explain the mechanisms for new genetic information.

PSO11: Define characteristics, importance and applications of plants in agriculture, horticulture and environmental ecology.

PSO12: Demonstrate knowledge of taxonomy and classification to identify unknown plants to genus or species level.

B.Sc. Zoology

PSO1: To understand the nature and basic concept of genetics, cell biology biochemistry, taxonomy ecology etc.

PSO2: Analyze the relationship among animals, plants, and microbes.

PSO3: Perform practical in the area of biochemistry, bioinformatics, ecology, and taxonomy.

PSO4: Understand the application of biological science in apiculture, aquaculture, agriculture and medicine.

B.Sc. Mathematics

PSO1: The student will be able to know the different branches of science and mathematics.

PSO2: Provide effective and efficient real time solutions using acquired knowledge in various domains.

PSO3: Ability to apply the acquired scientific and mathematical knowledge for the advancement of society and self.

PSO4: Ability to implement the learned principles of science and mathematics to analyze, evaluate and create more advanced systems or processes.

B.Sc. Computer Science

PSO1: After completing. computer science a student becomes competent for handling responsibilities of networking, web designing and development, software development and testing, multimedia and designing.

PSO2: After completing B.C.S. student has career in different fields of management.

PSO3: Students have knowledge of programming languages, hardware and software, computer networks, World Wide Web, database management, logic multimedia etc.

PSO4: After completing Computer Science, student may take admission to master degree programs like MCS, IT, MCA or MBA in information technology and others.

PSO5: Computer Science students have chances to work in following areas: Networking, Web designing and development, Software development and testing, Multimedia and designing.

Rajarshi Shahu Education Society's

Sahakar Maharshi Manikrao Palodkar College, Ajintha

Course Outcomes (CO)

Marathi

B. A. Marathi F.Y B.A, B.Sc. Marathi Paper I & II (S.L) Gadya Padya Upyojit Marathi

CO1: To introduce learners to the literature of the writers from medieval and modern time.

CO2: To make learners aware of social, political, cultural and economic conditions of the times.

CO3: To introduce the style of prose, fiction and poetry.

CO4: To understand Marathi grammar and punctuations.

CO5: To develop language skills for media.

F.Y. B.Com Marathi Paper I (S.L.) Gadya Padya Ani Upayojit Marathi

CO1: To introduce learners to poetry.

CO2: To understand real facts in dialogue, sentence and phrases.

CO3: To understand philosophy of Marathi literature.

CO4: To develop and enhance thinking, reasoning and communications skills.

CO3: To develop writing and expressing the views.

F.Y.B.A Marathi Paper I (Opt.) Kavytmak Sahitya

CO1: To introduce students to Marathi Poetry.

CO2: To understand Marathi poetry & connect it to real life.

CO3: To understand various ideologies, movements in the history of Marathi poetry.

CO4: To study the importance of literature.

F.Y.B.A Marathi Paper II (Opt) NATYATMAK WANGMAY

CO1: To understand Marathi language and drama.

CO2: To acquire and understand realistic view of life.

CO3: To express the fabulous dramatics.

CO4: To enhance expression, thoughts, ideas and all characteristic of human humanities through drama.

CO5: To correlate drama with our life and to know the social religious issues.

F.Y. BA Marathi Paper III (Opt.) Kathatmak Sahitya

CO1: To introduce students to Marathi story literature.

CO2: To enhance learner's interest in Marathi stories & connect it to real life.

CO3: To understand ideologies and movements in the history of Marathi language & literature.

CO4: To understand importance of literature in life.

F.Y. B.A. Marathi Paper IV (Opt) MUDRIT MADHAMASATHI LEKHAN KAUSHALUA

CO1: To understand communication skills.

CO2: To acquire realistic view in Marathi literature.

CO3: To understand the importance of language sources like television, mobile, newspaper and magazine.

CO4: To know the outer world.

CO5: to provide opportunities in services in mass media.

S.Y. B.A, B.Sc. Marathi Paper III&IV (Gadya Padya Upyojit Marathi)

CO1: Students will get introduced to thoughtful writings.

CO2: To create awareness about meaning and history of folk culture.

CO3: To introduce different trends in literature.

CO4: To understand of literary analysis.

CO5: To apply literary syntax of Marathi language.

CO6: To enhance interest of learner in Marathi literature, different Ideology and types.

CO7: To introduce information technology and social news in media.

CO8: To develop art of living through literature.

CO9: To understand literature, science, official transactions.

S.Y. B.A. Marathi Paper V (Opt.) Aadhunik Marathi vangmayacha itihas. (1800-1920)

CO1: To study literature history after 1800.

CO2: To correlate social, cultural, social movement ideology during 1800-1920 on literature.

CO3: To understand the background, inspiration, importance of authors & their literary work in 1800-1920.

CO4: To study translated literature & different types of literature including periodic, story, poetry, novel, biography, autobiography.

S.Y.B.A, Marathi Paper Paper VI, VIII (Druk shravya Madhyamansathi lekhan kaushalya)

CO1: To introduce functioning and structure of radio language.

CO2: To acquire skills of radio anchor.

CO3: To understand production of different programmes on radio.

CO4: To know different websites and webpages for media purposes.

CO5: To develop critical thinking.

S.Y.B.A. Marathi Paper VII (Opt.) Aadhunik Marathi vangmayacha itihas. (1800-1920)

CO1: To introduce learners to theatre culture, tradition, development and emergence of Marathi theatre.

CO2: To familiarize with Annasaheb kirloskar and his contribution.

CO3: To study translated literature & different types of literature such as periodic, story, poetry, novel, biography and autobiography.

CO4: To study poetry, biography, autobiography and their specialty. Keshavasut (Father of modern Marathi poetry) and his contemporary.

T.Y.B.A. Marathi Paper IX & XIII (OPT) (Bhartiy aani pashchimatya sahitya vichar)

CO1: To introduce students with basic scientific - Indian and foreign literature.

CO2: To understand types of literature.

CO3: To develop clear concepts in literature.

CO4: To learn conveying of message through Marathi literature.

CO5: To learn various forms of realistic human character.

T.Y.B.A, Marathi Paper, X, XIV (Opt.) (Bhasha Vidnyan: Vyakran v Nibandha)

CO1: To create awareness about the structural patterns of sounds in Marathi.

