M. S. P. MANDAL'S

SHIVCHHATRAPATI COLLEGE, AURANGABAD

INTERNAL QUALITY ASSURANCE CELL

Course Outcomes (COs)

INTENRAL QUALITY ASSURANCE CELL

Course Outcomes (COs)

INDEX

Course Outcomes

COs: Marathi

Semester I:

Marathi AECC 1: Indian Language Marathi – Part 1

CO1: To inculcate moral and cultural values among students.

CO2: To raise the level of writing in own language.

CO3: To develop the knowledge about prose and poems of Marathi language.

CO4: To enhance the emotion of national integrity.

Marathi CC-1A (1): Selected Abhang & Special Learning of Literature (Biography/ Autobiography)

CO1: To develop the knowledge about spiritual writings in Marathi language.

CO2: To develop the spiritual, moral values through language education.

CO3: To understand the contents of abhang and spiritual writings.

CO4: To know various types of spiritual writings.

CO5: To understand the application of spiritual contents in real life situations.

CO6: To enhance the understanding of biographies, autobiographies and get inspiration from them.

Marathi CC-1A (2): Selected Stories and Pravas Varnan.

CO1: To understand the different types of stories in Marathi language.

CO2: To inculcate moral, literary values through stories.

CO3: To increase literary interest among students.

CO4: To develop analytical abilities among students.

CO5: To understand the basics of travel description (Pravas Varnan).

Semester II:

Marathi AECC 2: Indian Language Marathi – Part 2

CO1: To enhance the skills of writing in Marathi.

CO2: To develop the knowledge about prose of Marathi language.

CO3: To develop the knowledge about poems of Marathi language.

CO4: To acquire various applicable skills of Marathi.

CO5: To develop knowledge about analysis of various Marathi play, books, stories etc.

Marathi CC-1B (3): Lalit Prose & Science fiction (stories)

CO1: To develop the knowledge about lalit prose

CO2: To understand the novelty of lalit literature.

CO3: To understand the types of lalit articles and similarities among them.

CO4: To develop knowledge about science fictions.

CO5: To develop scientific approach among students.

Marathi CC-1B (4): Selected Marathi Poems (Modern) & Juvenile Literature

CO1: To develop the interest of Marathi poems among the students.

CO2: To enhance the analytical abilities of students.

CO3: To develop the moral values, emotions of social integrity.

CO4: To develop understanding of poetry contents and create a reader.

CO5: To develop understanding and interest of juvenile literature.

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

CO1: To understand communication skills.

CO2: To acquire realistic view in Marathi literature.

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

CO4: To know the outer world.

CO5: To provide opportunities in services in mass media.

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

CO1: Students will get introduced to thoughtful writings.

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

CO3: To introduce different trends in literature.

CO4: To understand of literary analysis.

CO5: To apply literary syntax of Marathi language.

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

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

CO8: To develop art of living through literature.

CO9: To understand literature, science, official transactions.

S.Y.B. Com. Marathi Paper II (S.L) Marathi bhasha ani vanijya vhavhar

CO1: To impart knowledge of Marathi language of commerce & business.

CO2: To understand use of language in offices, commerce field and business sector.

CO3: To understand the need and structure of language.

CO4: To develop writing skill of commerce language.

CO5: To enhance competency through reading culture.

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

CO1: To study literature history after 1800.

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

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

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

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

CO1: To introduce functioning and structure of radio language.

CO2: To acquire skills of radio anchor.

CO3: To understand production of different programs on radio.

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

CO5: To develop critical thinking.

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

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

CO2: To familiarize with Annasaheb kirloskar and his contribution.

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

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

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

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

CO2: To understand types of literature.

CO3: To develop clear concepts in literature.

CO4: To learn conveying of message through Marathi literature.

CO5: To learn various forms of realistic human character.

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

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

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

CO3: To understand Marathi grammar.

CO4: To enhance pronunciation skill.

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

CO5: To introduce learners to dialects of Marathi language.

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

CO1: To understand different ages of Marathi.

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

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

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

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

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

CO2: To know pandit kavi and his literature.

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

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

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

CO1: Convey massage or motto with a story.

CO2: To think independently.

CO3: To apply logic.

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

COs: Hindi

Subject: Hindi (Optional)

Semester I

DSC-1 CC 1A: History of Hindi Literature Part 1

CO 1: To understand history, background of Hindi literature.

