Academic Year 2024-25

Program Outcomes, Program Specific Outcome and Course Outcome

Name of the Department

- 1. English
- 2. Marathi
- 3. Hindi
- 4. Botany
- 5. Chemistry
- 6. Computer Science
- 7. Environmental Science
- 8. Mathematics
- 9. Microbiology
- 10. Physics
- 11. Zoology
- 12. Physical Education
- 13. Psychology
- 14. Home Science
- 15. History
- 16. Political Science
- 17. Sociology
- 18. Economics
- 19. Commerce
- 20. BCA

Department of English

Academic Year: 2024-25

BAFY English (NEP) PSOs (PROGRAMME SPECIFIC OUTCOMES)

The undergraduate program in English aims to

1. Sensitize students to the aesthetic, cultural and social aspects of literature

2. Provide students with extensive view of social, political, cultural and other aspects of society as reflected in literature

3. Acquire life and communication skills and focus on vocational skills

4. Learn to appreciate creative art and literature

5. Develop students' abilities like creative thinking and writing

6. Engage students with major genres of literature and develop fundamental skills required for close reading and critical thinking of the text and context

7. Acquire in-depth knowledge of the religious, socio-intellectual and cultural thoughts through literature

8. Create holistic approach towards education

9. Develop knowledge competence in select thrust areas that would provide directions to the students in terms of research as well as career options

10. Develop a sense of inquiry and capability among students for asking relevant/appropriate questions, problem solving, synthesizing and articulating

11.Create atmosphere of research and motivate students to undertake research in humanities

12. Encourage multidisciplinary research

13. Provide job opportunities through skill-based courses

14. Understand and recognised value system, moral dimensions and self-responsibility for nation and society.

B. A. First Year: English

BAFY COs (Course Outcomes)

Semester I

DSC-1 English Poetry

By the end of course, the students will learn

Meaning of Poetry, its types and forms

The rise and development of English Poetry, trends in English poetry

Major and minor British poets, texts and contexts.

Reflection of human values in English poetry

Undertake projects, research in English poetry Write poetry on current situations

GE/OE-1 Functional English

By the end of course, the students will learn

Basic grammar in English language.

Writing skills with the help of clause elements, phrases, clause types, sentences types.

To prepare for various competitive examinations.

To spot common errors, sentence improvement, build vocabulary, selecting proper words, subject-verb concord, ordering of words in sentences etc.

Skill Enhancement Course (SEC-ENG-1): Metalinguistic Skills

At the end of the course, the student can understand:

Acts of writing, the ability to think grammatically and to reflect on the effectiveness of language choices

Phonemic awareness, syntactic awareness, and lexical awareness

Conversational interaction and the role of metalinguistic skills

understand the intended message of the speaker through metalinguistic skills

Relation between language and culture

Ability Enhancement Course (AEC-1): Communication Skills in English

At the end of course, students will learn

To communication skills, importance of all skills and use of effective communication skills.

To speak at public places.

To prepare for job interview

Manners, etiquettes, and maintain good relations with others

To show higher level of critical thinking and sharpen their accuracy in writing.

B.A. I Semester II (Subject-English)

DSC-1 English Drama

At the end of course, students will learn

Meaning and elements of English drama

Various trends in English drama

To demonstrate a broad knowledge of major and minor British playwrights and texts and contexts

Will play various roles in drama/theatre

Will write dramas

GE/OE:2-ENG-02: English for Competitive Examination

At the end of course, the students will learn

The use of basic grammar in English language learning.

To prepare for various competitive examinations.

To spot common errors, sentence improvement, build vocabulary, selecting proper words, subject-verb concord, Ordering of words in sentences etc.

To enable students for employment with requisite professional skills, ethics and values.

Vocational Skill Course (VSC) VSC-ENG:1: Translation in Practice

At the end of course, the students will learn

Translation as important branch of study and what is good translation.

Basic but valuable techniques used by a good translator in the translation between English and Marathi or English and Hindi.

To understand the idea, style and tone of the writer, the historical and cultural context of the writing, as well as the explicit and implied meanings of words, the grammatical structures of sentences, and the logic of sentences and paragraphs in order to achieve faithfulness, expressiveness, and elegance in the translation.

What makes a qualified professional translator and acquire the abilities and skills that such a translator needs.

Academic Year: 2024-25

B. A. Third Year English Semester-V & VI Course Outcomes (COs) DSE-1-A1/B1 Study of the English Language-I/II (Paper IX/XII)

Course Outcomes: At the end of the course, students will learn to: Grammar of English language basics of English language Better Pronunciation Grammar of English language To develop students' knowledge of the structure of English To enhance linguistic competence of students.

SEC-2-A1/B1: Literary Theory-I/II (Paper X/XIII)

Course Outcomes: At the end of the course, the students will learn: The students would become connoisseurs of literature and life. To develop critical and analytical ability of the students. To produce connoisseurs of literature and life To develop critical and analytical ability of the students. To produce connoisseurs of literature and life.

GE-1/2-A) Eclectic Literature-I/II (Paper XI-A/XIV-A)

Course Outcomes: At the end of the course, the students will learn: The students would develop awareness about literature and cultures of different countries of the world.

To bring the students in close contact with literature from different countries.

To make the students aware of diverse cultures of the world.

Socio-cultural contexts in which literature functions in Africa and draws parallels between its manifestation there and in other continents particularly Europe and America,

The impact of changes forced upon it as a result of international dependence and

improved communications across continents and cultures.

Students will analyze primary texts covering the genres of poetry, drama, fiction, and nonfiction, and will discuss them from different critical stances including historical, feminist, postcolonial etc.

Students will demonstrate their knowledge and understanding of the he historical, cultural, social, political, or biographical contexts of the works' production

Academic Year: 2024-25 MASY English (NEP) **Cos (Course Outcomes)** Sem. III ENG-M-3001: Paper No. XIII Fiction **Course Outcomes:** At the end of Course students will learn: Fiction as Genre Socio-cultural background of novel Rise and development of English fiction Various movements and schools of English fiction ENG-M-3002: Paper No. XIV Literary Criticism up to 19th Century Course Outcomes: At the end of Course students will learn: Literary criticism as Genre Socio-cultural background of literary criticism Rise and development of literary criticism

Various movements and schools of literary criticism

Critical thinking, research aptitude, human values with awareness and social responsibility Career skills and fully pursue to partake in a successful career path through a thorough study of language and literature

To construct and deconstruct the career and character of Bonafide students for individual development, social welfare and national spirit

ENG-M-3003: Paper No. XV Indian Literature in English Translation

Course Outcomes: At the end of the Course, students will learn: Indian literature in translation Socio-cultural background of Indian literature in translation Rise and development of Indian literature in translation Linking of Indian languages and their literature to the world The ways in which translations reflect cultural and aesthetic values, placing due emphasis upon their discursive potential in the contemporary times. to introduce Indian literature in translation to introduce students to various texts in Indian literature in translation.

ENG-M-3004: Paper No. XVI Writing Book Review (Activities/ Theory)

At the end of Course students will learn: book review as important part of academic activities to write book reviews and publish in books and journals Importance of book reviews Reading comprehension and writing skills to introduce book review as important part of academic activities.

ENG-E-3005-A: Paper No. XVII-A Science Fiction

At the end of Course students will learn: Relation between literature and science Alternative worlds, deeply embedded in the cultures produced by science and technology skills of archival research alongside providing the knowledge required to understand how modern Science Fiction developed as a unique interaction of authors, editors, and readers. How science and the scientist are represented in works of fiction, the idea of time travel, artificial

intelligence, and imagining different kinds of dystopia

to introduce book review as important part of academic activities.

ENG-RP-3006 XVIII: Writing Minor Research Project

Course Outcomes:

At the end of Course students will learn

- Undertake original research project as a learning activity on any topic.
- Integration and application of disciplinary knowledge and skills to an independently generated research question and investigation
- Analyze and synthesize salient features and important theoretical, methodological and empirical trends in published literature and data
- Present research findings in clear, concise and persuasive written and verbal forms.
- To evaluate and synthesise the research and professional literature in the discipline

MASY English (NEP) Cos (Course Outcomes) Sem. IV ENG-M-4001: XIX Non-Fiction

Course Outcomes:

At the end of the course, students will learn: Meaning of Non-fiction, rise and development of non-fiction To recognize how non-fiction can teach valuable life lessons To Analyze the strengths and weaknesses of a particular work Critical thinking skills

ENG-M-4002: XX 20th Century Literary Criticism

Course Outcomes:

At the end of the course, students will learn: Critical thinking, research aptitude, human values with awareness and social responsibility Career skills and fully pursue to partake in a successful career path through a thorough study of language and literature Critical methods and literary theories of 20th century Critical approaches and advanced literary theories

ENG-M-4003: XXI American Literature

Course Outcomes:

At the end of the course, students will learn:

The character, flavour and ethos of the American literature

Major literary innovations and cultural issues of the 19TH and 20TH century America

Meaning of religion, democracy and romanticism through a study of American Literature

Issues of race, ethnicity and gender

ENG-M-4004-A: XXII-A World Classics

Course Outcomes:

After the completion of the course, students can learn:

Identify the classic literature and thereby composite cultures of the world Develop cross cultural perspectives

Classify literary texts in English or English translation in terms of their main stylistic and thematic features.

Describe the literary, historical, social and cultural backgrounds of these texts.

Identify some of the main theoretical and methodological issues involved in reading World Literature

ENG-RP-4005: Writing Major Research Project

Course Outcomes:

At the end of course, the students will learn

Research project according to an individual study plan,

To show independence, critical and creative thinking,

Document results by writing a research report,

Present and discuss the research results with colleagues and senior researchers,

New scientific questions that came up during project performance.

Professional attitude regarding time planning, collaboration, and the link between theoretical and practical knowledge

B. A. English (Programme Specific Outcomes)

After completion of the B. A. English, students will be able to:

Analyze the structure of English phonology

Speak English in an accent that is understood by a majority of English speakers in Europe

Understand the basic principles of phonetics and phonology

Recognize and use of standard descriptive terminology for phonetics and English phonology

Identify and describe some non-standard varieties of spoken English

Know the International Phonetic Alphabet

Understand and evaluate speech mechanism, classification of

sounds, description of consonants and vowels, word accent, intonation and phonetic transcription

Understand the noun phrase, verb phrase, adjective phrase,

adverb phrase, prepositional phrase, complex phrase and subordinate clauses

Understand the structure of English language

Literature or the fine arts contribute to the gradual civilization of man by activating his sense perceptions sharply so as to be quick enough to react to their appeal.

These arts appeal to the emotional aesthetic reflective intellectual meditative and spiritual faculties of man. Utility is the criterion of mechanical arts.

On the other hand, literature is a mode of reflecting reality, intending to appeal to the various faculties of sensitive sensible and sentient man.

It also offers pleasure. Besides it helps the learner to know the noble values in life making him a responsible citizen of this world and leads him to make the place more worth living.

Simultaneously this course will help the students to improve communicative skills in English.

M. A. English (Programme Specific Outcomes)

Demonstrate an appropriate level of knowledge in literary history and literary theory Make obvious the critical and analytical skills in the interpretation and evaluation of literary texts

Look with a sensitized view towards the discrimination amongst people in the society on gender, caste, and racial grounds

Generate theoretically informed interpretations of texts and questions for scholarly inquiry

Exhibit high-level proficiency in literary research

Show proficiency in written and spoken English

Engage in professional activities

They will develop an ability to read texts in relation to their historical and cultural contexts, in order to gain a richer understanding of both text and context, and to become more aware of themselves as situated historically and culturally.

Students will Value literature, language, and imagination, they will develop a passion for literature and language.

They will appreciate literature's ability to elicit feeling, cultivate the imagination, and call us to account as humans.

They will cultivate their capacity to judge the aesthetic and ethical value of literary texts-and be able to articulate the standards behind their judgments.

They will appreciate the expressive use of language as a fundamental and sustaining human activity, preparing for a life of learning as readers and writers.

Students will develop an appreciation of how the formal elements of language and genre shape meaning.

They will recognize how writers can transgress or subvert generic expectations, as well as fulfil them. And they will develop a facility at writing in appropriate genres for a variety of purposes

B. A. (Programme Outcomes)

Critical Thinking: Ability to analyse, synthesize and integrate knowledge. Capability to evaluate the validity of arguments and conclusion.

Effective Communication: Proficiency in speaking, reading, writing and listening in English and one Indian language and find meaning of the world by connecting people, ideas, books, media and technology.

Social Interaction: Link with society and intercede the disagreement and help to reach conclusion in group sitting. Demonstrate intellectual awareness and competencies. Reflect on one's cultural identities and values.

Effective Citizenship: Promote active citizenship and community engagement. Ability to understand the national development, informed awareness of issues and participate in civic life. Ethics: Understand and recognised value system, moral dimensions and self-responsibility for nation and society. Demonstrate personal and intellectual integrity and academic accountability. Collaborate respectfully with others, individually and in teams.

Environment and Sustainability: Understand the issues and perspectives of environment context and sustainable development.

Self-directed and lifelong learning: Acquire the ability to engage in independent and lifelong learning in broad context of socio-technological changes.

Individual and team work: Function effectively as an individual and as a member or leader of diverse teams and in multi-disciplinary settings.

Evaluate and conduct research: Engage in scholarly inquiry to identify and investigate questions of a theoretical and applied nature which identify gaps and limitations in the existing literature, understand the principles of the research process, apply appropriate research methodologies to specific problems and develop intellectual independence and practices self- directed inquiry.

Depth of understanding: Demonstrate detailed knowledge and perspectives across disciplinary boundaries. Develop a detailed understanding of the current state of knowledge in one or more disciplines. Recognise the value, use and limits of multi-disciplinary learning. Cultivate an openness to consider and engage alternative research perspectives.

The students acquire knowledge in the field of social sciences, literature and humanities which make them sensitive and sensible enough.

The B.A. graduates will be acquainted with the social, economic, historical, geographical, political, ideological and philosophical tradition and thinking.

The programme also empowers the graduates to appear for various competitive examinations or choose the post graduate programme of their choice.

The B. A. programme enables the students to acquire the knowledge with human values framing the base to deal with various problems in life with courage and humanity.

The students will be ignited enough to think and act over for the solution of various issues prevailed in the human life to make this world better than ever.

Programme provides the base to be the responsible citizen

M.A. (Programme Outcomes)

Literature knowledge: Students acquire in depth knowledge and can apply in literature making them sensitive and sensible to solve issues related with mankind

Problem solving ability: The programme enables students to acquire knowledge and apply with human values framing a base to deal with various problems in real life situations

The students acquire in depth knowledge in the field of social sciences, literature and humanities which make them sensitive and sensible enough to solve the issues related with mankind.

The postgraduates will be acquainted with the social, economic, historical, geographical, political, ideological and philosophical tradition and thinking of their respective subjects.

The program also empowers the post-graduates to appear for various competitive examinations or choose the any post graduate or research programme of their choice.

The M. A. program enables the students to acquire the knowledge with human values framing the base to deal with various problems in life with courage and humanity.

The students will be ignited enough through the knowledge of the special PG programme to think and act over for the solution of various issues prevailed in the human life to make this world better than ever.

Through the PG programme the students will come know about research in their respective subject. It may also provide the information to the students for collection of Data, enquiry, primary and secondary methods of collection of data, classification and tabulation of data. Students get knowledge of various research methods and can realize the importance of research to find solutions of a specific issue.

Thinking ability: The learners can think and act over for solutions of issues prevailed in human life

Ethics: Learners can apply ethical principles and commit to professional ethics and responsibilities

Life skills: Acquisition of social, emotional and cognitive life skills

Critical thinking: Students can apply critical thinking to real life situations

Research Aptitude: Basic orientations of learners towards research and research methodology

Department of Marathi

COURSE OUTCOMES 204-25 B.A. FY NEP -MARATHI

सत्र पहिले *साहित्य प्रकाराचा अभ्यास- आधुनिक कविता* आधुनिक कवितेचे स्वरूप :समजून घेता येईल अभ्यास पत्रिका पहिली DSC I आधुनिक कवितेचे प्रकारांचे आकलन होण्यास मदत होते निवडक आधुनिक कवितेतील आशय सूत्र व भाषा यातील विविध घटकांचा उलगडा करता येतो निवडक आधुनिक कवितेतील जाणीव समजून घेता येतात

सत्र पहिले GE- *सौंदर्य मूल्य व भाषिक कौशल्य -भाग पहिला*

- 1 निवडक कलाकृतीचा अभ्यास करण्यास मदत होते
- 2 निवडक कलाकृतीच्या माध्यमातून सौंदर्य मूल्य उलगडून दाखवता येते
- 3 भाषिक कौशल्याच्या दृष्टीने क्षमता विकसित होण्यास मदत होते
- 4 वक्तृत्वाच्या माध्यमातून रोजगार निर्मिती या अनुषंगाने विचार करता येतो

सत्र पहिले SEC-1 *समाज माध्यमांवरील लेखन अभ्यास पत्रिका पहिली*

- 1 समाज माध्यमांचा परिचय करून घेण्यास मदत होते
- 2 समाज माध्यमांवरील लेखनाचे तंत्र व कौशल्य आत्मसात करण्यास मदत होते
- 3 समाज माध्यमांवरील लेखन व त्यातून रोजगार निर्मिती याविषयीची ज्ञान मिळविण्यास मदत होते

सत्र पहिले IKS *मराठवाड्यातील संत परंपरा आणि संत वाडमय*

संत परंपरेचा विचार विद्यार्थ्यांपर्यंत पोहोचविता येतो

सत्र दुसरे *साहित्य प्रकाराचा अभ्यास: कथा अभ्यास पत्रिका दुसरी*

- 1 कथेचे स्वरूप व घटक समजून घेता येते
- 2 कथेचे विविध प्रकारांचे आकलन होण्यास मदत होते
- 3 कथेचे आशय सूत्र व भाषा यातील विविध घटकांचा उलगडा करता येतो
- 4 कथेच्या कथानकाची जडणघडण घटना प्रसंगाच्या आधारे कशी होते ते समजावून घेता येते

5 कथेतील जाणिवा समजून घेता येतात

सत्र दुसरे *अभ्यास पत्रिका दुसरी सौंदर्य मूल्य व भाषिक कौशल्य भाग दुसरा*

- 1 निवडक कलाकृतीचा अभ्यास करण्यास मदत होते
- 2 निवडक कलाकृतीच्या माध्यमातून सौंदर्य मूल्य उलगडून दाखवता येते
- 3 साहित्य कलाकृतीतील जीवनमूल्य आत्मसात होण्यास मदत होते
- 4 जाहिरातीचे तंत्र व कौशल्य आत्मसात करता येते
- 5 रोजगाराभिमुखतेच्या दृष्टिकोनातून जाहिरात लेखनाचे महत्त्व प्रतिपादन करता येते

सत्र दुसरे *अभ्यास पत्रिका पहिली चित्रपट परीक्षण*

- 1 चित्रपटाचे वाड्मयीन मूल्य लक्षात घेता येते
- 2 चित्रपटाचे नाट्यमूल्य व यावर प्रकाश टाकता येतो
- 3 चित्रपट परीक्षणाचे तंत्र व कौशल्य अवगत होण्यास मदत होते
- 4 प्राप्त कौशल्याच्या आधारे विद्यार्थ्यांना रोजगाराभिमुख बनवता येते

सत्र दुसरे *अभ्यास पत्रिका पहिली जाहिरात लेखन व रोजगार संधी*

- 1 जाहिरातीचे स्वरूप लक्षात घेण्यास मदत होते
- 2 जाहिरातीचे तंत्र समजून घेण्यास मदत होते
- 3 जाहिरातीचे प्रकार सांगता येतात
- 4 जाहिरात लेखन कौशल्य आत्मसात करून रोजगार मिळविण्यास उपयुक्त ठरते.

पदवी व पदव्युत्तर अभ्यासक्रम

अभ्यास पत्रिके सह

- पेपर 1 या अभ्यास पत्रिकेतून मानवी भावभावनांचे मूल्य रूजविले जाते परिणामस्वरूप समाजात मानवतावाद रुजविल्या जातो
- पेपर 2 या अभ्यास पत्रिकेतून दृकश्राव्य माध्यमाद्वारे सामाजिक प्रश्नांची जाणीव विद्यार्थ्यांना करून दिली जाते
- पेपर 3 या अभ्यास पत्रिकेतून मनोरंजनाबरोबरच उद्बोधन प्रबोधन केले जाते
- पेपर 4 या अभ्यास पत्रिकेतून विद्यार्थ्यांच्या सर्वांगीण विकासासाठी विविध कौशल्यांचा विकास साधला जातो

पेपर 5 या अभ्यास पत्रिकेतून समाजाच्या जडणघडणीचा इतिहास उलगडून भूतकाळावरून भविष्याचा वेध घेतला जातो

पेपर 6 या अभ्यास पत्रिकेतून विद्यार्थ्यांनी प्रति कौशल्य विकसित केले जातात

पेपर 7 या अभ्यास पत्रिकेतून महामानवांचे चरित्र आत्मचरित्र वाचून सामान्यजनांना व विद्यार्थ्यांना प्रेरणा मिळते

पेपर 8 या अभ्यास पत्रिकेतून व्यवसाय कौशल्य विकसित केली जातात

पेपर 9 या अभ्यास पत्रिकेतून विद्यार्थ्यांना नैतिक मूल्यांची शिकवण दिली जाते

पेपर 10 या अभ्यास पत्रिकेतून विद्यार्थ्यांचे भाषिक कौशल्य विकसित करून भाषिक ज्ञान विकसित केले जातात

पेपर 11 या अभ्यास पत्रिकेतून विद्यार्थ्यांवर भक्ती समर्पण व संस्काराची रुजवण केली जाते

पेपर 12 या अभ्यास पत्रिकेतून विद्यार्थ्यांना संशोधन कौशल्यांची ओळख करून दिली जाते

पेपर 13 या अभ्यास पत्रिकेतून पाश्चात्त्य साहित्य मूल्यांची ओळख करून दिली जाते

पेपर 14 या अभ्यास पत्रिकेतून प्रत्यक्षात संशोधन कौशल्य व मूल्ये शिकविली जातात

पेपर 15 या अभ्यास पत्रिकेतून विविध साहित्यातील रसांची ओळख करून दिली जाते

पेपर 16 या अभ्यास पत्रिकेतून संशोधन मूल्ये प्रकल्प कार्य संशोधन कार्य मुलाखत इत्यादी व्यावसायिक कौशल्य साधली जातात

पेपर प्रथम वर्ष बीए बीकॉम बीएस्सी (द्वितीय भाषा मराठी)

या अभ्यास पत्रिकेतून विविध कथा(गद्य) कविता (पद्य) या माध्यमातून विविध नैतिक व मानवी मूल्यांची ओळख करून दिली जाते तसेच ती मुले समाजात रुजविण्याची विद्यार्थ्यांची मानसिकता तयारही केली जाते

पेपर द्वितीय वर्ष बीए बीकॉम बीएस्सी(द्वितीय भाषा मराठी)

मराठी विभाग

(बीए, बीएस्सी, बी कॉम द्वितीय वर्ष) सत्र-तिसरे

अभ्यास पत्रिका-३

भारतीय भाषा

उद्दीष्टे-

१ विद्यार्थ्यांच्या मनात निवडक वेच्याच्या परिशीलनाने मूल्यात्मक वाढ होते

२ रसास्वाद क्षमता वाढीस लागते

३ वैज्ञानिक दृष्टिकोनाची कास धरण्यात मदत होते सृजनशील लेखनाकरिता उद्युक्त करण्यास मदत होते

अभ्यास पत्रिका ५(ऐच्छिक)

मध्ययुगीन मराठी वाङमयाचा इतिहास: आरंभ ते १५९९ उद्दीष्टे: १ मराठी वाङमयाचा प्रारंभकाल समजण्यास मदत होते

२ मध्ययुगातील गद्य-पद्य वाङमय समजण्यास मदत होते

३ मध्ययुगीन वाङमय प्रकारच्या प्रेरणा समजण्यास मदत होते

अभ्यास पत्रिका-६

कादंबरी

उद्दीष्टे :

१ कादंबरी चे स्वरूप व घटक समजून घेता येते

२ कादंबरी चे आशयसूत्र व भाषा संबंधित विविध घटकांचा उलगडा होतो

३ कादंबरीच्या कथानकाची जडणघडण व विविध जाणिवा समजून घेता येते.

सत्र -४

अभ्यास पत्रिका -४

भारतीय भाषा:मराठी भाग -४

उद्दीष्टे :

१ विद्यार्थ्यांच्या ठिकाणी श्रम मूल्याची व सामाजिक संवेदनशीलता वाढीस लागते

२ विवेक व वैज्ञानिक दृष्टिकोनाची कास धरण्यास मदत होते

३ लेखनातील विविध प्रवृत्ती व प्रकृती समजण्यास मदत होते

अभ्यास पत्रिका -७

मध्ययुगीन मराठी वाङमयाचा इतिहास : १६०० ते १८१८

उद्दीष्टे :

१ मराठी वाङमयाचा शिवकालीन, पेशवेकालीन साहित्य समजून घेता येते

२ मध्ययुगीन पंत, तंत प्रवाह समजून घेता येते

३ मध्ययुगीन सामाजिक व राजकीय परिस्थिती आणि तत्कालीन लेखनामागील प्रेरणा समजून घेता येते.

अभ्यास पत्रिका -८

साहित्य प्रकार:नाटक

उद्दीष्टे :

१ नाटकाचे स्वरूप ,घटक व नाटकाचे विविध प्रकार समजून घेता येते

२ नाटकाची संहिता व प्रयोमूल्ये उलगडले जातील

३ नाटकातील विविध जाणिवा समजून घेता येते.

बीए तृतीय वर्ष

मराठी विभाग

अभ्यास पत्रिका : ९

साहित्य विचार-भाग १

१ भारतीय व पाश्चिमात्य विचारसरणीनुसार साहित्याचे स्वरूप समजण्यास मदत होते

२ भारतीय व पाश्चिमात्य विचारसरणीनुसार साहित्याचे प्रयोजन समजते

३ साहित्याची निर्मिती प्रक्रिया व समीक्षेच्या विविध पध्दती समजण्यास मदत होते

अभ्यास पत्रिका १०

भाषाविज्ञान

**

१ भाषेचे स्वरूप समजण्यास मदत होते

२ प्रमाणभाषा व बोलीभाषा यातील परस्पर संबंधाचा आढावा समजून घेता येतो

३ भाषाबाबतचे समज-गैरसमज उलगडून दाखवला जातो

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अभ्यास पत्रिका :११
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संशोधनात्मक प्रकल्प लेखन व पध्दती

**

१ प्रकल्प लेखनाचे स्वरूप, उद्दिष्टे, गृहितके , व्याप्ती, मर्यादा व निष्कर्ष समजून घेता येते

२ प्रकल्प लेखनासाठी विविध संशोधन पध्दतीची ओळख होण्यास मदत होते

३ प्रकल्प लेखनासाठी संशोधकाच्या अंगी असणाऱ्या आवश्यक गुणांची ओळख होते.

अभ्यास पत्रिका : १२

लोकसाहित्य भाग -१

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१ लोकवाङमयाचे स्वरूप समजण्यास मदत होते
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२ लोकगीते व लोककथागीते फरक समजण्यास मदत होते

३ लोकगीते व लोककथागीतांची परंपरा, विकासक्रम, वर्गीकरण समजून घेता येते

अभ्यास पत्रिका -१३

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साहित्य विचार -भाग -२
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१ साहित्यातील विविध शब्द शक्तीचा परिचय होतो