CO2: To inculcate ideas about history and development of Marathi language and its spoken forms.

CO3: To understand Marathi grammar.

CO4: To enhance pronunciation skill.

CO4: To understand Marathi grammar in various forms - word formation, suffix & prefixes.

CO5: To introduce learners to dialects of Marathi language

T.Y. B.A. Marathi Paper XI (MAIN) Madhyayugin Marathi vangmayacha itihas. (Start to 1600)

CO1: To understand different ages of Marathi.

CO2: To understand Mahanubhav Sect and their contribution in Marathi literature.

CO3: Specialty of ideology, philosophy of mahanubhav sect & their literary work.

CO4: To understand contribution of Varkari sampraday (sects) and their literary work.

T.Y. B.A. Marathi Paper XI (MAIN) Madhyayugin Marathi vangmayacha itihas. (1601 - 1818)

CO1: To understand Panditi sahitya and their inspiration, specialty and structure.

CO2: To know pandit kavi and his literature.

CO3: To understand contribution of Shahiri literature, inspiration, structure and specialty.

T.Y.B.A. Marathi Paper XII & XVI (Main Project)

After completion of the course, learners will be able to …..

CO1: Convey massage or motto with a story.

CO2: To think independently.

CO3: To apply logic.

CO4: To enhance thinking ability and create interest in Marathi language.

English (UG)

BA/B.SC First Year: **A Course in Communicative English- I**

1) The students will be aware of basic language skills.
2) The students will train them to read and write in English.
3) The students will become competent speakers and listeners of English.
4) The confidence level of the students for application of English will increase.
5) The word power of the students will enhance.

BA/B.SC Second Year: *A* **Course in Communicative English- II**

1) The students' linguistic skills will becomes advanced.
2) The communicative competence level of students will enhance.
3) The course will help the students to become good communicators.
4) The students will understand basic grammatical concepts and their use in day today communication.
5) The students will be able to understand and appreciate the literary qualities of prose and poetry.
6) This course will strengthen students ability in listening, speaking, reading and writing both at practical and theoretical level.
7) The students will be able to understand the grammatical properties in order to write and speak English consciously.
8) This course will help to train the students both in precision and inappropriate use of language through prose reading.

English Optional

BA FY optional English paper I: The Structure of English.

1) This course will give students advance knowledge of English in speaking and writing.
2) This course will help students towards better pronunciation.

3) The students will be able to acquire the structure of English language
4) The students will be able to analyze the semantic and grammatic aspects of English language
5) The students will understand the basic tense patterns in English and its practical use in day to-day affairs

BA FY Optional English paper II-Reading Literature.

1) This course will enable the students to read and appreciate various forms of literature and critically interact with them from different perspectives.
2) This course will introduce students to appropriate literary strategies to read literature.
3) The students will be able to unravel meanings in a literary text.
4) The students will be able to identify and appreciate the various genres of literature

BASY Optional English Paper III: Literature in English 1550-1750

1) The students will become aware of literature in English.
2) The students will become familiar with diverse cultures presented in literature.
3) The course will develop their ability to compare and analyze different literary works.
4) The students will be able to understand the basic forms of literature

BASY Optional English Paper IV: Literature in English 1750-1900

1) The students will learn about the development of British literature.
2) The students will come to know about the socio-political conditions of the neo- classical era of English literature
3) The students will be able to identify the contemporary social issues reflected in the literary creations.
4) The students will be familiar with the age of Dr. Johnson, the Romantic Revival, the Victorian period and the Age of Tennyson

BATY Optional English Paper V: Twentieth Century English Literature

1) The course will help the students to understand modern English literature.

2) This course will help the students to approach and appreciate Indian literature in English and make them see its place among the world literature in English.
3) This course will make the students able to understand the background of English literature and will help them to write on development.
4) The students will become familiar with modern writers like WB Yeats and TS Eliot

BATY Optional English Paper VI: Introduction to Literary Criticism and Terms

1) The student will familiarize with the literary terms and with the various streams in literary criticism.
2) The course will help to develop their skills for literary evaluation.
3) The students will develop critical acumen to analyze different literary texts
4) The students will become familiar with various schools of literary criticism.
5) The will become familiar with the various Eras and Traditions in the arena of literary criticism

BATY Optional English Paper VII (B): Indian Writing in English

1) It will also help to understand the students that how the literature of modern period relates to the important trends of the period.
2) This course will make the students aware of the fact that all reader circuits and introduce them to basic text in criticism while developing critical thinking in them.
3) This course will also introduce the students to the thematic concerns genres and trains of both Indian writing in English and American literature.
4) This course will lead the students to see how text are affected by the context.

BATY Optional English Paper VIII: Project

1) The course will help to develop the writing skills of the students
2) The course will develop the interpretation skills of the students
3) The students will be able to understand the basic methods of research
4) The students will be able to understand the referencing methods in research

History (UG)

B. A. History Shivaji and His Times (1630-1818)

CO1: To introduce leaners about the innovative study techniques in the of History of Marathas.

CO2: To provide value based conceptual and thought provocative.

CO3: To provide insights into the Mughal rulers and the Maratha Empire.

CO4: To introduce international elements in the study of Marathas to facilitatecomparative analysis of the history.

CO5: To highlight the importance of past in exploration of present context.

CO6: To understand the socio-economic, cultural and political background of17th century of Maharashtra.

CO7: To provide spirit of healthy Nationalism & Secularism among the learners.

History of Modern Maharashtra (1818-1960)

CO1: To familiarize students to the study of Maharashtra.

CO2: To acquaint learners with the basic understanding of developmentalstage of Maharashtra.

CO3: To impart high quality education to the students with reference to Maharashtra.

CO4: To prepare the students for a variety of challenging careers through innovation in teaching and research.

CO5: To develop comprehensive understanding of interdisciplinary issues of the society.

History of Early India (up to B.C. 300)

CO1: To understand the ancient Indian history.

CO2: To understand the nature of races and tribes intermingled in early India.

CO3: To evaluate Hinduism, Jainism, and Buddhism in ancient times.

CO4: To understand the nature of past and obstacles that impedes India's progress as a nation.

