

**Nutan Adarsh, Art's, Com.& Smt. M. H. Wegad Sci. College
Umred Dist. Nagpur**

PROGRAMME & COURSE OUTCOMES

Faculty of Arts

DEPARTMENT OF ENGLISH

Program Specific Outcome (PSOs)

1. Enhancement in English language acquisition ability.
2. English Communication Competency.
3. Enrichment in the learners` vocabulary and grammar structures.
4. Development of writing, reading, conversational skills in English.
5. Development of scientific approach.
6. Clear the concept of Indian philosophy and spirituality.
7. Knowledge of human values.
8. Environment and sustainability.
9. Know the importance of English language in job market.

B. A. First Semester (Compulsory English)

By the end of the course the students will be competent as given under:-

1. Ability to read and understand the contents in prose and comprehend the thematic contents in poetry.
2. Ability to grasp new words for the enrichment of language and competence building for correct pronunciation.
3. Learn sentence structures understanding the underlying usage of grammar.
4. Ability for self introduction in English and also perform skills obtained in basic conversations like greeting others, responding to greetings, accepting and rejecting invitations in formal and informal ways.

B. A. Second Semester (Compulsory English)

By the end of the course the students will be competent as given under:-

1. Students will get motivation from the biographies of the great personalities.
2. The masterpieces from the eminent Indian and foreign authors will create interest and motivation among the students
3. Students will develop the ability to comprehend and appreciate poetry.
4. Students will learn to understand different forms of literature.
5. Students will develop their writing skills through letter writing and comprehension of unseen passage.

6. Students will get ready for the competitive exams.
7. Students will learn how to achieve goals and inculcate the values of life through the text.

B. A. Third Semester (Compulsory English)

By the end of the course the students will be competent as given under:-

1. Ability to read the text with fluency and comprehend the meaning of the prose.
2. Ability to recite the poems in a rhythmic manner to fathom their meanings.
3. Take knowledge of the great literary giants that contributed English literature and language and appreciate their works.
4. Ability to write English with correct punctuation.
5. Ability to use grammar for changing narration.
6. Ability to comprehend and summaries the given text/passage.
7. Adopt conversational skills like giving and refusing invitation and exchanging greetings.
8. Students will learn the importance of water and environment through the lesson Water – The Elixir of Life.

B. A. Fourth Semester (Compulsory English)

By the end of the course the students will be competent as given under:-

1. Students will learn the values of life from the prose.
2. Students will get inspiration from the life stories of the personalities from the different fields and try to emulate their qualities.
3. Students will appreciate and understand the poems and develop interest in this literary form.
4. Students will learn practical wisdom through the prose and poetry section.
5. Students will develop writing skills like precis writing, expansion of an idea or proverb which will be helpful for them in different competitive exams.
6. Students will develop word power by having an access to vocabulary given at the end of every text.
7. Students will learn the language skills through grammar section.

B. A. Fifth Semester (Compulsory English)

By the end of the course the students will be competent as given under:-

1. Students acquire fluency in reading to get familiar with the works of the leading figures in English language and literature in English all over the world.
2. Recite the poems with proper pronunciations and pauses to understand their themes.
3. Skills of writing an inventory report and an advertisement copy.
4. Develop skills of writing essays on social and economic issues.
5. Development of the skills in communication for making enquiries in common affairs of day to day life.
6. Compare and comprehend difference in English and mother tongue of the students.

B. A. Sixth Semester (Compulsory English)

By the end of the course the students will be competent as given under:-

1. To identify the difference in structures of stories, prose and poetry.
2. Ability to write themes of the text passage in their own words.
3. Ability to compose and respond to an e-mail.
4. Ability to write Curriculum Vitae (CV).
5. Writing paragraphs with the help of given hints.
6. Describing and sharing the experiences of visiting different places like hospitals, offices, etc.
7. Participation in group discussion and act of roll play.

B. A. First Semester (English Literature)

Course: Study of Poetry

By the end of the course the students will be competent as given under:-

1. Understand the thematic contents in poetry.
2. Make evaluation of literary importance of poems.
3. Understand different terms in literature.
4. Make evaluation of literary genres.

B. A. Second Semester (English Literature)

Course: Study of Poetry

By the end of the course the students will be competent as given under:-

1. Know the underlying principles of poetry writing.
2. Study the background of poetry and its types.
3. Analyze the literary terms for understanding literature.
4. Understand figure of speeches in literature.

B. A. Third Semester (English Literature)

Course: Study of Prose

By the end of the course the students will be competent as given under:-

1. Know the different phases of human behavior and development.
2. Understand the history of English literature.
3. Understand literary terms related with writing of prose.
4. Know the novel as a genre.

B. A. Fourth Semester (English Literature)

Course: Study of Prose

By the end of the course the students will be competent as given under:-

1. Know the fundamental human tendency by way of reading stories.
2. Know the background of short stories and its development.
3. Know the literary terms with respect to the writing of prose.
4. Identify the novels, drama and poetry and its role in psychological development of humanbeings.

B. A. Fifth Semester (English Literature)

Course: Study of Drama

By the end of the course the students will be competent as given under:-

1. Ability to differentiate human tendency in different context.
2. Understand the tragic and comic aspects of drama and its role in giving pleasure to themankind.
3. Understand the dialogues and emotions in drama.
4. Know the old vocabulary and its replacement by the new vocabulary.

B. A. Sixth Semester (English Literature)

Course: Study of Drama

By the end of the course the students will be competent as given under:-

1. Know the dramatic sense and different aspects of dramatic performance.
2. Ability to understand the term 'Anti-hero'.
3. Know the role of background to the study of ELT.

Know the dramatic types and its contributors in literature.

B.Sc. Sem. I and Sem. II Compulsory English

The given textbook “Empowering Minds” (2020-21 onwards)

English being a skill based subject which is integration of the four language skills of Listening, Speaking, Reading and Writing (LSRW).

Teaching in B.Sc. Semester I & Semester II is done in accordance with the prescribed syllabus of R.T.M.Nagpur University, Nagpur. The given textbook “Empowering Minds” has Prose, Poetry, Grammar and Composition. These are the four areas in which students are tested.

Programme Outcome:

1. Being a skill based subject, the four skills of language viz. Listening, Speaking, Reading and Writing should be developed among the students.
2. The students will have the ability to read, understand, analyze and interpret the lessons, and poems of English language from the text.
3. They should be able to write correctly and clearly with the knowledge of using grammatical rules in answering the questions.
4. The students should be able to do intensive as well as extensive reading.
5. Language learning should develop their imagination.
6. It should improve the student's vocabulary.
7. It should develop their comprehensive and composition skills.
8. Language learning should inspire the students to communicate in English.

Programme Specific Outcome:

1. The students will apply the four skills of Listening, Speaking, Reading and Writing in their day to day life.
2. They will apply their critical thinking whilst reading and writing.
3. Better communicative skills will help them to use grammatically correct sentences to acquire a good command over English.

Course Outcome:

1. The students will be adept in using the four skills of language; Listening, Speaking, Reading and Writing effectively.
2. Enriched with linguistic skills, the students will begin to use English in a better and enhanced way.
3. They will be able to make use of the English language in their professional lives.
4. The students will also gain proficiency in language so as to enable them to face and use English easily in a global scenario.
5. The critical thinking ability of the students shall be developed.
6. Good exposure to writing skills will enhance their creative ability, which in turn will enable them to write better paragraphs, reports, etc.
7. Exposing them to prose and poetry in the text will develop in them a taste for reading and appreciation for poetry.
8. Poetry will refine the aesthetic and finer sensibilities enabling them to become better human beings.
9. Language learning will help students enrich their vocabulary.

B. COM. I SEM AND II SEM

SUBJECT—COMPULSORY ENGLISH

1. Students will be able to face the various challenges in this fast-paced technological world.
 2. Students will be able to pursue their hopes and dreams as English language plays a significant role in molding students into global citizens
 3. Students will develop their interpretive and critical thinking skills
 4. Students will know the biographies of the eminent personalities and learn the lessons in human potentials.
 5. The prose text help students face every day real world difficulties.
 6. The articles on start-ups and entrepreneurship, social media and public speaking inform the students about necessities regarding these fields.
 7. Students will strengthen their grasp of English language and grammar through writing skills and language study.
 8. The book instills in them an enthusiasm to test the limits of their capabilities.
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B com III & IV Sem

The prescribe Textbook “Blossoms” (2016-17) onwards

The English language offers us a window to the world which introduces various people, culture, thoughts and perception of the universe. This book “Blossoms” is useful for the students to enhance the language skill, emotions and values that are needed to its full potential. It consists prose, poetry, grammar and composition to develop interest about the English language and its usage.

Programme outcome

1. Skill based technique like speaking, writing, listening and reading should be developed among the students.
2. Students should be able to write and speak correctly with grammatical rules.
3. language skill and learning should cultivate their imagination, value and vocabulary.
4. It should develop their composition and comprehensive skill.
5. It should inspire the student to communicate in English

Course Outcome

1. It enhance the language skill and emotional values of the students.
2. Students will be adept in speaking, reading, listening and writing.
3. They can use English language as a skilful weapon in their profession life.
4. Critical thinking and aesthetic values will develop among the students.
5. Student can develop a taste for reading and poetic values.
6. It enhance the social awareness and values among students.

DEPARTMENT OF SANSKRIT

Programme Specific Outcomes (PSOs)

Sanskrit Literature (SLT) is an optional subject on graduation level in the college. Students have to choose three optional subjects out of seven.

Tradition of Sanskrit is very rich and old. Sanskrit belongs to IE language group. It is a medium & source to know about ancient Indian history, culture, religion, thoughts, social life, economical condition, etc. through its texts. The academic programme of degree courses are designed to develop basic & fundamental concepts and understanding about drama, epic, poetics, rasa,alamkar, nitishastra, metre, reading, writing and speaking skills amongst the students through various Sanskrit texts.After successful completion of course, students will have various opportunities & skills in the modern era of globlization, liberalization & privatization. Modern era is of knowledge and information technology.