२ साहित्यातील प्रकारसह रस विचार उलगडून दाखवता येतो.

```
३ साहित्यातील मूल्य संकल्पना समजण्यास मदत होते
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अभ्यास पत्रिका -१४

मराठी व्याकरण व बोलीभाषा

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मराठी व्याकरण व बोलीभाषा ** १ व्याकरणातील शब्दसिध्दी व विविध प्रकार समजण्यास मदत होते २ विभक्ती कारकार्थ व उपपदार्थ समजण्यास मदत होते ३ अलंकार, म्हणी व वाक्प्रचार इ. चे स्वरूप समजण्यास मदत होते अभ्यास पत्रिका १५ प्रकल्प लेखन भाग २ ** १ विद्यार्थ्याला संशोधन नियमानुसार प्रकल्प लेखन करण्यास मदत होते २ विद्यार्थ्या सैद्धांतिक मांडणीला प्राधान्य देऊन संशोधन साधनांचा पूरक अभ्यास करतील

३ संशोधनांती संशोधनाला अनुकूल असे निष्कर्ष काढण्यास मदत होते

अभ्यास पत्रिका -१६

अभ्यास पत्रिका-१४

लोकसाहित्य भाग २

**

१ लोक कथेचे स्वरूप, विशेष समजून घेता येते

२ लोकनाट्य व प्रायोगिक लोककला समजून घेता येते

३ लोककलांचे वाङमयीन मूल्यमापन करता येतील

या अभ्यास पत्रिकेतून ज्ञान मनोरंजनाबरोबरच प्रबोधनाची मूल्य विकासित केली जातात

पदव्युत्तर विभाग

पेपर 1 अभ्यास पत्रिके मधून समाजमनाची दर्शन घडविले जाते

पेपर 2 अभ्यास पत्रिके मधून साधक-बाधक चर्चा करून साहित्यमूल्य रुजविले जातात

पेपर 3 या अभ्यासक्रमातील विद्यार्थ्यांचे लेखन कौशल्य प्रगत केली जाते पेपर 4 या अभ्यास पत्रिकेतून मानवतावादी दृष्टिकोन रुजविणे पेपर 5 विविध वाड्मयीन मूल्यांचा विकास घडवून आणणे पेपर 6 विविध कलाकृतींचा दर्जा ठरवून वाचन संस्कृती रुजवली जाते पेपर 7 लेखन कौशल्य विकसित केले जाते पेपर 8 व्यक्तिमत्व विकासाची जडणघडण करणे पेपर 9 विविध भाषेत कौशल्य जतन करणे पेपर 10 दलित आदिवासी समाज दर्शन घडविणे पेपर 11 लोकसाहित्यातून पारंपारिक मूल्यांची रुजवण केली जाते पेपर 12 प्रादेशिकतेचे दर्शन घडविणे पेपर 13 भाषेचे महत्व अधोरेखित केले जाते पेपर 14 ग्रामीण संस्कृती आणि स्त्री पुरुष समानता मूल्य रुजविले जाते पेपर 15 या अभ्यास पत्रिके मधून मूल्याची देवाण-घेवाण केली जाते

Department of Hindi



बी.ए.बी.कॉम., बी.एस्सी. प्रथम सत्र (प्रश्नपत्र-०१)- प्रथम वर्ष सामान्य हिंदी

- प्रश्नपत्र ०१ तथा ०२

उद्देश ः

- 9) संवदेना का विकास
- २)भाषा कौशल का विकास
- ३) कथा साहित्य के प्रती अभिरुची

बी.ए. प्रथम ऐच्छिक हिंदी, प्रश्नपत्र-०१ तथा ०३ उपन्यास साहित्य / हिंदी गद्य साहित्य

उद्देश ः

- भामान्य आस्वादन और अभिरुची का परिसंस्कार
- २) जीवन मुल्यों के प्रति आस्था
- ३) उपन्यास साहित्य का अध्ययन
- ४) लेखन तथा भाषण कौशल का विकास

एकांकी साहित्य / नाटक साहित्य (प्रश्नपत्र : ०२) तथा ०४

उदेश ः

- 9) हिंदी नाटक तथा रंगमंच का अध्ययन
- २) संवेदना का विकास
- ३) नाटयास्वादन तथा नाटयालोचन क्षमता का विकास

बी.ए.तृतीय वर्षे प्रश्नपत्र ०९ तथा १०/११/१२ प्रादेशिक साहित्य / आदि मध्यकालीन हिंदी साहित्य का इतिहास / साहित्यशास्त्र / प्रकल्प कार्य

उदेश ः

9) प्रादेशिक साहित्य का ज्ञान

२) भारतीय साहित्य का अध्ययन

३) हिंदी साहित्य परम्परा का परिचय

४) हिंदी संत परम्परा का परिचय

५) साहित्य चिंतन का अध्ययन

६) साहित्यलोचन क्षमता का परिचय

७) पठन लेखन कौशल का विकास

८) आलोचनात्मक क्षमता का विकास

९) अनुसंधानात्मक दृष्टी का विकास

प्रश्नपत्र : १३/१४/१५/१६

मध्यकालीन / आधुनिक हिंदी साहित्य का इतिहास / साहित्यशास्त्र / प्रकल्पकार्य उद्देश :

9) भारतीय भक्ती आंदोलन का अध्ययन

२) रितीकालीन संवेदना का अध्ययन

३) कविता की संवेदना का अध्ययन

४) हिंदी साहित्य परम्परा का परिचय

५) जीवनमुल्यों के प्रति आस्था

६) साहित्य के प्रमुख विद्याओं का परिचय

७) समिक्षात्मक दृष्टी का विकास

८) संशोधन अभिवृत्ती विकसित करना

Matsyodari Shikshan Sanstha's Arts, Science and Commerce College Ambad, Department of Botany



INTERNAL QUALITY ASSURANCE CELL PROGRAMME SPECIFIC OUTCOMES, PROGRAMME OUTCOMES, COURSE

> OUTCOMES as per Blooms Taxonomy INTERNAL QUALITY ASSURANCE CELL

PROGRAMME SPECIFIC OUTCOMES, PROGRAMME OUTCOMES, COURSE OUTCOMES (COS)

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BLOOM'S TAXONOMY

Bloom's Taxonomy is a framework that categorises educational goals and objectives into different levels of cognitive complexity. Created by Benjamin Bloom in the 1950s, it has been widely adopted in educational settings to structure curriculum design and assessment methods. It consists of six major levels of cognitive processes, commonly arranged in a hierarchical order:

Bloom's Taxonomy



The revised Bloom's Taxonomy includes six levels:

- 1. Remember: Recall basic concepts and facts.
- 2. Understand: Explain ideas or concepts.
- **3.** Apply: Use information in new situations.
- 4. Analyze: Draw connections among ideas.
- 5. Evaluate: Justify a decision or course of action.
- 6. Create: Produce new or original work.

PROGRAMME SPECIFIC OUTCOMES

Application of Bloom's Taxonomy in PSOs (Program Specific Outcomes) of B.Sc. in Botany

To effectively apply Bloom's Taxonomy in creating Program Specific Outcomes (PSOs) for a B.Sc. in Botany, educators can align each level of the taxonomy with specific learning objectives that reflect the knowledge and skills students are expected to acquire by the end of the program. Here's how each level can be applied: PSO 1 : Knowledge Acquisition and Recall

Remembering: Students will be able to list and describe the major divisions of the plant kingdom and recognize significant botanists and their contributions.

PSO 2: Comprehension and Conceptual Understanding

Understanding: Students will explain the processes of photosynthesis and cellular respiration in plants, demonstrating comprehension of plant bi010BT concepts.

PSO 3: Practical Application of Knowledge

Applying: Students will conduct laboratory experiments to measure the effects of light intensity on the rate of photosynthesis, showcasing their ability to apply theoretical knowledge to practical situations.

PSO 4: Analytical Skills Development

Analyzing: Students will analyze the ecological roles of different species within an ecosystem and evaluate how environmental changes affect biodiversity. PSO 5: Evaluation of Scientific Research

Evaluating: Students will critique current botanical research articles, assessing the methodologies and conclusions presented in the studies. PSO 6: Creation of New Knowledge

Creating: Students will design and propose their research project addressing a specific botanical question, formulating hypotheses, and determining appropriate methodologies for investigation.

PROGRAMME OUTCOMES

Bloom's Taxonomy is a framework for categorizing educational goals and objectives. It is widely used in curriculum design, assessment, and instructional strategies. Originally proposed by Benjamin Bloom in 1956, the taxonomy was revised in 2001 to reflect a more

modern understanding of cognitive processes.

Bloom's Taxonomy Levels

Application of Bloom's Taxonomy in the Program Outcomes (POs) of B.Sc. Botany

In the context of a B.Sc. in Botany, Bloom's Taxonomy can be applied to design educational outcomes and create program-specific outcomes (PSOs). Here are examples of POs and PSOs structured according to Bloom's

Taxonomy:

Program Outcomes (POs)

1. POI: Knowledge Acquisition

Remember: Students will be able to recall fundamental botanical termin01041 and concepts.

▶ Understand: Students will explain the process of photosynthesis and plant classification.

2. P02: Practical Skills

Apply: Students will apply techniques in laboratory settings to analyze plant specimens.

Analyze: Students will observe and categorize plant features to identify species.

3. P03: Critical Thinking

Evaluate: Students will assess the impact of environmental factors on plant growth and development.

Create: Students will design an experiment to test the effects of soil pH on seed germination.

4. P04: Research and Innovation

Analyze: Students will critically evaluate current literature on plant genetics and development.

Create:Students will formulate a research proposal that addresses a specific problem in botany.

5. P05: Communication

Understand: Students will summarize and discuss research findings in their presentations and reports.

Evaluate: Students will review and critique scientific papers on botanical studies.

6. P06: Environmental Awareness

> Apply: Students will implement sustainable practices in botanical research and fieldwork.

Evaluate: Students will assess the effectiveness of conservation strategies in local ecosystems.

Implementation in Curriculum Design

When designing the curriculum for a B.Sc. in Botany, Bloom's Taxonomy can guide the development of course objectives, assessment methods, and instructional strategies. For example:

Set Assessments: Use a variety of assessments (quizzes for "Remember," practical reports for "Apply," and projects for "Create").

Instructional Activities: Engage students through lectures (to "Understand"), lab work (to "Apply"), and discussions (to "Evaluate"). ➤ Learning Materials: Use textbooks, research articles, and field guides to support different levels of understanding

B. Sc. I Year Semester I Major Mandatory MI DSC 1 Morphology of Angiosperms (NEP)

Course outcomes for a theory course on the Morph010U of Angiosperms using Bloom's Taxonomy include six cognitive levels: Remembering, Understanding, Applying, Analyzing, Evaluating, and Creating. Suggested outcomes for each level include:

ECOI. Remembering: Define key terms and classify parts of flowering plants.

≥ C02. Understanding: Explain the significance of morphological features and describe flower development processes.

▶ C03. Applying: Identify unknown species using morphological concepts and distinguish between monocots and dicots.

C04. Analyzing: Analyze morphological adaptations across ecological contexts and compare angiosperm families.

Second Evaluating: Evaluate the impact of morphological diversity on evolution and assess traits concerning environmental challenges.

E C06. Creating: Design studies testing relationships between morphological traits and

their significance, and propose models illustrating evolutionary pathways.

Lab course based on DSC-I Morphology of Angiosperms

The course outcomes for a Morpholog.' of Angiosperms lab practical are structured according to Bloom's Taxonomy, encompassing a range of cognitive skills:

➤ COI. Knowledge/ Remembering: Students will identify and describe parts of flowers, types of inflorescences, and plant families, as well as the structure and function of roots, stems, leaves, and various plant tissues. ➤ C02. Comprehension/ Understanding: Students will explain the significance of floral morphology, the roles of plant organs, compare different plant families, interpret adaptive features, and discuss concepts of homolog.' and ana10U.

≥ C03.Application/ Applying: Participants will utilize floral morph for identification, apply anatomical knowledge, design experiments on environmental factors, distinguish closely related species, and tackle challenges in agriculture and conservation.

C04.AnaIysis/ Analyzing: Students will compare morphological traits to discern evolutionary relationships, analyze adaptations, interpret experimentation results, evaluate the role of characteristics in classification, and critique identification methods.

≥ C05.Synthesis/ Creating: Learners will propose new classification systems, develop research on morphological features, create identification keys, suggest mechanisms for morphological evolution, and design models to predict morphological responses to environmental changes.

C06.EvaIuation/EvaIuating: Students will assess existing classification systems, evaluate the effectiveness of morphological traits, critique theories of plant norphology, justify their importance in systematics, and propose improvements for teaching morphol(W.

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SEC ii) Kitchen Pharmacy-I

The text outlines course outcomes for a "Kitchen Pharmacy" theory course, using Bloom's Taxonomy to define cognitive learning objectives at six levels: Knowledge, Comprehension, Application, Analysis, Synthesis, and Evaluation.

ECOI.Knowledge: Students will define key kitchen pharmacy terms and identify the medicinal properties of common ingredients.

▶ C02.Comprehension: They will summarize herbal medicine principles and explain the health benefits of kitchen herbs and spices.

► C03.App1ication: Students will demonstrate how to prepare herbal teas and create basic remedies.

▶ C04.AnaIysis: They will analyze nutritional content and differentiate between various remedies based on safety and efficacy.

≥ C05.Synthesis: Students will design recipes using medicinal ingredients and develop plans for healthy meal preparation.

► C06.Evaluation: They will critique kitchen pharmacy practices in comparison to traditional medicine and evaluate safety and ethical considerations.

Overall, these outcomes provide a comprehensive framework for assessing student learning, encouraging engagement with both foundational knowledge and higher-level thinking skills.

ii) Practicals based on Kitchen Pharmacy-I

The SEC Kitchen Pharmacy Lab Practical Course is structured around Bloom's Taxonomy, which categorizes learning objectives into six cognitive levels: Remembering, Understanding, Applying, Analyzing, Evaluating, and Creating.

Course Outcomes by Cognitive Level:

COI. Remembering: Students will recall kitchen appliances, cooking methods, and food safety practices and regulations.

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C02. Understanding: Learners will explain the importance of food safety, and the principles of effective kitchen layout, and analyze the nutritional value of food ingredients.

C03. Applying: Participants will implement food safety practices in a simulated kitchen, design menus based on nutritional needs, and manage kitchen organization.

C04. Analyzing: Students will examine how kitchen design impacts food safety and efficiency, compare cooking methods, and evaluate the role of appliances in food preparation.

 \geq C05. Evaluating: Participants will assess kitchen management effectiveness, the influence of design on food safety, and evaluate the nutritional quality of ingredients.

≥ C06. Creating: Learners will design innovative kitchen layouts, develop new menus considering nutritional value, and create original recipes with innovative cooking techniques.

Ge/OE-1: Seed Production and Preservation Techniques

The text outlines potential course outcomes for "Gel OE-I: Seed Production and Preservation Techniques," organized according to Bloom's Taxonomy to structure learning objectives across various cognitive levels.

> COI. Remembering: Students will describe key concepts and identify seed types.

▶ C02. Understanding: They will explain germination processes and summarize the importance of genetic diversity.

▶ C03. Applying: Learners will demonstrate sowing techniques and apply seed preservation methods.

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➤ C04. Analyzing: Students will analyze environmental impacts on seed production and differentiate seed storage effectiveness.

▷ COS. Evaluating: They will evaluate seed production methods and assess government policies related to seed preservation.

≥ C06. Creating: Finally, students will design a sustainable seed production plan and develop research proposals for innovative preservation techniques.

Overall, the outcomes aim to equip students with knowledge, critical thinking, and practical skills necessary in the field of seed production and preservation. Adjustments can be made to suit specific educational contexts.

B. Sc. I Year Semester Il

DSC 3 - Diversity of Cryptogamic

The course "Diversity of Cryptogamic Theory" employs Bloom's Taxonomy to structure its learning outcomes across six levels of cognitive complexity:

COI. Remembering: Students will recall the classification and characteristics of cryptogams (e.g., algae, fungi), list their main features, and identify differences from other plant groups.

≥ C02. Understanding: Learners will explain adaptations of cryptogams, and their ecological roles, and analyze their similarities and differences. ≥ C03.App1ying: Participants will identify unknown specimens, predict ecological effects from environmental changes, and infer evolutionary relationships based on anatomical knowledge.

 \geq C04. Analyzing: Students will examine the interconnections between cryptogam diversity, climate, and human impacts while comparing the evolution of different cryptogam types.

▷ COS. Evaluating: Learners will assess hypotheses about cryptogam diversity, evaluate research methods, and propose conservation plans. ▷ C06. Creating: Students will formulate original research hypotheses, develop investigation plans with data methodologies, and create frameworks to illustrate cryptogam diversity's relationship to ecosystems.

These outcomes span a range of cognitive abilities, highlighting knowledge recall, comprehension, practical application, analytical skills, critical evaluation, and creative research design.

DSC4 Botany-I Lab Course 2 based on DSC 3 - Diversity of Cryptogamic

The "Diversity of Cryptogamic Lab" course is designed to enhance students' understanding of cryptogams, emphasizing their diversity and ecological importance. The course outcomes are structured around Bloom's Taxonomy, reflecting six cognitive levels:

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COI. Knowledge (Remembering): Students will identify common cryptogams, recall their anatomy, list sporangia types, and describe their life cycles.

 \geq C02. Comprehension (Understanding): The course will cover the distinctions between major groups of cryptogams, their ecological roles, significance in human culture, and comparisons of reproductive structures.

C03. Application (Applying): Students will learn to identify cryptogams using dichotomous keys, design growth experiments, analyze field survey data, and develop conservation plans.

➤ C04. Analysis (Analyzing): The curriculum includes comparing the anatomy of cryptogams, analyzing their taxonomic relationships, examining ecological interactions, and evaluating environmental impacts. ➤ COS. Evaluation (Evaluating): Students will assess classification systems, evaluate conservation efforts, compare research methods, and create research proposals related to cryptogamic diversity.

≥ C06. Synthesis (Creating): Outcomes include developing comprehensive guides, restoration plans, outreach programs, and research papers on cryptogamic diversity topics.

Overall, this course emphasizes a comprehensive, multi-level approach to understanding and engaging with cryptogams in various ecological and cultural contexts.

VSC-I - Il) Organic Composting

The course outcomes for an organic composting theory course, structured using Bloom's Taxonomy, are designed to specify expected learning across six cognitive levels: Remember, Understand, Apply, Analyze, Evaluate, and Create.

COI. Remember: Students will define key composting terms and list essential components.

 \geq C02. Understand: Students will explain the composting process and distinguish between aerobic and anaerobic methods.

C03. Apply: Students will demonstrate proper layering in a compost pile and calculate the carbon-to-nitrogen ratio for compost materials.

▶ C04. Analyze: Students will identify common composting problems and compare different composting systems.

COS. Evaluate: Students will assess the quality of compost and critique a composting program's effectiveness.

 \geq C06. Create: Students will design a composting plan for a specific community and develop an educational outreach program.

This framework fosters a comprehensive skill set that encourages deeper engagement with the subject matter.

VSC-2 ii) Practicals based on Organic Composting

The course outcomes for an Organic Composting Lab (VSC-I) are structured using Bloom's Taxonomy to encompass various cognitive skill levels: Remembering, Understanding, Applying, Analyzing, Evaluating, and Creating.

> COI. Remembering: Students will identify components of composting and recall its stages.

≥ C02. Understanding: They will explain the processes involved in

composting and describe its environmental benefits.

▶ C03. Applying: Students will demonstrate how to set up a composting system and maintain optimal composting conditions.

▶ C04. Analyzing: They will analyze compost samples for maturity signs and compare different composting methods.

COS. Evaluating: Students will assess compost quality and critique composting practices for improvements.

C06. Creating: They will design a composting plan for specific settings and develop community educational materials.

Overall, these outcomes aim to provide students with a comprehensive understanding of organic composting, integrating both theoretical knowledge and practical skills for sustainable practices.

GE/OE-2: Pomology

Course Outcomes

The Pomolow course outcomes are categorized into six levels using Bloom's Taxonomy: Remember, Understand, Apply, Analyze, Evaluate, and Create.

COI. Remember: Identify major fruit-bearing plants, and list key phases of fruit development and maturation.

C02. Understand: Explain fruit ripening processes, and describe ecological factors affecting fruit production.

≥ C03. Apply: Demonstrate planting techniques, and implement pest management strategies.

▶ C04. Analyze: Analyze soil and environmental conditions, and compare cultural practices of fruit varieties.

ECOS. Evaluate: Assess market trends, and critique propagation methods.

▶ C06. Create: Design a sustainable pomology project, and construct a research proposal.

B. Sc Il year (Ill - Sem) BOT-311 - Taxonomy of Angiosperms (Theory)

Course Outcomes

COI.Remembering: Focus on recalling definitions and classifications of angiosperms through activities like memorization and flashcards.

C02. Understanding: Encourage students to explain angiosperm classification and its significance by summarizing key differences between monocots and dicots and discussing the ecological importance of angiosperms.

C03. Applying: Students apply taxonomic principles by identifying and classifying plant specimens using morphological features and dichotomous keys.

▶ C04. Analyzing: Analyze evolutionary relationships among angiosperm groups by creating phylogenetic trees and comparing structural adaptations of families.

> COS. Evaluating: Critique classification systems, compare traditional and molecular approaches to taxonomy, and engage in debates regarding taxonomic effectiveness.

▶ C06. Creating: Synthesize knowledge to propose new classifications and research methodologies for angiosperms, addressing gaps in current understanding.

BOT-321- Taxonomy of Angiosperms (Practical)

Lab course 3 (Based on BOT-311)

Summarize the following text: When designing practical papers for a course on the taxonomy of angiosperms (flowering plants), it's essential to clearly define the course outcomes and program outcomes. Below is an example of how you might structure this.

Course Outcomes

Bloom's Taxonomy is a structured framework for categorizing educational goals by complexity, aiding in curriculum and assessment design. When applied to the "Taxonomy of Angiosperms," it allows educators to create targeted learning outcomes and activities across cognitive levels.

The taxonomy comprises six levels:

COI. Remembering: Students recall definitions and characteristics of angiosperms through definitions and flashcards.

C02.Understanding: Students graspclassification hierarchies, summarizing differences and creating diagrams.

C03. Applying: Students identify and classify specimens through field studies and lab sessions.

≥ C04. Analyzing: Students explore relationships among families through comparative studies and phylogenetic analysis.

COS. Evaluating: Students assess the significance of angiosperm diversity through literature reviews and debates.

C06. Creating: Students synthesize information for conservation and innovative uses in projects and presentations.

BOT-312 Core Course (Theory Paper-VI)

Plant Physiology

Course Outcomes for Plant Physiology Theory

The course outcomes for a Theory Paper on Plant Physi010U, structured according to Bloom's Taxonomy, encompass six dimensions of learning:

COI. Knowledge (Remembering): Students will recall and describe key components such as plant cell structures, development stages, types of plant tissues, and the functions of plant hormones.

≥ C02. Comprehension (Understanding) : Students will analyze photosynthesis processes, explain stomatal gas exchange, understand plant growth regulators, and identify environmental stress factors affecting plants.

C03. Application (Applying): Students will apply their knowledge to explain drought tolerance, the effects of pruning, plant nutrition's impact on productivity, and strategies for improving crop yield under stress.

 \geq C04. Analysis (Analyzing): Students will evaluate climate change effects on plants, analyze light spectrum influences, investigate plant-microbe interactions, and examine plant growth regulators' roles in senescence. \geq C05.Synthesis (Creating): Students will design experiments on C02 effects, create climate change models for food security, develop strategies for optimized plant growth in controlled environments, and formulate sustainable agricultural practices.

≥ C06. Evaluation (Evaluating): Students will assess measurement methods for plant growth, evaluate strategies for yield improvement, critically review growth regulators, and develop frameworks to assess agricultural practices' environmental impacts.

BOT-322 Lab course 4 (Based on BOT-312)

Plant Physiology

Course Outcomes:

The course outcomes for a lab course in Plant Physiology are structured according to Bloom's Taxonomy, targeting various cognitive skills across six levels: Remembering, Understanding, Applying, Analyzing, Evaluating, and Creating.

> COI. Remembering: Students will identify key physiological processes and recall the roles of major plant hormones.

C02. Understanding: They will explain mechanisms behind plant processes and summarize environmental impacts on plant responses. C03. Applying: Students will conduct experiments on photosynthesis rates and use techniques to assess soil moisture effects on growth. C04. Analyzing: They will analyze data for plant responses to stressors and compare fertilizer effects on growth using statistical methods.

EC05. Evaluating: Students will evaluate experimental designs and assess

environmental impacts on physiological processes, proposing solutions.

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C06. Creating: They will design independent research projects and develop comprehensive lab reports or presentations to communicate findings.

Overall, the outcomes aim to enhance students' theoretical knowledge, practical lab skills, and critical thinking, fostering a deeper understanding of plant physi010U.



B. Sc. Il Year (Theory) Semester Ill) BOT-313 Skill Enhancement Course-I SEC 1 (A): Mushroom Cultivation

Course Outcomes:

The course titled "Skill Enhancement Course - Mushroom Cultivation" outlines specific outcomes based on Bloom's Taxonomy, emphasizing various levels of cognitive skills.

COI. Remembering: Students will define types of mushrooms, list cultivation requirements, and identify stages of mushroom growth.

≥ C02. Understanding: Learners will explain the life cycle of mushrooms, describe cultivation processes, and compare different cultivation methods.

 \geq C03. Applying: Participants will design a small-scale farm, troubleshoot issues, and develop harvesting plans based on practical applications of their knowledge.

C04. Analyzing: Students will analyze pros and cons of cultivation methods, evaluate mushroom species' nutritional values, and examine environmental impacts.
C05. Evaluating: The course will enable learners to assess the business feasibility of cultivation, evaluate cultivation techniques, and create quality control plans.

C06. Creating: Finally, students will design innovative cultivation systems, develop marketing strategies, and create new mushroom-based products.

The percentages indicate the emphasis on each cognitive level, which can be adjusted as needed for course requirements.

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B. Sc. Il Year (practical) Semester Ill) BOT-313 Skill Enhancement Course-I SEC 1 (A): Mushroom Cultivation

Course Outcomes:

The lab course in Mushroom Cultivation incorporates Bloom's Taxonomy to structure its outcomes across various cognitive skill levels. Students will learn to:

COI. Remember: Recall the mushroom life cycle, spore germination conditions, and various mushroom types.

C02. Understand: Explain substrate preparation and environmental effects on growth.

≥ C03. Apply: Design spawn production procedures and optimize conditions for cultivation.

C04. Analyze: Evaluate substrate impacts on yield and compare cultivation methods.

>C05. Evaluate: Assess contamination risks and environmental impacts of mushroom farming.

 \geq C06. Create: Develop innovative cultivation methods and a business plan for commercial ventures.

These outcomes emphasize hands-on experience and aim to enhance critical thinking and problem-solving skills, preparing students for careers in the field.

Semester IV

BOT-411- Gymnosperms & Utilization of Plants (Theory Paper-VII)

Course Outcomes

The course "Gymnosperms & Utilization of Plants (Theory Paper-VII)" outcomes based on Bloom's Taxonomy.

COI. Remembering: Students will define key terms, list major gymnosperm categories (cycads, ginkgos, gnetophytes, and conifers), and identify unique morphological features.

≥ C02. Understanding: Participants will explain the Umnosperm life cycle, describe their ecological significance, and compare 4trnnosperms with angiosperms.

C03. Applying: Learners will apply their knowledge to identify species, devise sustainable forestry strategies, and create project plans for cultivation.

≥ C04. Analyzing: The course encourages analysis of the economic importance and ecological impacts of gymnosperms, as well as their adaptive strategies to various biomes.

 \geq C05. Evaluating: Students will assess Urnnosperms' contributions to the carbon cycle, evaluate research on their medicinal properties, and formulate preservation recommendations.

C06. Creating: Finally, they will design outreach programs, develop innovative utilization methods, and create research proposals for conservation projects.
The distribution of emphasis on each cognitive level may be adjusted according to course needs.

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BOT-412 Plant Ecology

(Theory Paper-Vill)

The page discusses designing course outcomes for a Plant Ec010U theory paper using Bloom's Taxonomy, which categorizes learning objectives into hierarchical levels. The framework includes:

ECOI. Remembering: Defining key terms and listing biomes

> C02. Understanding: Describing plant communities and explaining ecological niches

- EC03. Applying: Using field data to identify species and analyze distribution patterns
- **EXAMPLE** COMPARING Plant communities and evaluating human impact
- **EXAMPLE** COS. Evaluating: Assessing climate change impact and critiquing restoration efforts
- **C06.**Creating: Proposing conservation plans and designing experiments

The goal is to engage students at multiple cognitive levels, promoting a deeper understanding and application of plant ecolow concepts.

BOT-421 Lab Course 5

(Based on BOT-411- Gymnosperms & Utilization of Plants)

The webpage outlines a framework for developing course outcomes in a Plant **cology** course using Bloom's Taxonomy, which categorizes cognitive skills from lower-order to higher-order thinking. The suggested outcomes are structured into six levels:

COI. Remembering: Identify key concepts in plant ecolow and describe plant community structures.

C02. Understanding: Explain photosynthesis and nutrient cycling processes, and summarize plant roles in ecosystems.

≥ C03. Applying: Collect and analyze data on plant species and assess ecosystem health using ecological principles.

▶ C04. Analyzing: Compare different plant habitats and analyze how abiotic factors affect plant communities.

▷ COS. Evaluating: Assess conservation strategies and critique research articles in plant ec010U.

C06.Creating: Design a research proposal on climate change impacts and develop outreach programs for native plant conservation.

BOT-422 Lab Course 6 (Based on BOT-412 - Plant Ecology)

The text outlines how to design course outcomes for a Plant Ecolow lab course using Bloom's Taxonomy to engage students at various cognitive levels. The outcomes are categorized as follows:

COI. Remembering: Students will list and describe plant communities and identify species using guides.

> C02. Understanding: Students will explain abiotic and biotic factors in ecosystems and summarize photosynthesis and respiration.

▷ C03. Applying: Students will demonstrate plant sampling techniques and use software for data analysis.

➤ C04. Analyzing: Students will analyze field data for community composition and compare the impacts of environmental disturbances. ➤ COS. Evaluating: Students will assess the effects of invasive species and critique ecological studies.

C06. Creating: Students will design ecological research projects and formulate management plans for biodiversity.

BOT-413 Skill Enhancement Course-2 SEC 2 C): Nursery and Gardening

The theory course outcomes for a Skill Enhancement Course on Nursery and Gardening, structured using Bloom's Taxonomy, encompass several cognitive dimensions:

COI. Knowledge (Remembering): Students will identify various plant types, recognize key growth factors such as soil and water, state gardening benefits for health and the environment, recall basic nursery practices, and list common gardening tools.

C02. Comprehension (Understanding): Outcomes include explaining plant life cycles, describing environmental roles (sunlight, temperature, moisture),

C03. Application (Applying): Students will learn to select appropriate plants for environments, design garden layouts, implement pest control plans, analyze fertilizer impacts, and plan irrigation and pruning schedules.

▷ C04. Analysis (Analyzing): They will analyze soil properties and irrigation systems, compare nursery practices (organic vs. inorganic), assess climate change impacts on plants, and identify causes of plant issues.

COS. Synthesis (Creating): Students will develop new gardening techniques, design sustainable nursery systems, create plant databases, plan community gardening projects, and design educational programs on gardening.

C06. Evaluation (Evaluating): Finally, they will evaluate gardening practices' effectiveness and social/ environmental impacts, develop monitoring systems for plant growth, conduct cost-benefit analyses, and assess project success for improvements.

Semester V

BOT-511 DSE-IA (1) (Cell Biology & Molecular Biology-IX)

Course outcomes for a Cell and Molecular course using Bloom's Taxonomy, it's important to create outcomes at various levels of cognitive learning, from lower-order thinking skills to higher-order skills. Below are suggested course outcomes tailored to each level of Bloom's Taxonomy, which can be applied to a course in Cell Biolog.r and Molecular Biology.

EOI. Remembering

- Outcome: Students will be able to list and define key terms related to cell structure, function, and molecular processes (e.g., organelles, proteins, nucleic acids).

C02. Understanding

-Outcome: Students will be able to explain the functions of various cell organelles and describe the processes of cell division, including mitosis and meiosis.

C03. Applying

Outcome: Students will be able to demonstrate techniques used in molecular such as PCR (Polymerase Chain Reaction) and gel electrophoresis, through practical lab activities.

C04. Analyzing

Outcome: Students will be able to analyze experimental data to identify patterns related to gene expression and cell signaling pathways.

≥ C05. Evaluating

Outcome: Students will be able to evaluate research articles related to cell and molecular bi010U and critique the methodology and conclusions drawn from the experiments.

BOT-512 (C) Paper X (Mycology and Plant Pathology)

Course outcomes for a theory course on Mycology and Plant Patholousing Bloom's Taxonomy, which hierarchically classifies cognitive skills. The proposed outcomes are structured across six cognitive levels:

COI. Remembering: Define key terms and list major groups of fungi and associated plant diseases.

C02. Understanding: Describe fungal life cycles and explain their ecological roles.

C03.App1ying: Identify symptoms of fungal diseases and apply identification methods in labs.

C04. Analyzing: Analyze environmental impacts on fungal growth and distinguish between biotic and abiotic factors affecting plant health.

≥ C05. Evaluating: Evaluate management strategies for fungal diseases and assess biological control methods.

C06. Creating: Develop research proposals and design experiments to test fungicides or biological controls.

The structured approach helps students progress from basic knowledge to higher-order thinking, fostering a comprehensive understanding and equipping them to tackle real-world challenges in the field.

BOT-521 Lab course 7 (Cell Biology & Molecular Biology BOT-511)

The course outcomes for a Cell Bi0104,' & Molecular Bi010U lab, structured using Bloom's Taxonomy, emphasize various cognitive skills: Remembering, Understanding, Applying, Analyzing, Evaluating, and Creating.

COI. Remembering: Students will recall key concepts like cell structures and laboratory equipment.

C02.Understanding: They will explain cellular processes such as respiration and photosynthesis and describe techniques like PCR and gel electrophoresis.

C03. Applying: Students will conduct experiments and utilize statistical methods for data analysis.

C04. Analyzing: They will compare molecular biology techniques and assess experimental design to identify errors.

> C05. Evaluating: Students will critique scientific literature and evaluate laboratory results in the context of established knowledge.

C06. Creating: Finally, they will design new experiments and synthesize information to present on relevant topics.

These outcomes aim to cultivate essential cognitive skills for students in the lab context of cell and molecularbiology.

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BOT-522 Lab Course 8

(Based on BOT-512 Mycology and Plant Pathology Lab Course VIII,

Bloom's Taxonomy is a hierarchical framework for categorizing educational goals, encompassing six levels: Remember, Understand, Apply, Analyze, Evaluate, and Create. For a Lab Course in Myc010U and Plant Path0104.T, suggested outcomes include:

COI. Remember: Identify and classify fungal species and list key plant pathogens along with their impacts.

EC02. Understand: Explain the life cycles of fungi and plant pathogens and discuss fungi's ecological roles.

C03. Apply: Perform lab techniques for isolating fungi and use diagnostic tools for identification.

≥ C04. Analyze: Compare plant diseases caused by fungi and analyze case studies of disease outbreaks.

COS. Evaluate: Assess the effectiveness of disease management strategies and critique relevant research articles.

C06. Create: Design research experiments on fungal-pathogen interactions and develop educational outreach materials.

These outcomes aim to enhance students' understanding and skills in myc010U and plantpatholo

SEC-513 SEC-3(E), (E): Vermicomposting and Biofertilizers

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In this course, students will learn about the principles and practices of vermicomposting and biofertilizers, including the use of worms and microorganisms to create nutrient-rich compost and biofertilizers. Students will apply scientific and critical thinking skills to design, implement, and evaluate vermicomposting systems and biofertilizer production processes,

Course Outcomes:

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

ECOI. Remember: Define vermicomposting and biofertilizers, and identify the benefits and challenges of using these approaches in agriculture and horticulture.

C02. Understand: Explain the fundamental principles of vermicomposting, including the role of microorganisms, pH, temperature, and moisture in the composting process.

C03. Apply: Design and construct a vermicomposting system, including selecting suitable materials, creating a carbon-to-nitrogen ratio, and monitoring temperature, pH, and moisture levels.