CO 2: To develop capability of understand literary concepts of Hindi language.

CO 3: To understand use of various audio-visual aids for learning in Hindi.

CO 4: To discuss various literary aspects of Hindi language.

CO 5: To understand the features of ancient Hindi literature.

DSC-1 CC 1B: Modern Poetry

CO1: To introduce students to poetic masterpieces of Hindi literature.

CO2: To develop communication, writing skills in Hindi language.

CO3: To understand history, background of Hindi language through guest lectures, discussions.

CO4: To acquire knowledge about minute things of Hindi poetry.

Semester II

DSC-1 CC 1C: Story Literature II

CO1: To develop reading, writing skills in Hindi language.

CO2: To understand various legendary stories of Hindi language.

CO3: To acquire knowledge about Hindi literature through lectures, discussions.

CO4: To get knowledge about legendary fictions in Hindi literature.

CO5: To understand the use of audio-visual aids for acquiring knowledge about stories, fictions of Hindi literature.

सामान्य हिंदी (SL – III & IV) (बी.ए., बी. कॉम., बी. एस्सी.)

CO1: साहित्य आस्वादन अभिरूचि का परिसंस्कार करना।

CO2: जीवन मूल्यों के प्रति आस्था निर्माण करना।

CO3: हिंदी के आधुनिक गद्य साहित्य की प्रतिनिधिक रचनाओम का परिचय करना ।

CO4: अत्याधुनिक इलेक्ट्रॉनिक माध्यमों का परिचय करना।

CO5: व्यावहारिक, प्रयोजनमूलक तथा संप्रेषणमूलक व्यावसायिक हिंदी भाषा से विद्यार्थी परिचित हो और रोजमर्रा की जिंदगी में अपनी मांगों को पूरा करने में सक्षमता पाए यह अपेक्षा भी इस पाठ्यक्रम की रही है।

CO6: पत्रलेखन के सारे प्रकार, आवेदन पत्र, बैंकिंग तथा सरकारी कार्यालयों की प्रयोजनमूलक भाषा से विद्यार्थी परिचित होता है।

CO7: हिंदी साहित्य की कहानी, कविता, संस्मरण, रेखाचित्र, डायरी, आत्मकथा, जीवनी, निबंध, यात्रावृत्त, व्यंग्य, रिर्पोताज, पत्र आदि विधाओं का परिचय भी विद्यार्थी कर चुके हैं। जीवन मूल्य, भाव-भावनाओं, संवेदनाओं के परिचय के साथ आधुनिक साधनों का भाषाई प्रयोग कैसे करे इसका परिचय भी विद्यार्थी पाते हैं।

CO8: रेडियो वार्ता लेखन, समाचार लेखन, मीडिया के विविध आयाम, हिंदी भाषा की व्यावसायिक उपयोगिता, बैंकों में हिंदी, वैश्वीकरण के परिप्रेक्ष्य में हिंदी भाषा का महत्त्व, उद्योग-व्यापार में हिंदी के सहारे कैसे आर्थिक प्रगति कर सकते हैं आदि बातों का परिचय करवाना।

प्रश्नपत्र 5 – कथेत्तर गद्य साहित्य

CO1: कथेत्तर गद्य साहित्य पेपर रखने का उद्देश्य यहीं है कि हिंदी के विद्यार्थी हिंदी साहित्य के कथेत्तर विधाओं से परिचित हो।

CO2: 'गद्य गौरव' और 'गद्य प्रभा' किताब के माध्यम से विद्यार्थी रेखाचित्र, निबंध, संस्मरण, जीवनीपरख लेख, व्यंग्य, आत्मकथा अंश, यात्रा वृतांत, लेख आदि विधाओं से भलीभांति परिचित हो।

CO3: साहित्य के विविध विधाओं के आस्वादन का आनंद लेने की आदत और अभिरुचि विकास भी विद्यार्थियों में करना।

CO4: हिंदी कथेत्तर गद्य संवेदना की परंपरा का परिचय करना।

CO5: जीवन मूल्यों के प्रति आस्था पैदा करना।

प्रश्नपत्र 6 – प्रयोजनमूलक हिंदी 1

CO1: हिंदी भाषा के प्रयोजनमूलक रूप का परिचय करना।

CO2: हिंदी भाषा की व्यावहारिकता पर प्रकाश डालना।

CO3: भारत देश की राष्ट्रभाषा होने के नाते हिंदी भाषा की एहमीयत का मूल्यांकन करना।