Course Outcomes (COs):

1. Develop a basic concept of ancient Indian history,philosophy and literature.
2. Enhance communication skills-Listening, Speaking, Reading, Writing.
3. Students will be able to write Devnagari scripts which provide them paleographical knowledge to read out the script of modern languages like Hindi and Marathi.
4. Increase interest and enclinationin knowledge of the subject.
5. Students will demonstrate the skill needed to participate in conversation that builds knowledge with collaboration.
6. Appropriate, adequate & Reasonable understanding of multi-disciplinary relevance of literature of Sanskrit like Grammar, Kavya, nitiishastra etc.
7. To make them eligible for higher education.
8. Develop research aptitude and independent thinking.
9. After becoming graduate students can apply in the field of UPSC, MPSC, etc. They can also apply against teaching posts.
10. Grammar is very important part of this language for the making of sentences, to know appropriate meaning of texts, oral communication and perfection.
11. They will be able to know the importance, propagation across the world of this language.

DEPARTMENT OF ECONOMICS

Programme Specific Outcomes (PSO)

By the completion of this program, the students will be able to understand:

1. the economics and economic processes.
2. the financial operations such as banking and market, etc.
3. the concepts of micro and macro economics.
4. the applicability of the above mentioned concepts.
5. the structure of Indian Economy.
6. the Industrial Policy.
7. the Agricultural Productivity and Marketing.

Statement of Course Outcomes (COS)

B. A. Ist SEM Course: Micro Economics-1

By the end of this course, the students will be able to Understand:

1. the meaning of economics and difference between micro and macro economics.
2. the demand and supply theory and Giffen paradox.
3. the consumer's behavior with the help of utility analysis and indifference curve analysis.
4. the production function and Iso-quant curve.

B. A. II nd SEM Course: Micro Economics-II

By the end of this course, the students will be able to understand:

1. the cost and revenue analysis and its inter-relationship.
2. the market structure and perfect competition market Equilibrium of short and long run firm.
3. the concept of monopoly and imperfect competition market.
4. the factors pricing and statistics for economics.

B. A. III rd SEM Course: Macro Economics - I

By the end of this course, the students will be able to understand:

1. the introduction to macro economics and its models.
2. the national income and concept of GNP, NNP, NDP, Per Capital income.
3. the concept of the money and value of money.
4. the theories of determination of value of money.
5. the concept of Employment and its theories.

B. A. IVth SEM Course: Macro Economics-II

By the end of this course, the students will be able to understand:

1. the commercial and central bank functions and its credit control.
2. the finance, monetary policy and modern banking system. 3. Understand the financial, money and capital market.
3. health economics and statistics for economics.

B. A. V th SEM Course: Indian Economics-1

By the completion of this course, the students will be able to understand:

1. the types and structure of Economy.
2. the productivity of Agriculture and Agricultural Marketing, various agricultural policies.
3. the role Industries in Economic Development.
4. the problem of Un-employment and poverty and Poverty alleviation ex program of India.

B. A. VI th SEM Course: Indian Economics -II

By the end of this course, the students will be able to understand:

1. Economic and sustainable development.
2. the economic planning in India.
3. the new economic reforms in India.
4. the public finance, tax structure, GST and finance commission.
5. the India's foreign trade and trade policy of India, FDI, MNC, etc.

DEPARTMENT OF POLITICAL SCIENCE

Course Outcomes

This is a more pleasurable moment for students that Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur constituted the syllabus of Political Science. 'Dreams Comes True' for students to prepare UPSC, MPSC, and other local level exams. It will help students to become responsible person and citizens.

B. A. II Semester

Subject:- Political Theory

1. Theory always helps students to understand 'What is science'?
2. Political Theory is a base of Political Science.
3. The Subject helps students to understand the key concepts of Political Science.
4. The subject gives the ideas like origin of state, sovereignty, power, authority, liberty, equality etc.

B. A. II Semester

Subject:- Western Political Thought

1. Many western thoughts are origin of theory. It helps students understand the Theory.
2. The subject helps students to understand an Ancient era and their Philosophy.

B. A. III Semester

Subject:- Indian Government and Politics

1. The Subject more helpful and important to student to understand of our Government and system.
2. The Subject teaches students the structure, role and function of our
 - 1) Legislative 2) Executive 3) Judiciary.
3. Its helps students to know 'how its work and function'.
4. The subject gives the Idea of 'welfare state'.
5. The subject aware students of their 'Fundamental Rights and Fundamental Duties'.
6. The subject develops students' morality.
7. The subject teaches students their Responsibility about Country.

B. A. IV Semester

Subject: - State Politics In India

1. The Subject gives Information of our Federal Structure.
2. The Subject helps students to understand Power, Function and Structure of our State Government, Local Government.
3. Due to The Subject there is an increase the Political Participation of youngsters in their local Government.

B. A. V. Semester

Comparative Politics

1. Syllabus of the subject is a framework of UPSC, MPSC optional Paper of Political Science. It helps to Students to Prepare for UPSC, MPSC.
2. The subject helps students to understand another countries government and their systems, functions, characteristic and structure.
3. The Subject More helpful to know the culture and party system of various countries.

B. A. VI Semester

International Relation

1. The Subject teaches students 'How perform relation' at international level.
2. The subject helps students to understand the concept of "National Power".
3. Students know the concept of 'National Interest'.
4. The subject helps to understand concept of 'Terrorism'. And its Nature, Functions.

Department of Sociology

B. A. I SEM

Name of the course—Introduction to Sociology

1. Students will understand the concept of sociology and its problems.
2. Students will get knowledge of social welfare schemes for the welfare of women, old people and the backward classes in the society.
3. Students will know the social development through social planning.
4. Students will understand different religious traditions, social traditions, customs, rituals prejudices and superstitions and make them think over it. Students will get motivation to use reason with their action.
5. Students will get knowledge about various job opportunities which are generated from the study of sociology.
6. Students will become the responsible citizen who will spread socio-religious unity and peace among the society.

B. A. II SEM

Name of the Course-Themes and Perspectives.

1. Students will get familiar with the process of socialization, social stratification, social mobility, social conformity, social deviation, social control and social change.
2. They will develop insight about solidarity, social discipline, a sense of cooperation and duties towards society.
3. Students will learn culture, its meaning, types, elements, functions, similarity, dissimilarity, culture and civilization and culture and society. Students will understand the importance of culture.
4. Students will become conscious about the system of caste, class, race, religion and gender in the society.
5. Students will know the importance of religion in social controlling which will inculcate good values, sacredness and trust in them.

B. A. III SEM

Name of the Course – Foundation of sociological Thoughts.

1. Students will learn the emergence of sociology as a discipline.
2. Students will understand the intellectual and social forces as well as the social, economic and political forces.
3. Students will learn about the founders of sociology .
4. Students will study August Comte- the father of sociology and his views on positivism and law of three stages of society.
5. Students will understand Herbert Spencer and his organic analogy, theory of social evolution, military and industrial society.
6. Students will get idea about Charles of Horton Cooley and his concept of Looking- Glass self, primary group, its characteristics and importance.
7. Students will study Emile Durkheim and her theory including types of suicide, religion and its functions.
8. Students will know about the founders of sociological thoughts and they willstudy Karl Marx and his capitalism, its critics, class and class struggle.
9. Students will get knowledge about Max Weber and the types of social actions, types of authority and bureaucracy.

B. A. IV SEM

Name of the Course---Indian Sociological Tradition

1. Students will get information about theoretical roots of caste in India.
2. Students will get knowledge about Dr. B. R. Ambedkar and origin of Caste and its criticism and the other genius G. S. Ghurye and characteristics of caste and emergence of sub-caste.
3. Students will learn the social change from Indian perspective and they will study dominant caste- meaning and implication, Sanskritization- as a factor of social change, mobility and development, a theory formulated by M. N. Shrinivas.
4. Students will study D. P. Mukharjee and her thoughts over historical dialecticism, Indian tradition and social change.
5. Students will learn about Indian society and contemporary change.
6. Students will get knowledge about R. K. Mukharjee and values, symbols, personality and change.
7. Students will learn about S. C. Dubey and values in modernity, modernity, Indian society and social change.
8. Students will get knowledge about gender and society in India and they will study TarabaiShinde and her thoughts over women and patriarchy in Indian society as well as about the revolutionary couple JotibhaPhule and SavitribaiPhule and their work for women's education and women's rights.

B. A. V SEM

Name of the Course—Indian Society: The Structural Issues

1. Students will learn about Indian society and its structural issues.
2. Students will learn caste as a structure of inequality and discrimination. They will learn about the problems of scheduled caste and other backward castes.
3. Students will study the constitutional provisions for scheduled castes and Mandal Commission for other backward classes.
4. Students will get information about the family in the contemporary India and they will understand the intra and inter- generational conflict, dowry, divorce, domestic violence and problems of elderly people.
5. Students will study the tribal issues and problems in India, their education development and agrarian problems.
6. Students will know the social mobility and change as well as reservation among the tribal, provision of schedule V, PESA and Forest Act.
7. Students will get idea about rural community in India, migration, its causes and consequence.
8. Students will be conscious about the problem of unemployment, its causes and consequences and the other most burning issue of farmer's suicide and its impact on family.
9. Student will learn to face the above problems- oriented challenges.

CLASS--- B. A. VI SEM

Name of the course—Current Social Problems in India.

1. Students will get knowledge about current social problems in India which include educational status of different communities in India.
2. Students will know the gender bias in education, obstacles to women's education, problems of education among SCs, STs and other backward castes and the measures to resolve it.
3. Students will learn the meaning, causes and consequences of displacement and the concept, problems and plans of rehabilitation.
4. Students will study caste, religious and cultural intolerance and communal riots, cast and ethnic conflicts.
5. Students will know about violence and crime against women and the marginalized and the measures to check it.
6. Students will become aware of problem of corruption- its meaning, definition and types. They will learn not to indulge in such practices.
7. Students will study the factors including corruption and the measures to check it.

DEPARTMENT OF HISTORY
Programme Outcome & Specific Programme Outcome
Bachelor of Arts (B.A.) History
2019-20

Programme Outcome

1. Students are able to understand the genesis of history and development of history* writing indifferent country as well as in India.
2. Sources of ancient India, Civilizations like Indus and Aryan, political and religious* changes in 6th century B.C., Mauryan Empire etc are studied.
3. Students will distinguish between primary and secondary sources and identify and* evaluate evidence.
4. Students will demonstrate in discussion and written work their understanding of different peoples and cultures in past environments and of how those cultures changed over the course of the centuries.
5. Students will demonstrate in written work and class discussions the ability to* recognize and articulate the diversity of human experience, including ethnicity, race, language, gender, as well as political, economic, social, and cultural structures over time and space.