C04. Analyze: Evaluate the effectiveness of a vermicomposting system, including measuring parameters such as compost quality, worm health, and nutrient content.
COS. Synthesize: Develop a plan for integrating vermicomposting and biofertilizers into a sustainable agricultural or horticultural system, including considerations for soil health, crop selection, and nutrient management.

C06.Evaluate: Compare and contrast different types of biofertilizers, including their advantages and disadvantages, and evaluate their potential for use in various agricultural and horticultural contexts.

Semester VI

BOT-611 DSE-IB (1) (Theory Paper-XI) Genetics and Evolution

This course delves into key principles of genetics and evolution, covering DNA structure, gene expression, inheritance patterns, and evolutionary mechanics. Students will

apply their theoretical knowledge to practical scenarios, engaging in data analysis and critical evaluation of evidence.

Course Outcomes:

COI. Knowledge: Students will recall DNA components, describe gene expression processes, and identify inheritance types.

≥ C02. Comprehension: Students will explain genetic variation mechanisms, outline natural selection, and analyze genotypephenotype relationships.

C03. Application: Students will relate genetic principles to inheritance patterns, apply evolutionary concepts to real-world scenarios, and compare genetic testing methodologies.

C04. Analysis: Students will evaluate evidence for genetic hypotheses, assess genetic variation impacts, and compare evolutionary theories.

C05. Evaluation: Students will critique genetic studies, assess genetic modification implications, and evaluate conservation strategies.

C06. Creation: Students will design genetic experiments, propose evolutionary explanations, and develop predictive models.

BOT-612 DSE-IB (2) (Theory Paper-MI) (C2: BOT-612(C) Paper Xll (Microbiology & Disease Management)

"Microbi010U & Disease Management, " it's crucial to create specific outcomes that align with Bloom's Taxonomy, which classifies educational goals from basic knowledge to higher-order thinking.

The course outcomes may include:

COI. Knowledge: Identify and define key microbiological concepts and pathogens, such as bacteria and viruses, along with their roles in health and disease.

C02. Comprehension: Explain infection processes and how microbes affect host systems.

C03. Application: Apply microbiological principles to analyze disease outbreaks and recommend control strategies.

C04. Analysis: Interpret laboratory data to identify pathogens from testing results.
COS. Synthesis: Create a comprehensive disease management plan integrating microbiological and public health strategies.

≥ C06. Evaluation: Assess current trends in microbi010U, such as antibiotic resistance, and propose innovative solutions.

Additional considerations should include fostering interdisciplinary connections, aligning assessment methods with outcomes, and incorporating real-world applications to enhance the learning experience. This structured approach promotes a deep understanding of microbi010U and its practical applications in disease management while engaging students at various cognitive levels.

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BOT-621 Lab course 9 (Based on BOT-611 Genetics and Evolution) Course outcomes for a lab course in Genetics and Evolution using Bloom's Taxonomy, it's essential to align outcomes with the taxonomy's cognitive skill levels: Remembering, Understanding, Applying, Analyzing, Evaluating, and Creating.

Course Outcomes:

COI. Remembering: Students Will recall key concepts like Mendelian inheritance and natural selection.

➤ C02. Understanding: They will describe genetic variation principles and explain evolutionary mechanisms like mutation and gene flow. ➤ C03. Applying: Students will use lab techniques (e.g., PCR, gel electrophoresis) and apply statistical methods to analyze genetic data. ➤ C04. Analyzing: They'll analyze experimental genetic data to identify inheritance patterns and compare evolutionary theories.

➤ COS. Evaluating: Students will assess the impact of genetic technologies on evolution and critique relevant scientific literature. ➤ C06. Creating: They'll design and conduct experiments to test hypotheses and develop research proposals.

Additional Considerations: Encourage collaboration among students through projects and presentations, and integrate ethical discussions on genetics and evolution to explore broader implications. This structured approach engages students at various cognitive levels, enhancing their understanding through practical experiences.

BOT-622 Lab course 10 (Based on BOT- Microbiology & Disease Management)

Course outcomes for a lab course in Microbi010U & Disease Management, utilizing Bloom's Taxonomy to establish measurable objectives that enhance cognitive skills. The taxonomy progresses from lower-order skills (remembering and understanding) to higher-order skills (applying, analyzing, evaluating, and creating).

Proposed Course Outcomes:

▷ COI. Remembering: Identify key microorganisms related to diseases. ▷ C02. Understanding: Explain microbial pathogenesis and its health impact.

EC03. Applying: Demonstrate essential lab techniques such as culturing and staining.

C04. Analyzing: Analyze clinical case studies to determine pathogens and management strategies.

COS. Evaluating: Assess the effectiveness of antimicrobial agents and control measures.

C06. Creating: Develop risk assessment plans and educational programs for disease management.

Additional course considerations emphasize hands-on lab skills, an interdisciplinary approach incorporating public health and epidemiology, and fostering critical thinking through the evaluation of current microbiological research. Overall, these outcomes are designed to guide students in building crucial skills and knowledge in microbi010U and disease management.

SEC-613 SEC-4(G) (G): Horticulture

Course Outcomes

Course outcomes are categorized into 6 levels of cognitive complexity using Bloom's Taxonomy:

COI. Remembering (Knowledge): Describe, identify, and recall information about plant cells, hormones, and growth requirements.

C02. Understanding (Comprehension): Explain, describe, and summarize information about photosynthesis, plant roots, and integrated pest management.

C03. Applying (Application): Design a greenhouse, develop a crop management plan, and apply principles to improve plant growth and shape.

C04. Analyzing (Analysis): Compare and contrast different plant growth regulators, evaluate environmental factors, and analyze the benefits and limitations of propagation methods.

COS. Evaluating (Evaluation): Critically evaluate fertilizers, IPM strategies, and irrigation systems, and evaluate the impact of climate change on horticulture.

C06. Creating (Synthesis): Design a new crop or variety, develop a holistic approach to managing a horticultural business, and create a plan for sustainable agricultural practices.

Semester - III

Course Code: BOT- 211 (Taxonomy of Angiosperms)

- CO1- Description of a plant specimen.
- CO2- Study of locally available families of flowering plants.
- CO3- Identification of genus and species of locally available wild plants.
- CO4- Preparation of botanical keys at generic level by locating key characters.
- CO5- Knowledge of at least 10 medicinal plant species.
- CO6- Knowledge of secondary metabolites and its use in taxonomy.

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CO7- To learn the wide activities in angiosperm and trends in classification.

CO8- Learn about the characters of biologically important families of angiosperms.

Course Code: BOT- 211 (Plant Physiology)

CO1-The students are able to isolate starch, pectin and various nutritive products from the plants.

CO2-Also the role of enzymes in it and mechanism of photosynthesis, respiration, nitrogen and lipid metabolism.

CO3- Understand the Biochemical nature of cell. Know the chemical nature of biomolecules

CO4- Learn about the movement of sap and absorption of water in plant body and Understand the plant movements.

CO5- Understand the different types of interaction in Biomolecules.

CO6- Demonstrate various physiological experiments.

Semester - IV

Paper - XIII

(Gymnosperms and Utilization of Plants)

CO1- Differentiate the lower forms and advanced Thallophytic and its vegetative and reproductive parts.

CO2- Analyze the internal organization of Cryptogams and Phanerogams.

CO3- To know about morphological, anatomical and developmental patterns in the bryophytes, pteridophytes and gymnosperms.

CO4- To know about the reproductive parts their development and mechanism of reproduction and life cycle pattern.

Semester IV

(Plant Ecology)

CO1-On completion of this course the students are able to analyse various types of ecosystems, Correlate different ecosystems.

CO2- analyses the threat and recommends conservative measures.

CO3- The students are also accomplished in the environmental impact analysis

CO-4 Students are able to analyse, monitor various physical, chemical and biological properties of soil water and air.

Semester -V

Paper XV

(Cell Biology & Molecular Biology)

CO1- The cell structures in relation to function of cells the fundamental unit of life, are concerned in this course along with molecules present in cells.

CO2- Apply the principles of cell biology in designing experiment, statistical analysis, and

Understanding of results

CO3- Operate and solve exercise using computation statistics software.

CO4- Get acquitted with basic approach in the research methodology.

Semester – V

Paper XVI

Plant Pathology

CO1- Understand the concept, principle and types of sterilization methods.

CO2- Know the concept and characteristics of antiseptic, disinfectant and their mode of action.

CO3- Know the cultivation methods of bacteria, yeast, fungi and virus.

CO4- Principle, working and applications of instruments viz, pH meters, spectrophotometer, centrifuge, viscometer, and laminar air flow.

CO5-Understand the Microbial Genetics and Recombination in Bacteria.

CO6- Know the terminologies in plant pathology. Understand the scope and importance of Plant Pathology.

Semester -VI

Paper: XIX

Genetics and Biotechnology

CO1- Media preparation techniques for different plants and Sterilization techniques for media as well as for explants. Explant Culture. Anther culture, Pollen culture, Micro propagation. Embryo rescue

CO2- Meiotic behavior of monosomy, trisomy in plants and its effect. and Chromosomal behavior in mutagen treated plants.

CO3-Chromatin organization, Structural and Numerical alterations in chromosomes

Know about Equipment's required in Tissue culture Lab

Semester –VI

Paper XX

Microbiology and Disease Management.

CO1- Explain how plant diseases are classified by symptoms displayed on plants. Analyze a disease situation and determines the best cultural, mechanical, and biological control methods used to manage the plant disease.

CO2-Distinguish between the various integrated pest management strategies for plant disease management. Know the prevention and control measures of plant diseases and its effect on economy of crop CO3- Know the terminologies in plant pathology. Understand the scope and importance of Plant Pathology.

CO4- Know the prevention and control measures of plant diseases and its effect on economy of crops.

Department of Botany PG Program Outcomes

Programme outcome M.Sc. Botany is a 2-year postgraduate program designed to provide students with advanced knowledge in modern biology. Apart from providing students with essential knowledge, the programme curriculum helps them develop problem-solving skills and critical thinking abilities that enable them to face any challenge. In this programme, students gain knowledge in the main research areas of botany. The programme has a balance of theoretical and practical sessions that allow students to apply their knowledge and achieve their desired outcomes. The programme concentrates on career-oriented topics such as Microbial Biotechnology, Plant tissue culture, Enzyme Technology, Genetics, Plant breeding, Crop Improvement etc.

Program Specific Outcomes

PSO1. After successful completion of the course, a student can understand different fields of Botany like systematics, evolution, ecology, physiology, biochemistry, plant interactions with microbes and insects, anatomy, morphology, reproduction, genetics and molecular biology of various life-forms. She/he even has an edge over other students as they will be trained in skill enhancement courses like Biofertilizer technology.

PSO2. The student completing the course is able to classify various life forms of plants, design and execute experiments related to basic studies on ecology, physiology, biochemistry, plant interactions with microbes and insects, morphology, anatomy, reproduction, genetics, microbiology, molecular biology, recombinant DNA technology etc.

PSO3. The student completing the course is capable of executing short-term research projects/dissertations using tools and techniques in any of the basic specializations of Botany under supervision.

Course Outcomes

FY SEM I

BOT-500 & 503: Cell and Molecular Biology

Students will learn:

CO1: Cell theory, ultrastructure and the chemical composition of the cell.

CO2: Cell cycle, apoptosis, and its control mechanism.

CO3: Concepts of Mendelian genetics, sex determination and extranuclear inheritance.

CO4: Basics of microscopy and micro-densitometry.

The course has importance in the areas of academics, research, and employability.

BOT-501& 504: Biology and Diversity of Algae and Bryophytes

On successful completion of this course, students will be able to learn about the

CO1: Thallus organisation of algae, fungi and bryophytes, and their salient features.

CO2: Different kinds of algal, fungal, lichen and bryophyte diversity and their economic implication.

The course has importance in the areas of academics and research.

BOT-502 &505: Taxonomy of Angiosperms

Students will get in-depth knowledge of

CO1: Classifications and interaction between taxonomy, anatomy & embryology.

CO2: Different methods of naming plants, different principles of nomenclature etc.

CO3: Phylogeny and phylogenetic systematic, methods used in molecular systematic studies.

CO4: Embryology, and its role in taxonomy.

BOT-506 Horticulture Technique

CO1: The study of scope and importance of horticulture, division of horticulture, classification of horticultural plants, brief note on some families of horticultural importance. CO2: Deals with soil science and fertility management for horticultural crops. CO3: Analyze the Importance of crop physiology in horticulture.

BOT-511 &512: Taxonomy of Angiosperms

Students will get in-depth knowledge of

CO1: Classifications and interaction between taxonomy, anatomy & embryology.

CO2: Different methods of naming plants, different principles of nomenclature etc.

CO3: Phylogeny and phylogenetic systematic, methods used in molecular systematic studies.

CO4: Embryology, and its role in taxonomy.

549: Research Methodology

CO1: Students who complete this course will be able to understand and comprehend the basics in research methodology and applying them in research/ project work.

CO2: This course will help them to select an appropriate research design.

CO3: With the help of this course, students will be able to take up and implement a research project/ study.

CO4: The course will also enable them to collect the data, edit it properly and analyse it accordingly. Thus, it will facilitate students' prosperity in higher education.

CO4: The students will develop skills in qualitative and quantitative data analysis and presentation.

CO5: Students will be able to demonstrate the ability to choose methods appropriate to research objectives.

FY SEM II

BOT-550&553: Cytology and Genetics

Students will learn

CO1: Cell theory, ultrastructure and chemical composition of the cell.

CO2: Cell cycle, apoptosis, and its control mechanism.

CO3: Concepts of Mendelian genetics, sex determination and extranuclear inheritance.

CO4: Basics of microscopy and micro-densitometry.

The course has importance in the areas of academics, research, and employability

BOT-551&554: Plant Development and Reproduction

Co1: Student will develop the understanding of growth, development and reproduction in plants.

CO2: Students understand the physiological and metabolic changes happening along with the environmental impact.

BOT-552&555: Biology and Diversity of Fungi and Microbes

On successful completion of this course, students will be able to learn about the

CO1: Thallus organisation of fungi and microbes, and their salient features.

CO2: Different kinds of algae and microbes and their economic implication.

The course is importance in the areas of academics and research

BOT-556: Botanical Technique

BOT-561& 562: Taxonomy of Angiosperms

CO1: Botanical Nomenclature: Concept of nomenclature, Binomial nomenclature and its advantages.

CO2: Taxonomic literatures and Use of computers in angiosperms taxonomy.

CO1Taxonomic evidences: Morphology, anatomy, embryology, palynology, cytology, phytochemistry and numerical taxonomy

CO3:Angiosperm Families: Nymphaeaceae, Hydatellaceae, Magnoliaceae, Papaveraceae, Malvaceae, Sapotaceae, Apiaceae, Asteraceae, Arecaceae and Poaceae

BOT-599: OJT/Field Project / Internship

Students should understand:

CO1:To select the topic.

CO2: Literature survey for the topic of the project.

Skill in practical work, experiments, use of biological tool and techniques.

CO3: Handling instruments for analysis and discuss their experimental results.

CO4: Used ICT tools to prepare project reports and present it using Power point presentation.

CO5: Work within a small team to achieve a common research goal.

SY SEM III

BOT-501: Biology and Diversity of Pteridophytes and Gymnosperms

Students will get in-depth knowledge of

CO1: The plant diversity (esp. In pteridophytes, and gymnosperms) and understanding the evolutionary trends through the study of palaeobotany.

CO2: The evolutionary diversification of early land plants and morphological and reproductive innovations in pteridophytes and gymnosperms.

The course has importance in the areas of academics and research.

BOT-502: Plant Ecology and Conservation

Students will have knowledge aboutCO1: Organism and population concept, interactions among populations CO2: Community structure and community dynamics. CO3: Concept of ecosystem, ecosystem energetic, environmental pollution. CO4: Importance of environmental awareness. The course has importance in the areas of academics, research, and employability

BOT-521C: Taxonomy of Angiosperms-I and BOT-522C: Taxonomy of Angiosperms

CO1: Increase the awareness and appreciation of plants & plant products encountered in everyday life

CO2: Appreciate the diversity of plants and the plant products in human use

CO3: Learn about systems of classification with merits and demerits

CO4: Familiarize with the methods of plant Identification

CO5: Know about the National and International Herbaria and Botanical gardens Study of the some families and their economic importance

CO6: Prepares students for a career in Plant exploration and identification and as a technical expert in National parks and Botanical gardens.

CO7: Study of some families and their economic importance

BOT-526C: Medicinal Plants

CO1: Contains basic chapters required to understandthe scientific study of plants

CO2: they will learn the use of plants in different systems of medicine

CO3: Also, topics on various approaches for plant conservation, IPR and IUCN classification of threatened categories are included

CO4: There is a detailed account of the cultivation practices of certain medicinal plants CO5: This will give the basics of medicinal plant cultivation and if perceived students can take this as a career

SY SEM IV

BOT-503: Bio-prospecting and Plant Recourse Utilization

CO1: Understand core concepts of Economic Botany and relate with the environment, populations, communities, and ecosystems

CO2: Develop a critical understanding on the evolution other f concept of organization of apex new crops/variety the ties, importance of germplasm diver and sit, issues related to access and ownership.

CO3: Develop a basic knowledge of taxonomic diversity and important families of useful plants.

CO4: Understand the common cultivation methods of microalgae including photobioreactors and open ponds, Seaweed bioresources etc.

CO5: Appreciate the diversity of plants and plant products in human use.

CO6: Understand the concept of IPR, and various legal issues related to IPR.

CO7: Exploring the potential of Marine bioresources, Microbial, medicinal plants etc.

CO8: Various phytochemical techniques, industrial process, pharmacogenetic procedures, authentication of specimens, Preservation of plants and plant products

BOT-504: Genetic Engineering and Bioinformatics

At the end of the course,

CO1: the student has a strong foundation on the functions of the cell. Mendelian genetics, their principles and gene interaction.

CO2: The student will gain a basic understanding on human genetics and hereditary.

They learn about DNA, RNA and their replication, mutations, DNA repair mechanism.

CO2: To learn the basic methodology in Bioinformatics

CO3: To learn programming languages PERL & BIOPERL for beginners in Bioinformatics.

CO4: To utilize bioinformatics tools and databases for retrieving, analyzing, understanding and managing biological data.

BOT-523C: Taxonomy of Angiosperms-III and BOT-524C: Taxonomy of Angiosperms IV

CO1: Increase the awareness and appreciation of plants & plant products encountered in everyday life

CO2: Appreciate the diversity of plants and the plant products in human use

CO3: Learn about systems of classification with merits and demerits

CO4: Familiarize with the methods of plant Identification

CO5: Know about the National and International Herbaria and Botanical gardens Study of the some families and their economic importance

CO6: Prepares students for a career in Plant exploration and identification and as a technical expert in National parks and Botanical gardens.

CO7: Study of some families and their economic importance

524C: Research Component- Project Work

On completion of the research project the students will be able to-

CO1: Design the experiments of his interest and execute it

CO2: Trained in handling of the basic a advanced instruments

CO3: Generate the data, compile and analyse and interpret the data.

CO4: Presentation skill is developed in the students

CO5: The student is ready to work in any R&D setup

Department of Chemistry

Programme Specific Outcomes (PSOs)

PSO01: Students understand the basic principles of chemical sciences.

PSO02: Students acquire the knowledge of basic and applied chemistry.

PSO03: Study of physical properties of matter - melting point, boiling point, surface tension, viscosity, optical activity etc.

PSO04: The obtained knowledge is quite promising and forms the foundation of advanced knowledge in further higher education.

PSO05: Students understand basic mathematical concept and their applications in practical.

PSO06: Students understand different methods of compound analysis .

PSO07: Students understand the role of chemistry in daily life.

PSO08: Students learn the chemical composition of some of the products of routine use –fats, oils, soaps etc.

PSO09: Students can handle basic and modern instruments independently.

PSO10: Students understand and follow safe laboratory practice.

PSO11: Students learn problem solving approach.

Programme Outcomes (POs) - B. Sc. Chemistry

Scientific temperament: The programme inculcates scientific attitude in the minds of learners in physical, chemical, material, life and mathematical sciences. Students acquire scientific abilities such as logical thinking, problem solving approach, data collection and decision making and apply the same.

Basic scientific knowledge: Students acquire scientific knowledge to extract information, formulate and solve problems in a systematic manner.

Technical competence and practical skills: Learners acquire skills to handle basic scientific instruments following the general lab safety practices through experimental skills.

Creative thinking and numerical ability: It empowers the learners with creative thinking and numerical ability.

Environment and sustainability: It provides understanding of current environmental scenario and necessity of sustainability along with solutions. Students are made aware of environment related issues and sustainable technology development.

Competency: The programme prepares learners for postgraduation and higher education. Students become eligible for appearing to competitive examinations such as MPSC/UPSC and banking.

Basic instrumentation handling: Learners acquire skills for handling basic instruments.

Communication Skills :-Effectively communicate scientific ideas and research findings through written reports, presentations, and discussions.

Course outcomes (Cos): B. Sc. Chemistry

Paper I Inorganic Chemistry

CO1: To study the basics of atomic structure - Atomic orbitals, Quantum numbers, Heisenberg uncertainty, Aufbau and Pauli exclusion principles, Hund's multiplicity rule. Electronic configurations of the elements, Bohr's atomic model.

CO2: To understand some periodic properties - atomic and ionic radii, ionization energy, electron affinity and electro negativity with reference to trends in periodic table and application in predicting chemical behavior. CO3: To study s- and p- block elements.

Paper No. II Organic Chemistry

CO1: To understand the basic concepts in organic chemistry- reactions, reagents and mechanisms of organic reactions.

CO2: To study stereochemistry and its importance.

CO3: To familiarize open chain compounds like alkanes, alkenes and aromatic compounds chemistry and their importance.

Paper V Physical Chemistry

CO1: To understand basic mathematical concepts - logarithmic relations, curve sketching, linear graphs and calculation of slopes, differentiation of functions simple mathematical functions, maxima and minima, partial differentiation.

CO2: To understand kinetic theory of gases, kinetic gas equation, and gas laws - Boyles Law, Charles Law, Grahams Law of diffusion, Avogadro's hypothesis, deviation from ideal behavior, van der Waals equation of state. CO3: Critical Phenomena: PV isotherms of real gases.

CO4: To study chemical kinetics: Factors influencing the rate of reaction, rate law and characteristics of simple chemical reactions - zero order, first order, second order, Pseudo order, half-life. Arrhenius equation, concept of activation energy. Catalysis: Definition, types, and characteristics, Enzyme catalysis.

CO5: To understand basics of liquid and solid state - Intermolecular forces, structures, liquid crystals: Classification, structure of nematic and cholestric phases.

CO6: To study solids, Miller Indices, laws of crystallography, X-ray diffraction by crystals. Derivation of Bragg equation.

CO7: To familiarize learners with colloidal state.

Paper VI Inorganic Chemistry - II

CO1: To understand chemical properties of the noble gases, chemistry of xenon, structure and bonding in xenon compounds.

CO2: To understand types of bonds- ionic, covalent and coordinate, Hydrogen bonding, Vander-Waals forces, Metallic bond Theories of bonding - VBT, VSEPR, MOT with formation and shapes of molecules.

CO3: To understand the basics of nuclear chemistry - Isotopes, Isobars mass, Binding Energy, Packing fraction N/Z ratio, Radio activity, properties of fundamental particles, Artificial transmutation. Applications with respect to trans-uranic elements, carbon dating.

CO4: To study theory of volumetric analysis - Types of titrations, volumetric apparatus, calibration of pipette and burette, indicators used in pH - titrations, oxidizing agents used in titrations. Theory of internal, external and self-indicators for redox titration.

(Organic Chemistry) Paper IX

CO1: To understand structure, reactivity, methods of preparation and chemical reactions of different types of compounds - alcohols, Phenols, aldehydes-ketones, amines and carboxylic acids.

CO2: To study named reactions- Pinacol-Pinacolone rearrangement, Fries Rearrangement, Claisen Rearrangement, Gatterman Synthesis and Reimer Tiemann Reaction, Baeyer-Villeger Oxidation, Benzoin, Aldol Knoenenagel condensations, Mannich Reactions. Hoffmann Bromamide Reactions, Gattermann Koch synthesis, Hell-Volhard-Zelinsky Reaction. Regents in organic chemistry – LiAIH4, LTA, PTC.

CO3: To understand the basic functional group transformations, aromatic electrophilic substitution reactions, nucleophilic additions.

(Physical Chemistry-I) Paper X

CO1: To understand the basic concepts in thermodynamics.

CO2: To understand the laws of thermodynamics and terms like W, q, du and dH for the expansion of ideal gases under isothermal and adiabatic conditions for reversible process, Hess's law.

CO3: To study Carnot cycle, its applications, concept of entropy, Gibbs and Helmholtz Functions, Criteria for thermodynamic equilibrium and spontaneity, their advantage over entropy change. Variation A with P, V and T.

CO4: To understand equilibrium constant and free energy - law of mass action, Le Chatelier's principle, Reaction isotherm and reaction isochore, Clapeyron equation, Clausius-Clapeyron equation.

(Physical Chemistry-II) Paper XIV

CO1: To study the basic terms and laws- Henry law, Raoults law in phase equilibrium and their applications.

CO2: To understand different systems- Water, Pb-Ag, Mg-Zn, FeCl3-H2O, phenol-water, trimethyl amine - water, nicotine- water system, acetonedry ice

CO3: To understand the concept of ideal behavior and deviations from ideality.

CO4: To understand the concept of conductivity and its types, Kohlrausch's law, Arrhenius Theory of Electrolyte Dissociation, Ostwald's dilution law, Transport number: and its determination, Conductometric titrations. 87

CO5: To familiarize with types of reversible electrodes, Nernst Equation, Cell E.M.F., single electrode potential, Reference electrodes, Electro-chemical series, Electrolytic and galvanic cells, types of cells, Thermodynamic quantities of cell reactions, Concepts - pH, pKa and their determination, Buffers- types, and mechanism of action, Henderson- Hasselbalch equation. Corrosion: Concept, types and electrochemical theory.

(Inorganic Chemistry) Paper XIII

CO1: To familiarize students with transition elements, lanthanides and actinides with reference to characteristics, position in periodic table and variation in periodic properties.

CO2: To understand concepts and theories in coordination compounds - Werner's coordination theory, EAN rule, VBT, isomerism, chelates.

CO3: To understand the concepts of acids and bases - Arrhenius, BronstedLawry, Lux-Flood, Solvent System and Lewis Concept of Acids and Bases

CO4: To study chemical reaction in non-aqueous solvents.

Paper XVII Physical Chemistry

CO1: To understand concepts in Quantum Mechanics - Black body radiation, Planck's radiation law, photoelectric effect, Bohr's modes of hydrogen atom, Compton Effect. De Broglie Hypothesis, Heisenberg's uncertainty principle, Harmiltonian operator, Schrödinger wave equation postulates of quantum mechanics. Schrödinger wave equation for H-atom.
CO2: To study the basics of spectroscopy - Electromagnetic radiation, regions of the spectrum, Born-Oppenheimer approximation, Rotational Spectrum - Diatomic molecules, energy levels of a rigid rotor (semi classical principles), selection rule, rotational spectra of rigid diatomic molecule, determination of bond length.

CO3: To understand photochemistry - Photochemical processes, laws of photochemistry, Grothus - Drapper law, Stark-Einstein law, Jablonsiki diagram qualitative description of fluorescence, phosphorescence, nonradiative processes, quantum yield and photosensitized reactions.

CO4: To study some physical properties and their relation with the assingment of molecular structure- Optical activity, dipole moment, magnetic property.

CO5: To introduce nano-materials - Properties, methods of synthesis and applications.

CO6: To enable students to solve numerical problems.

Paper XVIII Organic Chemistry

CO1: To introduce learners to organic spectroscopy - 1H NMR, shielding and deshielding, chemical shifts, interpretation of PMR spectra of simple organic molecules, combined problems on UV, IR and PMR spectroscopic techniques.

CO2: To familiarize students with organometallic compounds - Structure, methods of synthesis and synthetic applications of Grignard reagents, Organozinc and organolithium compounds. **CO3**: To understand organic synthesis via enolates - Active methylene compounds, Claisen condensation, Acidity of alpha hydrogen and its synthetic applications.

CO4: To introduce fats, oils and detergents - Saponification value, iodine value, and acid value. Detergents preparation of sodium alkyl sulphonate, alkyl benzene sulphonate, and amide sulphonate, cleansing action of detergent.

Paper XIX Organic Chemistry

CO1: To understand nature of metal-ligand bonding in transition metal complexes - crystal field theory with respect to octahedral, tetrahedral and square planer complex.

CO2: To familiarize with electronic spectra of transition metal complexes.

CO3: To introduce organo metallic compounds - classification, nomenclature, synthesis and reactions.

CO4: To study the roles and biological functions of metals in biological systems.

CO5: To introduce chromatography - types, classification and applications.

Paper No. XVII Organic Chemistry

CO1: Curriculum benefits to study the heterocyclic compounds in details, their aromatic characters and importance in medicinal chemistry, structure elucidation of five and six member heterocyclic compounds using molecular orbital theory.

CO2: To understand synthesis and properties of some five and six member heterocyclic compounds.

CO3: To study carbohydrate chemistry and its importance.

CO4: To understand synthesis and properties of some polymers, polymerization reactions.

CO5: To know constitution, classification, synthesis and properties of some dyes.

CO6: To understand constitution, classification, synthesis, properties and applications of some drugs.

PSOs of M.Sc. Chemistry

PSO01: Students can apply the knowledge of basic concepts to advance studies- named reactions, reagents, heterocyclic compounds, natural products in living organisms and their roles.

PSO02: Students understand the subject deeply and can develop appropriate approach towards the subject.

PSO03: Students learn the handling of instruments.

PSO04: Students learn different spectral methods of analysis for structure elucidation.

PSO05: Students acquire the knowledge of drugs design and retro-synthetic approach.

PSO06: Performing reactions, monitoring them independently and characterizing the products which are the foundations of industries.

PSO07: The learners get the basic understandings of research- data generation, collection, conclusions and report writing.

PSO08: The programme makes students able to qualify competitive exams such as GATE, SET, NET-JRP.

PSO09: Students become able to get jobs in industries, laboratories and teaching profession.

PSO10: Students are able to get highly responsible positions in scientific, industrial and academic sectors.

Program specific objectives:

1. Provide Advanced Knowledge: The program aims to provide the core/basic concepts in chemistry, including organic, inorganic, physical, and analytical chemistry, while also exploring interdisciplinary areas.

- 2. Provide the Research Skills: Students will get the research-oriented environment in the department and learn the laboratory techniques and methodologies required in the research.
- 3. Create Analytical Thinking: We will encourage the students to create analytical thinking and encourage to approach complex challenges with creativity and scientific reasoning.
- 4. Ability of Communication and Collaboration: In the program, students will work on their abilities to present and discuss scientific ideas clearly and work collaboratively with others

Course Name: Analytical Chemistry-1

Course outcomes: on completion of this course student will be able to:

- 1. Understand why analytical measurements need to be made.
- 2. Understand the importance of producing reliable results.
- 3. define what is meant by 'quality'.
- 4. understand the importance of sampling and be able to identify different types of samples.
- 5. Understand the basics of each separation technique, viz. crystallization, sublimation, distillation, and extraction.
- 6. understand the theory of liquid-liquid extraction.
- 7. understand the theory of solid-phase extraction.
- 8. understand basic chromatographic Techniques for the separation of constituents of mixtures
- 9. understand the rate and plate theory of chromatography.

Course Name: Inorganic Chemistry-1

Course outcomes: On completion of this course, the students will be able:

- 1. To understand the stability constant of metal complex, stepwise and overall formation constant.
- 2. To describe the factors affecting for stability of metal complexes.

- 3. To identify and describe techniques for determination of formation constant of metal complexes.
- 4. To analyse the structural and stereoisomerism of metal complexes and their classifications.
- 5. To understand the mechanism in metal complexes.
- 6. To understand the acid and base hydrolysis of the metal complex and their mechanism.
- 7. To understand the role of trans effect in the synthesis of the platinum complex.
- 8. To distinguish between the inner and outer sphere mechanism of electron transfer reaction of metal complexes.
- 9. To memorise the function of essential and trace elements in biological systems.
- 10. To describe the structure and function of metalloporphyrins, Hemoglobin, cytochrome and hemocyanine.
- 11. To understand the electron transfer, respiration and photosynthesis of biological systems.
- 12. To know the diseases caused by deficiencies of Fe, Zn, Cu and Mn ions in biological systems and remedies for them.

Course Name: Organic Chemistry-1

Course outcomes Student will be able to

- 1. Understand the chemical and molecular processes in organic chemical reactions.
- 2. Study the concept of Alternant and non-alternant hydrocarbons
- 3. Study the energy levels of n-molecular orbitals
- 4. Explain the concept of aromaticity
- 5. Know the types of mechanism in organic reactions
- 7. Understand the correlation between the thermodynamic and kinetic parameters
- 8. Study the different intermediates involved in organic chemical reactions
- 9. Learn the various types of aliphatic nucleophilic substitution reactions

Course Name: Physical Chemistry-1

Course outcomes: Students will be able

- 1. To understand the fundamental principles of chemical kinetics.
- 2. To learn different theories of chemical kinetics.
- 3. To understand concept of fast and slow reactions based on their rate constant and reaction rates.
- 4. To understand the concept of thermodynamics.
- 5.To apply critical thinking and problem solving skills to solve problem related to thermodynamics and chemical kinetics.
- 6. To understand the basic concept of micelles.

Course Name: Inorganic Chemistry Laboratory Course-1

Course outcomes: On completion of this course, the students will be able:

- 1. To understand the difference between qualitative and quantitative analysis.
- 2. To understand the concept of qualitative and quantitative chemical analysis and their chemical reactions and constituents.
- 3. To understand the design and development of experimental setup and procedure, for volumetric and gravimetric analysis of chemical compounds.
- 4. To identify constituents of chemicals qualitatively and quantitively 5.
- 6. To understand the importance of accuracy and precision in the measurement of chemical analysis
- 7. To apply grasped knowledge to solve chemical analysis related issues of stakeholder.
- 8.To understand importance of laboratory skills, precaution, accuracy and precision.
- 9. To separate and identify acidic & basic radicals from chemical sample.