CO4: हिंदी के राष्ट्रीय और आंतर्राष्ट्रीय स्वरूप का मूल्यांकन करना।

CO5: आधुनिक तंत्र विज्ञान में हिंदी की उपयोगिता पर आकलन करना।

प्रश्नपत्र 7 – आधुनिक हिंदी कविता

CO1: हिंदी साहित्य के पद्य (कविता) के उद्भव और विकास पर प्रकाश डालना, हिंदी कविता के प्रति विद्यार्थियों की अभिरुचि की वृद्धि करना, मानवीय भाव-भावनाएं और संवेदनाओं का विकास करना इस पाठ्यक्रम का उद्देश्य है।

CO2: नागार्जुन द्वारा लिखित खंडकाव्य 'भूमिजा' रामायण के कथा प्रसंग पर प्रकाश डालता है। सीता का ऐतिहासिक मूल्यांकन करते हुए एक नारी के नाते उसकी कौनसी शिकायतें राजा, पति, पुरुष और राज्य के प्रति रही है इसका लंबा मूल्यांकन करना। अर्थात नारी जीवन के संघर्ष और विद्रोह का परिचय इस खंडकाव्य का उद्देश्य है।

CO3: विद्यार्थी 'रामायण', 'रामचरितमानस' तथा अन्य रामायण कथा पर केंद्रित रचनाओं से एक अलग रचना से परिचित हो गए हैं, जिसमें सीता का एक स्त्री होने के नाते पुरुषों के प्रति विद्रोह है इसका परिचय करवाना।

CO4: 'चुनी हुई लंबी कविताएं' पढाई हेतु रखी है। कविता और खंडकाव्य के बिच का साहित्यिक पद्य रूप के नाते लंबी कविताओं को जाना जाता है। इन कविताओं के माध्यम से विद्यार्थी विविध भाव, रस से परिचित हो गए हैं। साथ ही आधुनिक जीवन की परेशानियों, भ्रमभंग, बाजारीकरण, अर्थसत्ता का ताकतवर होना, शब्दों की एहमीयत आदि बातों का परिचित करवाना।

प्रश्नपत्र 8 – प्रयोजनमूलक हिंदी 2

CO1: हिंदी भाषा के विविध रूपों का परिचय करना।

CO2: राजभाषा हिंदी के विविध रूपों का परिचय करना।

CO3: प्रयोजनमूलक भाषा तथा अनुवाद की भूमिका का परिचय करना।

CO4: हिंदी भाषा के प्रयोजनमूलक और व्यावहारिक रूप का परिचय करना।

CO5: भारत देश की राष्ट्रभाषा होने के नाते हिंदी भाषा की एहमीयत का मूल्यांकन करना।

CO6: हिंदी के राष्ट्रीय और आंतर्राष्ट्रीय स्वरूप का मूल्यांकन करना।

CO7: आधुनिक तंत्र विज्ञान में हिंदी की उपयोगिता पर आकलन करना।

प्रश्नपत्र 9 – प्रादेशिक साहित्य

CO1: साहित्य आस्वादन और अभिरूचि का परिष्कार करना।

CO2: जीवन मूल्यों के प्रति आस्था निर्माण करना।

CO3: प्रादेशिक भाषा के साहित्य से परिचय करवाना।

CO4: भारतीय साहित्य का अध्ययन करना।

प्रश्नपत्र 10 – आदि तथा मध्यकालीन हिंदी साहित्य का इतिहास

CO1: हिंदी साहित्य के इतिहास तथा आरंभिक काल का परिचय करना।

CO2: हिंदी साहित्य के लेखन स्रोतों एवं परंपराओं पर प्रकाश डालना।

CO3: हिंदी साहित्य आदिकाल, भक्तिकाल और रीतिकाल का परिचय देना।

CO4: साहित्य आस्वादन और अभिरूचि का परिष्कार करना।

CO5: जीवन मूल्यों के प्रति आस्था निर्माण करना।

प्रश्नपत्र 11 – साहित्यशास्त्र

CO1: साहित्य चिंतन परंपरा का अध्ययन करना।

CO2: साहित्यालोचन क्षमता का परिचय करना।

CO3: साहित्य सृजन के संस्कार करना।

CO4: साहित्य एक प्रकार से शास्त्र है, उसका पढना, चिंतन, आकलन, मूल्यांकन और सृजन करना एक प्रकार की शास्त्रीय तकनीक है। इसी तकनीक का विकास करना इस पाठ्यक्रम का उद्देश्य है।