Programme Specific Outcome

1. Archaeologist: Archaeological Survey of India with private Firms related to* archaeology.
2. Historian: With so much debate over the authenticity of historical books, there is ever increasing demand for historians.
3. Public Service: For History graduate, the option of public service like UPSC,APSC* are always open.
4. Teacher: After B.A. in history one can always find employment as a history Teacher.
5. Writer/Subject Expert: Nowadays a lot of publishing houses seek subject matter experts for publication of school textbook or supplementary reading materials.
6. Travel and tourism expert: With an extensive knowledge of history and historical monuments, history graduates can work as a travel expert for tourist spot of historical importance.

DEPARTMENT OF MARATHI

बी.ए. भाग 1 - साहित्य संवाद भाग 1

1. मराठी भाषेचे महत्त्व अधोरेखित करणे.
2. मराठी विषयाच्या माध्यमातून सांस्कृतिक मूल्यांची जोपासना करणे.
3. मराठी भाषेच्या उपयोजनावर भर देणे.

बी. ए. भाग - 2 साहित्य संवाद भाग - 2

1. प्राचीन वाङ्मयाचा परिचय करून देणे.
2. मराठी विषयाचे आजच्या दृष्टीने महत्त्व प्रतिपादन करणे.
3. मराठी भाषिक संकल्पना स्पष्ट करणे.

बी. ए. भाग- 3 साहित्य संवाद भाग- 3

1. मराठीतून करिअरच्या संधी प्राप्त करून देण्याचा प्रयत्न करणे.
2. जीवनाकडे बघण्याचा दृष्टिकोन बदलविणे.
3. सर्वसमावेशक संत वाङ्मयाचा परिचय करून देणे.

बी.एस्सी. भाग - एक - शब्दगंध

1. विज्ञानवादी दृष्टिकोन वाढीस लावणे.
2. मराठीचे संवर्धन संरक्षण करायला लावणे.
3. साहित्यातील विज्ञानवादी संकल्पनांची ओळख करून देणे.

बी.ए. भाग 1 (मराठी साहित्य)

1. भाषा व साहित्य यांची ओळख होते.
2. भाषा आकलनासोबत विविध वाङ्मयप्रकाराची ओळख होते.
3. मातृभाषा आणि वाङ्मयविषयक अभिरुची वाढीस लागते.
4. विद्यार्थ्यांची ज्ञानार्जन क्षमता आणि मूल्यमापन प्रक्रिया यांची सांगड घालण्यात उपयुक्त.

बी.ए. भाग- 2 (मराठी साहित्य)

1. वाङ्मयप्रवाहाची व वाङ्मय प्रकारांची ओळख होते.
2. सामाजिक व सांस्कृतिक संदर्भाचा परिचय होतो.
3. सार्वजनिक जीवनाच्या विविध क्षेत्रात आपले विचार खंबीरपणे मांडता येतात.

बी.ए. भाग- 3 (मराठी साहित्य)

1. समाजातील उच्च कोटीची मानवी मूल्य वृद्धिंगत होण्यास मदत होते.
2. सामाजिक बांधिलकी निर्माण करण्यास मदत होते.
3. पर्यावरण संरक्षण व संवर्धन भूतदया इत्यादी मूल्य वाढीस लागतात.
4. व्यक्तिमत्व विकासात भर पडते.

सत्र २०१८-१९ करिता आवश्यक मराठी अभ्यासक्रमाचा उद्देश

बी.कॉम. भाग- १ 'भाषादर्शन' भाग - १

- १) वाणिज्य शाखेच्या विद्यार्थ्यांना भाषेच्या आकलनाबरोबरच साहित्यातील विविध वाङ्मय प्रवाहांची ओळख होईल.
- २) महाराष्ट्रातील संतांच्या आणि विचारवंतांच्या विचारगर्भ व्यक्तिमत्त्वाचा परिचय होईल.
- ३) त्याद्वारेच त्यांच्या ज्ञानकक्षा वृद्धिंगत होतील.
- ४) विद्यार्थ्यांच्या आत्मकेंद्री वृत्तीला छेद देऊन त्यांची दृष्टी अधिक समाजाभिमुख होईल.
- ५) मानवी मूल्य वैज्ञानिक दृष्टिकोन, अर्थव्यवस्था व औद्योगीकरण, देशसेवेप्रती विद्यार्थी अधिक जागरूक होतील.

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- १) या अभ्यासक्रमाद्वारे विद्यार्थ्यांचा भाषाविषयक दृष्टिकोन विकसित होईल ते अधिक जीवनोन्मुख होतील.
- २) चारित्र्यसंपन्नता आणि सामाजिक उत्तरदायित्वाची जाण त्यांच्यात निर्माण होईल.
- ३) 'व्यावहारिक मराठी'मुळे त्यांना आपले व्यावहारिक जीवनव्यवहार अधिक सुलभतेने पूर्ण करता येतील.
- ४) वैज्ञानिक आणि विवेकवादी दृष्टिकोन त्यांच्यात निर्माण होईल.
- ५) त्यांचा सर्वांगीण विकास साधला जाऊन सक्षम नेतृत्व गुण निर्माण होतील.

अभ्यासक्रमाचा उद्देश

(सत्र २०१९—२० पासून)

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- १) या अभ्यासक्रमातून महाराष्ट्राच्या व मराठी भाषेच्या मौलिक परंपराचा परिचयविद्यार्थ्यांना होतो.
- २) संतपरंपरेपासून आधुनिक साहित्य रचनेपर्यंत भाग यात असल्यामुळे त्यांच्या ज्ञानकक्षा विस्तारल्या जातात.
- ३) महामानवांनी, विचारवंतांनी सांगितलेल्या मानवी मूल्यांची रुजवणूक विद्यार्थ्यांमध्ये होते. विद्यार्थ्यांचा मूल्यभाव वृद्धिंगत होऊन ते डोळस, विवेकी, निर्भय व आत्मनिर्भर होतात.
- ४) समाजातील सामंजस्य, बहुपेढीसांस्कृतिकता, वैज्ञानिक व विवेकी दृष्टिकोन निर्माण होतो.
- ५) वर्तमान व्यावहारिक पैलूंना आत्मसात करता येते. त्यामुळे सर्वांगीण व्यक्तिमत्त्व विकास साधला जातो.

बी.कॉम. भाग ०२ — आवश्यक मराठी 'शब्दसाधना' भाग — २

- १) या अभ्यासक्रमामुळे भाषिक कौशल्यासोबतच जीवनाभिमुख व व्यवसायाभिमुख दृष्टिकोन वाढीला लागतो.
- २) विज्ञानवादी, विवेकवादी, निर्भय, आत्मनिर्भर व व्यवहारवादी जीवनदृष्टी विकसित होते.
- ३) पर्यावरण संरक्षण व शेतीविषयक सुधारणेची भावना निर्माण होते.
- ४) सामाजिक व राष्ट्रीय ऐक्याची भावना निर्माण होते.
- ५) आजच्या स्पर्धेच्या युगात स्पर्धला आत्मविश्वासाने सामोरे जाण्याचे सामर्थ्य निर्माण होते. खऱ्या अर्थाने विद्यार्थ्यांचा सर्वांगीण विकास साधला जातो.

Programme Outcomes & Course Outcomes

Faculty of Commerce

Bachelor of Commerce (B.Com)

Program Outcomes :

This Program could provide basic knowledge of accounting, auditing, statistics, commercial laws, taxation, principles of business management, economics, computer, skill development etc. After completing three years for Bachelors in Commerce (B.Com) program, students would gain a thorough grounding in the fundamentals of Commerce, Finance and Management. B.Com program offers a number of specializations and practical exposures which would equip the student to face the modern day challenges in commerce and business and enable the students to acquaint themselves with the dynamics of business scenario in India. The all inclusive outlook of the course offers a number of values based and job oriented courses ensures that students are trained up-to-date.

Specific Program Outcomes :

This program could provide well trained professionals for the industries to meet the well trained manpower. By virtue of this program, they can become Manager, Accountant, Bank Manager, Marketing Executive, Salesman, Auditor, Chartered Accountant, Cost and Management Accountant, Company secretary, Teacher, Professor, Stock Agents & Brokers, Insurance Agents, Government employees, Office administrator and Statistician etc. The program will help the graduates to take Start-ups in Business to contribute to the growth of industry and equip students to face challenges as entrepreneurs. This Program helps to understand Social Responsibility of business towards various stakeholders of business.

Course Outcomes:

B.Com. – First Year

Semester-1 (Since 2016-17 & Onwards)

Name of the Course- Financial Accounting-I

1. Students become aware of the basic concept of Financial Accounting.
2. They get more awareness regarding concepts and conventions of accounting.
3. They are able to understand meaning, objectives, principles of financial Accounting, Final accounts of sole traders.
4. They understand Hire-purchase meaning, features, merits -demerits and accounting of Hire Purchase System.
5. They understand Final accounts of Co-operative Societies by preparation of Trading, Profit and Loss Account and Balance Sheet.
6. They understand Meaning, Methods of joint venture accounting.

Name of the Course – Business Organisation

1. Students learn various forms of Business.
2. They are able to start their own Business.
3. They can develop Innovative Ideas in Business.
4. They become more aware about Social Responsibility of Business towards different groups in society.
5. They learn Organization & its various types & importance.
6. They gain knowledge about E-commerce, E-business & E-banking.
7. They will be inspired by CEO, CS, CFO, MD and try to adopt their Qualities.

Name of the Course – Company Laws

1. The main outcome of course is to make students aware of the basic concept of company law as per the Company Act 2013 with Amendments up to June 2016.
2. Students get Basic Conceptual Knowledge of Company Laws.
3. They grasp meaning, definition, concept of Corporate Personality, kinds of company, promotion and incorporation of company.
4. They grasp meaning, definition, concept of Memorandum of Association, Articles of association, Private Placement and prospectus, Misrepresentation in prospectus.
5. They learn meaning, definition, concept of Share and share capital, Debt capital, Depositories and dematerialization.
6. They understand the meaning, definition, concept of Membership in a company, Directors, Auditors etc.

Name of the Course – Business Economics-I

1. The Students learn various principles of economics.
2. They get basic information about the economy.
3. They understand meaning, objectives, principles, concepts of Business Economics and Micro-Macro Economics.
4. They understand meaning, objectives, and concepts of Theory of Consumption.
5. They understand meaning, objectives, and concepts of Theory of Production.
6. They understand meaning, objectives, concepts of Theory of Cost and Revenue.