History General Paper-VIII History of Mughal India (A.D. 1526- A.D. 1757)CO1: To understand the Mughal contribution to the Indian history.

CO2: To know the Mughal period.

CO3: To study Persian art and culture amalgamated with native Indian art andculture.

CO4: To study the political unity provided by the Mughal rulers.

History General Paper – IX Historiography

CO1: To understand and evaluate the development of history as a discipline.

CO2: To understand writing of historical accounts.

CO3: To highlight the significance of thinking "historiographically".

CO4: To provide new angles to research and interpretations.

History General Paper-X History of Indian national Movement (A.D. 1885-

A.D. 1947)

CO1: To provide a comprehensive understanding of the transformations in theeconomy of colonial India.

CO2: To introduce land and agrarian policies under the British rule.

CO3: To develop nationalism in learner's mind.

CO4: To understand the British economic policy and Indian revolts.

CO5: To understand the British parliamentary acts that led to the foundationfor the Indian constitution.

Sociology

Introduction to sociology

CO1: Students know about the origin and development of sociology.
CO2: Familiarize with basic concepts of sociology.
CO3: Understand significance of sociology and to study approach, principles, concepts, methods and history of sociology.
CO4: Students acquire knowledge about analysis of social problem, social policy & action

Individual & Society

CO1: Understand the scope and importance of sociology, its origin and development.
CO2: Understand human Society and institutions and other structural elements.
CO3: Students know about social structure and social stratification.
CO4: Learners will be aware of social change and social control.

Introduction to Subfields of Sociology

CO1: Students acquire knowledge to understand the scope of sociology & its wideness.

CO2: To understand relation between sociology and other social sciences.
CO3: To understand broad segments of Indian society.
CO4: This course will also help to carry interest in the sociology as general and its subfields.

Indian Social Composition

CO1: Students understand about features of Indian society.
CO2: Students understand about Democracy, Secularism, social justice and Indian Constitution.
CO3: To understand India's geographical ethnic and religious distinctiveness.
CO4: Learners will be made aware of rural and agrarian structure

Problems of Rural India

CO1: Learners will be made aware of changing scenario of Rural India and the contemporary problems of rural development.
CO2: Students know about Institutional Issues.
CO3: Learners will understand about Education and Health.
CO4: To understand about major issues in development

Problems of Rural India

CO1: Learners will be made aware of changing scenario of Rural India and the contemporary problems of rural development.
CO2: Students know about Institutional Issues.
CO3: Learners will understand about Education and Health.
CO4: To understand about major issues in development

Contemporary Urban Issues

CO1: Learners are inculcated with analytical and thinking about urbanization and urban Planning.
CO2: To create understanding about urban communities and urban problems.
CO3: Learners will be made aware about globalization and urban issues.

Population in India

CO1: This course is designed to understand the dynamics of population.
CO2: Students understand about basic concepts of Population
CO3: To understand causes, consequences and changes of Indian population.
CO4: To provide the basic understanding of how to control population growth.

Sociology of Development

CO1: To provide an overview of development Issues in India.
CO2: Students will understand about developmental approaches.
CO3: Students will know about Govt. Scheme of development.
CO4: To provide the students basic conceptual perspectives on development.

Sociological Tradition

CO1: To provide information to the students with the understanding of historical, socio-economic and intellectual forces of the rise of sociological theories.
CO2: To provide the students with basic understanding of emergence of sociological thoughts.
CO3: To develop sociologists with their contributions to sociology.

Introduction to Research Methodology

CO1: Students understanding of application of research methodology in sociology.
CO2: To provide and equip the students with the procedures. Tools and techniques of social research.
CO3: Students will be made aware about basic concepts in research methodology.
CO4: To Provide the students scientific research process.

(Main) Urban Sociology

CO1: To focus attention towards increasing urbanization.
CO2: Students know about nature and scope of urban sociology.
CO3: Students will be aware about process of urban development
CO4: To understand the students about urban sociological theories.

Practical work

CO1: To understand research methodology, field work and project writing

Sociological Theories

CO1: To understand students basic theoretical approaches and develop their sociological thinking power.
CO2: Students will be made aware about functionalism theory.
CO3: Students will be made aware about conflict theory.
CO4: students will be made aware about symbolic interaction theory.

Social Research Methods

CO1: the course can serve as a helping hand to students to understand primary technique and the use of social research.
CO2: the course is designed in the view of increasing use of computers and statistical tools in social research.
CO3: student know about utility of social research
CO4: students understand about techniques of sociological investigation.

Urban Society in India

CO1: students analyse critically social problems of urban India.

CO2: to understand about impact of modernization and industrialization on Indian Urban sphere.
CO3: students will be aware about social problems of urbanization.
CO4: students will be aware about growth of urban population in India.

Practical work

CO1. To understand research methodology, field work and project writing

Political Science (UG)

Course -I: Basic Concepts of Political Science (I & III)

1) The students will be knowledge of state.
2) Understand & explain to the students about theories of origin of state.
3) To the students will be aware Sovereignty, Citizenship, Rights & Justice.
4) To the students will be aware Democracy & Welfare State.

Course -II: Government and Politics of Maharashtra (II& IV)

1) The students will be aware of Historical and Political Background of Maharashtra State.
2) Understand & explain to the students about Sanyukt Maharashtra Movement & State Reorganization Commission.
3) Understand to the students about Organs of Government.
4) To the students will be knowledge of Movements: Cooperative, Peasant, Dalit, Feminist movements and functions.
5) Motivate to the students about Panchayat Raj & Political Parties in Maharashtra.

Course-III: Indian Government and Politics (V & VII)

1) To the students will be aware Indian Constitution., Budgetary Process and Parliamentary Committees.
2) To the students will be knowledge about Union Government.
3) Explain to the students about Attorney General, Comptroller and Auditor General.
4) The students will be aware Supreme Court and its power & functions.
5) To the students explain political parties in Indian & Election Commission and Challenges before Indian Democracy (Corruption, Casteism, Communalism, Regionalism).

Course-IV: International Relations (VI & VIII)

1) To the students will be able to understand International Relations and Approaches.
2) Information to the students about India's Foreign Policy, National Interest, National Power and Balance of Power.
3) To the students will be aware about Collective Security and UN, Deterrence, Major Issues.
4) To the students will be aware about regional organizations and Non- Alignment Movement its role of International Relations.