CO5: साहित्य का स्वरूप, तत्त्व, प्रयोजन, हेतु, शब्दशक्तियां, रस, अलंकार, छंद, विविध विधाओं का स्वरूप, आलोचना आदि अंगों का परिचय विद्यार्थियों को करवाना।

CO6: साहित्य और हिंदी भाषा के विद्यार्थी होने के नाते एक परिपूर्ण इंसान बनने और मानवीय जीवन का आकलन, बोध और मूल्यांकन करने की क्षमता का विकास हो यह इस पाठ्यक्रम का उद्देश्य है, अर्थात 'साहित्यशास्त्र' इस पाठ्यक्रम की पढाई के बाद यह दृष्टि विद्यार्थियों लाना।

CO7: साहित्य का मूल्यांकन करने का नजरिया भी विकसित करना। साहित्य के कलापक्षीय अंगों पर प्रकाश डालने की दृष्टि का विकास करना।

प्रश्नपत्र 12 व 16 – प्रकल्प कार्य

CO1: पठन-पाठन और लेखन कौशलों का विकास करना।

CO2: आलोचनात्मक क्षमता का विकास करना।

CO3: अनुसंधात्मक दृष्टि का विकास करना।

CO4: प्रकल्प प्रस्तुति का तकनीक से परिचित करना।

प्रश्नपत्र 13 – मध्यकालीन काव्य

CO1: भारतीय भक्ति आंदोलन का अध्ययन करना।

CO2: रीतिकालीन संवेदनाओं का अध्ययन करना।

CO3: कविताओं के माध्यम से मध्यकालीन सांस्कृतिक संवेदना का अध्ययन करना।

CO4: भक्ति तथा रीतिकालीन पृष्ठभूमि और प्रवृत्तियों से विद्यार्थियों को परिचित करना।

CO5: साहित्य का चिंतन, आकलन और मूल्यांकन करना एक प्रकार की शास्त्रीय तकनीक है। इसी तकनीक का विकास करना इस पाठ्यक्रम का उद्देश्य है।

प्रश्नपत्र 14 – आधुनिक हिंदी साहित्य का इतिहास

CO1: हिंदी साहित्य के आधुनिक काल का परिचय करना।

CO2: हिंदी साहित्य के आधुनिक काल की पृष्ठभूमि और प्रवृत्तियों पर प्रकाश डालना।

CO3: हिंदी साहित्य के आधुनिक काल में कविता और गद्य लेखन के विविध प्रकारों का आकलन और मूल्यांकन।

CO4: भारतीय स्वातंत्रता संग्राम में हिंदी साहित्यकारों ने कौनसी भूमिका निभाई और देशभक्ति से प्रेरित होकर कितना साहित्य लिखा इसका मूल्यांकन करना।

CO5: हिंदी साहित्य के सामाजिक और आधुनिक पहलुओं पर प्रकाश डालना।

प्रश्नपत्र 15 – साहित्यशास्त्र

CO1: साहित्य चिंतन परंपरा का अध्ययन करना।

CO2: साहित्यालोचन क्षमता का परिचय करना।

CO3: साहित्य सृजन के संस्कार करना।

CO4: साहित्य के रस, अलंकार, छंद, विविध विधाओं का स्वरूप, आलोचना आदि अंगों का परिचय विद्यार्थियों को करवाना।

CO5: साहित्य की विविध विधाओं से विद्यार्थियों को परिचित करवाकर उसका तात्विक अध्ययन करना।

CO6: साहित्य का मूल्यांकन करने का नजरिया भी विकसित करना। साहित्य के कलापक्षीय अंगों पर प्रकाश डालने की दृष्टि का विकास करना।

CO7: विद्यार्थिओं में साहित्यालोचन की दृष्टि को विकसित करना।

COs: Pali

Semester I

PAL-SL 01: Dhammapth

CO1: To understand various literary aspects of Pali language.