B.Com. – First Year

Semester-2 (Since 2016-17 & Onwards)

Name of the Course- Statistics and Business Mathematics

1. The main outcomes of the course enable the students to understand and apply mathematical and statistical techniques to practical business problems.
2. Students learn how to arrange data in tabulation form with use of Statistics and Business mathematics.
3. They are able to analyze Mean, Median, Mode, Geometric Mean and Harmonic Mean.
4. They are able to analyze Mean Deviation, Standard Deviation, Quartile Deviation, Co-efficient of variation.
5. They are able to analyze the Skewness Type of Karl-Pearson and Bowley Method.
6. They are able to analyze Business Mathematics Type of Ratio, Proportion, Percentages, Interest, Profit/Loss.

Name of the Course – Business Management

1. Students learn how to manage the business and how to develop the managerial skills.
2. They get inspired by various Management philosophers & their thoughts.
3. They get ready to face the challenges & complexities in today's business worlds.
4. They are able to prepare how to do management.
5. They develop an awareness and confidence in their own Planning.
6. They acquire the skills in Delegation of Authority, Co-ordination & Controlling.
7. They gain knowledge about Change, Crisis, and Stress & International Management.

Name of the Course – Secretarial Practice

1. The main outcome of course is to make students aware of various functions, duties and responsibilities of company secretary and Secretarial Practice as per the Company Act 2013 with Amendments up to June 2016.
2. Students get Basic Conceptual Knowledge of Secretarial Practice.
3. They are able to understand meaning, objectives, classification of Public limited to Private limited, Company Secretary, Director.
4. They learn meaning, characteristics, company meeting, Voting and resolution and Circular-Ordinary.
5. They become aware of the meaning, definition, and concept, Report Writing, Audit, E-Governance and E-Filing.
6. They understand the meaning of Key managerial personnel Type of Directors, Managerial Remuneration.

Name of the Course – Business Economics-II

1. The Students learn various principles of economics.
2. They acquire knowledge of micro- & macroeconomic theory as it relates to recent policies and issues.
3. They are able to understand meaning, objectives, concepts, Type of Market Structure and Pricing of Products-Types.
4. They are able to understand meaning, objectives, concepts of Perfect & Imperfect competition markets and Monopolistic competition.
5. They are able to understand meaning, objectives, and concepts of Theory Theories for Distribution.
6. They are able to understand meaning, objectives, concepts of Business Cycles and National Income.

B.Com. – Second Year

Semester-3 (Since 2017-18 & Onwards)

Name of the Course- Financial Accounting-II

1. Students become aware of the basic knowledge of Financial Accounting.
2. They get more awareness regarding concepts of Corporate accounting.
3. They are able to understand meaning, objectives, concepts, accounting procedure of Consignment, Valuation of Consignment stock.
4. They are able to understand meaning, Objectives Branch Accounting, Transactions relating and procedure of Branch Accounting.
5. They are able to understand Types of shares, Method of issue of shares, Accounting for issue, Forfeiture of shares & reissue of forfeited shares.
6. They are able to understand Meaning, Final Accounts of Joint stock companies, statutory provisions, provision for interest on debentures, proposed dividends, interim dividend.

Name of the Course - Business Communication and Management

1. The main outcome of course is to understand the importance of being an effective business communicator in today's changing workplace.
2. Students get knowledge about Business Communication and use of Computers in Communication.
3. They are able to understand the meaning, Definition, objectives, concept, Functions, written, oral, visual, audiovisual, interpersonal, supervisory, grapevine and barrier in communication.
4. The student should be able to appreciate meaning, concept, objective, purpose, importance, salient feature, principles of effective business communications and customer care communication in business.

5. They learn about the internet, website and electronic media in business communication and Social media as a means of communication.
6. They learn to use MS-Word, MS-Excel, MS-Power point in Communication and in Presentation as a tool of effective communication.

Name of the Course – Business Laws

1. The main outcome of course is to make students aware about various Laws relating to Business with amendments up to June 2016 in respective Acts.
2. Students get Basic Conceptual Knowledge of Business Laws.
3. They are able to understand the meaning, evolution and significance of business law, law relating to contract (Indian contract act-1872), void agreement, contingent and quasi contract, contract of indemnity and guarantee, law of agency.
4. They are able to grasp the concept of Sale of goods act-1930, The Indian partnership act-1932, Registration, deed, admitted partners, dissolution of partnership.
5. They are able to grasp concept, objectives, definitions of Negotiable instrument act-1881, Endorsements, parties to a negotiable instruments, prevention of money laundering act 2002.
6. They are able to grasp meaning, definition, concept of Consumer protection act-1986, Law relating to Information Technology, Cyber law.

Name of the Course – Monetary Economics-I

1. Students learn Evolutions & Functions of Money.
2. They have obtained the knowledge of Paper Currency & Methods of Note Issue.
3. They get inspired by various Economist thoughts like Fisher, Dr. Dalton.
4. They get ready to face the trade cycle.
5. They gain knowledge about the Money Market & Govt. Policies.
6. They are able to Control their Expenses.
7. They gain knowledge about public finance.
8. The students understand the Taxation System.

B.Com. – Second Year

Semester-4 (Since 2017-18 & Onwards)

Name of the Course- Financial Accounting-III

1. Students have acquired knowledge about accounting terminology.
2. They learn Banking Companies Regulation Act 1949.
3. They are able to prepare Annual Accounts of Banking Companies.
4. They gain knowledge about General Insurance Companies.
5. They understand how to calculate Value of Goodwill of Company.
6. They are able to learn the Liquidation procedure of Companies and the role of Liquidator & his Functions.

Name of the Course – Skill Development

1. The main outcome of course is to develop the skills in personality of students in today's changing scenario.
2. Students get knowledge about techniques of skill development.
3. They are able to understand Meaning, Types, human skill and behaviour, Motivation and morality, skill development and employment.
4. They are able to understand Meaning, Communication skill and Personality development, body language, relationships, Leadership Skill and Good Public speaker.
5. They are able to understand meaning, Techniques in personality development and goal setting, Time, Stress Management and effective planning, Meditation and concentration techniques.
6. They are able to understand the meaning, concepts of Entrepreneurial skill development-small scale, agro based industries, rural artisans, Types skill required for entrepreneurship.

Name of the Course – Income Tax

1. The main outcome of course is to make students aware about various rules relating to Income Tax Act, 1961 with amendments.
2. Students get Basic Conceptual Knowledge of Income Tax calculation of the heads of Salary, House Property and other sources.
3. They understand the meaning, definition of Income tax and residential status.
4. They solve the problems on Income from salary. They understand the Definition of Salary, allowances, perquisites, P.F. and E.P.F and computation of Salary Income/Taxable Salary and tax liability.
5. They are able to understand the meaning, definition, Income from House Property, unreleased rent, computation of income from house property.
6. They are able to understand the meaning and analysis Income tax slab rates, rebates, Income which does not form part of total income and other sources.

Name of the Course – Monetary Economics-II

1. Students acquire the knowledge of Commercial Banking.
2. They obtained the knowledge of Non- Performing Assets.
3. They get ready to use of E-Banking & Core Banking
4. They get ready to face the challenges in banking systems.
5. They gain knowledge about Bank & Customers Relationship.
6. They get inspired by operations in the Bank.
7. The students understand the Functions & Role of RBI & their Credit Control.

B.Com. – Third Year

Semester-5 (Since 2018-19 & Onwards)

Name of the Course- Financial Accounting-IV

1. Students learn Amalgamation & Absorption.
2. Students gain knowledge about Accounting Procedure of Amalgamation & Absorption.
3. They get ready to prepare Accounting of reconstruction companies.
4. They understand how to Prepare Final accounts of Public Utility Companies.
5. They are able to calculate the Value of Share of the Company.

Name of the Course- Cost Accounting

1. Students get Basic Conceptual Knowledge in various parts of Cost Accounting.
2. They are able to understand the meaning, Importance, Allocation of Overheads and Methods of costing and Tender and Quotations.
3. They are able to grasp meaning, concept, Reconciliation of Profit/ loss shown by cost and financial accounts.
4. They are able grasp meaning of Process cost Accounting and Normal Loss, Abnormal Loss and abnormal effectives.
5. They are able to grasp meaning, Futures of contract costing, Type of contracts and completed-incompletes contract.

Name of the Course – Management Process

1. Students learn Management & Administration
2. They develop required managerial skills.
3. They understand the importance of Group & Group Dynamics.
4. They gain knowledge about Managerial Development.
5. They are inspired by Management Philosophers & their Theories.
6. They get ready to face the challenges in today's Management.
7. They have acquired knowledge about Motivation.

Name of the Course – Indian Economy-I

1. Students acquire detailed knowledge of the Indian Economy.
2. They are able to understand meaning, objectives, concepts, Features of Indian Economy and Planning, Objective and Evaluation of 11 and 12th Plan.
3. They are able to understand the meaning, objectives, concepts of Economic Growth and development, Natural resources-Infrastructure and transport system in India.
4. They are able to understand the meaning of India's population and causes of Population explosion, Nature & Estimates of Urban & Rural Unemployment.
5. They are able to understand the meaning of India's Public Finance, Public Revenue and Public Debt.

Name of the Course – Marketing Management

1. The Students equip with the knowledge of Marketing and inspire them to acquire required quality to face the marketing and managerial challenges.
2. They understand the Meaning and Concept of Marketing and Marketing Management, Traditional and Modern concept of Marketing, Functions and importance of Marketing Management, Market segmentation.
3. They get knowledge about the Meaning, concept and characteristics of Consumer Market, Industrial Market and Service Market, government and reseller market.
4. They get information regarding the Product Planning, New Product Development, Product Life Cycle – Branding and Packaging and Distribution Channels.
5. They understand the Concepts of Consumer behaviour, Customer Satisfaction, techniques of promotion, Personal Selling, Advertising, Direct Marketing and E-marketing.

Name of the Course – Auditing

1. Students acquire detailed knowledge of the Auditing.
2. They are able to understand the basics of Auditing, Audit, Auditing and Auditors.
3. They are able to understand Audit Planning, Evidence, Audit Documentation and Evidence.
4. They are able to understand the Standard on Auditing, Vouching & Verification of Assets and Liabilities.
5. They get knowledge about Company Auditor, Company Audit and Audit report and Certificate.