- 10. To apply the grasped knowledge in chemical analysis of unknown sample.

Course Name: Organic Chemistry Laboratory Course-1

Learning Outcome: On completion of this course, the students will be able

- 1. Understand the separation and purification techniques
- 2. Understand various step involved in identification of organic compounds
- 3. Understand the handling of equipment required for the analysis of organic compounds. 4. Understand the stichometry of the reaction
- 5. To check the purity of compound using TLC
- 6. To check the Melting point

Course Name: Physical Chemistry Laboratory Course-1

Course Outcomes: On completion of this course, the students will be able:

- 1.To analyse sample by various instrumental techniques
- 2.To handle electronic equipment
- 3.To understand laboratory skills, precaution, accuracy and precision.
- 4.To design experimental procedure for analysis important chemicals &samples
- 5.To understand the physical properties of chemicals
- 6.To distinguish accuracy of results in instrumental and non-instrumental methods

Course Name: Analytical Chemistry-2

Course outcomes: after completion of course students will be able

- 1. to define the differents regions of an electromagnetic radiation.
- 2. To understand the interaction/transition of the matter with different region of electromagnetic radiation.
- 3. To define basic elements of spectroscopic technique.
- 4. To calculate the wavelength at which a molecule show maximum absorption of UV- visible radiation.

- 5. To interpret the ultraviolet-visible spectrum.
- 6. To define the bands in the IR spectrum due to fundamental frequency, and overtones, combination bands and Fermi resonance
- 7. to define the vibrational frquency of a particular bond
- 8. to calculate the vibrational frquency of a particular bond
- 9. To interpret the infrared spectrum
- 10. to predict the structure using UV-visible and IR spectrum

Course Name: Inorganic Chemistry-2

Learning outcomes: On completion of this course, the students will be able:

- 1. To understand how to perform symmetry operation to chemical molecules.
- 2. To identify the symmetry elements based on structure of molecules.
- 3. To apply the knowledge of concept of symmetry element and operations and centre, axis and planes symmetries possessed by an object/orbitals/molecule.
- 4. To identify & classify of point group of molecules
- 5. To apply knowledge of group theory to understand properties of molecules, character of matrix, product of symmetry operations, reducible and irreducible representations.
- 6. To use knowledge of character of representations to designate appropriate Mulliken symbols.
- 7. To calculate the appearance of irreducible representation by correlating relation between IRs, RRs and order of group.
- 8. To evaluation of predict the product of symmetric and asymmetric representations and evaluate new irreducible representation.
- 9. To identify modes of molecular vibrations of chemical compounds.

Course Name: Organic Chemistry-2

- 1.Understand the concept of Stereochemistry
- 2.Know the stereochemical notations

3. Know the difference between stereospecific and stereoselective reactions

4. Study the stereochemistry of some Chiral molecules like Biphenyls, allenes and Spiranes.

5. Acquire the knowledge of various methods of resolution

6. Understand stereochemistry of the compounds containing Nitrogen, Sulphur and phosphorous

7. Know about enantiomeric and diastereomeric excess

Course Name: Physical Chemistry-2

Course outcomes: after completion of the course Students will be able to

- 1. To understand the concept of ionic equilibria, dissociation constant, buffer solution and solubility products.
- 2. To calculate the dissociation constant, pH, POH, pKa, and pKb of acidic and basic solutions.
- 3. To understand the theories of electrolytes, electrocapillary phenomenon and its properties.
- 4. To understand the concept of surface tension of liquid and curved surfaces.

Course Name: Drug Chemistry

Course Outcome: Students will be able to -

- 1. understand about oxidation reactions in organic chemistry using different reagents.
- 2. know about oxidative cleavage of carbon-carbon double bonds using different reagents.
- 3. know about catalytic reduction, reduction using hydride ion transfer reagents and so on.
- 4. predict the product by the action of different oxidizing and reducing agents.

Course Name: Research methodology

Course outcomes: On completion of this course, the students will be able to:

- 1. Understand the basic concepts of research methodology
- 2. know recent trends in chemical research.
- 3. Acquire the fundamental knowledge of various characterization techniques.

4. Apply of characterization techniques viz.; XRD, SEM, TEM, UV, IR, NMR and Mass spectrometry in research

Semester: II

Course Name: Analytical Chemistry-3

Course outcomes: after completion of this course students will be able

- 1. To understand the basic principle of different chromatographic Techniques for the separation of constituents of mixtures
- 2. To understand the theory, instrumentation, working procedure and application as well as limitations of TLC
- 3. To understand the theory, instrumentation, working procedure and application as well as limitations of liquid-liquid partition chromatography
- 4. To understand the theory, instrumentation, working procedure and application as well as limitations of column chromatography
- 5. To understand the theory, instrumentation, working procedure and application as well as limitations of gel permeation chromatography
- 6. To understand the theory, instrumentation, working procedure and application as well as limitations of ion exchange chromatography
- 7. To understand theory, instrumentation, working procedure and application as well as limitations of high-performance liquid chromatography
- 8. To understand the theory, instrumentation, working procedure and application as well as limitations of gas chromatography
- 9. To be able to select a particular chromatographic technique for separation of the constituents from a mixture.
- 10 To be aware of the various problems associated with different chromatographic techniques.

Course Name: Inorganic Chemistry-3

Course outcomes: On completion of this course, the students will be able:

- 1. To define and classify metal carbonyls
- 2. To design procedure to synthesize mononuclear and binuclear metal carbonyl
- 3. To understand the properties and structure metal carbonyl.
- 4. To apply the concept of effective atomic number for prediction of stability of metal. carbonyls.
- 5. To synthesize the nitrosyl halides and their properties.
- 6. To understand the structure and properties and application of sodium nitroprusside.
- 7. To apply the knowledge of EAN and 18 electron rules metal nitrosyl compound of transition elements
- 8. To understand the d orbital splitting in different environment.
- 9. To understand factor affecting crystal field splitting energy
- 10. To describe Jahn Teller distortion and CFSE for high and low spin complexes

Course Name: Organic Chemistry-3

Course Objectives Students will be able to

- 1 Understand various reactions involved in addition to C-C and C-O double bond
- 2 Acquire the stereochemical aspects in addition reaction
- 3 Demonstrate/apply the concepts involved in an elimination reaction
- 4 Understand the mechanism of various named reactions

Course Name: Physical Chemistry-3

Course Outcomes: Students will be able

- To understand the fundamental principles of quantum mechanics.
 To solve the Schrodinger equations, calculate wave function and energy levels.
- 3. To understand the postulates of quantum mechanics.
- 4. To understand the Huckel Molecular Theory of conjugated systems and its applications.

Course Name: Inorganic Chemistry Laboratory Course -II

Learning outcomes: On completion of this course, the students will be able:

- 1. To design experimental procedure for synthesis of metal complexes, calculation of conversion factors and characterization of synthesized coordination complexes compounds.
- 2. To understand, which skills are required in chemical laboratory.
- 3. To understand importance of accuracy and precision in chemical analysis
- 4. To design the experimental procedure for separation and estimation of metals from mixture solution
- 5. To estimate the amount of constituents of chemicals by volumetric and gravimetric methods.
- 6. To apply grasped knowledge for finding purity of chemicals.

Course Name: Organic Chemistry Laboratory Course-II

Course Outcomes

- 1. To Perform/demonstrate the techniques involved in organic binary mixture separation specially solid- liquid mixture.
- 2. To perform distillation techniques for purification of organic compounds.
- 3. To use/ apply the technique of separation, crystallization derivatization and function Group detection.
- 4. To use the methods for the preparation of useful compounds using named reaction

Course Name: Physical Chemistry Laboratory Course -II

Course Outcome: On completion of this course, the students will be able:

- 1. To analyse the sample by various instrumental techniques
- 2.To handle electronic equipment
- 3. To understand laboratory skills, precaution, accuracy and precision.
- 4. To design experimental procedures for analysis of important chemicals & samples
- 5.To understand the physical properties of chemicals

6.To distinguish the accuracy of results in instrumental and non-instrumental methods

Course Name: Analytical Chemistry-4

Course outcomes:

- 1. To be able to define the factors that determine chemical shift
- To be able to locate chemical shift positions of 'H attached to common functional groups. 3.
 To be able to define the chracteristic chemical shifts for different protons.
- 4. To be able to predict the structure of a compound using NMR data/spectrum.
- 5. To be able to predict the structure of a compound using UV-visible, IR, and NMR data/spectrum.
- 6. To understand the principle, instrumentation and applications of mass spectrometry.
- 7. To be able to define different ionization techniques in mass spectrometry.
- 8. To understand the fragmentation processes in mass spectrometry.
- 9. To be able to define the molecular formula from molecular ion peaks.
- 10 To understand the principle, instrumentation and applications of atomic absorption spectroscopy, flame emission spectroscopy, electron spectroscopy for chemical analysis, Auger electron spectroscopy and ultraviolet photoelectron spectroscopy

Course Name: Inorganic Chemistry-4

Learning outcomes: On completion of this course, the students will be able:

- 1. To describe the generation of spectroscopic term symbols, ground state term & total term symbols, significance of spin multiplicities.
- 2. To use of microstates for representation electron representations
- 3. To sketch term energy level diagram.
- 4. To understand the designation of spin multiplicities to ligand field excited states of high and low spin complex.
- 5. To interpret A.E, T symmetric label for electronic configurations.

- 6. To construct correlation diagram of various electronic configurations
- 7. To analyse and interpretation Orgel diagram and Tanabe Sugano diagram..
- 8. To interpret electronic spectra of transition metal complexes.
- 9. To calculate the D_{q} and β parameters of complex.
- 10. To understand the Lewis and Bronsted Concept of Acids and Bases.
- 11. To apply knowledge of VBT & VSEPR theory for prediction structure of molecules

Course Name: Organic Chemistry-4

Course Objectives Student will be able to

- 1 Understand aromatic electrophilic substitution reactions
- 2 Acquire the knowledge of directing nature of functional groups
- 3 Know directing nature of attacking electrophiles on various aromatics
- 4 Understand the requirement for aromatic nucleophilic substitution reactions
- 5 Describe the basic concepts in molecular rearrangement
- 6 Acquire the knowledge of migratory aptitude

Course Name: Physical Chemistry-4

Course outcomes:

- 1. To understand the basic concepts of phase rule
- 2. To analyse and interpret phase diagrams for single and multicomponent systems.
- 3. To understand the basic concept of crystallography.
- 4. To understand the basic concepts of photochemistry, their different theories and possible applications.

Course Name: Drug Chemistry-2

Course Outcomes:

- 1. To provide details about Drugs, their characterization and classification
- To know about sources of drugs, historical development and other parameters such as Lead discovery, lead development; Pharmacological/Microbiological/Biochemical evaluation; Clinical trials; and Pharmacokinetic
- 3. To provide information about dosage forms, drug toxicity and it's prevention

Paper No.313. Str. Elucidation by spectral methods

- **CO1**: To give the students a thorough knowledge of the different types of spectroscopic techniques such as UV, IR , NMR , mass C-13 and combined problems on the basis these data.
- **CO2**: To impart a thorough knowledge of the fundamentals of microwave, infrared ,Raman, electronic and magnetic resonance spectroscopy.

CO3: To learn the instrumentation and application of massbaur, ESR, spectroscopic techniques.

Paper No.CHE-314. Organic synthesis

- **CO1**: To impart a thorough knowledge of different reagents and organometallic compounds used in organic synthesis and their application inorganic synthesis.
- **CO2**: This course will give inside into the processes involved in oxidation, reduction of reactions.
- **CO3**: This course gives student knowledge about the predict the products of different chemical reactions.

Paper No. CHE-315. Symmetric synthesis and Bio organic chemistry

- **CO1**: This course gives students knowledge about the synthesis of different enzymes and coenzymes and their analytical study.
- **CO2**: To understand the functions and applications of bio organic compounds supramolecular and biomimic chemistry to students.

CO3: To have exposure to various emerging new areas of a symmetric synthesis in organic chemistry.

Paper No.CHE-316. Photo, free radical and pericyclic reactions.

- **CO1**: To enable the students to learn about types of pericyclic reactions and its applications.
- CO2: To understand the importance of free radicals carbon and carbonations in chemistry.
- **CO3**: This course gives students knowledge about concept of photochemistry and different photochemical reactions and applications.

Paper No.CHEO-417. organic synthesis retrosynthetic approach

- **CO1**: Understanding the need of modern tools in a chemical science is such as carbon- carbon disconnection and reactions.
- **CO2**: Interpretation of collected information and use of information ring synthesis with applications.
- **CO3**: This course gives diddle knowledge to the student about organic synthesis and retro synthesis approach.

Paper No. CHEO-418 Advance organic and heterocyclic chemistry

- CO1: To enable the students to understand and study organic reaction mechanisms.
- CO2: To acquaint knowledge on organic named reactions and their application in synthesis.
- **CO3**: To enable the students to understand and study different types rearrangement with mechanism.
- **CO4**: To acquaint knowledge on 4, 5 and 6 member heterocyclic compounds it synthesis and reactions.

Paper No.CHEO-419 Chemistry of natural products

- **CO1**: This course discussed about the synthesis and properties of this natural products and their importance.
- **CO2**: This course also discusses details of synthesis structure of some specific molecules such as terpenoids, alkaloids steroids , flavones anthocyanin and biogenesis.

Paper No CHEO-420 Medicinal chemistry

- **CO1**: To enable the students to understand and study different types of medicinal drugs, it's activity and their importance for human being.
- **CO2** : This course discussed about the synthesis and properties of medicinal drugs and their importance.
- CO3: To understand effects and side effect of different types of drugs.
- CO4: To enable the students to know about pharmaco kinetics and pharmacodynamics.

Lab course paper No. 421,422,423,424.

- **CO1**: Students will gain and understanding of methods of analysis related to chemical analysis such a detection of function groups physical constants monitoring reaction and preparation derivatives.
- CO2: the students will develop basics skills in the techniques of crystallization, distillation, TLC.
- **CO3**: To learn the separation and purification of an organic mixture by chemical/ solvent separation methods.
- **CO4**: Enable the students for synthesis of organic compounds its characterization and determination of physical constants through project which creates research skills.

DEPARTMENT OF COMPUTER SCIENCE

B. Sc. Computer Science

Program Outcomes:

Knowledge outcomes: After completing B.Sc. Computer Science Program students will be able to: PO1: To develop problem solving abilities using a computer.;

PO2: To prepare necessary knowledge base for research and development in Computer Science. Skill outcomes: After completing B.Sc. Computer Science Program students will be able to:

PO3: To build the necessary skill set and analytical abilities for developing computer based solutions for real life problems.

PO4: communicate scientific information in a clear and concise manner both orally and in writing. PO5: To train students in professional skills related to Software Industry.

Program Specific Outcomes

PSO1: Students get knowledge and training of technical subjects so that they will be technical professional by learning C programming, Relational Database Management, Data Structure, Software Engineering, Graphics, Java, PHP, Networking, Theoretical Computer Science, System programming, Object Oriented Software Engineering.

PSO2: Students understand the concepts of software application and projects.

PSO3: Students understand the computer subjects with demonstration of all programming and theoretical concepts with the use of ICT.

PSO4: Development of in-house applications in terms of projects

PSO5: Students will build up programming, analytical and logical thinking abilities.

PS06: Aware them to publish their work in reputed journals

PS07: To make them employable according to current demand of IT Industry and responsible citizen.

Course Outcome (2024-25

B.Sc-F.Y.

CS-(Basic of computer):

Knowledge of computer fundamental, CPU, and its functionalities.

Understanding of block diagram of hardware peripherals.

Understanding the concept of software and its types.

Understanding the number system conversion.

Understanding the computer based application such as email and video conferencing.

CS- (Programming in C) :

Gain knowledge of system software, program and process.

Understand types of operating system, basic function of O.S and evolution of O.S.

Understanding the concept of Process, Process Control Block and Threads.

Understand the CPU scheduling Non –Pre-emptive and Pre-emptive scheduling algorithm.

Understand the concept of Synchronization and Deadlock.

B.Sc-S.Y.

(Advance C programming) & (Data Structure):
Understanding of basic syntax of c program and data types in c language.
Understanding of declaration of function in c language.
Understanding of Algorithm and its working.
Understanding of Multiple types of Data structure Linear and Nonlinear.
(Programming in Cpp) & -(DBMS using SQL):
Understanding of basic syntax of CPP program and data types in CPP language.
Study of classes and object.
Study of basic queries in DBMS.
Study of multiple key in dbms.

B.Sc-T.Y.

(Software Engineering) &(Web Designing or Asp.net):Study of waterfall model, incremental model, spiral model for software development process.Study of documentation and risk analysis.Design webpage using multiple html tag and its properties.Design webpage using css and JavaScript using with properties.

(Data Communication and Networking):

Study of network types LAN, WAN, MAN.Study of network topology for designing network communication.Study of multiple Law in cyber security.(Seminar) -(Project):-

Select any topic for seminar presentation on modern development technology in world.

Design major project on any language.

Department of Environmental Science

Programme Outcomes - B. Sc.

PO1: Scientific temperament: The programme inculcates scientific attitude in the minds of learners in physical, chemical, material, life and mathematical sciences. Students acquire scientific abilities such as logical thinking, problem solving approach, data collection and decision making and apply the same (BL6).

PO2: Basic scientific knowledge: Students acquire scientific knowledge to extract information, formulate and solve problems in a systematic manner (BL6).

PO3: Technical competence and practical skills: Learners acquire skills to handle basic scientific instruments following the general lab safety practices through experimental skills (BL6).

PO4: Creative thinking and numerical ability: It empowers the learners with creative thinking and numerical ability (BL6).

PO5: Environment and sustainability: It provides understanding of current environmental scenario and necessity of sustainability along with solutions. Students are made aware of environment related issues and sustainable technology development (BL3).

PO6: Competency: The programme prepares learners for post graduation and higher education. Students become eligible for appearing to competitive examinations such as MPSC/UPSC and banking (BL6)

Programme Specific Outcomes: B. Sc. Environmental Science

PSO01: Student understands environment related issues (BL2).

PSO02: Students are made aware of environmental pollution (BL2).

PSO03: Students are familiarized with industrial safety and environmental hazards (BL2).

PSO04: Students can apply preventive measures for environmental pollution (BL3).

PSO05: Students are made aware of water, soil and noise pollution (BL3).

PSO06: Students will be able to handle environmental issues related with various kinds of human activities, mostly local and global problems (BL3).

PSO07: Students can apply knowledge for addressing the environmental issues and can find sustainable solutions (BL3).

PSO08: Students understand and apply the knowledge for conservation of natural resources with environmental needs and survival of life (BL3).

PSO09: Students are made aware of environmental issues and need for environmental awareness (BL3).

PSO10: Students can search sustainable and compete in a competitive world (BL3).

PSO11: Students can interpret and analyze quantitative data (BL4).

PSO12: Students can apply theoretical concepts for protecting earth's environment and natural resources on the earth (BL2).

B.Sc First Year ; Semester – I

DSC-1: Foundation of Environment

Course Outcome

After completion of course, students will be able to:

develop the ability to communicate environmental information and ideas logically and concisely in a variety of forms.

provide an understanding of interactions between the components of environment.

Increase an awareness of the importance of living in harmony with the environment.

SEC-1B: E -Waste Management

Course Outcome

After completion of course, students will be able to:

- . 1. Learn about the various aspects of E-waste
- 2. Understand the role of various stakeholders-producers, manufactures etc

IKS-1: Environmental Ethics & Indian Cultural Heritage

Course Outcome

At the conclusion of this class, students will be able to:

Define the concepts central to environmental ethics

Explain and defend one's own ethical standpoint according to these ethical concepts Explain the difference between anthropocentric and non-anthropocentric ethic theories Discriminate and assess claims regarding moral considerability

GE / OE-1: Ecology & Ecosystem Management

Course Outcome

After completion of course, students will be able to:

- 1. Understood the normal ecosystem.
 - 2. Understood the role of ecosystem management for sustenance of environment.
 - 3. Significance of ecosystem management for balanced ecosystem.

B.Sc First Year ; Semester – II

DSC-3: Pollutional Aspects of Environment

Course Outcome

After completion of the course, students should be able to

- 1: Gain knowledge on components of environment and its importance
- 2: Acquired the details about source, types and impacts of pollution
- 3: Know the sampling and analysis of the pollutants of ambient environment
- 4: Understand the various air pollution control measures
- 5: Aware of various polices related to pollution prevention and control

VSC-1B: Municipal Solid Waste Management

Course Outcome

After completion of course, students will be able to understand:

- 1. Learn about systematic solid waste disposal methods
- 2. Learn about energy recovery potential of municipal solid waste.
- 3. Understand the recycle potential of municipal solid waste.

GE / OE-2: Microbial Aspects of Environment

Course Outcome

After completion of course, students will be able to:

The students understood the relationship of microbes to environmental processes and other living organisms.

Students will use the scientific method of inquiry, through the acquisition of scientific knowledge.

The students acquires skill to use microorganisms for mitigation of environmental problems

B. Sc. II Year, Semester III EVS-311: Microbiological aspects of Environment

(TheoryPaper-V)

Course Objectives

Students will be able to know

- 1. Student will know the concept of microbiology, its scope and status in India.
- 2. Students will be able to assess the role of microbiological tools in pollution abatement.
- **3.** Students will be able to know and plan for different bioremediation and phytoremediation techniques for control of pollutants.
- **4.** Student will be able to know the role, regulation of bio-safety protocols and development of transgenic research in India.

Course Outcome

Students should able to:

1. Define microbiology and its functionality along with stability of microbiology.

- **2.** Describe various types of microbiological aspects and their role in restoration of ecosystems.
- **3.** Examine nature and status of microorganisms

B. Sc. II Year, Semester III

EVS-312: Soil, Health and remediation measures

(TheoryPaper-VI)

Course Objectives:

- **a.** The students are expected to gain theoretical as well as practical knowledge on different aspects of soil.
- b. To assess the current status soils health.
- **c.** Soil testing is developed to promote soil test based on nutrient management.
- d. To reduce contaminants levels which are suitable for use

Course Outcomes:

Students should able to:

- a. Students will be able to define the basic concepts of soil and soil health.
- b. Students will able to explain soil health remedies.
- c. Studentswill able to explain physical, chemical and biological properties of soil.
- d. Studentswill able to explain the conservation of soil.

B.Sc. Second Year, Sem III

(Skill Enhancement Course)

EVS-313 -A : Organic Farming

Course Objectives

- To Understand the Concept of Organic Farming.
- To Understand the Scope and Importance of Organic Farming.
- To Ensure Safe and Healthy Food production.

Learning Outcomes

- Helps in understanding the Role of an Organic Grower.
- Helps in understanding the Scope and Opportunities of Organic Farming.
- Can develop an organic production system

B.Sc. Second Year, Sem III

(Skill Enhancement Course)

EVS-313-B: Agricultural Waste Management

Periods- 30

Course Objectives

- To Understand the Concept of Agricultural waste management.
- To Understand the Scope and Importance of Agricultural waste.
- To Ensure Safe and Healthy Food production.

Learning Outcomes

- Helps in understanding the Role of Management of agricultural waste.
- Helps in understanding the Scope and Opportunities of Agricultural waste management.
- Can develop an organic production system

B. Sc. II Year, Semester IV EVS- 411: Air Pollution control technology

(Theory Paper-VII)

Course Objectives:

1: To familiarize learners with basic concepts and pollution related problems due to time varying fields.

- 2: To write expression for air pollution.
- **3:** To understand physiological and psychological effects of all types of pollution.
- 4: To understand health impacts of different pollutions.

5: To understand kinds of environmental pollution with the help of air pollution study.

Course Outcomes

Students should able to:

- 1.To know the concept of air pollution
- 2. How to estimate the quality of air pollutants.
- 3. Able to develop the control technologies.

B. Sc. II Year, Semester IV

EVS- 412: Water Management

(Theory Paper-VIII)

Course Objectives

After studying the course, learner will be able to.....

1: To understand the availability and occurrence of fresh water.

2: To understand the uses of water and problems related water resources management.

3: To introduce the various methods and techniques for application in integrated water resources.

Course Outcome

Students should able to:

- 1. Define Water management and its functionality along with importance.
- 2. Describe various types of water management aspects and their role in restoration of ecosystems.
- 3. To know the course occurrence, use, management and conservation of water and resources.

B.Sc. Second Year, Semester IV

(Skill Enhancement Course)

EVS-413-A: Air Quality Management

Course Objectives

- To analyze the Air quality.
- To make student aware about the importance of Air quality.
- To Understand the Scope and Importance of Air quality.

Learning Outcomes

- Helps in understanding the Role of Management of Air quality.
- Helps in understanding the Scope and Opportunities in Health & Environment regarding Air quality.
- Can develop awareness in society system.

B.Sc. Second Year, Semester IV

(Skill Enhancement Course)

EVS-413-B: Water Quality Management

Course Objectives

- To analyze the water quality.
- To make student aware about the importance of water quality.
- To Understand the Scope and Importance of water quality.

Learning Outcomes

- Helps in understanding the Role of Management of agricultural waste.
- Helps in understanding the Scope and Opportunities in Health & Agricultural
- Can develop awareness in society system

B. Sc. III Year, Semester V EVS-511: Water Pollution

(Theory Paper-IX)

Course Objectives

Students will be able to know

After studying the course, learners will be able to....

- 1: To know the basic concepts of water pollution.
- 2: To understand the water pollution.
- 3: To understand effects of water pollution.
- 4: To understand health impacts of water pollution

Course Outcome

Students should able to:

- 4. Student will able to define water pollution.
- 5. Discuss the causes of water pollution.
- 6. Explain the types of water pollution.
- 7. State the disease caused by polluted water.

B. Sc. III Year, Semester V EVS-512: Treatment Technology

(Theory Paper-X)

Course Objectives

Students will be able to know

After studying the course, learners will be able to.....

- 1: To know the basic concepts of treatment technology.
- 2: To understand the waste water treatment methods.
- 3: To understand impacts of waste water.

Course Outcome

Students should able to:

- a. Students will be able to define the basic concepts of waste water treatment.
- b. Will able to explain sewage treatment methods.
- c. Will able to explain waste purification method.

B. Sc. III Year, Semester V (Skill Enhancement Course)

EVS-513-A: Impact of Water Pollution on Ecosystems

Course Objectives:

- 1. **Understanding Water Pollution**: To provide students with a comprehensive understanding of the causes, sources, and types of water pollution, including chemical, biological, and physical contaminants.
- 2. Assessing Water Quality: To equip students with the knowledge and skills necessary to assess and monitor water quality through the measurement of key parameters such as pH, dissolved oxygen, turbidity, and pollutant levels.
- 3. **Analyzing Ecological Impacts**: To enable students to analyze the ecological impacts of water pollution on aquatic and terrestrial ecosystems, including effects on biodiversity, food webs, and ecosystem services.
- 4. **Exploring Mitigation Strategies**: To explore various strategies for mitigating and remediating water pollution, including preventive measures, such as regulatory frameworks and sustainable practices, as well as remediation techniques like wastewater treatment and habitat restoration

Learning Outcomes:

- 1. **Comprehensive Understanding**: Students will demonstrate a comprehensive understanding of the causes, sources, and types of water pollution, and its effects on ecosystems and human health.
- 2. **Practical Skills**: Students will develop practical skills in water quality assessment and monitoring, including the ability to measure and interpret key parameters to evaluate water quality.
- 3. **Critical Thinking**: Students will critically analyze the ecological impacts of water pollution, evaluating the interconnectedness of ecosystems and the implications for biodiversity and ecosystem functioning.
- 4. **Problem-Solving Skills**: Students will develop problem-solving skills to address water pollution challenges, proposing evidence-based solutions and management strategies to mitigate its impacts on ecosystems.

B. Sc. III Year, Semester V (Skill Enhancement Course)

EVS-513-B: Water and Wastewater Treatment Processes

Course Objectives:

- 1. **Fundamentals Understanding**: To provide a comprehensive understanding of the fundamental principles and processes involved in water and wastewater treatment.
- 2. **Practical Skills Development**: To equip students with practical skills in designing, operating, and maintaining water and wastewater treatment systems.
- 3. Advanced Techniques: To introduce students to advanced treatment technologies and emerging trends in the field.
- 4. **System Design and Operation**: To train students in the design, operation, and optimization of treatment plants.
- 5. **Sustainability Focus**: To emphasize the importance of sustainability, energy efficiency, and resource recovery in water and wastewater treatment processes.

Learning Outcomes:

Upon successful completion of this course, students will be able to:

- 1. Understand Key Processes: Demonstrate a thorough understanding of the physical, chemical, and biological processes involved in water and wastewater treatment.
- 2. **Analyze and Interpret Data**: Analyze water quality data and interpret the results to make informed decisions regarding treatment processes.
- **3. Design Treatment Systems**: Design and evaluate the effectiveness of various water and wastewater treatment systems and technologies.
- 4. **Operate Treatment Equipment**: Operate and troubleshoot common equipment used in water and wastewater treatment plants.

B. Sc. III Year, Semester VI

EVS-611: Environmental Toxicology

(Theory Paper-XI)

Course Objectives

Students will be able to know

After studying the course, learners will be able to.....

- 1: To know the basic concepts of Environmental Toxicology
- 2: To understand remedial measures of toxic substances
- 3: To understand toxicity assessment method

Course Outcome

Students should able to:

- 1. Students will know the basic concepts toxicology.
- 2. Will able to know the occurrence and remedial measures of toxic substances.
- 3. Explain the toxicity assessment method

B. Sc. III Year, Semester VI EVS-612: Industrial and laboratory safety

(Theory Paper-XII)

Course Objectives

Students will be able to know

After studying the course, learners will be able to.....

- 1: To know the basic concepts of Industrial Health and Safety.
- 2. To know the types of hazards and general safety rules
- 3. To know the principles of safety management.

Course Outcome

Students should able to:

- 1. Student will able to define water treatment
- 2. Discuss the waste water pollution.
- 3. Explain the types of waste water.

B. Sc. III Year, Semester VI

EVS- 622: Lab Course 10

(Project work, Industrial Visit Report, Study Tour Report & Seminar)

Project work, Industrial Visit Report,& Seminar

Objective:

- 1. **Project report**: One project: One project has to be completed during the third year as a part of practical paper of sixth semester Lab course 10. The project work is to be allotted during the fifth semester beginning along with the allotment of guide. As a part of project work, a field observation or the experimental work with specific aims and objectives can be given to the candidates. The data collection and preparation of review article on any specific topic by referring recent scientific literature can be a part of project work. The project report is to be submitted in triplicate before the semester end theory and practical examination of sixth semester. There will be 30 marks to the project out of total 50 marks.
- 2. Industrial Visit Report: At least one industrial visit is to be arranged during semester. The industrial visit report is to be submitted along with the project report.
- 3. Study Tour Report: The study tour is to be arranged for understanding the

environment in total. The participation in study tour and industrial visit is compulsory. The study report is to be submitted.

4. Seminar presentation:

B.Sc. Third Year, SEM-VI

(Skill Enhancement Course)

EVS-613-A

ENVIRONMENTAL AUDIT

Course Objectives:

- 1. To provide students with information in order to obtain competencies for environmental auditing.
- 2. To develop ability to plan, execute and document the environmental audit.
- 3. To develop entrepreneurial skills

Course Outcomes:

- 1. Outline the basic principles of EA.
- 2. Understand the activities in environmental auditing.
- 3. Understand the importance of environmental audit.

B.Sc. Third Year, SEM-VI

(Skill Enhancement Course)

EVS-613-B

COMPOSTING FROM SOLID WASTE

Course Objectives:

- 1. To provide a comprehensive understanding of the principles and processes involved in waste management.
- 2. To equip students with practical skills in operating, and minimizing waste.
- 3. To introduce students to advanced technologies and emerging trends in the field.

Learning Outcomes:

Upon successful completion of this course, students will be able to:

- 1. Demonstrate a thorough understanding of the physical, chemical, and biological processes involved in waste management.
- 2. Design and evaluate the effectiveness of various waste management systems and technologies.

3. To emphasize the importance of sustainability and recovery in waste management

Department of Mathematics

Programme Outcomes (POs):

The National Education Policy (NEP) 2020 for India emphasizes several key aspects for Bachelor of Science (B.Sc.) programs, aiming to produce graduates who are not only well-versed in their respective disciplines but also equipped with skills necessary for holistic development and employability. While specific program outcomes may vary between institutions and disciplines within B.Sc. programs, here are some common outcomes aligned with NEP 2020;

PO1. The citizenship and society: Apply broad understanding of ethical and professional skill in science subjects in the context of global, economic, environmental and societal realities while encompassing relevant contemporary issues.

PO2. Environment and sustainability: Apply broad understanding of impact of science subjects in a global, economic, environmental and societal context and demonstrate the knowledge of, and need for sustainable development.

PO3. Ethics: Apply ability to develop sustainable practical solutions for science subject related problems within positive professional and ethical boundaries.

PO4. Individual and team work: Function effectively as a leader and as well as team member in diverse/ multidisciplinary environments.

PO5. Communication: Communicate effectively on complex science subject related activities with the scientific community in particular and with the society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

PO6. Project management and finance: Demonstrate knowledge and understanding of the first principles of science and apply these to one's own work as a member and leader in a team, to complete project in any environment.