CO2: To get knowledge about prose, poetries of Pali language.

CO3: To understand grammatical concepts of Pali language.

CO4: To get knowledge about ancient Indian literature.

CO5: To develop moral values through readings of Dhammapath.

PAL-SL 02: Buddhavachan Path

CO1: To understand various literary aspects of Pali language.

CO2: To get knowledge about history, background of Pali language.

CO3: To understand the importance of learning of Pali language.

CO4: To get knowledge about ancient Indian literature.

CO5: To develop moral values through readings of Buddhavachan.

Pali - Optional

Semester I

PAL BA 01: Dighnikay Pali Grammar

CO1: To understand the grammatical concepts of Pali language.

CO2: To develop ability to apply grammatical skills to the texts of Pali language.

CO3: To acquire knowledge about *Dighnikay* Pali grammar.

CO4: To develop capability to understand various literary aspects of Pali language.

PAL BA 02: Mazimnikay Pali Grammar

CO1: To understand the grammatical concepts of Pali language.

CO2: To develop ability to apply grammatical skills to the texts of Pali language.

CO3: To acquire knowledge about *mazimkay* Pali grammar.

CO4: To develop capability to understand various literary aspects of Pali language.

Semester II

PAL BA 03: Sanghpath

CO1: To understand the various literary concepts of Pali through the readings of Sanghpath.

CO2: To introduce the various literary masterpieces, fictions of Pali language.

CO3: To develop ability to understand Dhammapada.

CO4: To inculcate moral values through the readings of Dhammapada, dhammasangiti.

PAL BA 04: Palibhasha Path

CO1: To understand the various literary concepts of Pali language.

CO2: To introduce the various literary masterpieces of Pali language.

CO3: To give information about spiritual places bauddh dhamma.

CO4: To inculcate moral values through the readings of Pali bhasa path.

COs: English

COs: B.A SY

Subject: Compulsory English
Semester II

CLE 3: A Course in Communicative English III

CO1: To develop linguistic skills among students at advanced level.

CO2: To enhance communicative competence level.

CO3: To develop communication skills, speech writing, oral presentation.

CO4: To understand the various prose related to fundamental rights, fundamental duties and education commission and other important themes.

CO 5: To acquire knowledge about various poetic masterpieces, grammar of English language.

CLE 4: A Course in Communicative English IV

CO1: To develop reading, writing skills among students.

CO2: To get knowledge about various prose based on informative content.

CO3: To develop ability to understand various poetic masterpieces of English language.

CO4: To understand various grammatical concepts of English language.

CO5: To acquire knowledge about writing of various types of letters.

Optional English

Semester III

OPE 5: Literature in English I

CO1: To make students understand the various literatures in English.

CO2: To make students understand diverse culture in English literature.

CO3: To develop ability to compare different literary worlds.

CO4: To understand various types of literature such as prose, poetry, drama, fiction etc.,

CO5: To develop the ability to write critical appreciation of the texts.

OPE 6: Literature in English II

CO1: To understand the various types of literature in English.

CO2: To get knowledge about poetic masterpieces of English language.

CO3: To study the dramatic creations of English language.

CO4: To understand various fictions of English literature.

CO5: To develop the ability to write critical appreciation of the texts.

Semester IV

OPE 7: Periods of British Literature

CO1: To understand the history, development of British literature.

CO2: To get knowledge about status of British literature during different periods.

CO3: To get knowledge about poetic masterpieces of English language.

CO4: To study the dramatic creations of British literature.

CO5: To develop the ability to write critical appreciation of the specific text.

OPE 8: Postcolonial Literature

CO1: To get knowledge about history, background of postcolonialism.

CO2: To acquire knowledge about the dominance of postcolonialism on academic scenes.

CO3: To understand various literary aspects of English language.

CO4: To develop ability to understand the contexts of essay, poems, fictions.

CO5: To develop the ability to write critical appreciation after understanding the text.

Additional English (SL)

Semester III

SLE 3: Additional English (SL) III

CO1: To understand the prose, poetries of English literature.

CO2: To get knowledge about basic elements, methods, channels of communication.

CO3: To develop the ability to acquire dialogue skills.

CO4: To understand various literary concepts of English literature.