B.Com. – Third Year

Semester-6 (Since 2018-19 & Onwards)

Name of the Course- Financial Accounting-V

1. Students have acquired knowledge about Holding Companies.
2. They get ready to prepare the Consolidated Balance Sheet & P & L A/c of the Holding Company.
3. They are able to calculate Insurance Claims.
4. They gain knowledge about Sales & Purchase of Securities.
5. They develop their Investors Qualities.
6. They understand and calculate Pre & Post Incorporation Profit of a Company.

Name of the Course- Management Accounting

1. Students become familiar with the management accounting being used by the corporate world.
2. They are able to understand the meaning, Scope, Importance and limitations of management Accounting, Role of Management accounting, calculation of Break- Even- Point Analysis.
3. They are able to interpret the meaning, characteristics, Objectives, advantages, limitations, classification & Types of Business Budget & Computation of Budgetary Control- Cash and flexible Budget.
4. They gain knowledge regarding the Meaning, Importance of Ratio Analysis and can calculate the current, acid test, Inventory turnover, Debtors and creditors, debt-equity Ratio etc.
5. They are able to understand meaning, Sources, Uses of fund, changes in working capital and Fund flow Statement and their calculations.

Name of the Course- Advance Statistics

1. The Students get detailed and Advance knowledge of Statistics.
2. They are able to analysis of Correlation- Types- Karl Pearson's co- efficient, probable error and 'r' Rank correlation method.
3. They are able to regression Analysis- Line of regression Equation and cp-efficient of regression.
4. They are able to Analysis Index Number- Uses, Type and method of unit test time reversed test, factor cost of living index no.
5. They are able to Analysis Time series –Trend, Short, Irregular Measurement of trend and graphic, curve method.

Name of the Course – Indian Economy-II

1. Students acquire detailed knowledge of the Indian Economy.
2. They are able to understand the meaning, Role of Agriculture in the Indian Economy, NABARD and Crop & Livestock insurance.
3. They are able to understand the meaning, Role of industrial Policy 1991- Small and cottage Industries and Indian trade union Movement.
4. They are able to understand the meaning, Nature, Scope, Trends & Importance of Growth of services sector in India and Banking – Insurance Sector.
5. They are able to understand meaning, concepts, Advantages, Disadvantages, Composition and direction of India's Exports & Imports, MNCs, LPG and WTO.

Name of the Course – Human Resource Management

1. Students learn how to manage personnel in institutions, industries and factories.
2. They are able to understand meaning, definition, objectives, functions, scope, and importance of Human Resource Management.
3. They are able to understand meaning, source, Method of Recruitment selection and training.
4. They are able to understand the meaning, definition of Labour welfare and collective bargaining.
5. They are able to understand the meaning, definition, Importance of Human resource planning and accounting.

Name of the Course – Industrial Laws

1. The main outcome of course is to make students aware about Various Laws relating to Industries with amendments up to June 2016 in respective Acts.
2. They are able to understand various provisions of Indian Factories Act-1948 and Industrial Dispute Act-1947.
3. They are able to understand various provisions of Minimum Wages Act-1948, Payment of Wages Act 1936 Payment of Bonus Act 1965, Payment of Gratuity Act 1972, The Employees State Insurance Act 1948, Employees Provident Fund & Miscellaneous Provision Act 1952, Workmen Compensation Act-1923 and Maternity Benefits Act 1961
4. They are able to understand various provisions of Child Labour (Prohibition and Regulation) Act 1986 and Trade Union Act 1926. They become aware of International Labour Organization (ILO) and Contract Labour Act.
5. They are able to understand Meaning and Nature of Industrial Estate, Software Technology Park, SEZ, Co-operative Industrial Estate, Intellectual Property Rights Law In India, Procedure for registration of Trademarks and various provisions of Environment Protection Act 1986.

Faculty of Science
Programme Outcomes & Course Outcomes
DEPARTMENT: BOTANY
PROGRAMME: B SC

Statements of Programme Specific Outcomes (PSOs)

By the end of this course, the students will be able to:

1. Understand the basic concepts of lower group plants and morphology of higher groups.
2. Understand the evolution, classification, anatomical details of higher group plants
3. Analyze the cell organelles and application of genetics, molecular biology in plant breeding
4. Identify the bacteria, viruses and plant pathogen
5. Analyze metabolic activities of plants
6. Understand the application of genetic engineering for the improvements of plants
7. Understand the basic concepts of ecology
8. Perform the procedure of laboratory technique in biochemistry, biotechnology and utilization of plants

Statements of Course Outcomes (COs)

B Sc. Course: SEM-I Paper-1

Course Outcomes: By the end of this course, the students will be able to:

1. Understand the basic concept of bacteria, viruses and mycoplasma
2. Describe the classification general characteristics of Algae
3. Analyze economic importance of bacteria, virus and algae
4. Discuss the life-cycle of micro organism and algae

B Sc. Course: SEM-I Paper-2

Course Outcomes: By the end of this course, the students will be able to:

1. Compare lower group of plants with higher lower group
2. Identify the different plant diseases
3. Understand the economic importance of fungi, lichens and bryophytes.
4. Discuss the classification of fungi and bryophytes

B Sc. Course: SEM-I LAB

Course Outcomes: By the end of this course, the students will be able to:

1. Understand the basic techniques in lab
2. Identify bacterial, cyanobacterial, algal, fungal, lichens and Bryophyte plants
3. Comparative study of lower groups and lower higher group
4. Understand and identify the algal bryophyte, fungal, plant pathology and lichens under natural habitat.

B Sc. Course: SEM-II Paper-1

Course Outcomes: By the end of this course, the students will be able to:

1. Explain the classification of pteridophyta and gymnosperm
2. Describe the economic importance of pteridophyta and gymnosperm
3. Discuss the alternation of generation pteridophyta and gymnosperm
4. Criticize the concept of hysteroscopy seed habit
5. Discuss morphology and anatomy of cycadeoidea

B Sc. Course: SEM-II Paper-2

Course Outcomes: By the end of this course, the students will be able to:

1. Understand the paleobotany and geological time scale
2. Identify the different types of fossils
3. Explain the morphology and modification of plants
4. Compare the types of inflorescence and fruits
5. Describe the parts of flower

B Sc. Course: SEM-II LAB

Course Outcomes: By the end of this course, the students will be able to:

1. Describe the various parts of flower
2. Identify the anatomy of plants material by making temporary mount
3. Identify the different types of fossils
4. Identify the various plant specimens
5. Understand and identify the morphological characters of plants in natural environment.

B Sc. Course: SEM-III Paper-1

Course Outcomes: By the end of this course, the students will be able to:

1. Describe general taxonomic rule of plant classification
2. Discuss the principles of botanical nomenclature
3. Criticize the classification of angiosperm
4. Justify the merits and demerits of systems of classification
5. Understand the fossil angiosperm sahanianthus
6. Identify and describe different dicot and monocot families.

B Sc. Course: SEM-III Paper-2

Course Outcomes: By the end of this course, the students will be able to:

1. Describe the structure of plant cell and its organelles
2. Analyze the morphology of chromosome organization
3. Explain the plat cell-division and its significance
4. Evaluate the biostatic formulas
5. Understand the method of plants- breeding

B Sc. Course: SEM-III LAB

Course Outcomes: By the end of this course, the students will be able to:

1. Preparation of herbarium
2. Analyze the floral formula of monocot and dicot families
3. Perform the procedure of cytological techniques
4. Analyze the biostatistics data
5. Understand and identify the plants under natural environment

B Sc. Course: SEM-IV Paper-1

Course Outcomes: By the end of this course, the students will be able to:

1. Classify the meristematic tissue and permanent tissue based on origin and position
2. Compare the different theories of tissue
3. Understand primary, secondary and anomalous, anatomical structure of plant parts
4. Understand the various types of pollination mechanism
5. Explain the types of ovules

B Sc. Course: SEM-IV Paper-2

Course Outcomes: By the end of this course, the students will be able to:

1. Describe the laws of mendelism
2. Summarize the theories of linkage
3. Design and construct the variation in chromosome structure and number
4. Understand the concept of gene
5. Discuss the types of mutations and its application in crop-improvement

B Sc. Course: SEM-IV LAB

Course Outcomes: By the end of this course, the students will be able to:

1. Perform double –stained permanent slide mounting
2. Calculate the percent germination of pollen-grains
3. Solve the mendel's law of inheritance through color beads
4. Solve interaction of genes from the given data.

B Sc. Course: SEM-V Paper-1

Course Outcomes: By the end of this course, the students will be able to:

1. Classify and describe about bimolecular
2. Describe about the basic of Enzymes
3. Understand plant water relation
4. Write about mineral nutrients
5. Summarize the cycle of respiration and photosynthesis.

B Sc. Course: SEM-V Paper-2

Course Outcomes: By the end of this course, the students will be able to:

1. Define and explain about ecology branches and its significance
2. Summarize the environmental factors
3. Understand and explain the nitrogen cycle
4. Compare the various phytogeographic regions of India.
5. Describe the types of ecosystem

B Sc. Course: SEM-V LAB

Course Outcomes: By the end of this course, the students will be able to:

1. Perform major and minor physiology
2. Perform micro-chemical and bio-chemical test
3. Understand ecological adaptations of plants
4. Compare different types of soil

B Sc. Course: SEM-VI Paper-1

Course Outcomes: By the end of this course, the students will be able to:

1. Describe the plant growth and its growth regulators
2. Describe the seed-dormancy and methods to break-dormancy
3. Describe the plant-defense and role of secondary metabolites
4. Discuss plant tissue culture technique and its application
5. Discuss the advantages and disadvantages of genetic-engineering.

B Sc. Course: SEM-VI Paper-2

Course Outcomes: By the end of this course, the students will be able to:

1. Compare the various ecological successions
2. Explain different types of environmental pollution and its management.
3. Understand about the renewable and non-renewable natural sources
4. Analyze the principle, types, and application of instruments
5. Explain morphology utilization and chemical-constituents of different plants.

B Sc. Course: SEM-VI LAB

Course Outcomes: By the end of this course, the students will be able to:

1. Perform principles and working of instruments
2. Study and identify the types and characteristic of soil.
3. Study the physical and chemical properties of water
4. Study the plants of ethanobotanical importance
5. Understand and identify ethno-botanical plants under natural habitat.