PO7. Life-long learning: Recognize the need for lifelong learning and have the ability to engage in independent and life-long learning in the broadest context of technological change.

These program outcomes align with the broader goals of NEP 2020 to transform higher education in India and prepare students for the challenges and opportunities of the 21st century.

Programme Specific Outcomes (PSOs):

On completion of the 03/04 years Degree in B.Sc. (Mathematics) students will be able to:

PSO 1.Disciplinary Knowledge: Bachelor degree in Mathematics is the culmination of in-depth knowledge of Algebra, Calculus, Geometry, differential equations and several other branches of pure and applied mathematics. This also leads to study the related areas..

• PSO 2.Critical thinking and analytical reasoning: The students undergoing this programme acquire ability of critical thinking and logical reasoning and capability of recognizing and distinguishing and various aspects of real life problems.

PSO 3.Problem Solving: The Mathematical knowledge gained by the students through this programme develops an ability to analyse the problems, identify and define appropriate computing requirements for its solutions. This programme enhances students overall developments.

PSO 4. Research related skills: The completing this programme develops the capability of inquiring about appropriate questions relating to the Mathematical concepts in different areas of Mathematics. Ability to pursue advanced studies and research in pure and applied Mathematical sciences

PSO 5.Information/digital Literacy: The completion of this programme will enable the learner to use appropriate software's to solve system of algebraic equations and differential equations.

PSO 6. Self-directed learning: The students completing this programme will develop ability of working independently and to make an in-depth study of various notions of Mathematics.

B.Sc. (Mathematics) First Year (Semester-I and Semester-II)

DSC-1: Calculus

Learning Objectives of the Course:

i) To learn the derivatives of the functions of one variable.

ii) To learn the partial derivatives of the functions.

iii)To learn applications of definite integral for quadrature, rectification and volume of solid of revolution.

Course Outcomes (COs):

After completion of the course, students will be able to -

i) Find derivative of hyperbolic, inverse hyperbolic functions and th derivatives of given functions.

ii) Find the Maclaurin's series expansion of functions.

Find the partial derivatives of functions.

iv) Determine areas of plane regions, length of curves and volume of solid of revolution.

SEC-IA: Combinatorial Mathematics

Learning Objectives of the Course:

1) Understanding of permutations and combinations

ii) Learn the circular permutations.

iii) Learn the division of different things divided into groups.

iv) Learn pigeonhole principle and inclusion-exclusion principle.

Course Outcomes (COs):

After completion of the course, students will be able to -

i) Apply permutations and combinations.

ii) Find the number of circular permutations.

iii) Find the number of ways of selection out of given things.

iv) Apply pigeonhole principle and inclusion-exclusion principle.

This course will be available for the students from other faculty

GE/OF-1: Business Mathematics-I

Learning Objectives of the Course:

i) Learn the concepts of ratio and proportion.

ii) Learn the calculations of retail market, rates and currency conversions.

iii) Learn the various types of discounts.

i) Learn the basics of function, system of equations and profit volume analysis.

Course Outcomes (COs):

After completion of the course, students will be able to -

1) Apply knowledge of ratios and proportions.

ii) Apply currency and discounts to business.

iii) Identify the functions and linear functions.

iv) Apply the identified functions to cost and profit.

DSC-3: Differential Equations

Learning Objectives of the Course:

i) Learn the first order linear differential equations.
ii) Identify and solve the exact differential equations.

iii) Learn the general and short method of solution.

iv) Learn linear homogeneous differential equations

Course Outcomes (COs):

After completion of the course, students will be able to -

ii) Determine the solution of exact differential equations.

Determine the solution of linear equations with constant coefficient using general and short method.

iv) Determine the solution of linear homogeneous differential equations.

VSC-1A: Financial Accounting

Learning Objectives of the Course:

i) Understanding of accounting and financial terminology.

ii) Learn the financial transactions.

iii) Assess the financial performance of the company.

Course Outcomes (COS):

After completion of the course, students will be able to -

i) Apply the basic accounting and financial terminology.

ii) Perform the financial transactions.

Use the financial statements to assess a company's performance.

This course will be available for the students from other faculty

GE/OF-2: Matrices

Learning Objectives of the Course:

1) Learn the fundamentals of matrices.

ii) Determine the determinat of square matrix and minors of matrix.

ii) Perform the operation on matrices and study its properties.

iv) Identify the rank of matrix and solve the system of equations

Course Outcomes (COs):

After completion of the course, students will be able to-

i) Apply the operations of matrices.

ii) Apply the properties of matrices.

iii) Find the determinant of square matrix and minors.

iv) Solve system of equations

B.Sc. (Mathematics) Second Year (Semester-III and Semester-IV)

B.Sc.Second Year (Semester-III)

Discipline Specific Courses

Course Code: MAT-301

Course Name: Differential Equations

Course Objectives:

Student will learn the basic methods of finding solutions of differential equations.

Course Outcomes:

COI: Determine solution of first order linear differential equation

CO2: Determine solution of exact differential equation

CO3: Determine solution of linear equation with constant coefficient using general and short method

CO4: Determine solution of linear homogeneous differential equation

Course Code: MAT-302

Course Name: Laplace and Fourier Transforms

Course Objectives:

Student will learn the fundamental properties of Laplace and Fourier transforms.

Course Outcomes:

CO1: Determine Laplace transform for various functions and understand the properties of Laplace transforms

CO2: Determine inverse Laplace transform, properties of inverse Laplace Transform, and solve the problems using convolution theorem

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CO3: Determine Fourier transform and understand the properties of Fourier transform, Fourier sine and cosine transforms

CO4: Apply Laplace transform to find solutions of differential equations.

Skill Enhancement Courses

Course Code: MAT-303

Course Name: Mechanics-1

Course Objectives:

Students will be able to describe forces, resultant of forces, vector moment of forces, moment of couple, laws and rules

Course Outcomes:

CO1: Describe different types of forces, triangle law of forces, Parallelogram of forces, resultant of forces, sine rule and cosine rule

CO2: Explain resultant of several co-planar forces, equation of the line of action of the resultant, equilibrium of a rigid body under three co-planar forces

CO3: Explain Lami's theorem and polygon of forces

CO4: Explain vector moment of a force and vector moment of couple and describe basic concepts of centre of gravity and its applications

B.Sc. Second Year (Semester-IV)

Discipline Specific Courses

Course Code: MAT-401

Course Name: Partial Differential Equations

Course Objectives:

Student will learn the methods of finding solutions of partial differential equations.

Course Outcomes:

CO1: Solve Lagrange's equation

CO2: Find different types of solutions like complete integral, Singular integral and general integral

CO3: Determine the solution of partial differential equations using Charpit's Method

CO4: Describe Monge's Method, Method of transformation

B.Sc. Second Year (Semester-IV)

Discipline Specific Courses

Course Code: MAT-401

Course Name: Partial Differential Equations

Course Objectives:

Student will learn the methods of finding solutions of partial differential equations.

Course Outcomes:

CO1: Solve Lagrange's equation

CO2: Find different types of solutions like complete integral, Singular integral and general integral

CO3: Determine the solution of partial differential equations using Charpit's Method

CO4: Describe Monge's Method, Method of transformation

B.Sc. Second Year (Semester-IV)

Discipline Specific Courses

Course Code: MAT-401

Course Name: Partial Differential Equations

Course Objectives:

Student will learn the methods of finding solutions of partial differential equations.

Course Outcomes:

CO1: Solve Lagrange's equation

CO2: Find different types of solutions like complete integral, Singular integral and general integral

CO3: Determine the solution of partial differential equations using Charpit's Method

CO4: Describe Monge's Method, Method of transformation

Curriculum of B.A./B.Sc. (Mathematics) Third Year (Semester-V & Semester-VI) under CBC&GS pattern

B.A./B.Sc.(Mathematics) Third Year (Semester-V)

Course Code: MAT501

Course Name: Real Analysis-1 [Core course]

Course Objectives

- 1. To introduce the basic concepts and notions of real analysis
- 2. To learn the basic concepts of Sequence and Series of Real numbers
- 3. To acquire the skill of finding the jacobians

Course Outcomes :

COI:Define and recognize bounded, convergent, divergent, Cauchy, and monotonic sequences.

CO2:Define and recognize convergent, divergent, alternating series and limit comparison tests for conditional convergence and absolute convergence of an infinite series of real numbers.

CO3: Determine the Jacobian of Implicit and explicit functions and condition for Jacobian to be vanish.

Course Code: MAT502

Course Name: Abstract Algebra [Core course]

Course Objectives :

Student will learn group, ring, ideal, maximal ideal and their properties.

Course Outcomes :

CO1: Describe group and subgroup,

CO2: Explain Normal subgroup and Quotient groups.

CO3: Define Ring and some special types of rings.

CO4: Describe Ideals and Maximal Ideals.

Course Code: MAT504

Course Objectives Course Outcomes

Course Content :

Course Name: Mathematical Statistics-I [Skill/Elective course]

Student will be able to learn and apply various statistical techniques

CO 1: Understand the concept of frequency distribution

CO 2: Find the arithmetic mean, harmonic mean, mode, median, quartile

CO 3: Find measure of dispersion, moments, skewness and Kurtosis etc.

CO 4: Fit the data using curve fitting and least square method.

B.A./B.Sc. Mathematics (Third Year) Semester-VI

Course Code: MAT601

Course Name: Real Analysis-II [Core course)

Course Objectives :

1. To introduce basic concepts ofmetric spaces

- 2. To learn the properties of metric spaces
- 3. To learn fundamental concepts of Riemann Integration and Fourier series

Course Outcomes :

CO1: Describe several basic concepts of metric spaces and their properties

CO2: Understand properties of Riemann integrable functions, and applications of the fundamental theorems of calculus

CO3: Find the Fourier series of some standard functions and its applications.

Course Code: MAT602

Course Name: Ordinary Differential Equations Core course]

Course Objectives :

Student will be able to classify and solve ordinary differential equations

Course Outcomes :

COI: Classify and identify the types of functions

CO2: Solve the first and second order differential equations

CO3: Solve initial value problems and study properties of solutions of IVF.

CO4: Find the Wronskian of the solutions

Course Code: MAT604

Course Name: Mathematical Statistics-II [Skill/Elective course]

Course Objectives :

Student will learn the concept of probability, random variables, variance and moment generating functions.

Course Outcomes :

CO1: Understand the basics of probability and operations of probability

CO2:Understand and identify the random variables, probability density function

CO3:Determine the mathematical expectation, variance and moment generation function Course Content.

CO4: Study and apply various distributions to analyze the data.

Programme Educational Objectives (PEOs)

Programme Educational Objectives (PEOs) for the Bachelor of Science Curriculum under the National Education Policy 2020:

1. Mastery of Discipline-Specific Knowledge: Graduates of the Bachelor of Science program will demonstrate a deep understanding of fundamental principles, theories, and methodologies in their chosen scientific discipline, enabling them to analyze complex problems, propose innovative solutions, and contribute to advancements in their field.

2. Interdisciplinary Proficiency: Graduates will possess the ability to integrate knowledge and skills from multiple scientific disciplines, fostering a holistic approach to problem-solving and innovation. They will be equipped to address multifaceted challenges by drawing upon diverse perspectives and methodologies.

3. Critical Thinking and Analytical Skills: Graduates will develop strong critical thinking abilities, enabling them to evaluate information rigorously, analyze data effectively, and make informed decisions based on evidence. They will demonstrate proficiency in applying logical reasoning and scientific methods to solve problems and generate new knowledge.

4. Leadership and Innovation: Graduates will demonstrate leadership qualities and entrepreneurial mindset, capable of initiating and driving positive change in their organizations and communities. They will exhibit creativity, resilience, and adaptability. harnessing innovation to address complex challenges and seize opportunities for growth and advancement.

5. Global Citizenship and Cultural Sensitivity: Graduates will possess a global perspective and cultural sensitivity, recognizing the interconnectedness of diverse communities and the importance of collaboration across borders. They will engage in cross-cultural dialogue, embrace diversity, and contribute to the advancement of knowledge and understanding on a global scale.

These Programme Educational Objectives serve as guiding principles for the Bachelor of Science curriculum, reflecting our commitment to nurturing well-rounded graduates who are prepared to excel in their careers, contribute to society, and lead meaningful lives in a rapidly changing world.

Programme Outcomes (POs):

The National Education Policy (NEP) 2020 for India emphasizes several key aspects for Bachelor of Science (B.Sc.) programs, aiming to produce graduates who are not only well-versed in their respective disciplines but also equipped with skills necessary for holistic development and employability. While specific program outcomes may vary between institutions and disciplines within B.Sc. programs, here are some common outcomes aligned with NEP 2020:

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PO4. Individual and team work: Function effectively as a leader and as well as team member in diverse/ multidisciplinary environments.

PO5. Communication: Communicate effectively on complex science subject related activities with the scientific community in particular and with the society at large," such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

PO6. Project management and finance: Demonstrate knowledge and understanding of the first principles of science and apply these to one's own work as a member and leader in a team, to complete project in any environment.

PO7. Life-long learning: Recognize the need for lifelong learning and have the ability to engage in independent and life-long learning in the broudest context of technological change.

These program outcomes align with the broader goals of NEP 2020 to transform higher education in India and prepare students for the challenges and opportunities of the 21st century. Board of Studies designing B.Sc. curricula are encouraged to incorporate these outcomes into their program objectives and learning outcomes.

Programme Specific Outcomes (PSOS):

PSO1. Domain knowledge: Acquire knowledge and gain understanding of concepts in microbiology and its applications in various fields

PSO2. Problem Analysis: Applying the knowledge acquired to explore the world of microbes and analysing the specific benefits.

PSO3. Design Development of solutions: Design/ develop solutions for problems at varied complexity in various areas of Microbiology to address changing challenges in various industries and environment thereby developing keen interest in research,

PSO4. Conduct Investigation of complex problems: Use established knowledge and methods to design of experiments, analyze resulting data statistically and interpret the same to provide valid conclusions for applied research.

PSO5. Modern tools: Create, select, and apply appropriate techniques, respurces, and relevant IT tools including prediction and modelling to complex related activities with clear understanding of the limitations for solving real world problems.

BSc First Year: 1st Semester

DSC-1/MBN 111: Fundamentals of Microbiology

Learning Objectives of the Course:

The students will gain knowledge about the Development of Microbiology as a scientific discipline, also they will know the principles of microscopy, taxonomy and kinds of different microorganisms.

Course Outcomes (CO's)

After successful completion of this course, students are expected to:

COI: Understanding the History of Microbiology: Gain knowledge on Historical perspectives of

Microbiology.

CO2: Microscopy Techniques: understand the concepts of Microscopy and get acquainted to various microscopic methods.

CO3: Taxonomy and Classification: Understand the concept of taxonomy, familiarize with classification systems and characteristics of bacteria used for classification.

CO4: General Characteristics of Microorganisms: Know general features of various kinds of microorganisms

DSC-2/MBN 121: Lab Course based on MBN 111

Learning Objectives of the Course:

i) The students will Get acquainted with many microbiological instruments.

ii) They will develop understanding of basic microbiological experimental procedures.

iii) They will acquire understanding of sterilization, incubation, inoculation etc...

Course Outcomes (COs):

After completion of the course, students will be able to -

CO1: Gain knowledge on Historical perspectives of Microbiology

CO2: Understand the concepts of Microscopy and get acquainted to various microscopic methods

CO3: Understand the concept of taxonomy, familiarize with classification systems and characteristics of bacteria used for classification.

CO4: Know general features of various kinds of microorganisms.

SEC-1/MBN 114: Water Analysis

Learning Objectives of the Course:

The students will gain knowledge about the various biotechnological concepts viz:

i. Understand water quality parameters.

ii. Learn the physical, chemical and biological characteristics

Course Outcomes (COs):

CO1: Students will gain knowledge related to water microbiology, properties and standard quality of water. They will also learn the various water borne diseases.

CO2: will get to know the various methods used in water sample collection/treatment and the different tests for determining the quality of water.

SEC 2/MBN 123: Water Microbiology (Practical Based on MBN114)

Learning Objectives of the Course:

Understand water quality parameters by performing practical in laboratory.

Course Outcomes (COs):

CO1: Students will gain knowledge related to water microbiology, properties and standard quality of water by performing various test in laboratory.

CO2: Will get to know the various methods used in water sample collection/treatment and the different tests for determining the quality of water.

GE/OE-1/MBN 112: Microbial Biotechnology

Learning Objectives of the Course:

The students will gain knowledge about the various biotechnological concepts viz:

- I. Microbial products,
- II. GEMs,
- III. Bioprocess,
- IV. Downstream processing etc.

Course Outcomes (COs):

After completion of the course, students will be able to -

CO1: Microbial Diversity and Functionality: Students will gain an understanding of the diverse microorganisms used in biotechnology and their specific functions. This includes knowledge of bacteria, fungi, and viruses and their roles in bioprocessing and bio-product development.

CO2: Bioprocess Engineering: Students will learn the principles of bioprocess engineering, including fermentation techniques and optimization of microbial growth conditions.

CO3: Bioproduct Development: Students will be able to develop and evaluate microbial-based products.

B.Sc. First Year: 2nd Semester

Learning Objectives of the Course:

The students will gain knowledge about the various microbiological techniques viz:

- i. Sterilisation,
- ii. Development of pure culture,
- iii. Enumeration of microorganisms etc.

Course Outcomes (COs):

After successful completion of this course, students are expected to:

COL: Define and explain the key concepts of sterilization and disinfection, including types of agents, spectrum of activity, mode of action, and applications.

CO2: Apply pure culture techniques to isolate, enumerate, and cultivate microorganisms, using a variety of culture media and methods.

CO3: Perform and interpret common staining procedures for the microscopic observation of Microorganisms.

SDSC-4/MBN 221 : Lab Course based on MBN 211

Learning Objectives of the Course:

i) The students will Get acquainted with many microbiological instruments.

ii) They will develop understanding of basic microbiological experimental procedures.

iii) They will acquire understanding of bacterial staining procedures

Course Outcomes (COs):

After successful completion of this course, students are expected to:

CO1: Stain the bacterial structures using special staining techniques.

CO2: Able to prepare different cultivation media for microorganisms.

CO3: Enumerate microflora from different ecological samples.

CO4: Validate and evaluate instruments and disinfectant.

VSC-1/MBN 213: Pathology

Learning Objectives:

The students will gain knowledge about the haematology, RBC & WBC counts, DLC etc.

Course Outcomes (CO's)

After successful completion of this course, students are expected to:

CO1: Understanding Hematological Basics: Students will develop a fundamental understanding of the components of blood, including red blood cells, white blood cells, platelets, and plasma. They will learn about the structure and function of these blood components.

CO2: Blood Testing and Analysis: Students will learn how to perform basic hematological tests,

interpret results from tests like complete blood counts (CBC), and understand the significance of different blood parameters in diagnosing and monitoring hematological conditions.

CO3: Clinical Applications: Students will be introduced to the clinical applications of basic hematology in healthcare settings. They will understand the role of hematology in disease diagnosis, patient care, and treatment

VSC-2/MBN 222: Pathology (Practicals Based on MBN213)

Learning Objectives:

The students will get acquainted with various pathological procedures like handling of instruments, staining blood samples. WBC measurements etc.

Course Outcomes (CO's)

After successful completion of this course, students are expected to:

CO1: will collect the blood.

CO2: They will get to know the different techniques for counting the RBC and WBC.

CO3: measure Hb estimation from blood samples.

GE/OE-2/MBN 212: Food Fermentations

Learning Objectives:

The students will gain knowledge about the various fermentation concepts, different fermented foods obtained from milk, meat, grain and vegetables etc.

Course Outcomes (CO's)

After successful completion of this course, students are expected to:

CO1: Understanding Fermentation Principles: Students will develop a comprehensive

understanding of the science and principles of fermentation, including the role of microorganisms (bacteria, yeast, and molds) in the fermentation process and the biochemical changes that occur during fermentation.

CO2: Fermentation Techniques and Practices: Students will learn various fermentation

techniques used for different food sources, including vegetables, grains, meat, and milk.

CO3: Product Development and Quality Control: They will understand how to monitor

and control the quality and safety of these products throughout the fermentation process.

CO4: Cultural and Nutritional Significance: Students will gain insights into the cultural and nutritional significance of fermented foods.

Semester: Semester III

Title of the paper: Immunology (Paper-VIII)

Class: T.Y. B.Sc.

No. of Credits: 6 credits = 4 (Theory) + 2 (Practical)

Objectives:

- 1. To study the components of human immune system.
- 2. To understand human defense mechanisms.

Course content (Syllabus in brief):

- 1. Introduction of Immunology
- 2. Immune Cells and Organs
- 3. Antigens and Antibodies
- 4. Major Histocompatibility Complex
- 5. Complement System
- 6. Generation of Immune Response
- 7. Immunological Disorders and Tumor Immunity
- 8. Immunological Techniques

Course level learning outcomes: Students will gain hands on experience of haematology and immunotechniques.

Semester: Semester V

Title of the paper: Applied Microbiology (Paper-XI)

Class: S.Y. B.Sc.

No. of Credits: 4

Objectives: To study the applications of microorganisms and their components.

Course content (Syllabus in brief):

- 1. Dairy microbiology
- 2. Food microbiology
- 3. Food borne disease and intoxication
- 4. Fermented food and Probiotics

5. To study general principles of food microbiology, food preservation, fermented and microbial foods.

6. To study epidemiology of food-borne microorganisms of public health significance and food spoilage microorganisms.

7. To study microbiological examination of foods, microbiological quality Control and quality schemes.

Course level learning outcomes: Students will be able to apply the knowledge for start-ups in the field of microbiology.

Semester: Semester IV

Title of the paper : Clinical Microbiology (Paper-XII)

Class: S.Y. B.Sc.

No. of Credits: 6 credits = 4 (Theory) + 2 (Practical)

Objectives: Understand relationship between human host and pathogens and the ability of pathogens to cause disease.

Course content (Syllabus in brief):

- 1. Normal microflora of the human body and host pathogen interaction
- 2. Sample collection, transport and diagnosis
- 3. Bacterial diseases
- 4. Viral diseases
- 5. Protozoan diseases
- 6. Fungal diseases

Course level learning outcomes:

1. Students will be able to correlate disease symptoms with causative agent, isolate and identify pathogens.

2. They will gain knowledge of mechanism of action of antimicrobial drugs and prophylaxis.

Semester: Semester V

Title of the paper: Microbial Genetics (Paper-XV)

Class: T.Y. B.Sc.

No. of Credits: 6 credits = 4 (Theory) + 2 (Practical)

Objectives:

1. To understand mechanisms of gene transfer, expression and regulation.

2. To comprehend the types and effects of mutations and recombination.

Course content (Syllabus in brief):

1. Gene expression and regulation 2. Gene transfer mechanisms

3. Transformation 4. Transduction 5. Conjugation

6. Mutations 7. Spontaneous Mutations 8. Types of mutations 9. Induced mutations

10. Molecular recombination and molecular taxonomy

Course level learning outcomes:

Students will gain knowledge of prokaryotic gene transfer mechanisms, mutations and recombination.

Semester: Semester V

Title of the paper: Microbial Metabolism (Paper-XVI)

Class: T.Y. B.Sc.

No. of Credits : 4 (Theory) + 2 (Practical)

Objectives: To understand mechanism of action of enzymes and biochemical pathways.

Course content (Syllabus in brief):

Enzymes : Definition, properties, specificity, active site, activation of enzymes, mechanism of action of enzymes (lock and key, induced fit, ping-pong)

• Nomenclature and classification of enzymes

Definitions: Metabolism, anabolism, catabolism, free energy.

• Bioenergetics: chemical links between catabolism and biosynthesis, energy coupling through ATP and through pyridine nucleotides, Central role of ATP-ADP system.

• Catabolism of saturated (16 carbon) and unsaturated fatty acids (16 carbon) by β oxidation

• Degradation of proteins and amino acids : proteolysis, putrefaction.

• Transformation of aminoacids : oxidation, reduction, decarboxylation, deamination . (one example of each).

• Nucleic acid catabolism: DNA, RNA depolymerization, degradation of nitrogenous bases (mention end products without pathway)

• Biosynthesis of nucleotides: Purine and pyrimidine nucleotides, conversion of ribonucleotides to deoxyribonucleotides. • Carbohydrate synthesis : peptidoglycan.

Semester: Semester VI

Title of the paper: Recombinant Microbiology (Paper-XIX)

Class: T.Y. B.Sc.

No. of Credits: 4 (Theory) + 2 (Practical)

Objectives:

Course content (Syllabus in brief):

Recombinant DNA technology :definition, tools used for cloning, restriction endonucleases types, nomenclature, recognition sequences, with examples).

• Modification of blunt ended DNA (T4 ligase, homopolymer tailing, linkers and adapters)

• Vectors : properties of good vector, cloning and expression vectors. (pBR322, pUC8,

pSC101,) ,Bacteriophage vectors (λ phage,M 13 phage vectors), phagemid, cosmids, YAC /MAC.

• Genetic engineering – principles, cloning organisms, uptake of DNA (Calcium

chloride treatment, electroporation, protoplast fusion, liposome), selection of

recombinant clones.

• Genomic library (construction and identification of desired clone)

Nucleic acid & protein blotting techniques : Southern blotting, western blotting,

northern blotting.

- Colony hybridization
- DNA sequencing (Maxam & Gilbert)
- Probes (preparation &labeling), its uses
- PCR

Nucleic acid & protein blotting techniques : Southern blotting, western blotting, northern blotting.

- Colony hybridization
- DNA sequencing (Maxam & Gilbert)
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- PCR

Semester: Semester VI

Title of the paper: Industrial Microbiology (Paper-XXII)

Class: T.Y. B.Sc.

No. of Credits: 6 credits = 4 (Theory) + 2 (Practical)

Objectives:

1. To understand importance of industrially significant microorganisms and their metabolites.

2. To understand fermentation processes and product recovery.

Course content (Syllabus in brief):

1. Isolation of industrially important microbial strains and fermentation media.

2. Types of fermentation processes, bio-reactors and measurement of fermentation parameters

3.Down-stream processing

4. Microbial production of industrial products (micro-organisms involved, media, fermentation conditions, downstream processing and uses)

Course level learning outcomes:

1.Students will be able to understand the industrial production of important microbial metabolites and products.

2.Students will gain knowledge of isolation, maintenance and handling of industrially important microbial cultures in laboratory settings.

Department of Physics

Programme Specific Outcomes

PSOs of B.Sc. Physics

PSO01: Demonstrate knowledge of selected topics from mechanics, Heat,

Thermodynamics, optics etc. and apply this knowledge to analyze a broad range

of physical phenomenon .

PSO02: Learn the concept of Quantum mechanics, relativity introduced at degree level in order to understand nature at atomic level .

PSO03: Demonstrate proficiency in mathematical and mathematical concepts needed for a proper understanding of physics .

PSO04: Learn the structure of solid material and their different physical properties.

PSO05: Learn Laboratory skills, helping them to take measurement in a physics laboratory And analyze the measurement to draw valid conclusions. PSO06: Demonstrate written and oral communication skills in communicating Physics related topics.

Programme Outcomes of B.Sc.

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PO5. Communication: Communicate effectively on complex science subject related activities with the scientific community in particular and with the society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

PO6. Project management and finance: Demonstrate knowledge and understanding of the first principles of 1 science and apply these to one's own work as a member and leader in a team, to complete project in any environment.

PO7. Life-long learning: Recognize the need for lifelong learning and have the ability to engage in independent and life-long learning in the broadest context of technological change.

These program outcomes align with the broader goals of NEP 2020 to transform higher education in India and prepare students for the challenges and opportunities of the 21st century. Board of Studies designing B.Sc. curricula are encouraged to incorporate these outcomes into their program objectives and learning outcomes.

Course Outcomes

F. Y. B. Sc. Physics (SEM-I)

DSC-1: Mechanics and Properties of Matter (SEM-I)

Course Outcomes (COs): After completion of the course, students will be able to -

i. Understand Newton's laws of motion.

ii. Recognize different forces existing in nature and their physical significance.

iii. Acquire deep knowledge of physical quantities such as elasticity, viscosity, and surface tension.

iv. Develop the capacity to investigate and analyze daily problems related to mechanical Movement

DSC-2: Practicals based on DSC-1

Course Outcomes (COs): After completion of the course, students will be able to -

i. Understand gravitational acceleration through pendulum analysis and learn material stiffness and viscosity determination techniques using various setups.

ii. Explore rotational dynamics through flywheel experiments for moment of inertia and torsional property analysis.

iii. Develop instrument precision skills via least count analysis, crucial for physics and related field pursuits.

SEC-1: Basic Instrumentation Skill

Course Outcomes (COs): After completion of the course, students will be able to -

I. Gain understanding of measurement fundamentals including instrument accuracy, precision, and errors, as well as principles of voltage, current, and resistance measurement using voltmeters, ammeters, and multimeters.

II. Master the use of CRO for voltage (DC and AC), frequency, and time period measurements, and understand signal and pulse generator specifications, alongside distortion factor meter usage and wave analysis.

III. Learn analog versus digital instrument distinctions, comprehend digital multimeter block diagrams and operations, and understand time interval, frequency, and period measurements using universal counters, emphasizing time-base stability, accuracy, and resolution.

GE: Everyday Physics

Course Outcomes (COs): After completion of the course, students will be able to -

i. The course imparts essential physics principles to real-world contexts, covering transportation fundamentals, sports analysis, and sustainable weather solutions.

ii. Students will understand concepts such as linear and circular motion, friction, and energy/momentum, applying them to transportation and sports.

iii. Additionally, they'll explore sustainable weather management and green energy technologies, gaining practical knowledge about home electricity systems.

F. Y. B. Sc. Physics (SEM-II)

DSC-3: Optics

Course Outcomes (COs): On completion of the course, students will be able to,

i. Acquire the basic concept of optics and its applications.

ii. Explain how image formation takes place in lenses

iii. Understand the operations of many modern optical devices

iv. Understand the optical phenomenon such as interference and diffraction

DSC-4: Practical based on DSC-3

Course Outcomes (COs): On completion of the course, students will be able to,

i. Understanding of interference and diffraction phenomena through hands-on experimentation.

ii. Appreciation of practical applications of optical instruments across various scientific disciplines.

iii. Proficiency in conducting precise measurements and observations using optical instruments.

iv. Analyze experimental results critically and compare them with theoretical expectations.

VSC-1: Electrical Measurement

Course Outcomes (COs): On completion of the course, students will be able to,

i. Understand and apply fundamental electrical measurement concepts.

ii. Gain the skill in selecting appropriate measurement methods and minimizing errors.

iii. Understanding of electrical device characteristics and their role in measurement circuits.

iv. Calibrate instruments and verify their accuracy against standards.

VSC-2: Practical based on VSC-1

Course Outcomes (COs): On completion of the course, students will be able to,

- i. Student develop the skill reading the electrical instruments.
- ii. Minimization of errors and get exposure to know the idea of measurements.
- iii. To do handling and repair the electrical instruments.

GE-: Physics in Sports

Course Outcomes (COs): On completion of the course, students will be able to,

- i. Explain how Newton's laws relate to athletic performance.
- ii. Evaluate sports equipment design and performance.
- iii. Assess the effects of environmental conditions of athletic performance.
- iv. Apply strategies for optimizing performance in various conditions.

S. Y. B. Sc. Physics

201-Paper No VII: Mathematical, Statistical Physics and Relativity (Sem-III)

CO1: To familiarize students with the mathematical methods used in physics.

CO2: To familiarize students with the vector algebra.

CO3: To get acquaintance with the differential equations.

CO4: To familiarize students with partial differential equations.

CO5: To familiarize students with Classical and quantum Statistics.

CO6: To understand the concepts of special theory of relativity.

CO7: To apply these mathematical methods to solve problems in physics.

202- Paper No VIII: Modern and Nuclear Physics (Sem-III)

CO1: To familiarize students with basic properties of nucleus.

CO2: To have deep understanding of radioactivity and its applications.

CO3: To familiarize students with nuclear forces and elementary particles.

CO4: To understand construction and working of various particle accelerators and detectors.

CO5: To understand construction and working of photoelectric effect.

CO6: To study different photoelectric cells.

CO7: To enable students to solve numerical problems involving topics covered.

205- Paper No XI: General Electronics (Sem-IV)

CO1: To familiarize students with the basic electronic components.
CO2: To understand the concept of semiconductors.
CO3: To have deep knowledge about semiconductor devices.
CO4: To familiarize with the transistor circuits and their characteristics.
CO5: To understand oscillators and multivibrators.
CO6: To understand the process of modulation and demodulation.
CO7: To solve numerical problems involving topics covered.

206- Paper No XII: Solid state Physics (Sem-IV)

CO1: To familiarize students with basic concepts of structure of solids.

CO2: To familiarize with various types of characterization techniques.

CO3: To understand the concept of bonding and band theory of solids deeply.

CO4: To understand the transport properties thoroughly.

CO5: To enable students to solve numerical problems involving topics covered.

T. Y. B. Sc. Physics

54 301- Paper No XV: Classical and Quantum Mechanics (Sem-V)

CO1: To understand the mechanics of the system of particles.

CO2: To understand d"Albert, principle, Langranges Equation and its application.

CO3: To familiarize students with the historical background of Quantum Mechanics.

CO4: To understand the wave function and its physical interpretation clearly.

CO5: To familiarize with the time dependent and time independent Schrodinger equations and their applications.

CO6: To familiarize students with various operators used in Quantum Mechanics.

CO7: To enable students to solve numerical problems involving topics covered

Paper No XVI: Electrodynamics (Sem-V)

CO1: To familiarize students with various differential operators to study the Gauss law.

CO2: To familiarize with basic concepts and equations related to time varying fields such as Faradays law, Len"s law etc.