Course-V: Indian Political Thinkers (IX & XII)

1) To the students will be aware about of Raja Ram Mohan Roy and Dayanand Saraswati.
2) The students will be able to understand Gopal Krishna Gokhale and Lokmanya Tilak.
3) To the students will be aware about of Mahatma Gandhi and Maulana Azad.
4) The students will be able to understand Jawaharlal Nehru and MN Roy.
5) To the students will be aware about of Babasaheb Ambedkar and Jayaprakash Narayan.

Course-VI: Western Political Thinkers (X & XIII):

1) The students will be aware of Plato, Aristotle Niccolo Machivelli.
2) The students will be aware of Thomas Hobbes, John Locke, Jean Jacques Rousseau.
3) The students will be aware of John Stuart Mill, Jeremy Bentham
4) Understand to the students of Karl Marx, Harold Laski.

Course-VII: Political Ideology (XI & XIV):

1) The students will be able to understand Nationalism, Liberalism, Democracy and Imperialism concepts of ideology.
2) The students will be able to the students will be aware of Feminism and Socialism ideology.
3) Communism and Fascism, Anarchism and Environmentalism of ideology.

Course-VIII: Project Work -XV:

1) The concern subject teacher should provide outline of the project work to the students.
2) Title of the project and Introduction to the students.
3) Objectives and Hypothesis, Importance, Analysis and Data Collection about information to the students.
4) Conclusion and References, Project Workbook completion in the research activity of the students.

Economics (UG)

BA First Year, Ist Sem- Subject Code: Eco- 101 Micro Economics

1) To provide foundations of economics.

2) To understand scope of micro-economics, the behavior of an economic agents - namely, a consumer, a producer, a factor owner and the price fluctuation in a market.

3) To study behavior of a unit and analysis.

BA First Year, Ist Sem- Subject Code: Eco- 102 Indian Economy:

1) To study analytical factor of the students, by highlighting an integrated approach to be functioning aspects of the Indian economy, keeping in view the scope for alternative approaches.

2) To study social, political and economic environment influencing policy decisions.

3) To develop specific modules.

BA First Year, IInd Sem- Subject Code: Eco- 103 Price Theory:

1) To understand different components regarding price determination undervarious types of markets.

2) To understand theory of production, cost and revenue analysis, forms ofmarket and factor pricing the

BA First Year ,IInd Sem- Subject Code: Eco- 104 Money Banking and Finance:

1) To understand role of money and banking as the components of moderneconomy.

2) To understand the operations of money and banking.

3) To study interaction of money and banking with the rest of the economy.

4) To understand monetary and banking systems in India.

BA Second Year, IIIrd Sem Subject Code: Eco- 105 Macro Economics:

1) To create awareness of basic theoretical frameworks underlying the field of Macro economics.

BA Second Year, IIIrd Sem : Subject Code :Eco- 106 Development Economics:

1) To understand theoriesand developments underlying the field of development economics

BA Second Year, IVth Sem Subject Code: Eco- 107 Public Finance:

1) To study the significance and scope of Public Finance.

2) To provide detailed information about the fiscal policy, public revenue, public debt and public expenditure.

BA Second Year, IVth Sem Subject Cod : Eco- 108 Statistical Methods:

1) To understand techniques of statistical analysis which are commonly applied to economic problems.
2) To study the tools and techniques of statistical methods.
3) To understand data collection, its presentation, analysis and making inferences.

BA Third Year, Vth Sem Subject Code : Eco- 109 International Economics:

1) To understand the basic principles that trend to govern the free flow oftrade in goods and services at global level.
2) To understand and analyze the difference between various economies ofthe world.

BA Third Year, Vth Sem Subject Code : Eco- 110 Agricultural Economics:

1) To study the treatment of issues in agriculture economics to thoseintending to specialize in the area.
2) To familiarize students with policy issues those are relevant to Indianagricultural economics.
3) To analyze the issues using basic micro economics.

BA Third Year, Vth Sem Subject Code : Eco- 111 History of Economic Thought:

1) To understand the basic ideas of classical, new classical and marginalityeconomist.
2) To compare the basic economic ideas of various economic thinkers of theworld.

BA Third Year, VIth Sem Subject Code : Eco- 113 Research Methodology:

1) To understand the concept of social science research.

2) To know the importance of social research, design of research problem,data collection and presentation of data.

3) To understand the idea of research in social sciences.

BA Third Year VIth Sem Subject Code: Eco- 114 Industrial Economics:

1) To understand basics of industrial economics.

2) To study globalization and liberalization in contemporary world.

BA Third Year, VIth Sem Subject Code : Eco-115 Indian Economics Thinker

1) Understand the importance of Economics thought

2) Identify the Marxian Economics theories

3) Describe the classical theory of value and capital

4) Recognize the Economic theories

BA Third Year,Vth & VIth Sem Subject Code : Eco-112 & 116 Project Work

1) The concern subject teacher should provide outline of the project work to the student
2) Title of the project and introduction
3) Objectives and hypothesis.
4) Importance, Analysis and data collection
5) Conclusion and reference
6) Project work book completion in the research activity.

Physics

Course Code	Course Title	On completion of this course the Learners/ students will be able ….
B.Sc. F.Y. SEMESTER-I		
Physics:101	**Mechanics, Properties of Matter and Sound**	1. To understand Newton's law and apply them in calculations of the motion of the simple pendulum 2. To get the knowledge of various types of Pendulum 3. To understand the concept of friction and the concept of elasticity 4. To know the basic concept of stress and strain, coefficient of elasticity
Physics:102	**Heat and Thermo-dynamics**	1. To apply the laws of thermodynamics to formulate the relations necessary to analyze thermodynamic process 2. Solving the problems on reversible and Irreversible process, Carnot's cycle 3. To explain Carnot's cycle and work done of efficiency 4. To find the applications of the physical quantities