Department Of Zoology

Programme: B.Sc.

Programme Specific Outcomes (PSOs)

By the end of this course, the students will be able to:

1. Understand the basic concept of life and diversity of animal including nonchordates and chordates.
2. Identify, classify and general character of invertebrates and vertebrates.
3. Brief knowledge of Environmental Biology.
4. Study the cell organelles and applications of genetic and molecular biology in human's betterment.
5. Understand the basic concept of human physiology.
6. Understand the applied zoology and its Applications.
7. Perform the procedure of laboratory techniques in environmental biology, cell biology, genetics, physiology, molecular biology, immunology experiments.

Course Outcomes (COs)

B.Sc. Sem I Paper I

Course Outcome: By the end of this course, the students will be able to:

1. Understand the basic concept of life and diversity of Nonchordates.
2. The study of parasitic protozoans of man.
3. Discuss the life cycle of different protozoa.
4. Describe the parasitic protozoans of man.
5. Understand the economic importance of vermiculture.

B.Sc. Sem I Paper II

Course Outcome: By the end of this course, the students will be able to:

1. Brief Knowledge of environmental biology.
2. Study the basic concept of ecosystem, how the energy transfer in ecosystem
3. Detailed study of pond ecosystem.
4. Understand the study of biodiversity.
5. Discuss the source, effect and control measures of different pollutions.
6. Identify the toxic effect of heavy metals. Effect of bioaccumulation and biomagnifications.

B.Sc. Sem I Practical

Course Outcome: By the end of this course, the students will be able to:

1. Identify, classify and general characters of invertebrates.
2. Understand the histological observation of different larvae.
3. Anatomical observation of Annelids eg. Earthworm.

4. Experiments on Environmental Biology.
5. Visit to a National Park and Sanctuary.

B.Sc. SemII Paper I

Course Outcome: By the end of this course, the students will be able to:

1. Understand the basic concept of invertebrates.
2. Describe the classification and general character of invertebrates.
3. Identify Insects as vector and its life cycle.
4. Study of Crustacean larva.
5. Detail study of pearl formation.

B.Sc. Sem II Paper II

Course Outcome: By the end of this course, the students will be able to:

1. Comparative study of prokaryotic and eukaryotic cells.
2. Study of different cell organelles and its functions.
3. Detail study of DNA and chromosomes
4. Describe cell cycle - mitosis and meiosis.
1. 5.Discus the cellular ageing and cell death and its causative agents.

B.Sc. SemII Practical

Course Outcome:By the end of this course, the students will be able to:

1. Identify, classify and general characters of invertebraters.
2. Understand the histological observation of larvas.
3. Anatomical observation of cockroach
4. Experiments on mitosis and meosios.

B.Sc. Sem III Paper I

Course Outcome:By the end of this course, the students will be able to:

1. 1.Understand the basic concept of vertebrates.
2. 2.Understand the structure of Amphioxus.
3. 3.Understand the study of frog embryology.
4. 4.Study the morphogenetic movement in gastrula of frog.
5. Understand the parental care and neotony in amphibians.

B.Sc. Sem III Paper II

Course Outcome: By the end of this course, the students will be able to:

1. Understand the basic concept of Mendelian Principals and law of heredity.
2. Discus the interaction of genes.
3. Identify the different types of sex determination patterns.

4. Understand the polygenetic inheritance.
5. Understand the basic concept in population genetics.

B.Sc. Sem III Practical

Course Outcome: By the end of this course, the students will be able to:

1. Identify, classify and general characters of Chordates.
2. Understand the developmental biology of frog.
3. Anatomical observation of fish.
4. Study of the genetic traits in human.
5. Understand the characters of different syndrome.

B.Sc. Sem IV Paper I

Course Outcome: By the end of this course, the students will be able to:

1. Understand the classification of Reptilian ,Aves and Mammals.
1. 2.Understand the modern theories of evolution.
2. Describe different types of races of man.
3. Understand the developmental study of chick.
4. Discuss the biological clock in birds and mammals.
5. Describe the implantations in mammals.
6. 7.Discuss the types of stem cells.

B.Sc. Sem IV Paper II

Course Outcome: By the end of this course, the students will be able to:

1. Design and construct the structure of DNA and RNA with form and properties and genetic materials.
2. Explain DNA replication and genetic code.
3. 3.Discrcribe the process of protein synthesis.
4. Understand the concept of immunity.
5. Discuss the innate and acquired immunity.
6. Understand the complement system.

B.Sc. Sem IV Practical

Course Outcome:By the end of this course, the students will be able to:

1. Identify, classify and general characters of higher Chordates.
2. Understand the molecular biology experiments
3. Oestology of Rabbit and Frog.
4. Perform the procedure of immunology techniques.

B.Sc. Sem V Paper I

Course Outcome: By the end of this course, the students will be able to:

1. Study of the different types and the nature of Enzymes.
2. Study of Nutrition and digestion in human with the structure and function of digestive glands
3. Describe the mechanism of Respiration and respiratory pigments.
4. Study of circulation in human, including cardiac cycle, ECG and blood pressure.

B.Sc. Sem V Paper II

Course Outcome: By the end of this course, the students will be able to:

1. Study of Aquaculture including types of fish culture and breeding upto fish preservations.
2. Study of Prawn and Pearl Culture.
3. Understand the study of fish disease.
4. Understand the economic entomology with methods of pest control.
5. Study of industrial entomology.

B.Sc. Sem V Practical

Course Outcome: By the end of this course, the students will be able to:

1. Study the detection of action of salivary amylase on starch.
2. Detection of carbohydrates, proteins and lipids.
3. Study of Vitamin. A., and Vitamin. C.
4. Perform the experiment on Haemin Crystal.
5. Experiment on Total Count of WBC and RBC in human blood.
1. 6.Study of different histological slides.
6. Identification of fresh water and aquarium fishes.
7. Study of different Insect pest.
8. Construct and fabrication and setup of aquarium. Visit to fish farm,lake.

B.Sc. Sem VI, Paper I

Course Outcome: By the end of this course, the students will be able to:

1. 1.Study the process of nerve and conduction of nerve impulses.
2. 2.Study of muscle physiology and properties of muscles.
3. Study the mechanism of Urine formation.
4. Understand the structure and function of different endocrine glands.
5. Describe the male and female reproduction, hormones and contraceptives.

B.Sc. SemVI , Paper II

Course Outcome: By the end of this course, the students will be able to:

1. Study the different techniques in Biotechnology.
2. Understand the microtechnique processes with double staining
3. Study of gene isolation and cloning techniques.
4. Detail study of bioinformatics, database sequences and biostatistics.

B.Sc. SemVI ,Practical

Course Outcome: By the end of this course, the students will be able to:

1. Study the detection urea,albumin,sugar and creatin in urine.
2. Perform the experiment on sperm count.
3. Anatomical observation of endocrine glands of culturable fish.
4. Study the demonstration of chromatography.
1. 5.Perform the double staining method.
5. Perform the biostatistical experiments.
6. Experiments on Bioinformatics using software.
7. Visit to Biotechnology centre to study working principles of different instruments.

Department of Mathematics

Programme Specific Outcomes

1. A students should be able to recall basic facts about mathematics and should be able to display knowledge of conventions.
2. To develop problem solving skills, thinking and creativity.
3. Enabling students to develop a positive attitude towards mathematics as an interesting and valuable subject of study.
4. Utilize mathematics to solve theoretical and applied problems by critical understanding, analysis and synthesis.
5. To enable the students to study mathematics for themselves.
6. Acquire good knowledge and understanding in to solve specific theoretical and applied problems in advanced areas of mathematics.
7. Know where is a need for information, to be able to identify, locate, evaluate and effectively use that information for the issue or problem at hand.
8. Investigate and apply mathematical problems and solutions in variety of contexts related to science, technology, business and industry, and illustrate these solutions using symbolic, numeric, or graphical methods.
9. Apply the knowledge of mathematics to address real life problems
10. Understand, formulate and use quantitative models arising in social science, business and other context
11. To get wide range of mathematical skills to crack various competitive exams and to qualify the exams in mathematics.

Course Outcomes

B.Sc. Part I (Semester I)

Course Title:-M-1 Algebra and Trigonometry

1. To learn basic matrix algebra
2. learn to solve consistent and inconsistent systems of linear equations by the row echelon form of the augmented matrix by using rank.
3. Learn to solve system of linear equation by matrix.
4. Learn to find eigenvalues and corresponding eigenvectors for a square matrix.
5. Analyse the location and describe the nature of the roots of the equation.
6. Able to solve cubic equations by Cardon's method and biquadratic equations by Ferrari's method
7. Learn to apply De'moivre's theorem.
8. Able to separate real and imaginary parts of complex function.
9. Understand circular functions, hyperbolic functions, inverse circular functions, inverse hyperbolic functions and logarithmic functions and relation between circular and hyperbolic functions.
10. To learn fundamental properties and mathematical tools such as closure, identity, inverse and generators.
11. Demonstrate when a binary algebraic structure forms a group.
12. Introduction to group and subgroup.
13. Explain group and subgroup orders by using Lagrange's theorem.
14. Understand subgroups and permutations.

Course Title: M-2 Calculus

1. Understand Leibnitz's rule for nth derivative of the product of two functions.
2. Verify the value of the limit of a function at a point using the definition of the limit
3. Learn to check function is continuous understand the consequences of the intermediate value theorem for continuous functions.
4. Calculate the limit and examine the continuity of a function at a point.
5. Expansion of series by Maclaurin's theorem and Taylor's theorem.
6. To study and understand the curvature and radius of curvature.
7. Learn the different forms of indeterminate forms.
8. Able to solve asymptotes of different curves.
9. Understand the Partial differential equations
10. Understand definite integrals and applying it in solving problems.

B.Sc. Part I (Semester II)

Course Title: - M-3 Geometry, Differential and Difference equations

1. Find the equations of spheres, right circular cylinders and right circular cones.
2. Finding equation in various form of line, circle, sphere, cones, cylinder etc.
3. Learn various techniques of getting exact solutions of solvable first order differential equations and linear differential equations of higher order.
4. Understand the concept of a general solution of a linear differential equation of an arbitrary order and also learn a few methods to obtain the general solution of such equations.
5. Solve Euler's Equidimensional equation method of variation of parameter.
6. To find unknown solution by using known solution.
7. Learn to solve difference equation by CF and PI. Of various functions.