Semester IV

SLE 4: Additional English (SL) IV

CO1: To understand various aspects of English literature.

CO2: To develop the ability to acquire good communication skills.

CO3: To make students able to acquire reading, writing skills.

CO4: To develop the ability to write different types of applications.

CO5: To make students able to write various types of reports.

Paper IV: Semester Two Unit One: Methodology of Literature

CO1: To develop appreciation for the purposes and pleasures of prose fiction and nonfiction.

CO2: To articulate ways that literary works to construct values and ethical meanings.

CO3: To practice analytical reading on multiple examples of each genre chosen.

CO4: To illuminate literary choices and conventions, including texts that are culturally and historically diverse.

CO5: To identify major features of literary forms and construct arguments.

CO6: To understand different forms of literature - the ode, lyric, Sonnet, novel and dramatic type's comedy and tragedy.

CO6: To understand various aspects of novel and drama.

BA II English Optional

CO1: To enable students to read and appreciate various forms of literature and critically interact with different perspectives.

CO2: To introduce learners with appropriate literary strategies.

CO3: To pinpoint how far literary language deviates from ordinary language.

CO4: To unravel many meanings in a literary text.

Paper V &VII: LITERATURE IN ENGLISH 1550-1750 Paper V: Semester III

On successful completion of the course, the students will be able to:

CO1: Interpret various forms of literature.

CO2: Distinguish and analyze literary forms like essay, mock epic, drama and novel.

CO3: Compare and differentiate between literary language and ordinary language.

CO4: Unravel many meaning in literary text.

Paper VI & VIII: LITERATURE IN ENGLISH 1750-1900 Paper VI: Semester III

On successful completion of the course, the students will be able to:

CO1: Understand literary forms of poetry: Ballad and dramatic monologue, romantic poetry, prose, play and novel in 18th century and 19th century.

CO2: Appreciate the poems of S.T. Coleridge and Robert Browning.

CO3: Comment on themes and styles of Oscar Wilde's play.

CO4: Understand plot, characters and setting in the novel of Thomas Hardy.

BA III English Optional

CO1: To introduce students to Modern English Literature.

CO2: To familiarize students with literary terms and introduce them with various streams in literary criticism and develop skills for literary evaluation.

CO3: To help learners to approach and appreciate Indian literature in English and make them see its place among world literature in English.

CO4: To introduce students to American literature and its diverse cultures reflected in writing.

CO5: To make students able to understand the background of English literature and help them to write on its development.

CO6: To understand how literature of modern period relates to the important trends of the period.

CO7: To make the students aware of the fact that all readers are critics and introduce them to basic texts in criticism while developing critical thinking in them.

CO8: To introduce students to the thematic concerns, genres and trends of both Indian Writing in English and American Literature.

CO9: To lead the students to see how texts are affected by context.

Paper IX & XIII: Twentieth Century English Literature Semester V

Contents: Unit One: Poetry

On successful completion of the course, the students will be able to:

CO1: Understand how the literature of modern period relates to the important trends of 20th century.

CO2: Appreciate poem by T.S. Eliot and W.B Yeats.

CO3: Comment on the themes of Osborne and G.B Shaw's plays.

CO4: Understand character setting in the novels of Kingsley Amiss and D.H Lawrence.

Paper X & XIV: Introduction to Literary Criticism and Terms Semester

On successful completion of the course, students will be able to …..

CO1: Identify and discuss classical Greek critics of literature.

CO2: Provide a brief overview of major critical theories by critics like Aristotle, Sir Philip Sidney, William Wordsworth and F.R. Leavis.

CO3: Learn the terms related to various genres of literature.

CO4: Cultivate an understanding of major critical and interpretive methods.

Paper XI & XV: Indian Writing in English

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

CO1: To understand nineteenth Century Reform - Movements in India; the Indian National Movement; Rise of the Indian Novel and Caste-Class.

CO2: To become aware of social, political, and cultural issues reflected in Indian writing in English, with reference to Indian social reformations, freedom struggle, women education and empowerment in nineteenth century.

CO3: To appreciate artistic and innovative use of language employed by writers to instill values and develop human concern through literary texts.

CO4: To familiarize students with emergence and growth of Indian Writing in English in the context of colonial experience.