Physics:103	**Practical**	1. To apply the knowledge of Vernier Caliper, Micrometer Screw Gauge, Travelling Microscope 2. To calculate acceleration due to gravity by Kater's pendulum 3. To calculate the surface tension by Jaeger's method and viscosity by Poisseuille's method 4. To measures various physical quantities in various systems of units 5. To develop skill of handling the instrument
B.Sc. F.Y. SEMESTER - II		
Physics:104	**Geometrical and Physical Optics**	1. To understand the concept of physical and geometrical optics 2. To understand polarization of light and RP prism and grating 3. To discuss Laurent's half shade polarimeter 4. To comprehend interference and diffraction of light
Physics:105	**Electricity and Magnetism**	1. To know the concept of the electric field, electric potential, potential and field due to electric dipole 2. To understand the dielectric phenomena and relation between D, E and P 3. To learn magnetic field for study current using Biot-Savart's and Ampere's circuital law 4. To demonstrate quantitative problem solving skills in all the topics covered
Physics:106	**Practical**	1. To get the knowledge of B.G. and C.R.O. 2. Get the use of dark room in Physics laboratory 3. Use the standard method for calibration of spectrometer. 4. To study how to use the multimeter for measuring voltage, current and resistance?
B.Sc. S.Y. SEMESTER-III		
Physics:201	**Mathematical & Statistical Physics and Relativity**	1. Solution of homogeneous equation inhomogeneous equation. 2. To learn a variety of B.E., M.B. & F.D. distribution law 3. To recognize basic terms in statistical basis and classical statistics such as probability, macro state and microstate 4. To understand the fundamentals and concepts in length of contraction, time dilation & theory of special relativity

Physics:202	**Modern and Nuclear Physics**	1. To understand the concept of Photoelectric effect, photo-emissive cell & photo voltaic cell. 2. To understand the relationship between Bragg's & Snell's law 3. To acquire the knowledge of linear acceleration, GM counters 4. To development familiarity with the vast areas of absorption of X-Ray and main features of continuous x-ray spectra
Physics:203	**Practical**	1. Student would have developed skills and enthusiasms to the best of their potential 2. To read, understand & interpret the graphical representations and mathematical calculations. 3. To perform experiments & interpret the results of observations.

Physics:204	**Practical**	1. Develop experimental, computational and skills of students. 2. To carry out experiment to understand the Helmholtz resonator and Surface Tension by Ferguson method. 3. Student would have developed skills to the best of their potential.
B.Sc. S.Y. SEMESTER- IV		
Physics:205	**General Electronics**	1. To get basic knowledge of PNP and NPN transistor 2. To understand the C.E., C.C. & C.B. transistor biasing and working principle of amplifier 3. To explain feedback of Phase shift oscillator and Hartley oscillator 4. To get idea about Amplitude Modulation and phase modulation
Physics:206	**Solid State Physics**	1. Understand Basic concept of crystal lattice, plane lattice & space lattice 2. To practice problem solving by using selected problems in bonding and band theory of solids 3. To explore important connections between classical theory of lattice heat capacity & Debye lattice theory 4. To develop basis for future learning and work experience.
Physics:207	**Practical**	1. To understand the central concept of electronic component 2. To understand the concept of physical significance of various practical phenomena such as full wave & Half wave rectifier 3. To get depth of knowledge of Physics in day to day life
Physics:208	**Practical**	1. To get the knowledge of basic principles and applications of Electronics such as CE, CB configuration. 2. To get the ability to identify almost all electronic components and circuit components and their working principle 3. This course will definitely able the student to service or repair electronic equipment

B.Sc. T.Y. SEMESTER - V		
Physics:301	**Classical and Quantum Mechanics**	1. To have a deep knowledge of mechanics of particle and virtual work. 2. To understand the fundamentals of the simple pendulum and Atwood machine 3. To solve the Planck's Radiation Law, Wein's law & Rayleigh law in Q.M. 4. To solve the Schrodinger's time dependent & time independent equation and their applications
Physics:302	**Electrodynamics**	1. To know the application of Gauss law and divergence E, curl of E. 2. To have deep understanding the theoretical, fundamentals of electromagnetic induction and self induction 3. To have understand the interaction of electromagnetic waves with matter and the boundary of the non conducting media
Physics:303	**Practical**	1. To create the curiosity to know the basic idea of laser 2. To understand the working of LDR and B.G. by standard condenser method 3. To develop the creativity in physics experiments and write the experimental manual 4. To know the basic concept of function generator
Physics:304	**Practical**	1. To familiar with techniques used in applications of Diode laser 2. To perform basic experiments of He-Ne laser and optical fiber 3. To carry out experiments to understand the concept of Physics 4. To write down the analysis of an experimental technique

B.Sc. T.Y. SEMESTER - VI		
Physics:305	**Atomic, Molecular Physics and LASER**	1. To know the basic concept of Thomson atom model, Nuclear atom model & Bohr atom model 2. To developed the experimental idea with the help of LS coupling and JJ coupling scheme and intensity rules and interval rules 3. To gain the knowledge of Raman effect and its application s 4. To learn the concept of laser and their applications
Physics:306	**Non-conventional energy sources and Optical fiber**	1. To study the knowledge of wind energy, Ocean energy Geo- thermal energy, etc. 2. To study non conventional energy sources 3. To understand the concept of Optical Fiber, fiber cables and fabrication 4. Able to design and use of solar cell/photovoltaic cell
Physics:307	**Practical**	1. To perform basic experiment such as thermal conductivity by Frobe method 2. To perform statistical analysis of observed data with the help of Excel sheet 3. To write down the results of an experiment in proper style
Physics:308	**Practical**	1. To perform basic experiments on Semiconductor and Bridge rectifier 2. To perform experiment of Hartmann's dispersion formula using spectrometer 3. Able to do analysis of statistical data obtained by experiments.