CO3: To write expression for poynting vectors for electromagnetic waves.

CO4: To enable to to write wave equations.

CO5: To solve numerical problems involving topics covered.

305- Paper No XIX: Atomic, Molecular Physics and LASER (Sem-VI)

CO1: To familiarize students with conceptual development of atomic model.

CO2: To understand one or two valence electron systems deeply.

CO3: To understand Zeeman effect, paschan back effect, Stark effect.

CO4: To understand Molecular Raman Spectroscopy.

CO5: To have deep introduction to lasers.

CO6: To familiarize students with different types of laser.

CO7: To understand construction and working of various types of lasers.

CO8: To be aware with various applications of lasers.

CO9: To enable students to solve numerical problems involving topics covered.

Paper No XX: Non-conventional Energy sources and Optical Fibers (Sem-VI)

CO1: To introduce students with various types of renewable energy sources.

CO2: To familiarize students with various applications of solar energy.

CO3: To familiarize students with various applications of biomass energy.

CO4: To familiarize students with the wind mechanics.

CO5: To create awareness among students about energy conservation.

CO6: To familiarize students with optical fibers.

CO7: To familiarize students with various applications of optical fibers.

CO8: To enable students to solve numerical problems involving topics covered.

Department of Zoology

Program Outcomes (POs):

This program is one of the most basic pillar of science and technology studied at undergraduate level. After studying this program, students will be more ready to learn and know about different biological systems and taxonomy, their co-ordination and control as well as evolution, behaviour of various animals and biological roles of the animals in the ecosystem.

They will provide a platform for classical genetics in order to understand inheritance of different traits and diseases, genetically disorders among populations, their background and correlate with contemporary and modern techniques like genomics, metagenomics, genome editing, and molecular diagnostic tools.

After the completion of this course, students have the option to go for higher studies, i.e., IIT, JAM, M. Sc. / Integrated MS Ph.D. and then do research work for the welfare as a researcher. After higher studies, students can work as scientist or assistant professor or assistant teacher and can even go for professional job oriented courses, such as Indian Civil Services, Indian Forest Service, Indian Police Service (MPSC, UPSC) etc. and also great opportunity in integrated farming.

Science graduates can go to serve in industries or may opt for establishing their own industrial unit. Practical and theoretical skills gained in this program will be helpful in designing different public health strategies for social welfare and become an entrepreneur in diverse fields.

After the completion of the B.Sc. degree there are various other options available for the science students.

mProgram Specific Outcomes (PSOs):

Students enrolled in B.Sc. (Hons.) for degree program in Zoology will study and acquire complete knowledge of disciplinary as well as related biological sciences which will provide them competitive advantage in pursuing higher studies from India as well as in foreign countries.

They are able to correctly use biological instrumentation and proper laboratory techniques. Students will be able to communicate biological knowledge in oral and written form.

Students should be able to identify, classify and differentiate diverse chordates and nonchordates based on their morphological, anatomical and systemic organization. They will also be able to describe economic, ecological and medical significance of various animals in human life.

This will create a curiosity and awareness among them to explore the animal diversity and take up wild life photography or wild life exploration as a career option.

The procedural knowledge about identifying and classifying animals will provide students professional advantages in teaching, research and taxonomist jobs in various government organizations; including Zoological Survey of India and National Parks/Sanctuaries.

Students will be able to apply the scientific method to questions in biology by formulating testable hypotheses, gathering data that address these hypotheses, and analysing those data to assess the degree to which their scientific work supports their hypotheses.

Acquired practical skills in biotechnology and molecular biology can be used to pursue career as a scientist in drug development industry in India or in foreign countries.

Students will be able to use the evidence of comparative biology to explain how the theory of evolution offers the only scientific explanation for the unity and diversity of life on earth.

Students will be able to explain how organisms function at the level of the

gene, genome, cell, tissue, organ and organ-system.

Students will be able to explicate the ecological interconnection of life on earth by tracing energy and nutrient flows through the environment. They will be able to relate the physical features of the environment to the structure of populations, communities, and ecosystems.

Course Outcomes (COs): B. Sc. Zoology 1st Year Semester 1st

DSC-1 : Animal Diversity – I (Non-Chordata)

CO1: Understand general organization of unicellular and multicellular animals.

CO2: Recognize diversity and adaptation of invertebrate animals and significance.

CO3: Acquire deep knowledge and importance of biodiversity conservation.

CO4: Develop the capacity to investigate pathogenicity of micro and macro fauna.

SEC-1 : Bee Keeping

CO1: Learner will be able to differentiate in different types of honey bee castes.

CO2: Learner will be able to use the artificial hive for beekeeping.

CO3: Learner will be able to use the technique of honey purification and processing.

CO4: Learner will be able to construct the artificial honey hive and maintain it.

CO5: Learners, if is not employed, can find own employment by doing Bee keeping.

CO6: Leaners can start own beekeeping equipment agency for farmers or beekeepers.

GE/OE-1 : Vectors, Disease & Management

CO1: To develop awareness about the causative agents and control measures of many commonly vector borne diseases.

CO2: Recognize the symptoms and proper identification of vectors.

CO3: Learn feeding mechanism and causing ideas.

CO4: Understand the strategies for the management of vector borne diseases by Chemical, Biological and IPM.

B. Sc. Zoology Semester 2nd

DSC-3 : Animal Diversity – II (Chordata)

- CO1: Understand general organization of vertebrate animals.
- CO2: Recognize diversity, migration and adaptive radiation of vertebrate animals.
- CO3: Acquire deep knowledge and importance of biodiversity conservation.
- CO4: Develop the capacity to understand biological importance and their conservation methods.

VSC-1 : Poultry Farming

- CO1: Understand the status of Indian Poultry Industry.
- CO2: Learn the Scientific Poultry farming.
- CO3: Applied diversified Poultry practices.
- CO4: Recognize the different breeds of chicken.

GE/OE-2 : Dairy Production Technology

- CO1: Understand the pre-requisites for starting a Dairy farm.
- CO2: Recognize different breeds of Cows & buffaloes following safety precautions.
- CO3: Prepare and give recommended feed and water for livestock
- CO4: Maintain health of livestock along with productivity

- CO5: Vaccination of cattle, nutrients requirements
- CO6: Entrepreneurship i.e., Effectively market dairy products
- CO7: Ensure safe and clean dairy farm and Standard safety measures to be taken in establishing an industry.
- CO8: Efficiently start and manage to establish or develop a Dairy Industry.

B. Sc. Zoology 2nd Year Semester 3rd

Paper 1st :- Developmental Biology

- CO1: Explain basic concepts of developmental biology.
- CO2: Gain detailed knowledge about developmental biology and organogenesis.
- CO3: Learn about Gametogenesis, Embryological Development, Cleavage Mechanisms, Gastrulation and role of hormones in Metamorphosis and Regeneration.

Paper 2nd :- Ecology

- CO1: To study basic terms and subject application in life Sciences.
- CO2: To understand the basic information of types of ecosystems, role of living things in ecosystems, deals with basic ecological concepts.
- CO3: To analyse biotic and abiotic factors, animal interactions etc.
- CO4: Students can participate in field collection and their identification to understand insect ecology.

SEC 1 :- Haematology
CO1: Ability to Explain composition and Functions of Blood.

- CO2: Knowledge about compounds used in processing and storage of Blood.
- CO3: Development of Skills of collecting, preserving and analysing Blood samples.

B. Sc. Zoology

Semester 4th

Paper 1st :- Biochemistry and Endocrinology

- CO1: To understand the basic and fundamental biochemistry of biomolecules such as carbohydrates, proteins, lipids and nucleic acids. Also to understand the nature, mechanism, and kinetics of enzyme action.
- CO2: To understand some instrumentation such as chromatography, pH meter, electrophoresis, centrifugation, spectrophotometry etc. will also be learnt.
- CO3: To focus on endocrine system of vertebrates and more emphasis on various gland morphology, histological structure, hormones and their function.
- CO4: To aware with issues of diabetes and concern fluctuation in sugar levels.

Paper 2nd :- Evolution

- CO1: To study basic terms and subject application in life Sciences.
- CO2: To participate in laboratory experiments for understanding the basic principles of evolution through models and helpful for gaining primary information.
- CO3: To study origin, evolution, and genetic diversity.
- CO4: To demonstrate an understanding of structure/function relationships in organisms

SEC 2 :- Apiculture

- CO1: Ability to understand and describe the life stages and social organization of honey bee species.
- CO2: Ability to correctly explain and perform bee rearing, farming and harvesting practices.

CO3: Appreciate the economic importance of derivative benefits and byproducts of apiculture.

B. Sc. Zoology

3rd Year Semester 5th

Paper 1st :- DSE 1A-1-A1: Animal Physiology I

- CO1: Understand the nutrition and physiology of digestion in man.
- CO2: Describe the structure and respiratory mechanism and transport of gases.
- CO3: Learn the structure and working of mammalian heart, blood composition and clotting mechanism.

Paper 2nd :- DSE 1A-2-D2 :- Biotechnology I

- CO1: Ability to approach, analyse and bring out scientific solution for problems related to biological research.
- CO2: Understand technologies which can use in biological as well as medical sciences. It will help the students to attain Practical Approach.

SEC 3 :- Vermicomposting and Vermiculture

- CO1: Acquire a critical knowledge on the role of earth worms in making organic matter from biodegradable wastes.
- CO2: Understand the biology of some important species of earth worms used in Vermiculture.
- CO3: Acquire skills on production of vermicompost.
- CO4: Explain benefits and problems with Vermiculture and vermicompost.

B. Sc. Zoology

3rd Year Semester 6th

Paper 1st :- DSE 1B-1-A1: Animal Physiology II

CO1: Understand the structure and functional anatomy of kidney, osmoregulation and homeostasis.

CO2: Describe the structure of nerve cells, synapse, muscles and eye & ear and its physiology.

CO3: Learn the process of gametogenesis, reproductive hormones, reproductive cycle and methods of contraception.

Paper 2nd :- DSE 1A-2-D2 :- Biotechnology II

- CO1: Learn different methods to manipulate genetic material for human welfare
- CO2: Aware about advanced techniques used in biotechnology.
- CO3: Students will be able to apply to various research lab and government institutes.

SEC 4 :- Sericulture

- CO1: Getting the knowledge about what is sericulture, types of sericulture and its importance as agro based, employment generating industry.
- CO2: Getting knowledge about Life cycle of silk worm, Cocoon formation and Silk thread.
- CO3: Acquiring skill of how to manage a sericulture farm: Rearing shade, Mulberry garden, Silk and cocoon market and other value added and byproducts from sericulture.

Department of physical Education

Programme Outcomes

PO01: Individual and team work: Function effectively as an individual and as a member or leader in diverse teams and in multidisciplinary settings.

PO02: Communication: Communicate effectively on physical education, sports, games, sports event management related activities at varied complexity level sports community and with the society at large, such as, being able to comprehend and write effective reports and design documentation make effective presentations and give and receive clear instructions.

PO03: Life-long learning: Recognize the need for and have the preparation and ability to engage in independent and life-long learning in the broadcast context of sports and games technological change.

PO04: To develop individuals for attaining specific goals.

PO05: Summarize and analyze current issues in healthiness and wellness.

Program Specific Outcomes (PSOs)

PSO01: Students will acquire a comprehensive knowledge and sound understanding of fundamentals of physical education.

PSO02: Students will develop practical, theoretical skills in physical education.

PSO03: Students will be prepared to acquire a range of general skills, to specific skill to communicate with society effectively and learn independently.

PSO04: Students will acquire a job efficiently in diverse fields such as B.PED, M.PED, SSC, NET, SET.

PSO05: Physical, Mental (Participating in various sports and games) Social wellbeing (Individual and Community Development)

Course Outcomes

COs: Physical Education

DEPARTMENT OF PHYSICL EDUCATION

MI-Course Number DSC-1 (Theory Paper-1) Title of the Course: Introduction to Physical Education and Sports Science

Course Outcomes (CO):

1. Analyze the historical and philosophical underpinnings of Physical Education and Sports Science.

2. Apply theoretical frameworks to understand the interdisciplinary nature of the field.

3. Demonstrate a basic understanding of human anatomy, physiology, and biomechanics in the context of sports science.

4. Evaluate the psychological and nutritional factors influencing athletic performance.

5. Design and implement fitness assessment programs for individuals and groups.

6. Apply coaching techniques and pedagogical strategies in Physical Education settings.

7. Identify common sports injuries, implement preventive measures, and understand basic rehabilitation principles.

8. Critically assess emerging trends, technologies, and challenges in the field.

MI Course Number DSC-2 (Practical Paper-2)

Title of the Course: Athletics: Track Events

Athletics-Track Events (Choose any four) (100M, 200M, 400M, 800M, 1500M, 3000 Steeple Chase, 5000M Waking. 10000M Walking, 110M Hurdles. Cross Country, Half Marathon)

Outcomes:

- 1. Develop skills related to Athletics Field Events
- 2. Students will be able to perform the skills related to Athletics Field Events
- 3. Practical demonstration and performance skills will be learned by the students
- 4. The students will get acquainted with the rules and regulations of the Athletes Field Events

B. A. Semester-1: Subject: Physical Education GENERIC ELECTIVE/OPEN ELECTIVE (GE/OE-01)

The Course Physical Education in First Semester has

Adapted Physical Education.

Course Outcomes:

1. Define and explain the importance of Adapted Physical Education (APE).

2. Recognize and understand various disabilities and their implications for motor skills and physical activity.

3. Design and implement inclusive physical education activities using differentiated instruction.

4. Apply principles of inclusion and create an inclusive and supportive learning environment.

5. Adapt sports, games, and activities to meet the needs of individuals with diverse abilities,

6. Communicate effectively with individuals with disabilities and collaborate with special education professionals.

7. Select and use adaptive equipment, and design accessible facilities for inclusive physical education.

8. Address psychosocial aspects of inclusion and foster an understanding of the importance of an inclusive learning environment.

Syllabus: Course GE/ OF 1: Paper-01 Title: Adapted Physical Education-02 Credits

Unit 1: Introduction to Adapted Physical Education (APE), Understanding Disabilities, Principles of Inclusion

- 1. Definition and importance of APE
- 2. Historical perspective and evolution
- 3. Legal and ethical considerations in inclusive education

4. Overview of various disabilities (physical, intellectual, sensory) 5. Impact of disabilities on motor skills and physical activity

- 6. Individualized Education Programs (IEP's) and 504 plans
- 7. Inclusive teaching strategies
- 8. Differentiated instruction in physical education
- 9. Building an inclusive and supportive learning environment

B. A. Semester-1: Subject: Physical Education GENERIC ELECTIVE/OPEN ELECTIVE (GE/OE-01)

The Course Physical Education in First Semester has

1. Adapted Physical Education.

Course Outcomes:

1. Define and explain the importance of Adapted Physical Education (APE).

2. Recognize and understand various disabilities and their implications for motor skills and physical activity.

3. Design and implement inclusive physical education activities using differentiated instruction.

4. Apply principles of inclusion and create an inclusive and supportive learning environment.

5. Adapt sports, games, and activities to meet the needs of individuals with diverse abilities,

6. Communicate effectively with individuals with disabilities and collaborate with special education professionals.

7. Select and use adaptive equipment, and design accessible facilities for inclusive physical education.

8. Address psychosocial aspects of inclusion and foster an understanding of the importance of an inclusive learning environment.

Syllabus: Course GE/ OF 1: Paper-01 Title: Adapted Physical Education-02 Credits

Unit 1: Introduction to Adapted Physical Education (APE), Understanding Disabilities, Principles of Inclusion

- 1. Definition and importance of APE
- 2. Historical perspective and evolution
- 3. Legal and ethical considerations in inclusive education

4. Overview of various disabilities (physical, intellectual, sensory) 5. Impact of disabilities on motor skills and physical activity

6. Individualized Education Programs (IEP's) and 504 plans

- 7. Inclusive teaching strategies
- 8. Differentiated instruction in physical education

9. Building an inclusive and supportive learning environment

B. A. First year-Second Semester-Subject: Physical Education

Major (Core) MI Mandatory

DISCIPLINE SPECIFIC COURSE (DSC-03 and 04)

The Course Physical Education in Second Semester has

1. Measurement and Evaluation in Physical Education.

Course Number DSC-03 (Theory Paper-1)

Title of the Course: Measurement and Evaluation in Physical Education-02 Credits

Course Outcomes (CO):

1. Define and explain the fundamental concepts of measurement and evaluation in physical education,

- 2. Apply psychometric principles, reliability, and validity to the assessment process.
- 3. Demonstrate familiarity with various assessment tools and techniques in physical education,
- 4. Design assessments aligned with clear learning objectives.
- 5. Implement performance-based assessments and alternative assessment methods.
- 6. Analyze and interpret assessment data to inform teaching and learning
- 7. Address challenges and ethical considerations in assessment practices

8. Apply theoretical knowledge through practical experience in designing and implementing assessments.

MI-Course Number DSC-4 (Practical Paper-1)

Title of the Course: Athletics: Field Events-02 Credits

Athletics Field Events (Choose any four) (Long Jump, High Jump. Triple Jump, Pole Vault, Shot Put, Discus Throw, Javelin Throw, (or) Any One from (Pentathlon, Heptathlon, Decathlon)

Outcomes:

- 1. Develop skills related to Athletics Track Events
- 2. Students will be able to perform the skills related to Athletics Truck Events
- 3. Practical demonstration and performance skills will be learned by the students.

4. The students will get acquainted with the rules and regulations of the Athletics Track Events

B. A. Semester-II: Subject: Physical Education GENERIC ELECTIVE/OPEN ELECTIVE (GE/OE-02)

The Course Physical Education in Second Semester has

1. Injury Prevention.

Course Outcomes:

Course Number GE/OE-02: Paper-01

Title of the course: Injury Prevention-02 Credits

1. Define and explain the principles and importance of injury prevention.

2. Identify and analyze the causes, risk factors, and mechanisms of injuries.

3. Apply biomechanical, physiological, and psychological concepts to injury prevention.

4. Implement practical strategies for creating safe physical environments and ensuring equipment safety.

5. Recognize the role of psychological factors in injury risk and recovery.

6. Design and implement injury prevention programs for specific physical activities.

7. Evaluate the impact of policies and regulations on injury prevention.

8. Apply knowledge through practical assessments and the creation of injury prevention plans.

B. A. Semester Second - Subject: Physical Education VOCATIONAL SKILL ENHANCEMENT COURSE (VSC-01)

The Course Physical Education in Second Semester has Posture.

Course Number VSC-01: Paper Number 01

. Course Number VSC-01 (Paper - 1)

Title of the Course: Posture-01 Credit

Course Outcomes:

1. Define and explain the significance of good posture in maintaining overall health.

2. Describe the anatomy and biomechanics of the musculoskeletal system in relation to posture.

3. Demonstrate proficiency in assessing posture and identifying common deviations.

4. Analyze the impact of ergonomics and daily activities on posture.

5. Explain the relationship between posture and respiratory, cardiovascular, and musculoskeletal health.

6. Design and implement corrective exercises to improve posture.

7. Recognize the psychological aspects of posture and its influence on mood and self-esteem.

8. Apply knowledge through hands-on practice sessions for assessing and correcting posture.

B. A. Semester Second - Subject: Physical Education VOCATIONAL SKILL ENHANCEMENT COURSE (VSC-01)

The Course Physical Education in Second Semester has Posture.

Course Number VSC-01: Paper Number 01

Course Number VSC-01 (Paper - 1)

Title of the Course: Posture-01 Credit

Course Outcomes:

1. Define and explain the significance of good posture in maintaining overall health.

2. Describe the anatomy and biomechanics of the musculoskeletal system in relation to posture.

3. Demonstrate proficiency in assessing posture and identifying common deviations.

4. Analyze the impact of ergonomics and daily activities on posture.

5. Explain the relationship between posture and respiratory, cardiovascular, and musculoskeletal health.

6. Design and implement corrective exercises to improve posture.

7. Recognize the psychological aspects of posture and its influence on mood and self-esteem.

8. Apply knowledge through hands-on practice sessions for assessing and correcting posture.

B.A.S.Y. Sem III. Phy. Edu 201. Paper IV

Health Education and Recreation in Physical Education and Sports

CO1: Understand the concept, aim, objectives and importance of health education.

CO2: Develop right concept about health and factors influencing health.

CO3: Identify role and responsibilities in the physical , mental, social health programme.

CO4: Contemporary health problems, family and health education.

CO5: Explain recreation in Physical Education and sports, planning a program of recreation, agencies promoting recreation.

Sem- IV Phy. Edu 202 Paper V

Officiating, coaching and training methods in physical education and sports.

CO1: To understand basic concepts and principles of officially coaching and training methods.

CO2: To train physical education teacher for conducting games\sports tournaments in well organized manner and impart knowledge of coaching and officiating of different games\sports.

CO3: To enable the students to understand the rules, resolutions and of different sports.

CO4: To acquaint the students with the duties and responsibilities of officials and coaches.

CO5: To acquaint with the roles and responsibilities of coaches and officials.

Practical Physical Education 203 (Sem- III+IV) Paper-VI

Track and field.

CO1: To be able to learn and deliver knowledge of basic fundamental skills, techniques, stance, ground marking and dimensions, rules in the games and duties of officials of the event of hurdles and relays.

CO2: To develop a knowledge about the historical development of the game.

Volleyball: To be able to learnt deliver the knowledge of basis fundamental skills, techniques, stances, forms, rules and duties of officials etc. in the event of Volleyball.

B.A.T.Y. Sem-V (Subsidiary) Phy. Edu. 301 Paper-VII

Ancient and Modern History of Physical Education and Sport

CO1: Introduction of physical education in ancient India.

CO2: Physical education in India after Independence.

CO3: Physical education in the state of Sparta and Athens.

CO4: Government bodies and policies in physical education.

CO5: Scheme and awards related to physical education and sports.

CO6: Institutions of physical education in India.

B.A.T.Y. Sem-V (Main) Phy.Edu. 302 Paper-VIII

Sports Psychology and Management in Physical Education

CO1: Psychology in physical education and sports, importance of psychology in sports.

CO2: Growth and development, physical, emotional and social development.

CO3: Motivation, psychological factor influencing motivation.

CO4: Management in physical education and sports, functions of management, philosophy of management.

CO5: Teaching methods in physical education.

CO6: Facilities and equipments.

B.A.T.Y. Sem-VI (Subsidiary) Phy. Edu. 303 Paper-IX

Organization, Administration and supervision in Physical Education Youth Welfare and Youth Services.

- CO1: Organization, administration and supervision.
- CO2: Organizing and conducting tournaments.
- CO3: Intramurals program and extramural program.
- CO4: Supervision in physical education.
- CO5: Youth welfare and youth services.

B.A.T.Y. Sem-VI (Main) Phy. Edu. 304 Paper-X

Anatomy, Physiology and Kinesiology of Physical Education

CO1: Introduction to anatomy.

CO2: Skeleton system.

CO3: Introduction to physiology.

CO4: Muscular system.

CO5: Respiratory system.

CO6: Introduction to kinesiology

Practical Physical Education 305 (Sem- V+VI Subsidiary) Paper-XI

Track and field.

CO1: To be able to learn and deliver knowledge of basic fundamental skills, techniques, stance, ground marking and dimensions, rules in the games and duties of officials of the event of hurdles and relays.

CO2: To develop a knowledge about the historical development of the game.

Kho-Kho: To be able to learnt deliver the knowledge of basis fundamental skills, techniques, stances, forms, rules and duties of officials etc. in the event of Kho-Kho.

Practical Physical Education 306 (Sem- V+VI Main) Paper-XII

Track and field.

CO1: To be able to learn and deliver knowledge of basic fundamental skills, techniques, stance, ground marking and dimensions, rules in the games and duties of officials of the event of hurdles and relays.

CO2: To develop a knowledge about the historical development of the game.

Yogasana, Pranayama and Suryanamaskar: To be able to learnt deliver the knowledge of basis fundamental skills, techniques, stances, forms, rules and duties of officials etc. in the event of Yogasana, Pranayama and Suryanamaskar.

CO1: Padmasanas, Tadasanas, Chakrasanas, Hallasanas, Vajrasanas and Shavasanas.

CO2: Anulom Vilom, Kapalbhati, Bhramari and Bhastrika.als etc. in the event of volleyball.

Department of psychology

Programme Educational Objective (PEOs)

1. To orient the students towards identification and analysis of various aspects of Psychology.

2. To develop students' aptitude for acquiring basic skills of carrying out field work.

3. To guide students to learn the science and art of collecting, processing and interpreting the data.

4. Demonstrate the ability to communicate information by utilising both lecture and practical exercises.

5. Inculcate the ability to evaluate and solve psychological problems effectively.

Programme Outcomes (Pos)

1. Understanding Psychological Theories and Concepts: Provide a comprehensive understanding of major theories, concepts, and historical developments in psychology across various subfields.

2. Critical Thinking and Analysis: Foster critical thinking skills to evaluate

psychological research, theories, and real-world applications, encouraging students to question assumptions and draw evidence-based conclusions.

3. Developing Research Skills: Equip students with the ability to design, conduct, and analyse psychological research using both quantitative and qualitative methods.

4. Effective Communication Skills: Develop effective written and oral communication skills to articulate psychological concepts, research findings, and arguments to diverse audiences.

5. Application of Psychological Principles: Enable students to apply psychological principles and theories to understand human behavior in various contexts, such as education, healthcare, business, and social services.

Programme Specific Outcomes (PSOs)

After completing this programme, the Learner will

- 1. Understand concept and theories of psychology
- 2. Applying psychology knowledge and research to real world
- 3. Ability to conduct psychological research
- 4. Develop effective communication skills
- 5. Acquire skills to apply the psychology knowledge to different settings.

Department of psychology (COs)

DSC 1: INTRODUCTION TO PSYCHOLOGY

Course Outcomes (COS):

After completion of the course students will be able to

- i) Understand concept of psychology
- ii) Acquired methods of learning
- iii) Identify methods of memory improvement

DSC 1-A: Experiments

Course Outcomes (COS):

After completion of the course students will be able to

- i) Develop skill of observation
- ii) Analysis data
- iii) Conducting experiments

GE/OE 1: PERSONALITY DEVELOPMENT

Course Outcomes (COS):

After completion of the course students will be able to

- i) Understand personality
- ii) Will have Self-knowledge
- iii) Take action for personality development

SEC-1 Memory Enhancement: Mnemonies

Course Outcome (CO): After completion of course students will be able to:

- i) Understand the techniques of memory improvement
- ii) Apply the memory improvement technique
- iii) Conduct the memory technique activity

Semester second

DSC 4: INDIVIDUAL DIFFERENCE

Course Outcomes (COS):

After completion of the course students will be able to

- i) Understood concept of intelligence
- ii) Acquired basic knowledge of emotions.
- iii) Insight about personality

DSC 4-B: Psychometric Testing

Course Outcomes (COS):

After completion of the course students will be able to

- i) Develop skill of observation
- ii) Analysis data
- iii) Conducting experiments

GE/OE 2: STRESS MANAGEMENT

Course Outcomes (COS):

After completion of the course students will be able to

i) Learn Sources of stress

- ii)Understand techniques of relaxation
- iii) Know different methods of stress reliving exercise

GE/OE 2: STRESS MANAGEMENT

Course Outcomes (COS):

After completion of the course students will be able to

i) Learn Sources of stress

- ii)Understand techniques of relaxation
- iii) Know different methods of stress reliving exercise

B.A. IInd year

Psychology of Adjustment

COS 1. Enable students to relate what they are learning in class, the issue that they encounter in their everyday life such as stress, health, work, personal relationships, communication and self-esteem.

COS 2. Friendship and love Psychology.

COS 3. Face life challenges.

Psychological Testing

COS 1. Understanding Psychological assessment techniques.

COS 2. Acquaint the students and make them understand the different statistical methods with its uses and interpretations.

COS 3. Understand skills necessary for selecting and applying different tests for different purpose evaluation and training.

Psychology for Living

COS 1. Understanding self.

COS 2. Understanding Basic principles of self-perception.

- COS 3. Understanding Stress and its effects.
- COS 4. Understanding coping process.
- COS 5. Understanding Psychology and Physical health

Psychological Statistics

COS 1. Acquaint the students and make them understand the different statistical methods with their uses and interpretations.

COS 2. Train students in various Psychological assessment techniques.

COS 3. Measures of central tendency.

COS 4. Impart skills necessary for selecting and applying different tests for different purpose such as evaluation, training rehabilitation, etc.

B.A. IIIrd Year

Abnormal Psychology

COS 1. Understand the Abnormal behaviour in today's times.

- COS 2. Understanding what is anxiety and its disorders.
- COS 3. Understanding Psychological therapies and treatment.

Organizational Psychology

COS 1. Understanding behaviour of individuals along with other organizational assets. COS 2. Learn theoretical aspects of the course.

Introduction to Counselling

COS 1. Study the counselling Psychology.

- COS 2. Understanding Importance of counselling.
- COS 3. Learning Goals of counselling.
- COS 4. Understanding the Scope of counselling.

Psychopathology

COS 1. Impart knowledge about the normality and abnormality.

COS 2. Make students understand the nature and course of various abnormal conditions.

COS 3. Impart knowledge and skill needed for psychological assessment of different abnormal conditions.

Organizational behavior

COS 1. Understanding individual in the organization.

COS 2. Understanding group and organization.

COS 3. Understand and Communicate in an organization.

COS 4. Understanding Leadership in organization.

Counseling in Action

COS 1. Understand Theories of Counseling.

COS 2. Understand Importance of career counselling.

COS 3. Understand concept of Married couple and family counselling.

Department of Home Science

Programme Outcomes (POs):

The National Education Policy (NEP) 2020 e India inghesins several key pets fir Bachelor of Arts (BA) pergrates, wing to produce graduates who was only well vened in their nopective disciplines but she epipped with with Allls seccury Re Ror hulitic desekipment and employability. Wille specific programs comes may sary hemhoru Butions and dilplines within A. programs, here are with NEP 2020 comes aligned

Course Outcomes [COs]

B.A. Home Science Semester 1

DSC-1: Basics of Foods & Nutrition

Course Outcomes (CO's)

After completion of course students will be able to

Co. | Students will be able to acquire knowledge about food & Nutrition and improve the quality of their foods.

Co. 2 Students will know the importance of balanced diet, health and hygiene and different concepts related to food and nutrition.

Co. 3 Study of nutrients will enable students to maintain the health of whole family as well as self

Practical- Basics of Food & Nutrition

Course Outcomes (Cos)

After completion of course students will be able to

1. Learn food measurements and various methods of cooking.

2. Gain knowledge about different food groups and its nutritional importance.

GE/OE-1

Indian Culinary Art Course Outcomes (CO's):

After completion of course students will be able to

Understanding various concepts of Indian Culinary

Gain the knowledge of Professional Development

To develop professional attitude, creating awareness among children about Indian food culture.

Skill Enhancement Course SEC: 1(1)

Introduction to Cabour Family

Course Outcome (Cos)

After completion of course student will be able to

Gain knowledge about color scheme

Aesthetic knowlolge will be increscel

Visual content is a lay factor in elearning and applying graphic techniques

appropriately could enhance konwledge acquisition

Subject-Instant mix Recipe

Course Outcome (CO):

After completion of course student will be able to-

Knowledge about Professional instant premixes skills to students.

Understand various concepts of preparation of premises with advanced techniques. Learners will gain the knowledge of various types of instant premises

Impart skills to implement Self-Employment

DSC-1: Essential Nutrients

Course Outcomes (COs):

After completion of the course, students will be able to

1) Gain knowledge of overall nutrients.

ii) To gain Knowledge about macro nutrients.

iii) To gain Knowledge about micro nutrients.

iv) To gain Knowledge about Sources, functions, daily requirements & defielencies of nutrients.

v) To get knowledge about healthy life.

Practical-Essential Nutrients

Course Outcomes (Cos)

After completion of course students will be able to

- 3. Learn food measurements and various methods of cooking.
- 4. Gain knowledge about different food groups and its nutritional impor

B.A Home Science Semester II

Subject-Entrepreneurship Development

Course Outcomes (CO's):

After completion of course student will be able to-

Orient the students to the concept, need and process of entrepreneurship.

Aware students regarding market and types of business.

Make students understand the parameters for selecting and running an enterprise successfully.

Make the students aware regarding various support organizations available for establishing small scale enterprise

Subject: LAUNDRY SCIENCE

Course Outcome (CO)

After completion of course student will be able to:

Identify different types of fabrics and their care requirements.

Demonstrate various laundering methods, including machine washing, hand washing.

and dry cleaning

Apply appropriate stain removal techniques for common stains.

Interpret textile care labels and select suitable laundry methods accordingly.

Understand the environmental impact of different laundry practices and apply sustainable laundering methods.

Subject-Handicropt

Course Outcome (CO);

After completion of course student will be able to:

Student will gain knowledge regarding different Handicrafts

Student can start his own business and stand economically

Creativity of students and use of local available material will be motivat

- **B.A. S.Y.** Paper-5 [Extension Education]
- **CO1:** To understand the importance & need of Home science extension education.
- **CO2**: To understand the process of communication in development work.
- **CO3**: To get acquainted with the terms in extension approaches & models.
- **CO4**: To know about the extention work & servises doing under home science extention.
- B.A. S.Y. Paper-6 [Textile & Clothing]
- CO1: To impart knowledge about the basic principles of design & painting.
- **CO2**: To develop knowledge & skill about wardrobe planning, selection of clothes for different age group, texture & fabric.
- CO3: To know about important aspects of clothing.
- **B.A. S.Y**. Paper-7 Child Development-[Late childhood & Adolescent]
- **CO1**: To appreciate the sequential stages of development during the childhood.

- **CO2**: To understand the behavioral problems during late childhood. CO3: To aware the need & skill to be developed for self improvement. CO4: To know the development & behavior during adolescence.
- B.A. S. Y. Paper-8 Food& Nutrition
- CO1: To understand the concept of an adequate diet & importance of meal planning.
- CO2: To gain acquaintance with human gastro intestinal tract.
- **CO3**: To know the different methods of food preservation.
- **CO4**: To gain the knowledge about the nutrient needs for various age groups.
- **CO5**: To be aware of the effect of food poisoning & food adulteration.
- B.A.T.Y. Paper -9 Marriage & Family Dynamics
- **CO1**: To understand the merits & demerits of marriage & family.
- **CO2**: To be aware about the areas of adjustments in marriage & family.
- **CO3**: To share knowledge about the laws related to women, marriage and family.
- **CO4**: To develop awareness about counseling.
- **B.A.T.Y**. Paper -10 Housing & Interior Decoration.