Course Title:-M-4 Vector Calculus and Improper Integrals

1. Learn concepts of Vector differentiation, Gradient, Divergence, Curl etc.
2. Inter-relationship amongst the line integral, double and triple integral formulations.
3. Understand Surface and volume integrals and its application in solving problems.
4. Realize importance of Green, Gauss and Stokes' theorems in other branches of mathematics.
5. Understand Improper Integrals, Beta and Gamma functions.

B.Sc. Part II (Semester III)

Course Title: M-5 Advanced Calculus, Sequence and Series

1. Geometrical representation and problem solving on Mean value theorem, Rolle's theorem and LMVT.
2. Finding extreme values of function.
3. Expansion of functions by Taylor's theorem.
4. Understand many properties of the real line \mathbb{R} and learn to define sequence in terms of functions from \mathbb{R} to a subset of \mathbb{R} .
5. Recognize bounded, convergent, divergent, Cauchy and monotonic sequences and to calculate their limit superior, limit inferior, and the limit of a bounded sequence.
6. Apply the ratio, root, alternating series and limit comparison tests for convergence and absolute convergence of an infinite series of real numbers.

Course Title: M-6 Differential equations and Group Homomorphisms

1. Know about Bessel's and Legendre's functions with their recurrence formulas.
2. Solve ordinary differential equations with constant coefficients using Laplace transforms.
3. To learn the evaluation of inverse Laplace Transform of functions, their derivations and integrations and to learn application of convolution theorem.
4. Familiarize with Fourier transforms of functions, Fourier sine and cosine transforms, relation between Laplace and Fourier transforms.
5. Identify cyclic groups and their generators
6. Define homomorphism, isomorphism and kernel of a homomorphism.
7. Explain the significance of the notions of cosets, normal subgroups, and factor groups.

B.Sc. Part II (Semester IV)

Course Title: M-7 Partial Differential Equations and Calculus of Variation

1. Explain the concept of partial differential equations'
2. To solve first & second order partial differential equations.
3. Solve the partial differential equation using Charpit's method, Jacobi's method.
4. Model physical phenomena using partial differential equations such as the heat and wave equations.
5. Understand problems, methods and techniques of calculus of variations.

Course Title: M-8 Mechanics

1. Learn definition of force, moment of force, couple and able to reduce the coplanar forces to a single couple, equilibrium condition, action and reaction of force, tension and trust of force, Lami's theorem.
2. Obtain velocity and acceleration along radial and transverse direction.
3. Deal with the kinematics and kinetics of the rectilinear and planar motions of a particle including the constrained oscillatory motions of particles.
4. Learn that a particle moving under a central force describes a plane curve and know the Kepler's laws of the planetary motions, which were deduced by him long before the mathematical theory given by Newton.
5. Know the central orbit and obtain differential equation of central orbit.

B.Sc. Part III (Semester V)

Course Title: M-9 Analysis

1. Understand Fourier Series, Fourier Sine and Cosine Series.
2. Learn to evaluate the Fourier series of various even and odd functions.
3. Learn Riemann-Stieltjes integral and its properties.
4. Understand the significance of differentiability and analyticity of complex functions leading to the Cauchy-Riemann equations.

5. Determine whether a function is analytic or not analytic and region where function is analytic.
6. Understand and apply the Cauchy integral theorem and formula to compute line integrals.
7. By using the residue theorem, we evaluate the complex integration and residue.
8. Learn concepts of Conformal Mapping and some general transformations like translation, rotation, magnification and inversion etc.
9. Concept of Bilinear or Mobius transformation, cross ratio and fixed points.

Course Title: M-10 Metric Spaces, Complex Integration and Algebra

1. Understand standard concepts of metric spaces and their properties like openness, closedness, completeness, Bolzano -Weierstrass property, compactness, and connectedness.
2. Identify the continuity of a function defined on metric spaces.
3. To understand fundamental concepts in ring theory such as the concepts of ideals, quotient rings, integral domains, and fields.
4. To understand the concept of ring homomorphism.
5. Learn the role of Cauchy integral formula in evaluation of contour integrals.
6. Learn Taylor and Laurent series expansions of analytic functions, classify the nature of singularity, poles and residues and application of Cauchy Residue theorem.

B.Sc. Part III (Semester VI)

Course Title: M-11 Abstract Algebra

1. Learn Group and Inner Automorphisms.
2. Understand the basic ideas of vector algebra: linear dependence and independence and spanning.
3. Understand the concepts of vector spaces, subspaces, bases, dimension and their properties.
4. Relate matrices and linear transformations, compute eigen values and eigen vectors of linear transformations.
5. To learn inner product spaces and Gram-Schmidt process of orthogonalization
6. Realize importance of adjoint of a linear transformation and its canonical form.

Course Title: M-12 Special Theory of Relativity

1. Describe basic concept of the special theory of relativity.
2. To know the Newtonian mechanics, inertial systems, Galilean transformations, Newtonian relativity, Conservation laws in Newtonian mechanics, Maxwell's Electromagnetic theory, Michelson- Morley experiment and Lorentz Fitzgerald contraction hypothesis.
3. Learn about length contraction, time dilation and Lorentz contraction factor and concept of simultaneity..

4. Understand Four dimensional Minkowskian space-time of special relativity, time like, light like and space like intervals, proper time, world line of a particle four vectors and four tensors in Minkowskian space-time
5. Understand the role of Tensors in special theory of relativity.
6. To know and understand Relativistic Kinematics.
7. Able to know the variation of mass with velocity.

DEPARTMENT OF PHYSICS

Program outcomes for B.Sc. Course

After the graduation in science, science faculty (B.Sc.) a student will be able to

1. Examine the basic concept, fundamental principles and the scientific theories related to various scientific phenomena and rate their relevance in the day to day life.
2. Assess skills in handling scientific instruments, planning and performing experiments in recommended laboratories.
3. Inspect the given scientific data critically and systematically and the ability to draw the objective conclusions.
4. Think creatively to propose novel ideas in explaining facts and figures or providing new solutions to the problems.
5. Developed scientific outlook not only with respect to science subjects but also in all aspects related to life.

COURSE OUTCOME FOR B.Sc. PHYSICS

After completing this course students will able to

B.Sc. I year

SEM I - PAPER I (Properties of Matter and Mechanics)

1. Understand the elastic behaviour of materials.
2. Analyse the bending behaviour of beams
3. Understand the concept surface tension and viscosity of fluid
4. Understand the basics of rigid body dynamics.
5. Compare the Newton's Laws of motion and Laws of Gravitation.

SEM I - PAPER II (Electrostatics, Time varying fields and Electric currents)

1. Demonstrate an understanding of core knowledge in electrostatics.
2. Understand the properties of dielectric materials and its behaviour in presence of electric field
3. Understand the conversion of electric field and magnetic field and vice versa.
4. Understand the basic laws of electromagnetism such as Faraday's Law, Lenz law, Biot

Savert Law, Ampere's Law and Gauss Law.

SEM II - PAPER I (Oscillations, Kinetic Theory of gases and Thermodynamics)

1. Differentiate between linear and angular S.H.M.
2. Illustrate Free oscillations and Damped oscillations.
3. Demonstration of forced oscillations and resonance.
4. Understand the nature of calorimetry by specific heat of solids and law of thermodynamics and entropy
5. Analyses of zeroth law of thermodynamics and entropy
6. Understanding the low temperature physics

SEM II - PAPER II (Gravitation, Astrophysics, Magnetism and Magnetostatics)

1. Explain Kepler's Laws of Planetary motion.
2. Describe the Gravitational potential and Gauss's theorem.
3. Predict the constituents of universe (Solar system, Stars, Galaxies)
4. Evaluate the mass of sun and planets.
5. Categorize Ferromagnetic, Antiferromagnetic and Ferrimagnetic materials.
6. Examine Meissner effect and Langevin's theory.
7. Analyse Magnetic field, Lorentz force equation and magnetic dipole moment.

B.Sc. II year

SEM III - PAPER I (Sound waves, Applied acoustic, Ultrasonic and Power supply)

1. Understand Harmonics, Quality of sound, human ear and its response and its audibility to sound.
2. Describe characteristics of the transducers and investigate the requirements of good acoustics.
3. Inspect ultrasonic waves, their properties, Methods of generation ultrasonic waves and their applications in research.
4. Analyse waves and oscillations.
5. Design power supply and explain conversion of A.C. to D.C., importance of voltage, current and load regulation.

SEM III - PAPER II (Physical optics and Electromagnetic waves)

1. Elaborate the wave nature of light.
2. Analyze the intensity variation of light due to, interference and diffraction.
3. Assess the application of Michelson and Fabry-Perot Interferometer

- Analyze the polarization and its applications.
- Interpret the Electromagnetic wave, the Maxwell's field equations, and transverse nature of electromagnetic wave.
- Interpret Poynting's theorem and its importance.

SEM IV - PAPER I (Solid state Physics, X-rays and Lasers)

- Understand the concept of reciprocal space lattice and know the significance of Brillouin zones
- Classify the crystal systems and spatial symmetries, Miller indices.
- Understand how crystalline materials are studied using different diffraction techniques.
- Explain the types, properties and production of X-rays with their applications.
- Elaborate fundamental concepts of LASER and their production along with applications.

SEM IV - PAPER II (Solid state electronics and Molecular Physics)

- Understand the basics of diode and working of rectifier circuits and characteristics
- Analyse the characteristics of transistor and transistor biasing circuits
- Justify the fundamentals, fabrication along with their applications in day to day life of LED, Solar Cell and BJT.
- Investigate the basics along with applications of FET, JFET and MOSFET and their special features.
- Understand and elaborate Quantization of vibrational and rotational energies, types of molecules, Diatomic molecules as harmonic and anharmonic oscillator, Rotational-vibrational spectra, Born Oppenheimer approximation.
- Describe the importance and applications of Raman spectroscopy in molecular physics also know the Frank-Condon principle, Elementary ideas of NMR and ESR and their applications in spectroscopy.