Chemistry (UG)

Course Code	Course Title	On Compilation of this course the Learner students will be able to understand
B.Sc. F. Y. SEMESTER- I		
Chemistry: Paper- I	**Inorganic Chemistry**	**1.** Learn the basic concept like Atomic orbitals, Quantum numbers, Electronic Configuration and Bohr's Atomic model. **2.** Become familiar with different periodic properties, their trends in periodic table and able to predict and explain their chemical behavior. **3.** Understand the diagonal relationship, study their hydrides which extended to study their role in biosystem.
Chemistry: Paper- II	**Organic Chemistry**	**1.** Apply the concepts of bonding, resonance, Inductive effect, steric effect, hyperconjugation and tautomerism to higher organic compounds.. **2.** Predict the products, identify reaction intermediates and propose suitable mechanism for organic reactions.. **3.** Identify stereogenic centres, recognize enantiomers, diastereomers, meso compounds, draw stereochemical structures, and provide R/S designations of stereocenters. **4.** Understand the Alkane and Alkene Chemistry **5.** Predict the aromaticity using Huckel's rule and able to differentiate between aromatic, anti- aromatic and non-aromatic compounds.
Lab course:I Paper- III	**Practical**	**1.** Prepare reagents required for analysis. **2.** Carry out qualitative tests and identify inorganic radicals in a salt mixture. **3.** Able to determine viscosity and surface tension of any liquid. **4.** Understand the kinetics of the reaction
B.Sc. F. Y. SEMESTER- II		
Chemistry: Paper- IV	**Physical Chemistry**	**1.** Recall and explain why certain factors such as concentration, temperature, medium and the presence of a catalyst will affect the speed of a chemical reaction. **2.** Use kinetic data to check the viability of a mechanism. **3.** Develop in-depth understanding of different states of matter including Solid, Liquid, Gaseous and Colloidal State. **4.** Interpret rate law for Zero, First, Second, Pseudo Second order reaction and gathered knowledge of Catalysis.
Chemistry: Paper- V	**Inorganic Chemistry**	**1.** Learn the Xenon chemistry. **2.** Understand the different theories of chemical bonding and be able to apply these theories to solve structures **3.** Acquire the knowledge of fundamentals of Nuclear Chemistry with real life applications. **4.** Calibration of pipette & burette, gathered knowledge

		of indicators and oxidizing agents in the titrations.
Lab course:II Paper- VI	**Practical**	1. Prepare reagents required for analysis. 2. Carry out qualitative tests and identify organic Compound.
B.Sc. S. Y. SEMESTER- III		
Chemistry: Paper- VII	**Organic Chemistry**	**1.** Understand the different functional groups like phenol, carboxylic acid, aldehydes, ketones, alcohols along with their preparation and chemical reactions. **2.** Detailed study of some Name Reactions.
Chemistry: Paper- VIII	**Physical Chemistry**	1. Understand the Laws of Thermodynamics andconstruct problem solving skills. 2. Learner will know and understand the world of Chemical Equilibrium and its importance
Lab course:III Paper- IX	**Practical**	**1.** Carry out acid base reactions and determine heat of Neutralization. **2.** Demonstrate proficiency in Gravimetric Estimations and Complexometric Titrations skills.
B.Sc. S. Y. SEMESTER- IV		
Chemistry: Paper- X	**Inorganic Chemistry**	**1.** Understand various concept of acid and bases. **2.** Acquired knowledge of coordination compounds. **3.** Learn transition elements along with Lanthanides and Actinides.
Chemistry: Paper- XI	**Physical Chemistry**	**1.** Know the meaning of phase, components anddegree of freedom. **2.** Interpret Raoult's law and Henry's law. **3.** Able to explain fundamental aspects of electrochemical reaction in terms of thermodynamics and kinetics.
Lab course:IV Paper- XII	**Practical**	**1.** Developed skills in procedures and instrumental methods applied in practical task of Physical Chemistry. **2.** Skill development in preparation, derivitizationand purity check by TLC of Organic compounds. **3.** Proficiency in Organic estimations. **4.** Able to determine normality and strength of solutions using instruments.
B.Sc. T. Y. SEMESTER- V		
Chemistry: Paper- XIII	**Physical Chemistry**	**1.** State postulates of Quantum Mechanics, able to solve Schrodinger wave equation for particle in 1D and 3D Box. **2.** Realize the importance of spectroscopy in structural elucidation. **3.** Able to explain photochemical reaaction. **4.** Know different physical and chemical methods for nanomaterial synthesis and extended knowledge about use of plants and microorganism in nanoparticle synthesis.

Chemistry: Paper- XIV	**Organic Chemistry**	**1.** Combine, evaluate and interpret information from the various spectroscopic techniques in determination of molecular structures. **2.** Design the synthesis of organic molecules through enolates. **3.** Demonstrate advanced level knowledge in Organometallic Chemistry using Organomagnesium, organozinc and organolithium compounds.
Lab course:V Paper- XV	**Practical**	**1.** Determine the functional group of the unknown compounds by systematic analysis in a semi-micro scale. **2.** Carryout effective separation (pilot and bulk) of mixture of organic compounds. **3.** Research skill development via Inorganic qualitative analysis (Semi-Micro Analysis).
B.Sc. T. Y. SEMESTER- VI		
Chemistry: Paper- XVI	**Inorganic Chemistry**	**1.** Know the limitations of Valence Bond theory, Detail understanding of Crystal field theory with Crystal field splitting. **2.** Enriched the knowledge of electronic Spectra of transition metal Complexes. **3.** Introduced to principle of Chromatographic technique of separation of mixture of compounds.
Chemistry: Paper- XVII	**Organic Chemistry**	**1.** Classify heterocyclic compounds based on the characteristics of the heteroatom and explain their reactivity and properties. **2.** Use of corresponding information in synthesis of biologically and clinically active drugs. **3.** Understand the various structure of carbohydrates like glucose, fructose, sucrose maltose and lactose.
Lab course:VI Paper- XVIII	**Practical**	**1.** Synthesize organic compounds and their purity check by TLC. **2.** Use of Conductometer in titration method to determine strength of given mixture or compound. **3.** Developed skill development for use of Potentiometer and Refractometer to find out concentration of given compound in unknown solution.

Botany (UG)

SEMESTER-I

Course Code	Course Title	On completion of the course, the learner will be able to understand
Course – I	Diversity of Cryptogams-I (Theory)	1. Classify, develop an understanding regarding Viruses, Bacteria, Lichens, Algae, Fungi based on their characteristics and structures. 2. Examine the general characteristics of Mycoplasma, Viruses, Bacteria, Lichens, Algae, Fungi and their reproduction. 3. Identify, Demonstrate the principle and applications of Viruses, Mycoplasma, Bacteria, Lichens, Algae and Fungi. 4. Increase the awareness and appreciation of human friendly Viruses, Bacteria, Algae and their economic importance.
Course- II	Morphology of Angiosperms (Theory)	1. To understand different types of plant habits. 2. To study various vegetative and reproductive parts of Angiospermic plant body. 3. To study parts of flower. 4. To study types of modifications in flower parts with its Purpose.
Course -III	Diversity of Cryptogams-I (Practical)	1. Demonstrate proficiency in the experimental techniques. 2. Analysis of thallophytes like Algae, Fungi, Lichens and Mycoplasma. 3. To understood the lower plants. 4. To observe disease symptoms in host plants. 5. To study different parts of flower and their structure.