- **CO1**: To recognize the role of housing the integrated development.
- **CO2**: To know essentials of interior decoration.
- **CO3**: To study the landscape designing & its application.
- **B.A.T.Y.** Paper-11 Nutritional Management in Health & Diseases **CO1**: To know the principles of diet therapy.
- **CO2**: To understand the role of dietician.
- **CO3**: To understand the modification of normal diet for therapeutic puspose.
- **B.A.T.Y.** Paper-13 Human development [Adulthood & Oldage] **CO1**: To know different aspect in adulthood.
- **CO2**: To gain knowledge regarding adjustment during adulthood.
- **CO3**: To understand the nature of developmental pattern in adulthood & oldage.
- **B.A.T.Y.** Paper 14 Fundamental of Art & Design.
- **CO1**: To understand elements of principles of art & design.
- CO2: To apply various colours, harmonies in design.
- **CO3**: To develop skill in creating design & making art object.
- **B.A.T.Y.** Paper- 15 Communication process in Home-science CO1: To understand the roll of communication in development. CO2: To learn the process of communication effects of media.
- **CO3**: To develop the skill in students about the use of communication methods & media.
- **CO4**: To enable qualities of leadership in the students.
- **CO5**: To know the importance of programme, planning, implementation, evaluation of programme

Department of History

Programme Outcomes

A Bachelor of Arts (B.A.) in History typically aims to provide students with a comprehensive understanding of past events, cultures, and societies, along with the analytical tools necessary to interpret them. Here are some common programme outcomes for a B.A. History:

Ability to analyze historical events, sources, and narratives critically.

Evaluate historical evidence, considering different perspectives and biases.

Conduct independent research using primary and secondary historical sources.

Ability to synthesize information from diverse sources and form coherent arguments.

A deep understanding of significant events, figures, movements, and trends across various periods and regions (ancient, medieval, modern, and contemporary history).

Familiarity with key historical methodologies and historiographical debates.

Develop effective written and oral communication skills through essays, presentations, and discussions.

Ability to present complex historical information in a clear and accessible way.

Understand the social, cultural, political, and economic contexts of historical events.

Ability to draw connections between past and present events, understanding their long-term implications.

Develop an understanding of world history and the interconnectedness of different societies, cultures, and regions.

Analyze historical events from a global viewpoint, considering diverse experiences and viewpoints.

Reflect on the ethical dimensions of historical interpretations and their impact on contemporary society.

Understand the significance of history in shaping collective memory, identity, and societal values.

Apply knowledge from other disciplines (such as political science, sociology, economics, and anthropology) to understand historical phenomena.

Recognize the interconnectedness of history with other fields of study.

Efficiently manage time for research, reading, and assignments.

Ability to organize information and present it systematically.

For students wishing to pursue further studies (e.g., a Master's or Ph.D.), the programme prepares them with the foundation needed for advanced historical research.

The skills learned in history—research, analysis, writing—are transferable to various careers, including teaching, public history, journalism, law, and policy-making.

These outcomes help ensure that graduates of the B.A. History programme are well-equipped for both further academic study and a range of careers where historical knowledge, critical thinking, and communication are valuable.

Programme Specific Outcomes (PSOs)

- **PO1** Courses useful for the development of a generous humanitarian personality and for the benefit of society.
- **PO2** The task is to awaken the conscience of human beings and to create the dynamism of conduct in human beings.
- **PO3** Excellent leadership can change the course of development of the state, country and society and inspire students by influencing the history of aspiring individuals.
- **PO4** The course teaches students a strong sense of nationalism about their country and the need to fight against injustice.
- **PO5** Knowing how advanced our ancient culture and traditions, literature, religious philosophy and political goals are, and it makes us proud of India and its ancient history.
- **PO6** It is clear from this history that weak countries or people are always in the throes of injustice and have to fall prey to social, political and cultural slavery.

PO7 - The coming together of religion and the state is detrimental, and one learns that the cohesive role of religion is in the interest of society.

- **PO8** To learn students of our Prosperous Culture, Polity and Cultural Ethics and development of ancient archeological Facts.
- **P09-** This course contents learn to students writing methodologies of History and Scientific Method of History Writing.
- P10- Nationalism and Freedom Struggle Movement inspired to Patriotism.
- P11- Students aware of British policies and its impact on India.

P12- Project work paper aware to students about Research, Research Methodology and research ethics.

P13- History is allied and deeply rooted various fields of Professions. Course will orient the students leading and using our knowledge with historical facts.

- **P-14-** Awake students about Renaissance and battles against injustice. Introducing development of Human Rights and bad effects of war.
- P15- Aware students about ancient Marathwada and his great history.

Course outcome [COs]

B.A.F. Y. Sem I & II

- DSC-1 History of India (Up to 300 B.C.)
- CO 1: To Study various type of sources in history.
- CO 2: To put forth Socio-economic and religious history of India.
- CO 3: To understand various concepts in ancient India.
- **GE/OE-1:** History of Buddhism
- CO1: To Study the Sources of Buddhism.
- CO 2: To understand Life and philosophy of Gautam Buddha.
- CO 3: To Sensitize about the impact of Buddhism.

SEC-1: Study in Museology

CO1: To Study the basic concept of Museology.

CO2: To create awareness about Museology.

CO 3: To put forth importance of Museology.

DSC-4: History of India (300 B.C. to 650 A.D.)

- CO 1: To Study the Varius Dynasties in History of India
- CO2: To understand rise and expansion of various dynasties.
- CO 3: To put forth the significance of various dynasties

GE/OE-2 History of Jainism

CO 1: To Study the sources sources of of Jainism.

CO 2: To understand teachings of Jainism.

CO 3: To put forth major sects

VSC-1: Study in Archaeology

CO 1: To Study the basic concept of Archaeology.

CO 2: To create awareness about Archaeology.

B.A (Arts- History) BASY SEM- III & IV B.A.S.Y. Semester – III Subject: History His-05 CC-3A History of Medieval India (A.D. 1526 to 1757 A.D.) Contents Outcomes

Chapter I: Sources of Medieval History

Understanding importance of Sources in the History. Especially Primary sources are how Essential in Historical Research.

Chapter - II: Political And Administrative History

Political and Administrative History provides valuable insights into the past, present, and future of political systems and governance.

Chapter – III: Religious Life

Medieval religious life learn How people Behave in Medieval India and What behavior of Person is universal. Bhakti Movement and Others learn Santa's Thoughts. As like Honesty, love, anti-superstition. Chapter – IV: Society, Economy and Cultural Conditions Under Periods

Learn Social Problem and How Facing its? This Skills we learn from this topic.

Mughals and Marathas

Winning strategies and Confidence learn from this topics.

His-06 CC-3 B History of Colonial India (A.D. 1757 to A.D. 1857)

Contents Outcomes

Chapter I: Historical background of India 18th century

Studying the historical background of 18th-century India provides students with a deeper understanding of India's complex past and its lasting impact on the present.

Chapter II: Judiciary, Press and Education

Studying the history of the judiciary, press, and education provides students with a deeper understanding of their crucial roles in society and equips them to be informed and engaged citizens.

Chapter III: Social Reform Movements

Learn Moral values guide our choices and help us navigate complex situations where there is no clear right or wrong answer. Truth, Non-violence, Equality, freedom.

Chapter IV: Resistance to The Colonial Rule

Demand of our Personal right and fight for it if not get it.

B.A.S.Y. Semester – IV

Subject: History

His-07-CC-4A History of Modern India (A.D. 1857 to A.D. 1947)

Contents

Outcomes

Chapter I: Revolts against Colonial Rule and Growth of Political Awakening

This course will equip students with a deeper understanding of the historical struggles against colonialism and the development of political consciousness, fostering a sense of historical awareness and social responsibility.

Chapter - II: Steps in Indian National Movement Fight for our right, Fight against of Injustice, Patriotism.

Chapter - III: Anti-Colonial Rule Movement Fight for Justice, Equality.

Chapter - IV: Constitutional Development and Partition Importance of Rules and Regulation in our life and for our country is important.

Subject: History

B.A.S.Y. Semester – IV His- 08 CC-4B History of Europe Contents Outcomes

Chapter - I: Political Condition in Europe Church Superstition is dangers for our Society. Battle born battle in different ways.

Chapter - II: Age of Revolution Renaissance, Freedom, Equality is important for our nations.

Chapter - III: Unification Process and Issues in Europe How to face critical condition and develop to our country. Unity learn from this topic.

Chapter IV: World War

Learn importance of Peace.

BATY SEM- V & VI

Semester-V

Subject: History

DSC-1 DSE-1 A2 HISTORY OF CHINA (1900-1992)

Contents

Outcomes

Chapter I: Reforms and Revolutions Social Origin of Revolution Understanding of Social unrest and base of any revolution in the world.

Chapter II: Growth of Communism and Civil War Concept of Communalism and its impact on world or china.

Chapter III: Communism in China Understanding communism concept and its problems.

IV: China Under Transition

How facing and Solving our countries issues.

Semester – V Subject: History DSC-2 DSE-2 A3 Issues of Depressed Classes in India

Contents

Outcomes

Chapter 1: Women's Issues in India.

Women's issues in India highlight the complexity and diversity of challenges that women face. They underscore the need for continued efforts to promote gender equality, legal reforms, and socio-cultural changes that empower women across the country. Gender Inequality and Patriarchy, Access to Education, violence against women, Economic Empowerment, Cultural and Social Expectations etc. all issues focused in this content.

Chapter II: Issues of Minorities in India

The issues faced by minorities in India are multifaceted and complex, shaped by a combination of social, political, cultural, and economic factors. India is a diverse country with numerous ethnic, religious, and linguistic groups, and while this diversity is celebrated, minorities often face unique challenges. In that SC, ST, and Minorities Muslim, Jain, Christian etc.

Chapter III: Caste Issues in India

Tackling caste inequality requires not only legal reforms but also a deep shift in social attitudes, cultural practices, and economic opportunities. Understanding the persistent effects of the caste system is crucial for creating a more inclusive, just society where everyone has equal opportunities, regardless of their caste background.

Chapter IV: Issues of Labour

The country must address the challenges of job insecurity, exploitation, gender inequality, and the lack of social security for millions of workers, particularly in the informal sector. Strengthening labour laws, improving enforcement, providing better representation for workers, and promoting skill development are crucial steps toward ensuring more equitable and just labor practices.

Semester – V Subject: History

DSC-3 DSE-3-A2 Field Visit Historical Places in Jalna District

Contents

Outcomes

Chapter I : Archieval sites of Jalna district

Understanding a local History and its term.

Chapter-II: Visit to Medieval Monuments in Jalna District Medieval Monuments in Jalna District

Awakening about History our surrounding and its important.

Chapter-III: Visit to Tours and Travels Agencies in Jalna District Tourist Travel Agency in Jalna District

Understanding view of Travel and Tourism and development of business point of view.

Chapter-IV: Visit to Dargah and Temples in Jalna District. Dargahs and Temples in Jalna District Visits

Getting knowledge about different cultural dimensions.

Sem- VI

Subject: History

SC-1 DSE-1 B2: Research Methodology and Intellectual Property Rights

Contents

Outcomes

Chapter 1: History: Concept

Understand what nature of History is & How create it and what are Sources stand to History.

Chapter II: Research Design

It is crucial for ensuring that research is credible, valid, and reliable.

Chapter III: History: Research and Method

History: Research and Method, students learn the skills necessary to approach historical questions rigorously and systematically. They gain an understanding of how to conduct research, critically analyze sources, develop historical arguments, and communicate their findings effectively.

Chapter IV: Intellectual Property Rights

Intellectual Property Rights (IPR) into the study of history offers students a broader understanding of how creative works, inventions, and cultural heritage have been protected, exploited, and valued over time.

Sem – VI Subject: History

DSC-2 DSE-2 B1: History of Sufism in India

Contents

Outcomes

Chapter I : Historical Background

Understanding of Developing stages of Sufism and attract to people.

Chapter II: Concepts in Sufism

Understanding of Sufism and its benefit to Indian culture. What are the best features of sufi santas and its impact on Indian culture?

Chapter III: India: Sufism

Sufism and its saints have had a lasting and profound impact on religious thought, cultural expressions, and social dynamics, not only within the Muslim world but globally. Sufism's emphasis on love, inner spirituality, and connection with God has influenced a wide range of art, music, literature, and social practices.

Chapter IV: Sufi Silsilas in India and its Impact

Silsilas learning and theory learn various values. As like sympathy, love etc.

Sem – VI Subject: History

DSC-2 DSE-2 B3: Dr. Babasaheb Ambedkar and His Movement

Contents

Outcomes

Chapter I : Historical Background

Learn Historical development of Cultural Hegemony & how it work.

Chapter II: Dr. Babasaheb Ambedkar's

Learn untouchability concept of Dr. Babasaheb Ambedkar and its impact on society

Chapter III: Chapter III. Socio Religious Movement, Political and Constitutional Movement

Learn Dr. Babasaheb Ambedkar Socio-religious Thoughts and Contribution in Constitutional development. Students learn hard work from Babasaheb.

Chapter IV: Economic and Education Development

Learn Dr. Babasaheb Ambedkar Economic and educational Thoughts and Contribution in Constitutional development.

Sem – VI Subject: History

DSC-3 DSE-3-B1 Field Visit in Chhatrapati Sambhajinagar and Jalna District

Chapter I : Field Visit in Chatrapati Sambhajinagar

A field visit to Chhatrapati Sambhajinagar offers students a well-rounded experience that connects history, culture, religion, art, and society. It allows them to apply theoretical knowledge from their academic studies to real-world contexts

Chapter II: Caves in Chhatrapati Sambhajinagar

Studying ancient architecture, Buddhist, Hindu, and Jain traditions. These rock-cut cave complexes contain ancient murals, sculptures, and monasteries, offering an invaluable glimpse into the region's religious and artistic history.

Chapter III: Archaeology and Fort

Learn Fort architecture and it's important in archeology.

Department of Political Science

Programme Outcomes(pos)

PO1: To develop student leadership traits.

PO2: To develop awareness of the political situations in India and award among the students.

PO3: To familiarize the students with word current affairs.

PO4. To help the student to wake up with changing political scenario at the global level.

P05: To help to understand the various ideology and philosophical concerns of Indian and western philosopher.

P06: To familiarize the students with different political moment and revolutions in the world.

A.F.Y. (NEP)Specific outcomes (PSOS) Semester – I

DSC – Pol- 01: Introduction to political science

Learning Outcome:

At the end of the course, the student would be able to understand

Theoretical aspects of political science, and will learn about its basic concepts of state and government

The origin structure and functioning of state and government

Understand the dynamic of live politics in the context of political theory

Basic concepts - liberty equality, and justice

Distinction and relevance of these concepts

SEC – I Human Rights

Learning Outcomes:

After completing this course students will be able to

Explain the basic concepts of human rights and their various for emulation

Have sufficient knowledge and skills for analyzing, interpreting, and applying human rights standards and sensitizing them to the issues.

Develop an ability to critically analyze human rights, and violations around them and become a volunteer.

GE IOEI; Basic of state and government

Course learning outcome:

At the end of the course, students will be able to:

Understand the origin constituents, purpose, structure, and functioning of the state and government.

Analyze the better form of government around the world.

To understand the difference between state and government.

GE IOE Pol-GE LOE 2: introduction to foreign policy

Course learning outcome:

At the end of the course, students will be able to :

To study the framing means and goals of foreign policy

To understand the objections and principles of India's foreign

B.A.F.Y. Semester – II. DSC – Pol- 04 Government and politics in Maharashtra

Learning outcomes: with the study of this course students will be able to

Understand the socio-economic conditions, state reconstruction, and cultural background of Maharashtra.

Make - a sense of the structure and functioning of the government of Maharashtra

Analyze the politics of Maharashtra.

Become aware of local self-government and panchayat raj of Maharashtra.

VSCI – POL – VSCI: Election Management.

Course Outcome

This course will enable students to

Acquire skills in election management.

Assist political parties or can diabetes to manage its electorate

Provide professional solutions to run an election campaign for a political party or any independent candidate.

B.A.S.YAcademic Year 2024_2025.

Semester- Ill

Subject political science

Government and Politics in maharashtra

Learning outcomes

• To study Government and politics in Maharashtren including Governor Chief Minister & council of Minister.

To Famillerize the student with structure of hish burt and its. Funcation, and Judicial retivist.

To study Sanyukta Matiarashton Movement and best different Commission theories of

international Relations.

Learning outcomes:

To study International Relations and including International Relation and gaternational Politics.

To familiarize the student with Approaches to the study of Interna Dinal Relations idealistic, Realistic, Decision Making Approche to study Balance of power, and Collective security.

Semester IV

Government and politics in Maharashra

leaming outcomes

to study Panchayat Raj system including yard Constitutional Amendment

To familiarize the student with structure of gram panchayat Panchayat Samiti; zilha Parishd.

to study ideology and programme of political Porties. Congress, Bhartiy Janata Panty, Shiv sena, Republican Party of india

BA TY Academic year 2024-25
BATY. Indian political thinkers. Course Code DSC-1

Learning outcomes

• Students will demonstrate compretiensive knowledge of prominent thinkers and their conceptual frameworks.

• Students will apply these conceptual frameworks to andithe Contemporary situations effectively.

• students will identity and evaluate the significant contributors to Saling political thought. clucidating their roles in shaping India's meform movements.

Students will articulate the core concepts in gudian political thought with clarity and precision.

Western political Thinkers. Course Code DSE-A2

Learning outcomes:

•students will exhibit a thorought understanding of key political thinkers and their foundational concepts.

• students will discern and analyze similarities and differences among thinkers with analogous Concepts.

• students will articulate the essence and significance of normative, elucidating its role in staping political discourse and decision-Halking processes.

Indian Federal systen. Course Code DSE - IC

Leaning outcomes

understand the theoretical underpinnigs of federal government and the Concept of Federalism, contextualized within the Indian scenario

Analyze the dis tinctiveness of the gudian union in its federal Structure Considering historical political and constitutional dimensioms.

Indentify and evaluate the sources of conflict between the Contor and the states, discerning the socio-political and Constitutional factor at play.

Political Party System in gadia. Course code GE-1

Learning outcomes,

Grasp the indispensable role of political parties in sustaining democracy, comprehending their organizational intricacies, functions. and diverse typologies,

Analyze the factors contributing to the escalating Phenomenon of defection within the Indian Parry system, Critically. evaluating its implications for governance. democratic Stablity and governanc

Semester Vi

title of the Course: indian Political thinkers course code DSE B1

•Learning outcomes:

• understand significant galian Political thinkers and their works.

• Apply these conceptual frames to analyze and interpret Contemporary political phenomona and social challenges.

title of the course western political Thoughts

•Leaming outcomes

• Demonstrate a comprehensive understanding of prominent wastern. Political thinkers and the foundational Concepts they es powel.

Explain the Nature and significance of normative thining within western political thought, discerning its the in Shaping ethical and moral di mensions of politics.

title of the counse: Political ideologies. Course code DSE 3

Learning out Comes:

• Student's will be able to understand different political arguments. in their, ideological context and they will be more sophisticated in dealing with the & cultural and social roots. of political actions. discourses, and rhetoric.

title of the courre: Indian Judicial System

Learning outcomes

Study the structure and functioning of the unified Judiciary. under the union Government ofIndia.

Examine the mechanisms and safeguards in place to ensu a fair and accessible Justice.

Title of the couve: Local sef Government

Deconstrate a comprehensive understanding of the Concept and Process of democratic decentralization, elucidating its significance in Fostering participatory democracy and empowering local Communities.

• Examine the Structure, function, and powers of Local self-governmenbodies in sudia including panchayats and municipalities, discerning their rolen local administration and service li delivery.

Department of Sociology

POs:

To provide information to the students with the understanding of historical social economic and intellectual forces of the rise of social theories.

To provide the student with the basic understanding of emergence of sociological thought and to know about pioneer Sociologists stated theories with their contributions of sociology.

To provide and equip the student with the procedures, tools and techniques of social research.

Do sensitise the student about the social problem of contemporary India and to discuss the measures on it.

The course can serve as a helping hand to students to understand primary technique and use of Social Research.

It is very important to focus on studies about rural development in countries like India. Where a large section of the population still lives in rural areas.

Urban communities. Urban planning and urban problems.

The course is designed to understand the dynamics of population.

Sociology is one of the modern social sciences which has a significant role in society.

The course is designed to study approach, principles, concepts, methods and history of sociology.

COs :

BAFY SEM I (DSC-1) Credit - 3

Introduction to Sociology

Objectives: This is an Introduction to Sociology to students with the aim of providing basic mformation about subject The paper intends to make aware students regarding the origin and journey of subject with the addition of introduction of some of pioneer sociologists. The paper explains how sociology emerges as science with its own subject matter and scope Students will ect insight about the significance and career opportunities in the subject Course Outcome

CO1 To provide knowledge regnding emergence of sociology

CO2 Student will get knowledge about scope and nature of sociology as a discipline

CO3 To introduce sociology as a science and its subject matter

C04 Student will get acquainted with the information about practice of sociology

Basic Concepts in Sociology

Objectives: The paper is designed to explore various concepts in Sociology so students can understand the seventific terms in the subject With the knowledge of basic concepts students will easily understand the subject and will make wider their perspective. The paper also includes emerging concepts as society is dynamic so student can understand the change in society

Course Outcome

Student will get knowledge about basic concepts and sesentific terms in sociology To explom the terms to understand social terms used in socioloty as a discipline

To introduce some of the emerging concepts in Sociology

Students will exposed to new concepts to understand the changing nature o of society

BAFY SEM I (GE-1) Credit -2

Modernization and Indian Society

Objectives: The Paper is designed to make student aware regarding the rapid change occurring due to the process of modernization. This paper will explore the aspects of modernization and the impact of modernization on society.

Course Outcome Student will learn regarding the aspects of modernization Student will explore to the various concepts related to modernity Student will be able to analyze the impact of modernization on the society To make students aware of the changing nature society

GE-2 Elements of Social Change (CR-2)

Course Objective: This is course is designed to explain the concept of Social Change and its dimension, it will also explain the mechanism of Social Change. This paper gives insight to the characteristics of social change and causes of social change. This course will increase the understanding of changing nature of social change.

Course Outcomes:

Students will get knowledge of nature and impact of social change

Students will be famthar with the concept of social change

To provide comprehensive understanding of social change

To explore the concept of socio cultural change

VSC - Counseling in Health (Cr 2)

Objectives: This paper is designed is to train students in social counseling in health sector Student will tearn baste skills of counseling and will get insight of different roles in counseling moreover students will get professional knowledge and skill of health counseling

Course Outcomes

Student will get skilled in health counseling.

To introduce the basic consoling skills of health sector

Students will understand the role and importance of counselors in health sector

Students will explore to the opportunities in health sector as a counselor

BAFY SEMI-SEC

Life Skills and Self-Awareness (02 Credits)

Objectives: Student will learn the life skill for effective communication and inter- relation in society The paper is designed to realize the self-esteem qualities and how to upgrade it with acquiring various skills

Course outcome

Developing life skills and self-awareness in student

Imparting basic knowledge of concepts like self-esteem, creativity, self-management, and motivation

O Students are able to discuss various types of life skills like effective communication skills, stress management international relations, and emotions.

BAFY SEM 1

DSC-3 Social Institutions (Credit-3)

Objectives: The paper is designed to explore the concepts of social institution, paper will help to acquaint various aspects of social institution and its significance in society. Students will learn regarding the changing aspects of social institutions.

Course Outcomes: -

Students will understand the role and function of social institution

To explore the change and transformation in social institution

Students will learn the concept of social institution

Students will understand significance of social anstitutionsRecognise the scope of life skills and selt awareness

BAFY SEM-П

DSC-04 Indian Social Structure (CR-3)

Course Objective: This paper is designed to explore the Indian Social Structure. Students will get in BAFY SEM- Π

DSC-04 Indian Social Structure (CR-3)

Course Objective: This paper is designed to explore the Indian Social Structure. Students will get insight about diverse social structure on India. Students will get knowledge about various communities and their changing scenario.

Course outcomes:

To provide basic knowledge of social structure and its characteristics

To explain the elements of Indian social structur

To enlighten students regarding the various communities

To explore the changing nature of Indian Social Structuresight about diverse social structure on India. Students will get knowledge about various communities and their changing scenario. Course outcomes:

To provide basic knowledge of social structure and its characteristics

To explain the elements of Indian social structure

To enlighten students regarding the various communities

To explore the changing nature of Indian Social Structure

BAFY SEM II

Minor:- Education and Society (Credits-2)

Course Objective: This course is designed to explain the relation between education and society This paper will provide sociological perspective of education and its scope. Student will aware regarding the change and its impact in education

system

Course Outcome

Student will get insight of education as a institution and its role in the society

Students will learn about various aspects of education

Student will be inform about Indian Education System -Issues & Challenges

Student will learn the impact of rapid changes in education

GE-II - Social Media and Society (Credit (02)

Course objectives: The course is designed keeping in view the use of social media by the tndividuals on the society The students who are using it wildly should be aware about the handing of social media properly. Social media is widely used by the youth. The course gives an overall view to know social media, various types widely used and to aware the problems occurring

Course outcomes:

Students will make aware about functions of social medta

Students will make sense of use of modern social media and its types

Students will explore Positive as well as negative impacts of social media on society m and on individuals

To make awareness about the challenges and concerns of the social media

BAFY SEM II

GE-IV Gender and Society (CR-02)

Course Objective: The paper is designed to understand the concept of Gender. The paper will Increase the awareness to functions of gender and role in society. The paper will increase awareness and sensitize with various issues related to gender. The paper is designed to make students responsible towards gender specific issue

Course outcomes:

To increase understanding of concept of Gender and Sex

To Understanding issues relating to gender. Analyze gender issues from different perspectives Students will will be able to develop relation between real life experience and concept of gender issues taught in the class.

To realize the role and responsibilities toward gender specific issues.

BAFY SEM II

VSC-Sociology of Tourism (Credit 02)

Course objectives: The course is designed keeping in view to introduce tourism as a leisure time activity. It introduces different types of tourism, service providers and its impact on society The course tries to introduce tourism as a subject to the students. The course also intends to introduce service opportunities to students

Course outcomes:

Lo introduce tourism as a leisure activity

to identity types of tourism

To know tourism service providers

To introduce job openings in this sector

BAFY SEM I

SEC (Basic Study in Cyber Law) -Cr 2 Objectives:

The offrectives of this course are to enable learner to understand, explore, and acquire a critical understanding to cyber law. Develop competencies for dealing with frauds and deceptions (confidence tricks, scams) and other cyber-crimes.

Course outcomes

Vine learner conversant with the sad and intellectual property issues emerging from cyberspoer 1 xplore the legal and policy development in variou countries to regulate cyberspace, To develop understanding of relationship between society and cyberspace

Give learners in depth knowledge of information technology ac1 and legal trame work of right to privacy, data security and data protection

Department of Economics

Programme specific Objectives (PSOs)

To Develop a synthesize information related to various economic social and environmental development.

To prepare the students to take –up master degree research programme and make students ready for higher education.

To develop a spirit of excellence in academics and the attitude of applying their education for improving the national building activities.

To develop nature entrepreneurial bent of mind leadership and organizational skills and ability to coordinate and work in teams while developing a sense of social responsibility and multicultural understanding.

To prepare the students to take-up master degree research programme and make students ready for higher education.

Programme Outcomes (POs)

The students will get trained to collect primary data and presentation skills

The programme also empowers the graduates to understand various competitive examinations or choose the post graduate programme of their choice.

The students will get knowledge with human values framing the base to deal with various problems in life with courage and humanity.

The students will get an understanding of basic economic theory.

The students will get an introduction to economic issues and problems facing the country.

Department Of Economics

Course outcomes (Cos)

Semister-I

DSC-I: Micro Economics

Students will be able to analyze about meaning nature scope significance and limitations of micro economics.

Students will be able to analyze demand and supply analysis.

Students will be able to analyze consumer behavior.

Students will be able to examine welfare economics

Also students to be able to develop strong knowledge of the subject.

GE/OE -1 Indian banking system

Students will be able to describe NABARD

Students will be able to understand indian banking structre

Students will be able to analyze function of cooperative banks

Students will be able to analyze function of commercial banks

Students will be able to examine role of banking in development

SEC-1: Data collection

Students will be able to analyze primary data collection methods Students will be able to describe secondary data collection methods Students will be able to examine questionnaires and schedule Students will be able to differentiate between primary and secondary data Students will be able to practical skills related to data collection

Department Of Economics

Course outcomes (Cos)

Semister-II

DSC-IV: Price theory

Students will be able to analyze theory of production Students will be able to compare costs of production Students will be able to examine market Students will be able to describe various concepts in production and cost Students will be able to analyze selling cost

GE/OE-2: Reserve bank of india and monetary policy Students will be able to analyze about money measures Students will be able to understand the function of RBI Students will be able to examine monetary policy Students will be able to describe methods of credit control Students will be able to current monetary policy

VSC-1 Modern banking techniques Students will be able to describe the need and importance of technology in banking Students will be able to understand E-banking and digital payment

Students will be able to examine cyber security measures

Students will be able to understand security measures

Students will be able to practical skills.

B. A. Second Year

Macro Economics

COS 1. Students understand the meaning, nature, and scope of macro-economics. They understand the difference between micro-economics and macro-economics.

COS 2. They understand the concept of national income.

COS 3. They understand classical & Keynesian theories of output and employment.

COS 4. Students acquire the knowledge about the nature of trade cycle and how to control it through monetary and fiscal measures

Development Economics

COS 1. Students are able to understand how to optimize utilization of rare resources for sustainable development.

COS 2. They understand which factors lead to economic development and growth.

Public Finance

COS 1. Students acquire the knowledge about the nature and scope of public finance and about the difference among private, public and merit goods.

COS 2. Students are able to understand the fiscal framework for taxation, revenue, debt and spending.

COS 3. They understand the key issues and challenges of fiscal policy in developing economy.

COS 4. They are able to understand the various issues concerning the budget and how the government manages their expenditure through receiving revenue from various sources

Statistical Method

COS 1. Students are able to understand the nature, scope and importance of Statistics. COS 2. They understand how to calculate and uses of mean, median, mode, range, mean and standard deviation for the analysis of set of data.

COS 3. They identify the direction and strength of correlation between two factors or variables.

COS 4. They are able to compute and interpret the Pearson's correlation.

COS 5. They understand the meaning of index number and how to calculate indices from given data.

B A Third Year

International Economics

COS 1. Students acquire the knowledge about broad principles and theories of international trade which tend to govern the free flow trade in goods and services.

COS 2. They also understand health of economy with the help of balance of payment.

COS 3. Students understand relationship between international trade and nation's standard of living

Agricultural Economics

COS 1. Students understand which factors lead to agricultural development.

COS 2. They acquire the knowledge about importance of agriculture in terms of contribution in national income, employment generation, the main source of livelihood of rural people etc. COS 3. They understand the factors responsible for the vulnerable situation of farmers.

History of Economic Thought

COS 1. Students understand chronological account of the development of economic ideas in different parts of the world.

COS 2. They gain the detail knowledge about the key models and concept of the history of economic thought.

COS 3. They develop a critical understanding of the influence of evolving economic thought of contemporary global economics.

Research Methodology

COS 1. Students understand important concepts regarding research

COS 2. They identify the role and importance of research in the social sciences.