B.Sc. III year

SEM V - PAPER I (Atomic Physics, Free electron theory and Statistical Physics)

- Categorize theories of atomic model and classify quantum numbers.
- Predict the momentums and magnetic moments associated with different motion of electron and their interaction with each other.
- Differentiate electrical and thermal conduction of electron.
- Understand basics of Fermi Energy, Fermi temperature band. Different theorems, models and experiments regarding free electron theory.
- Explain the concepts of μ - space, Gamma space, probability distribution, and thermodynamic probability, Principle of a priori probability, Boltzmann's entropy relation, different states, Maxwell-Boltzmann distribution law, and its application.
- Categorize Bose-Einstein statistics, Fermi-Dirac distribution and its application.

SEM V - PAPER II (Quantum Mechanics, Nanoscience and Nanotechnology)

1. Outline the main aspects of the historical development of quantum mechanics and wave properties of matter and able to correlate the classical mechanics with quantum mechanics,.
2. Solve Schrodinger equation in one to three dimensions and their physical interpretation.
3. Understand the uses of nanoscience and nanotechnology in day to day life and synthesis of nanomaterials.
4. Analyse the nanomaterials using different characterization technique.

SEM VI - PAPER I (Relativity, Nuclear Physics and Bio Physics)

1. Discuss the concept of Frame of references, Postulates of the special theory of relativity and relativistic variation in, Length, Time, mass, Velocity addition, and Mass energy equivalence.
2. Elaborate detectors of radiation, charge accelerators, nuclear reaction along with types of nuclear reactions and their importance in recent technology.
3. Understand and able to explain fundamental concepts of decay particles.
4. Investigate the terminology Bio physics, and its importance in medical field.

SEM VI - PAPER II (Electronics, Fiber optics, Communication electronics and Digital Electronics)

1. Illustrate the fabrication and working principles of Amplifiers and oscillators and their applications.
2. Understand the principle and working of Fiber optics, Importance of optical fiber, Propagation of light waves in optical fiber and its importance in communication.
3. Classify the Communication types like AM, FM their fundamental theory along with how the broadcasting of television is done by these means.
4. Understand the binary arithmetic, logics and Boolean functions.

Department of Chemistry
Programme Outcomes: B.Sc. Chemistry

Department of Chemistry	After successful completion of three year degree program in Chemistry a student should be able to:
Program Outcome	<p>PSO-1 Develop scientific temperament amongst the students and outside the scientific community.</p> <p>PSO-2 Understand, demonstrate and solve the basic concepts of all disciplines of Chemistry.</p> <p>PSO-3 Think methodologically, independently and comes out to a logical conclusion.</p> <p>PSO-4 Use modern techniques, decent equipments and Chemistry software's.</p> <p>PSO-5 Create overall impact of chemistry subject on the environment and the society.</p> <p>PSO-6 To know the effects of hazardous chemicals on environment and the livingbeings.</p> <p>PSO-7 Develop employment skills through the knowledge of chemistry.</p>
Program Specific Outcome	<p>PSO-1 Know basic idea of chemistry through theory and practical.</p> <p>PSO-2 Handle some common laboratory apparatus/ equipments properly.</p> <p>PSO-3 Explain stereochemistry, structure, reactivity, nomenclature and mechanism of the chemical reaction.</p> <p>PSO-4 Identify the spontaneity (Feasibility) of various chemical reactions.</p> <p>PSO-5 Develop research oriented skills.</p> <p>PSO-6 Use properly some common chemicals in daily life.</p>

Course Outcome: B.Sc. Chemistry
Semester – I

Course	After successful completion these courses in students should be able to
CH-101 Inorganic Chemistry	<p>CO-1 Should know about the basic terms and laws involve in Quantum Mechanics</p> <p>CO-2 Should know about the bonds and energy terms involved during the compound formation</p> <p>CO-3 Effect of different bonding on different physical properties of the material and more about Noble gases</p> <p>CO-4 Know about the structure and different properties of p-block elements</p>
CH-102 Physical Chemistry	<p>CO-1 Explain scientifically the properties of solid, liquid and gaseous states of matter.</p> <p>CO-2 Write the equation explaining the state of matter.</p> <p>CO-3 Differentiate between different types of crystals and techniques of their internal structure determination.</p>

	<p>CO-4 Correlate the different properties of liquid used in day to day life.</p> <p>CO-5 Use adsorbent for purification purposes.</p> <p>CO-6 Know the use of catalyst to accelerate the rate of chemical reaction</p>
CH-103 Laboratory Course	<p>CO-1 Understand the binary inorganic mixture, acidic and basic radicals.</p> <p>CO-2 Know the group reagent and classification of radicals.</p> <p>CO-3 Understand why different liquids move with different velocity.</p> <p>CO-4 Use different apparatus for determination of some common laboratory parameters like Viscosity, Surface Tension, Refractive index etc.</p> <p>CO-5 Prepare liquid mixtures of different compositions.</p> <p>CO-6 Construct crystal models & understand the surface phenomenon adsorption.</p>

Semester – II

Course	After successful completion these courses in students should be able to:
CH-201 Organic Chemistry	<p>CO-1 Know meaning of hybridization, bond angles and bond energies.</p> <p>CO-2 Understand the mechanism of organic reactions.</p> <p>CO-3 Know the concept of isomerism and its types.</p> <p>CO-4 Know the nomenclature, preparation and chemical properties alkanes, cycloalkanes, alkenes and dynes.</p> <p>CO-5 Understand the concept of aliphatic and aromatic hydrocarbons and their reactions.</p> <p>CO-6 Know the concept of aromaticity.</p>
CH-202 Physical Chemistry	<p>CO-1 Know the different terms involved in thermodynamics and energy changes involved in a chemical reaction.</p> <p>CO-2 Solve the numerical problems based on thermodynamics and chemical kinetics.</p> <p>CO-3 Have an idea about phase, component and degree of freedom; and separation process based on phase rule.</p> <p>CO-4 Understand the conduction of electric current in solutions.</p> <p>CO-5 Have idea about rate, order, molecularity, activation energy and mechanism of chemical reaction</p>
CH-203 Laboratory Course	<p>CO-1 Detect extra elements, functional groups and M.P./13.P. in organic compounds.</p> <p>CO-2 Prepare some common organic compounds.</p> <p>CO-3 Determine energy involved in some common reactions like heat of ionization and heat of solution.</p> <p>CO-4 Understand the effect of temperature on solubility of compounds.</p> <p>CO-5 Construct the phase diagram and can explain separation of phases.</p>

	CO-6 Use instruments for determination of strength of a solution. CO-7 Experimentally determine the rate of common chemical reactions
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Semester – III

Course	After successful completion these courses in students should be able to:
CH-301 Inorganic Chemistry	CO-1 Know about detail concept involved in VSEPR and Molecular orbitals theory CO-2 Know about Chemistry of elements of first, second and third transition series
CH-302 Organic Chemistry	CO-1 To know the directing influence of –OH and -NO ₂ group on benzene nucleus CO-2 Classification and distinction between primary secondary and tertiary alcohol CO-3 To know structure and bonding in carbonyl group CO-4 Acidity of COOH group and effect of electron donating and withdrawing group
CH-303 Laboratory Outcome	CO-1 Understand the redox titration and determine the specific contents in the commercially available product like vinegar etc. CO-2 Know the role of alkali in human physiology. CO-3 Understand the meaning of complexometric titration and hardness of water. So that able to know which kind of water should be used for drinking. CO-4 Know some important steps involved for complete analysis of an organic compound.

Semester – IV

Course	After successful completion these courses in students should be able to:
CH-401 Inorganic Chemistry	CO-1 Know difference between double salts and coordination compound CO-2 Know structural and stereoisomerism in 4 and 6 coordination complexes CO-3 Know definition of organometallic compound and their synthetic application in CO-4 Know structure and function of in biological system

CH-402 Physical Chemistry	CO-1 Know the work-energy relationship and spontaneity of a process. CO-2 Know the redox reactions involved in cell reaction. CO-3 Solve the numerical and calculate e.m.f. of a cell. CO-4 Understand the mass-energy relationship involved in nuclear reactions. CO-5 Differentiate between polar and nonpolar molecules
CH-403 Laboratory Course	CO-1 Perform gravimetric estimation. CO-2 Know a new technique of separation paper chromatography. CO-3 Determine strength of mixture of acid with the help of instruments like conductometer and potentiometer.

Semester – V

Course	After successful completion these courses in students should be able to:
CH-501 Organic Chemistry	CO-1 Know about various reaction involve in Amines and their basicity CO-2 Structures, Electrophilic and Nucleophilic substitution reactions in various heterocyclic CO-3 Quantitative estimation of carbon, hydrogen, nitrogen, sulphur and halogens Synthetic application of Organomagnesium CO-4 To understand about the spectroscopy
CH-502 Physical Chemistry	CO-I Understand the difference between classical and quantum chemistry. CO-2 Know the concept of wave function and formation of molecular orbitals. CO-3 Use different methods of expressing concentration like normality, molarity, molality, mole fraction etc. CO-4 Differentiate diamagnetic, paramagnetic and ferromagnetic substances. CO-5 Have an idea about photochemical reactions, quantum yield and Raman spectroscopy.
CH-503 Laboratory Course	CO-1 Estimate some common functional groups like aldehydes, ketones, amide, nitro, carboxylic etc. in an organic compound. CO-2 Understand the soap formation reaction. CO-3 Understand and determine refractive index. CO-4 Understand the meaning of optically active compound and determine its specific rotation. CO-5 Determine molecular weight of polymer and parachor value of different element present in an organic compound. CO-6 Know the role of activation energy and catalyst in a chemical reaction

Semester – VI

Course	After successful completion these courses in students should be able to:
CH-601 Inorganic Chemistry	CO-1 To know about Crystal field theory and the stability of complexes CO-2 To know about Magnetic Properties of Transition Metal Complexes CO-3 To know about analysis technique like Colorimeter and Spectrophotometer and different Separation Techniques CO-4 To know about Silicones, Phosphonitrilic halide polymers
CH-602 Organic Chemistry	CO-1 To know principal and applications in the structure elucidation CO-2 To know active methylene compounds and there synthetic application CO-3 Definition of Amino Acids, Peptides, Proteins & Nucleic Acids CO-4 To know the basic about Dyes, drugs and synthetic polymers
CH-603 Laboratory Course	CO-1 Prepare some common inorganic complexes and explains their characteristic properties. CO-2 Perform colorimetric estimation. CO-3 Separate binary mixtures of organic compounds. CO-4 Identify organic compound using suitable steps and prepare their derivatives.