SEMESTER -II

Course-IV	Diversity of Cryptogams-II (Theory)	1. To understand Bryophytes and Pteridophytes 2. To understand morphology, anatomy and reproduction in Bryophytes and Pteridophytes. 3. To understand plant evolution and corelation to land Habit.
Course- V	Histology, Anatomy and Embryology (Theory)	1. To understand basic concept of Histology, Anatomy and Embryology. 2. To understand different types of tissues with their Functions. 3. To understand mechanism and various types of Pollination. 4. To understand basic procedure of fertilization. 5. To study structure of Embryo and types of seeds.
Course- VI	Histology, Anatomy and Embryology (Practical)	1. To understand the concept of Tissues, Primary and Secondary growth in plants. 2. To study structure of types of seeds.

SEMESTER – III

Course-VII	Taxonomy of Angiosperms (Theory)	1. To understand the basic concept of Taxonomy. 2. To understand Identification, Nomenclature and Classification as basic functions of Taxonomy. 3. To learn about diverse angiospermic families and their Economic importance. 4. To understand regarding modern concepts in Taxonomy
Course- VIII	Plant Ecology (Theory)	1. To understand plant ecology with biotic and abiotic factors. 2. To classify soils on the basis of various properties. 3. To understand the structure and functions of ecosystem 4. To understand Adaptations of plants in relation to Environmental factors.
Course-IX	Taxonomy of Angiosperms (Practical)	1. To understand diverse Angiospermic families with the help of plant specimens.

Course-X	Plant Ecology (Practical)	1. To understand interactions of plants with biotic and Abiotic environment. 2. Students can understand morphological, anatomical And physiological adaptations in plants. 3. Students can identify the types of soils with their Properties.

SEMESTER- IV

Course- XI	Gymnosperms and Utilization Of Plants (Theory)	1. To learn about structure and reproduction of species of Gymnosperms. 2. Students learn about fossil forms. 3. To study about economically important plants with Their uses. 4. To understand utilization of plants with their uses to Human beings.
Course- XII	Plant Physiology (Theory)	1. To know scope and importance of plant physiology 2. To understand water relation of plants in relation to Various physiological processes. 3. Students should understand the process of Photosynthesis with light reaction, dark reaction, C3 And C4 plants. 4. To understand the respiration in higher plants with Types.
Course – XVI	Practical	1. For all physiological experiments, students will be able To demonstrate proficiency in the experimental Techniques and methods of analysis. 2. To apply knowledge in real sense of life.

SEMESTER - V

Course- XV	Cell Biology and Molecular Biology	1. Identification of concept which explains structure and Chemical composition of cell wall and membrane. 2. Explaination of development of cells and comparis-

	Son of the structure and function of cell organelles. 3. To understand the cell division processes like Mitosis and Meiosis, the cell cycle. 4. Students should know the structure and chemical Properties, Replication of DNA and RNA with types.
Course- XVI Biodiversity of Angiosperms-I	1. Learner students will be aware about concept of Biodiversity, its exploration, estimation and Conservation. 2. To understand various Angiospermic families with Their economic values. 3. To understand modern trends related with Taxonomy. 4. To understand plants with classification systems. 5. To aware about conservation of biodiversity.
Course- XVII Cell biology and Molecular Biology Practical	1. Students will be able to demonstrate proficiency in the experimental techniques. They will be able to understand methods concerned with cell biology and biotechnology.
Course- XVIII Biodiversity of Angiosperms-I Practical	1. To learn diverse Angiospermic families with the help of plant species.

SEMESTER – VI

Course- XIX Genetics and Biotechnology- Theory	1. To learn about hereditary characters. 2. To understand laws of inheritance. 3. To understand sex linkage. 4. To learn about applications of Genetic Engineering.
Course- XX Biodiversity of Angiosperms-II Theory	1. To educate students about concepts of Biodiversity, its conservation. 2. To understand diverse angiospermic families With economic importance.

	3. To understand modern trends in Taxonomy of Plants and classification systems.
Course-XXI Genetics and Biotechnology Practical	1. Students will be able to understand, to solve problems of genetic interaction, incomplete Dominance, co-dominance, allelic, multiple Alleles and inheritance.
Course- XXII Biodiversity of Angiosperms-II Practical	1. To learn about different Angiospermic Families
	2. To learn about tools for identification like Keys And Floras.

Mathematics (UG)

B. Sc. Mathematics Differential Equations

CO1: To understand homogeneous and separable first order differentialequations.

CO2: To understand the exact differential equations.

CO3: To understand homogenous linear equations with constant coefficientand variable coefficients.

CO4: To find the solution of non-homogenous first order differential equations.

CO5: To find the solution of Bernoulli's equation.

Geometry

CO1: To understand geometrical terminology for plane, right line, sphere,cylinder and cone.

CO2: To know the geometrical results to find center and radius of the circle.

CO3: Students will be able to find equation of lines and planes in space.

CO4: Student will be able to find angle between two planes and length ofperpendicular from a given point to a given line.

CO5: Students will be able to identify parallel and perpendicular lines.

Differential and Integral Calculus

CO1: To develop the concepts of limit, function, continuity, discontinuity andderivative.

CO2: Students become familiar with hyperbolic functions, inverse hyperbolicfunctions, derivatives, and higher order differentiation.

CO3: Students understand the consequences of Rolle's Theorem and meanvalue theorem for differentiable function.

CO4: Students understand definite integrals as the limit of a sum.

CO5: Student will be able to understand the concept of divergence, curl,gradient and it's applications.

Number Theory

CO1: Students will be able to find quotient and remainders from integerdivision.

CO2: Students apply Euclid's algorithm and backward substitutions.