COS 3. Students understand how to prepare research design and surveys for scientific research.

COS 4. They acquire the knowledge about procedures of sampling, data collection, analysis and reporting.

Industrial Economics

COS 1. Students understand the linkages between industry and agriculture sector.

COS 2. They understand the role of industries in economic and social development

COS 3. They acquire the knowledge where to establish industries and how to organize them.

Indian Economic Thinkers

COS 1. Students understand chronological order of the development of economic thoughts in India.

COS 2. They understand the thoughts of eminent Indian thinkers on the background of economic exploitation by British rulers.

COS 3. They gain the knowledge about the contribution of Amartya Sen on fundamental problems in welfare economics.

Faculty Commerce

B. COM FY 2024-25

B.COM

Programme Outcomes (POs):

The National Education Policy (NEP) 2020 for India emphasizes several key aspects for Bachelor of Commerce (B.Com.) programs, aiming to produce graduates who are not only well- versed in their respective disciplines but also equipped with skills necessary for holistic development and employability. While specific program outcomes may vary between institutions and disciplines within B.Com. programs, here are some common outcomes aligned with NEP 2020:

POI. Contribution to the Economy and Society:

Make significant contributions to the economy and society through their roles as business leaders, entrepreneurs, professionals, and responsible citizens, fostering economic growth, innovation, and social welfare.

PO2. Ethics, Environment and Sustainability:

Ability to develop sustainable practical solutions for complex business-related problems within positive professional and ethical boundaries. Develop understanding for social and sustainable business issues and demonstrate the knowledge of and need for sustainable development.

PO3. Entrepreneurial Mindset and Innovation:

Cultivate an entrepreneurial mindset, fostering creativity, innovation, and a willingness to take calculated risks to identify and pursue opportunities for value creation and business innovation.

PO4. Individual and team work:

Work effectively in diverse teams, demonstrating leadership, interpersonal skills, and the ability to collaborate with others to achieve common goals and solve complex problems.

P05. Communication:

Communicate effectively on complex business-related activities and issues with business counterparts in particular and with the society at large, such as, being able to comprehend and write effective reports and design documentation. To make effective presentations, and give and receive clear instructions.

PO6. Digital Literacy and Technological Proficiency:

Demonstrate proficiency in using digital tools, technologies, and information systems relevant to the field of commerce, enabling them to analyze data, automate processes, and adapt to technological advancements.

PO7. Continuous Learning and Adaptability:

Embrace lifelong learning, proactively seeking opportunities for professional development, acquiring new skills, and adapting to changing business trends, technologies, and regulatory environments. These program outcomes align with the broader goals of NEP 2020 to transform higher education in India and prepare students for the challenges and opportunities of the 21" century. Board of Studies designing B.Com curricula are encouraged to incorporate the outcomes into their program objectives and learning outcomes.

B.COM [NEP]

Programme Specific Outcomes (PSOs):

(Programme specific outcomes are discipline/major specific. Different major will have different PSOs.

Following is the example of PSOs for Accounting & Finance Major. Respective BoS is expected to draft PSOs related to their Major)

PSO1 Financial Reporting and Analysis:

Graduates will demonstrate proficiency in preparing, analyzing, and interpreting financial statements in accordance with accounting standards and regulations, enabling them to provide accurate and reliable financial information for decision-making.

PSO2 Managerial Accounting and Cost Management:

Graduates will apply managerial accounting techniques to analyze costs, budgets, and performance metrics, enabling them to support strategic decision-making and optimize resource allocation within organizations.

PSO3 Taxation and Compliance:

Graduates will possess a comprehensive understanding of tax laws and regulations, enabling them to prepare tax returns, advise on tax planning strategies, and ensure compliance with tax obligations for individuals and businesses.

PSO4 Auditing and Assurance Services:

Graduates will understand the principles and practices of auditing, internal controls, and assurance services, enabling them to conduct audits, assess risks, and provide assurance on the reliability and integrity of financial information. PS05 Financial Management and Investment Analysis: Graduates will analyze financial markets, evaluate investment opportunities, and make informed decisions regarding capital structure, capital budgeting, financing, dividends and risk management to maximize shareholder value and wealth creation.

PSO6 Financial Markets and Institutions:

Graduates will demonstrate knowledge of financial markets, instruments, and institutions, including banking, securities, and derivatives markets, enabling them to analyze market trends, evaluate investment options, and manage financial assets.

PS07 Ethics and Professional Standards:

Graduates will adhere to ethical principles and professional standards in their practice of accounting and finance, demonstrating integrity, objectivity, and professional skepticism in their decision-making and conduct. These Program Specific Outcomes provide a focused framework for students pursuing a major in Accounting and Finance within the B.Com program, equipping them with the specialized knowledge, skills, and competencies required to excel in professional roles within the accounting, finance, and related fields,

BCOM FY NEP 2024-25

Course Outcomes (COs):

B.Com. First Year [NEP] - I SEMESTER

DSC-1: Course:-Financial Accounting-1

After completion of the course, students will be able to-

- CO 1: To prepare and analyse the financial statements.
- CO 2. Acquire the basic concept of accounting terms.
- CO 3. Record the different financial activities & Practices

DSC-2: PRINCIPLES OF MANAGEMENT-1

After completion of the course, students will be able to-

- CO 1: Demonstrate understanding of the role of managers in modern business organizations
- CO2: Absorb various management concepts, principles and theories
- CO 3: Examine the managerial functions having an impact on the business effectiveness

DSC-3: Entrepreneurship Development-1

- CO 1: To Create Awareness Amongst students about Entrepreneurship.
- CO 2: To Understand Theories while applying in the Business.

CO 3: To know about Foundation of Entrepreneurship and its theories.

CO 4: To identify the type of entrepreneur and the steps involved in an entrepreneurial Venture.

GE/OE-: Basics of Entrepreneurship

After completion of the course, students will be able to-

- CO 1: To select a business idea
- CO 2: To prepare a project report
- CO 3: To register a unit (Udyog Aadhar Number)

SEC-1: (B) PERSONAL FINANCE & PLANNING

After completion of the course, students will be able to-

CO 1: Understand the need and relevance of planning of personal finances

CO 2: Orient students with basic concepts of saving, investment, 3. Effectively use modern office automation tools

BCOM FIRST YEAR [NEP] - II SEMESTER

DSC-4: Course:-Financial Accounting-II

After completion of the course, students will be able to-

CO 1: Understand the process of recording and classifying the business transactions and events

CO 2: Understand the financial statements, viz., Profit and Loss Account, Balance Sheet, and cash flow statement of a sole proprietor.

CO 3: Abridge the ability to prepare and analyse the branch account. 4. Acquire concept of departmental accounting.

DSC-5: PRINCIPLES OF MANAGEMENT-II

After completion of the course, students will be able to-

CO 1: Demonstrate understanding of the role of effective direction in modern business organizations

CO 2: Design motivation strategies for business effectiveness

CO 3: Learners will diagnose various styles and qualities of efficient leadership, Coordination and Controlling

CO 4: Identify the contemporary issues and challenges in business management

DSC-6: Entrepreneurship Development-II

CO 1: To provide knowledge and information about Entrepreneurship Development.

CO 2: To provide knowledge and create ability for setting up an enterprise within given Environment.

GE/OE-02: Basics of Marketing

CO 1: Students understand fundamental concept of marketing and develop the plan for own business

CO 2: Students gets the job opportunities due to the knowledge of marketing management.

CO 3: tudents demonstrate ability to work well with others communication skill

VSC-1: Business Documentation

CO 1: To make students familiar with business correspondence documents.

- CO 2: To train students with advanced MS Word Functions.
- CO 3: To make ready students to make professional documents.

B.Com. S. Y. III Semester III & IV (CBCS Pattern)

Corporate Account-I & II (Paper -III)

CO1: To create awareness about Corporate Accounting in conformity with the provisions of Companies Act and as per Indian Accounting Standards. CO2: To make aware about the conceptual aspect of corporate accounting.

CO2: To make aware about the conceptual aspect of corporate accounting.

CO3: To acquaint about issue and forfeiture of shares with re-issue procedure.

CO4: To make practice the final account of Joint Stock Company.

CO5: To enable students to acquire the knowledge of redemption of debentures and preference shares.

Cost Account-I & II (Paper -IV)

CO1: To create ability of students to understand basic cost accounting concepts and the

classification of cost.

CO2: To provide the knowledge of material handling methods such as LIFO, FIFO, simple average and weighted average.

CO3: To explain the labor costing methods like incentive scheme, wage payment, time and piece rate etc.

CO4: Awareness will be received about costing methods and techniques.

CO5: To develop overheads knowledge and its methods of distribution.

I.T. Application in Business III & IV (Paper -V)

CO1: To aware about Google workspace.

CO2: To give information to student about importance of email and use of email.

CO3: To enhance the knowledge of using Google form

CO4: To guide students about cyber security

CO5: To make aware about E-Commerce system .

CO6: To encourage students to learn practical application of E-Commerce..

GST Account-I & II (Paper -VI)

CO1: Creating ability of students to learn tax concepts, procedure and legislation pertaining to

CO2: To make perfection in learning of GST Registration process.

CO3: To understand practical online GST registration process and filling GST returns.

CO4: To provide knowledge of supply under GST and valuation of supply.

CO5: Ability of student is to be existed to learn input tax credit.

CO6: Understand GST accounting with their documentation and keeping process of records in GST.

Marketing Management- (Paper -VII) (Optional Group)

CO1: To enhance marketing strategy of students.

CO2: To make aware students about marketing planning.

CO3: To learned different methods or techniques of marketing

CO4: To acquaint about marketing management of a firm and its importance.

CO5: To learn marketing mix and channel of promotio.

CO6: To enlighten students regarding the agriculture marketing and decision making in marketing.

B.Com. T.Y. (Semester V and VI)

Advanced Financial Accounting-I (Paper No. XXIX) and Advanced Financial Accounting-II (Paper No. XXXV)

CO1: To equip the students with the ability to analyze, Interpret and use financial account in business enterprise.

CO2: To introduce stock market, Electricity Company, insolvency accounts accounts of local government and farm accounting.

CO3: To provide the knowledge of social accounting, departmental accounting, investment accounting, bank final account and accounts of insurance companies.

CO4: To understand the single entry system.

CO5: To enable the students to understand the final accounts of banking company.

CO6: To explore the knowledge of investment accounts.

CO7: To understand farm accounting and municipal accounting process.

Management Accounting-I (XXX) and Management Accounting-II (XXXVI)

CO1: To equip the students with the ability to analyze interpret accounting information in managerial decision making.

CO2: To have a good working knowledge of the subject.

CO3: To understand the application of management accounting techniques.

CO4: To provide the knowledge of budgeting and responsibility accounting.

Direct Taxes

CO1: To expose students to the basic tax concepts, procedure and legislation pertaining to indirect tax.

CO2: To provide the basic of Income tax act 1961.

CO3: To understand practical knowledge of income for salary and business and profession.

CO4: To provide knowledge to student of all direct sources of income tax.

New Auditing Trends-I (XXXIII)

CO1: To understand about the auditing procedure.

CO2: To enable the students to understand the auditing concepts and new auditing trends.

CO3: To explore the knowledge Cost and Management Audit, Human Resource Audit,

Investigation, Trends in Cooperative Audit and Tax Audit are explained throughout the subject work.

Business Regulatory framework I& II

CO1: To understand Indian Contract act 1872.

CO2: To aware to students about consumer protection act 2019.

CO3: To enhance the knowledge of The Right to Information Act 2005.

Computerized Accounting I &II

CO1: To familiarize the students with the programme Tally ERP 9.

CO2: To familiarize the student with all the latest accounting software

CO3: To Provide the knowledge of vouchers, Ledger, accounting reports, , ERP, and Knowledge Tally software .

Rural Development and agricultural business I & II (Optional Group)

CO1: To familiarize the students with significant of rural development.

CO2: To understand rural development programme in India.

CO3: To enhance the knowledge of agricultural marketing.

M. COM. FY NEP 2024-25 PROGRAMME OUTCOME M.COM [NEP]

PO1: To provide a systematic and rigorous learning and exposure to Banking and Finance related disciplines.

PO2: To train the student to develop conceptual, applied and research skills as well as competencies required for effective problem solving and right decision making in routine and special activities relevant to financial management and Banking Transactions of a business.

PO3: To acquaint a student with conventional as well as contemporary areas in the discipline of Commerce.

PO4: To enable a student well versed in national as well as international trends.

PO5: To facilitate the students for conducting business, accounting and auditing practices, role of regulatory bodies in corporate and financial sectors nature of various financial instruments.

PO6: To provide in-depth understanding of all core areas specifically Advanced Cost Accounting, International Accounting, Management, Security Market Operations and Business Environment, Research Methodology and .

PO7: Students Collect important Information though Field Project, Market Demand survey activities, Business Project Report works, On Job Traning.

PROGRAMME SPECIFIC OUTCOME [PSOs] - MCOM

PSO1: After Completing Masters in Commerce students are able to

PSO2: Develop an ability to apply knowledge acquired in problem solving.

PSO3: Ability to work in teams with enhanced interpersonal skills and communication.

PSO4: The students can work in different domains like Accounting, Taxation, HRM, Banking and Administration.

PSO5: Ability to start their own business.

PSO6: Ability to work in MNCs as well as pvt, and public companies.

PSO7: To develop team work, leadership and managerial and administrative skills.

PSO8: Students can go further for professional courses like CA/ CS/CMA/CFA

COURSE OUTCOMES - M.COM

M. COM. FY I & II SEM NEP 2024-25

M. Com. FY [NEP] Management Process and Organizational Behaviour code: COM/MAN/501

200

CO1: To understand the basic organisational process of management.

CO2: To study organisational behaviour.

CO3: The economic behaviour of different industries, firms and markets in relation to their output and pricing decisions

M.COM. FY [NEP] First Sem Manageraial Economics Code: COM/MAN/502

CO1: To help students to understand managerial economic and cost benefit analysis.

CO2: . Apply economic principles to management decisions.

CO3: Understand the Nature, Scope and Significance of Managerial Economics, its Relationship with other Disciplines.

CO4: Understand the Role of Managerial Economics in Decision Making.

CO5: Understand the cardinal and ordinal approach of consumer behavior.

CO6: How to estimate demand and furcating of demand in the markets.

M.COM. FY [NEP] First Sem Corporate Financial Accounting Code: COM/MAN/503

CO1: To acquint student corporate accounting system in corporate and global level.

CO2: Corporate Finance is a way to manage financial resources, capital, etc. It helps in knowing and managing the sources of funding, cash flow statements, etc.

CO3: When the resources are allocated or the shareholder has invested his/her share in a particular financial resource, then Corporate Financial Accounting is used to analyze the capital structure and helps in increasing the return value of any particular resource.

M.COM FY [NEP] FIRST SEM Activity Group- Market demand Survey of any Product Code: CoM/ACT/ 504

CO1: Market demand survey informs decisions about product development, marketing

CO2: students can use these surveys to access key demographic information, finding out just about anything from what customers like about your business to what kind of products your market needs.

M.COM. FY [NEP] First Sem Industrial Economics Code: COM/ELE/506

CO1: Explain and analyse the main issues and debates in the field of industrial economics

CO2: Describe the workings of different market structures

CO3: Analyse and provide policy recommendations about monopolies, cartels, noncooperative oligopolies and other forms of imperfect competition

M.COM. FY [NEP] First Sem Research methodology Code: COM/RM/508

CO1: To understand research work concepts of research and practical implication of knowledge

acquired through subjects dall collection and analysis, sampling, report writing etc.

CO2: Ability to understand some basic concepts of research and its methodologies

CO3: Ability to define and apply appropriate parameters and research problems

CO4: Ability to develop skills to draft a research paper

CO5: Ability to analyse and comprehend the ethical practices in conducting research and dissemination of results in different forms

M.COM. FY [NEP] Second Sem Advanced Cost Accounting Code: Com/MAN/510

Course Outcomes: After going through the subject Advance Cost Accounting, the student will be able to:

CO1: Understand the basics of Cost Accounting. Apply techniques to ascertain Cost Per Unit and Selling Price and solve typical problems related to cost determination.

CO2: Demonstrate knowledge of Machine Hour Rate and its application in calculating the cost of production.

CO3: Analyze and maintain Operating Cost Accounts, focusing on the context of the Transport service industry.

CO4: Differentiate between Job Costing and Batch Costing, and identify scenarios suitable for each method. Create cost estimates for specific jobs and batches, incorporating overhead allocation.Comprehend the principles and methods of Contract Costing, particularly in relation to long-term projects.

CO6: Understand the concepts and processes involved in Process Costing, particularly in industries with continuous production.

CO7: Define Cost Audit and its role in ensuring cost control and efficiency.

CO8: Cost Audit Report, highlighting findings, recommendations, and potential areas of improvement. Through this course, students will gain the necessary knowledge and

skills to effectively manage costs, perform cost analysis, and conduct cost audits, making them valuable assets in financial decision-making processes within organizations

M.COM. FY [NEP] (Second Sem) Marketing Management Code: COM/D/MAN/511

CO1: To understand the policies and procedures market and market research and analysis.

CO2: Demonstrate strong conceptual knowledge in the functional area of marketing management.

CO3: Demonstrate effective understanding of relevant functional areas of marketing management and its application.

CO4: Demonstrate analytical skills in identification and resolution of problems pertaining to marketing management.

CO5: Demonstrate understanding of various marketing strategies, pricing and channel decisions.

CO6: Demonstrate understanding of integrated marketing communication and evaluation of market performance and recent trends in marketing.

M.COM. FY [NEP] Second Sem Financial Management Code: COM/MAN/512

CO1: To understand basics of financial transations applied in business and industry.

CO2: To understand various cruicial decisions regarding financial aspects of business.

CO3: Financial management subject help students to prepare for real-world financial situations, such as paying bills, buying a home, or investing.

CO4: Promotes responsible spending habits: By teaching students about budgeting and saving,

CO5: College can help promote responsible spending habits and prevent overspending.

MCOM FY SECOND SEM [NEP] Activity Group- Preparation of budgets Code no. COM/ACT/ 513

CO1: Budget preparation is a process with designated organizations and individuals having defined responsibilities that must be carried out within a given timetable.

M.COM. FY [NEP] Second Sem Globilization & Public administration COM/ELE/515

CO1: Globalization is indeed the outcome of liberalization and privatization strategies.

CO2: These policies have facilitated the integration of economies, increased international trade and investment, and promoted cultural exchange.

M.COM. FY [NEP] Second Sem Field Project COM/OJT-FP/517

CO1: The real value of project-based learning lies in its ability to enhance students' higher-order thinking skills, such as creative thinking skills, problem-solving skills, and integrated application skills, by exploring real problems in small groups as a way to acquire the core concepts and principles of subject

CO2: help students develop important life skills such as time management, organization, and goal setting

MCOM SECOND YEAR III & IV [NEP] 2024-25

M.COM. SECOND YEAR [NEP] Thirth Sem BUSINESS ENVIRONMENT Code No. COM/MAN/518

After completion of the course, students will be able to-

CO1: Understand the role and relevance of business environment.

CO2: Identify factors leading to economic environment of business.

CO3: Determine the impact of political and legal environment on business decisions.

CO4: Identify the socio-cultural and international environmental factors v)Analyse the technogical environment for business in India.

M.COM. SECOND YEAR [NEP] Third Sem Strategic Management Code: COM/MAN/519

After completion of the course, students will be able to

CO1: Understand the basic concepts and principles of strategic management analyse the internal and external environment of business

CO2: Develop and prepare organizational strategies that will be effective for the current business environment

CO3: Devise strategic approaches to managing a business successfully in a global context

M.COM. SECOND YEAR [NEP] Thirth Sem INTERNATIONAL MARKETING COURSE CODE: COM/MAN/520

To make the students understand the importance of international marketing, entry strategies, foreign market selection, producte development and distribution

On successfully completing the of the course students will be able to:

CO1: Demonstrate a systematic awareness and critical application of the key concepts, theories and issues in international marketing;

CO2: Demonstrate a conceptual understanding of the role of international marketing in the firm and the global business environment;

CO3: Understand how to research and analyse the environment in a foreign market at both the micro and macro levels;

CO4: Identify and consider appropriate market entry strategies for different international markets;

CO5: Critically evaluate and interpret information and data sources to select a country for market entry, based on a "real company" brief Evaluate market entry modes and marketing strategies;

MCOM SECOND YEAR [NEP] THIRTH SEM Marketing Strategies for Agricultural and Allied Industries Code: COM/ACT/521

This activity highlight the need of proper agricultural marketing. This research paper will focus on the marketing strategies of agro based products. This activity will highlight the significance of efficient marketing strategies in agro based products to capture the market and gaining profit from market.

M.COM. SECOND YEAR [NEP] Thirth Sem Public Enterprises in India (CODE NO. PAD-524) COM/ELE/523

After completion of the course, students will be able to

CO1: Its leads to innovation and research for all disciplinary subject,

CO2: Its leads to increase the job opportunities to all students,

CO3: It will be utilize the available resources of country, by public investment,

CO4: It is very important to go with global trade and commerce, v) It will be help to fill up the gap in regional development of the country, by providing industrial development opportunities. MCOM SECOND YEAR [NEP] Fourth SEM Security analysis COM/MAN/526

CO 1: Students study the investment pattern and its related risks and returns.

CO 2: This subject study understand, analyze and select the best Portfolio.

CO 3: find out the intrinsic value of security with a view to make a buy/ sell decision.

M.COM. Second YEAR [NEP] Fourth Sem ADVERTISING & MEDIA MANAGEMENT COM/MAN/527

The objective of this course is to expose students to the Advertising Basics and the various Methodologies to Develop, Implement and Measure the Effect of Advertisement.

After completion of the course, the student will be able to:

CO1: Understand the concept of creativity in depth with growing importance of creativity in Ads today.

CO2: Comprehend an overview on integrated marketing communications focusing on advertising and sales promotion.

CO3: Familiarize the student with the role of advertising in the context of promoting products and services.

CO4: Identify, define and create the major components of a media plan.

CO5: Develop a comprehensive media plan that meets integrated marketingcommunications.

CO6: Explore various media options.

CO7: Understand the characteristics of media management.

M.COM Second Year Fourth Semester [NEP] Marketing Research (CODE NO. COM/MAN/528)

After completion of the course, students will be able to-

CO1: Its leads to innovation and research for the businessman and entrepreneurs,

CO2: Its leads to increase the job opportunities in the field of marketing and service sector,

CO3: It will be utilize the available resources of country, with the help of proper marketing.

CO4: It is very important to go with global trade and commerce through the marketing and service sector due to the proper market study and research,

CO5: It will be help to fill up the gap in regional development of the country, by providing Industrial development opportunities due to the proper market knowledge.

M.COM Second Year Fourth SEMESTER [NEP] Travel and Tourism Paper Code: COM/ELE/530

CO1: familiars with all the basic/background knowledge of travels and tourism. familiars with Indian and Maharashtrian Tourisms.

CO2: student able to handle management of travels and tours in India.

CO3: Student familiar with Travel Agency and Tour Operation Business.

CO4: Student understand importance to start their own tours and travel agencies business.

M.COM Second Year Fourth Semester [NEP] On Job Traning Paper Code: COM/RP/532

CO1: On-the-job training is a form of training provided to students at the workplace.

CO2: During the training, students are familiarized with the working environment at workplace.

CO3: Students will become part of Employees in on job traning period and also get a hands-on experience using machinery, equipment, tools, materials, etc

FACULTY OF BACHALOR OF COMPUTER APPLICATION (B.C.A.) Program Outcomes for BCA

PO 1: Apply mathematics and computing fundamental and domain concepts to find out the solution of defined problems and requirements. (Computational Knowledge)

PO 2: Use fundamental principle of Mathematics and Computing to identify, formulate

research literature for solving complex problems, reaching appropriate solutions. (Problem Analysis)

PO 3: Understand to design, analyze and develop solutions and evaluate system components

or processes to meet specific need for local, regional and global public health, societal, cultural, and environmental systems. (Design/Development of Solutions)

PO 4: Use expertise research-based knowledge and methods including skills for analysis and development of information to reach valid conclusions. (Conduct Investigations of Complex

Computing Problems)

PO 5: Use expertise research-based knowledge and methods including skills for analysis and

development of information to reach valid conclusions. (Conduct Investigations of Complex

Computing Problems)

PO 6: Exhibiting ethics for regulations, responsibilities and norms in professional computing practices. (Professional Ethics)

PO 7: Enlighten knowledge to enhance understanding and building research, strategies in

independent learning for continual development as computer applications professional. (Lifelong Learning)

PO 8: Establishing strategies in developing and implementing ideas in multidisciplinary

environments using computing and management skills as a member or leader in a team. (Project Management and Finance)

PO 9: Contribute to progressive community and society in comprehending computing activities by writing effective reports, designing documentation, making effective presentation, and understand instructions. (Communication Efficacy)

PO 10: Gain confidence for self and continuous learning to improve knowledge and competence as a member or leader of a team. (Individual and Teamwork)

PO 11: Gain confidence for self and continuous learning to improve knowledge and competence as a member or leader of a team. (Individual and Teamwork)

Program Specific Outcomes (PSO):

1) Students will able to understand, analyze and develop computer programs in the areas related to algorithm, web design and networking for efficient design of computer based system.

2) Apply standard software engineering practices and strategies in software project development using open source programming environment to deliver a quality of product for business success.

3) Student will able to know various issues, latest trends in technology development and thereby innovate new ideas and solutions to existing problems.

B.C.A Ist Year

Paper BCA 103T
Principles of Management
Course Outcome
COI: Understand the concepts related to Business.
CO2: Define management and explain the characteristics of Managers in organizations.
CO3: Demonstrate the roles, skills and Levels of management.
CO4: List and describe major management theories as represented through the history of modern management thought.

Paper BCA104T
ACCOUNTINCY-1
Course Outcome
CO 1. Densinstrate accounting skills in business and economic world.
CO 2. Interpect the principles of accounting, book keeping and cash book.
CO 3. Understand the applications of accounting rules in determining financial results and preparation of financial statement with analytical perspective.
CO 4. Understand the utility of double entry accouming system. CO 5 Compechend different methods of depreciation with critical thinking.

WEB DEVELOPMENT USING HTML Course Outcome CO 1: To introduce the fundamentals of Internet, and the principles of web design.

CO 2: To construct basic websites using HTML and Cascading Style Sheets.

CO 3: To build dynamie web pages with validation using Java Script objects and by applying different event handling mechanisms.

CO 4: To develop modern interactive web applications using PHP, XML, and MySQL.

BCA I SEMESTER-II PAPER BCA201T

PROGRAMMING IN C Course Outcome

COI: Illustrate the flowchart and design an algorithm for a given problem and to develop IC programs using operators.

CO2: Develop conditional and iterative statements to write C programs.

CO3: Exercise user defined functions to solve real time problems.

CO4: Inscribe C programs that use Pointers to access arrays, strings and functions.

COS: Exercise user defined data types including structures and unions to solve problems.

PAPER BCA203T
BUSINESS STATISTICS
Course Outcome
CO 1. Comprehend the concept and scope of statistics.
CO 2. Understand types and classification of data with analytical perspective.
CO 3. Application of various statistical tools.
CO 4. Identify and apply various methods of survey.

PAPER BCA204T

ACCOUNTANCY-II

Course Outcome

CO1: Describe concept and methods of goodwill for business with social perspective.

CO2: Understand preparation of receipt and payment accounts.

CO3: Understand accounts of non-trading with company final accounts.

CD4: Describe concept of Single Entry System.

COS: Apply steps to prepare income and expenditure account with balance sheet for business.

Paper BCA206P

E-Business

Course Outcome

CO 1. Understand e-Commerce and e-Business and their different platform.

CO 2. Understand business models of E- marketing.

- CO 3. Infer online financial services with all recent changes as per global need.
- CO 4. Acquire knowledge about e-Business systems and network topology.

CO 5. Analyze growth of e-Commerce and associated regulatory act.

B.C.A IInd year

E-Business Essential

- 1. Discuss modern computing
- 2. Infrastructures from the perspective of the internet and organizations

3. Discuss and explain theoretical and practical issues of conducting business over the internet and the Web

4. Reflect on general principles revealed through practical exploration of specific tools, techniques and methods in e-business.

Business Law I & II

1. Appreciate the relevance of business law to individuals and businesses and the role of law in an economic, political and social context.

2. Identify the fundamental legal principles behind contractual agreements.

3. Examine how businesses can be held liable in tort for the actions of their employees.

4. Understand the legal and fiscal structure of different forms of business organizations and their responsibilities as an employer.

Data structure & Algorithm

1. To design and implementation of various basic and advanced data structures.

- 2. To introduce various techniques for representation of the data in the real world.
- 3. To develop application using data structures
- 4. To teach the concept of protection and management of data

D.B.M.S

- 1. The learner will be able: To describe data models and schemas in DBMS
- 2. To understand the features of database management systems and Relational database.
- 3. To use SQL- the standard language of relational databases.

Cost and Management Account

1. Explains the concept of management accounting

2. Explains the importance of management accounting for businesses do Cost-Volume-Profit analysis

- 3. Explains fixed, variable, semi-fixed and semi variable cost concepts
- 4. Analyzes the relationship between the cost-volume and profit

5. Explains break-even sales price, break-even sales volume, the total contribution margin, the unit contribution margin, margin of safety, security ratio, profit margin concepts.

Entrepreneurship Development

1. Have developed advanced knowledge on how to assess business opportunities and an indepth understanding of what typically characterize successes and failures.

2. You have developed advance knowledge about key processes necessary to bring new products and services to market and key challenges facing the entrepreneur at different stages of the entrepreneurial voyage

3. Have developed an understanding of scientific research methods and theories relevant for the field

4. Students are able to assess the commercial viability of new technologies, business opportunities and existing companies

Java Programming

1. Use standard and third party Java's API's when writing applications.

2. Understand the basic principles of creating Java applications with graphical user interface (GUI).

3. Create rich user-interface applications using modern API's such as JAVAFX.

4. Understand the fundamental concepts of computer science: structure of the computational process.

MIS & DSS

1. The course would expose the students to the managerial issues relating to information systems and help them identify and evaluate various options in Management Information Systems.

2. At the end of the course, it is expected that students are able to understand the usage of Information Systems in management.

3. The students also would understand the activities that are undertaken in acquiring an Information System in an organization.

B.C.A. IIIrd Year

Organizational Behavior

1. Evaluate the developments of basic conflict resolutions.

- 2. Discuss the main problems about stress, power and politics and ethics.
- 3. Discuss group and group dynamics.

Banking & Insurance

- 1. To carry out financial analysis of banks and insurance companies,
- 2. To prioritize ethical values, to keep up with developments in financial markets,
- 3. To analyze risks and financial problems,
- 4. To have the ability to use basic theoretical and practical knowledge gained in the field in an advanced education level of the same field or at the same level of another field.

Software Engineering

1. Study a body of knowledge relating to Software Engineering, Software reengineering, and maintenance.

2. Understand the principles of large scale software systems, and the processes that are used to build them.

3. Have skills in the most widely used approach to software construction – object orientation (OO), including OO requirement specifications, OO analysis, OO design, OO.

4. Learning OO testing and maintenance.

Software Testing

1. Apply modern software testing processes in relation to software development and project management.

2. Create test strategies and plans, design test cases, prioritize and execute them.

3. Manage incidents and risks within a project.

4. Contribute to efficient delivery of software solutions and implement improvements in the software development processes

Element of Commercial Portals

1. Develop knowledge and skills necessary to gain employment as computer network engineer and network administrator.

- 2. Independently understand basic computer network technology.
- 3. Understand and explain Data Communications System and its components.
- 4. Identify the different types of network topologies and protocols.

System programming

1. Study the architecture of a hypothetical machine, its assembly language, macro language.

2. Program in assembly language.

3. Understand the structure and design of assemblers, linkers and loaders.

4. Understand the concepts and theory behind the implementation of high level programming languages

Service Marketing

1. Identify core concepts of marketing and the role of marketing in business and society.

2. Knowledge of social, legal, ethical and technological forces on marketing decisionmaking.

3. Appreciation for the global nature of marketing and appropriate measures to operate effectively in international settings.

4. Ability to develop marketing strategies based on product, price, place and promotion objectives.

Project

1. At the end of the course the students will Understand .NET Framework and describe some of the major enhancements to the new version of Visual Basic.

2. Describe the basic structure of a Visual Basic.NET project and use main features of the integrated development environment (IDE)

3. Create applications using Microsoft Windows® Forms

- 4. Create applications that use ADO.NET.
- 5. Working with Multiple Forms