CO3: Students understand the concept of congruence, residue classes andleast residue.

CO4: Student will know the concepts - addition and multiplication of integersmodulo.

CO5: Students will be able to solve linear congruence.

Numerical Methods.

CO1: Student becomes familiar with numerical solutions of nonlinearequations in a single variable.

CO2: Students will know the concepts - numerical interpolation andapproximation of functions.

CO3: Student can solve first order initial value problem using Euler's method.

CO4: Student can solve first order initial value problem using a second orderRunge-Kutta Method.

CO5: Students will be able to find numerical solution of ordinary differentialequations.

Integral Transform and Partial differential Equations

CO1: Students understand the concept of beta and gamma functions and theirapplications.

CO2: Students are able use to Laplace transform to solve ordinary and partialdifferential equations.

CO3: Students can apply properties of Laplace transform to solve examples.

CO4: Students will know the difference between linear and nonlinear partial differential equations.

CO5: Student will be able to solve the linear and nonlinear partial differential equation by various methods like Lagrange's, Charpit's, Jacobi's, Monge's method.

Mechanics (I & II)

CO1: Students understand the concepts - particle, rigid body, force, equilibrium etc.

CO2: Students can find the components of velocity & acceleration in a givendirection.

CO3: Students follow the concepts momentum, angular momentum, work,energy and points functions in mechanics.

CO4: Students will know the concept of projectile and motion of projectile.

CO5: Students will know differential and pedal equations of central orbits andtheir applications.

Abstract Algebra (I & II)

CO1: Students will understand the number systems and algebraic structures.

CO2: Students will understand the concept of ring and special types of rings.

CO3: Students can identifythe difference between homomorphism andisomorphism of a group.

CO4: Students will know and apply the concepts of linear dependence andlinear independence of vectors.

CO5: Students will be able to give the examples of inner product space.

Ordinary Differential Equations (I & II)

CO1: Students will know the difference between equation and differentialequation.

CO2: Students will be able to find the solution of linear differential equation offirst and second order.

CO3: Students will understand the initial value problem and its solutions.

CO4: Students will be able to understand the concept Wronskian of solution.

CO5: Students can find singular point and regular singular points of thedifferential equation.

Real Analysis (I & II)

CO1: Students become familiar with terminology sets, elements, operations onsets, functions, operations on functions.

CO2: Students can define & recognize basic properties of field of real numbers.

CO3: Students can understand the concept of series of real numbers,convergence and Divergence.

CO4: Students can understand metric space, continuous function on metricspace and difference between open sets and closed sets.

CO5: Students will be able define Riemann integral, Fourier series and theirapplications.

B.Sc (Optional) - Computer Science

B.Sc. (Optional) First Year

Course Name : - Computer Fundamental

- Knowledge of Computer Fundamental, CPU & it's functionalities
- Understanding of block diagram of hardware peripherals
- Understanding the concepts of software and it's types
- Understanding the computer based application such as e mail, video conferencing

Course Name : - Digital Electronic

- Understanding the Number system & it's Conversion
- Computer system architecture, the structure of computer, working gates and it's functionality
- Understanding basic knowledge in digital logic and circuits.
- Introduce basic concepts of Data communications.

Course Name : - Operating System

- Introduce the basic functioning of operating system as resource manager and it's feature
- Understanding process states, CPU Scheduling
- Understanding Memory Management system like paging.
- Understanding Inter Process Communication, Deadlocks, Synchronization.

Course Name : - Programming in C

- Understanding Algorithm Thinking, Problem solving
- Impart modern skill in C language in an Industry standard.
- Understand basic features, create, execute simple C program using conditional statement, loop and array.
- Understand & Store different data types in the same memory

B.Sc. (Optional) Second Year

Course Name : - Advanced C Programming

- Develop modular programs using control structures, pointers, arrays, strings and structures
- Manage & Handle File I/O operations in your C program.
- Understand different Library function in C, Storage Classes & Conversion Function
- Understand C – Graphics Library and develop program.

Course Name : - Data Structure

- Understand the concept of Dynamic memory management, data types, algorithms, Big O notation.
- Understand basic data structures such as arrays, linked lists
- Apply Algorithm for solving problems like sorting, searching, insertion and deletion of data
- Solving problem involving STACK & QUEUE

Course Name : - Programming in CPP

- Understanding Object Oriented Programming with concepts of streams, classes, function, data and object
- Understand dynamic memory management techniques using constructors, destructors
- Students will be able to implement relationships between classes.
- Students will be able to create and user interfaces and packages

- Understand the concept of function overloading, operator overloading, virtual functions and polymorphism.

Course Name : - DBMS using SQL

- Design E-R Model for given requirements and convert the same into database tables
- Use database techniques such as SQL & mysql.
- Explain transaction Management in relational database System.
- Use advanced database Programming concepts & Commands in sql, MS –ACCESS

B.Sc. (Optional) Third Year

Course Name : - Software Engineering

- Understand Students will be able to choose appropriate process model depending on the user requirements.
- Students will be able perform various life cycle activities like Analysis, Design, Implementation, Testing and Maintenance.
- Students will be able to know various processes used in all the phases of the product.
- Students can apply the knowledge, techniques, and skills in the development of a software product.

Course Name :-Web Designing

- Understand does web works really, what makes web sites work.
- Impressive design techniques using HTML, JavaScript
- Understand where to Applying CSS technique & it's properties.
- Understanding where to start Analysis, planning for website & actually build excellent web sites.
- To create web elements like buttons, banners

Course Name : - Data Communication & Networking

- Understand different transmission media and Cables for establishing a network
- Understanding Generation of Mobile
- Implement any topology using network devices
- Understand the TCP/IP configuration for Operating System.
- Device sharing on network like printer

Course Name : - Ethics & Cyber Law

- Student will be able to understand Cyber Crime, Cyber Laws, E- Governance.
- Student will be able to understand Act 2000 Cyber Law
- Student will be able to understand issues in E- Business Management.

Course Name : - Major Project

- Express technical ideas, strategies and methodologies in written form.
- Prepare and conduct oral presentations.
- Understand new tools, algorithms, and techniques that contributesto the software solution of projects.

Course Name : - Seminar

- Acquire new technologies while searching the topic.
- To enhance presentation skills of the learner.