CO5: To discuss issues concerning Indian Writing in English such as representation of culture, identity, history, constructions of nation, (post) national and gender politics, cross-cultural transformations.

Semester V Poetry:

On successful completion of the course, the students will be able to….

CO1: Understand background of Indian English literature and its development.

CO2: Critically appreciate themes in poems of Nissim Ezekiel and Arun Kolatkar.

CO3: Understand and evaluate themes, plot, character in the plays of Girish Karnad and Vijay Tendulkar.

CO4: Appreciate the theme, setting, characters in the novels of Raja Rao and U.R Anantha Murthy

Paper XII & XVI: Project Work on History of English Literature

CO1: To understand the background of English literature and empower learners on its development.

CO2: To understand different aspects of research methodology.

CO3: To write research papers.

CO4: To understand new trends, movements in English literature.

COs: Sociology

B. A. Sociology B.A. Part-I, Semester I

Paper no-I: - Introduction to sociology & Paper No-II:-Individual & Society

On the studying the course, the learners will be able to …..

CO1: Familiarize with basic concepts of sociology.

CO2: Understand significance of sociology.

CO3: Understand the scope and importance of sociology, its origin and development.

CO4: Understand human Society and institutions and other structural elements.

B.A. part-I, Semester II, Paper no III - Introduction to Subfields of Sociology& Paper No IV – Indian Social Composition

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

CO2: To understand broad segments of Indian society.

CO3: To understand India's geographical ethnic and religious distinctiveness.

B.A. Part-II, Semester III Paper No-V: Problems of Rural India Paper no-VI: - Contemporary Urban Issues

CO1: Learners will be made aware of changing scenario of Rural India and the contemporary problems of rural development.

CO2: Learners are inculcated with analytical and thinking about urbanization urban planning and urban problems.

B.A. part-II, Semester IV Paper no- VII: Population in India Paper No-VIII: - Sociology of Development

CO1: To understand causes, consequences of Indian population change.

CO2: To provide an overview of development Issues in India.

B.A. part-III Semester V paper: - Paper IX: Sociological Tradition Paper No. X: Introduction to Research Methodology Paper No. XII (Main) Urban Sociology

CO1: To provide the students with basic understanding of emergence of sociological thoughts.

CO2: To develop sociologists with their contributions to sociology.

CO2: To introduce Research Methodology for better understanding of application of social sciences.

CO3: To enable learners with urban sociology.

CO4: To comprehend the basic elements of subject.

CO5: To focus attention towards increasing urbanization.

B. A. part - III Semester VI Paper NoXIII. : Sociological Theories Paper No. XIV: Social Research Methods Paper No. XVI: Urban Society in India

CO1: Acquaintance with the sociological thought of the Pioneers of Sociology

CO2: To introduce students with various steps in conducting research.

CO3: To analyze critically social problems of urban India.

CO4: To discuss impact of modernization and industrialization upon the cities.

COs: Economics

Semester –I

Paper-I Microeconomics-I

CO1: To understand the meaning and scope of microeconomics.

CO2: To study behavior of an economics agent namely consumer price fluctuation in a market.

CO3: To understand demand and supply analysis.

CO4: To understand consumer behavior.

CO5: To analysis of market equilibrium.

Semester –II

Paper-II-Macroeconomics –II

CO1: To understand the production of concepts of production function.

CO2: To make students aware about transitions in economy and measures to control it.

CO3: To analyze value of money and its measurements.

CO4: To identify the social consequences of national and international economic activity.

Macro Economics:

CO: To create awareness of basic theoretical frameworks underlying the field of macroeconomics.

Development Economics:

CO: To understand theories and developments underlying the field of development economics.

International Economics:

CO1: To understand the basic principles that trend to govern the free flow of trade in goods and services at global level.

CO2: To understand and analyze the difference between various economies of the world.

Agricultural Economics:

CO1: To study the treatment of issues in agriculture economics to those intending to specialize in the area.

CO2: To familiarize students with policy issues those are relevant to Indian agricultural economics.

CO3: To analyze the issues using basic micro economics.

History of Economic Thought:

CO1: To understand the basic ideas of classical, new classical and marginality economist.

CO2: To compare the basic economic ideas of various economic thinkers of the world.

Money Banking and Finance:

CO1: To understand role of money and banking as the components of modern economy.

CO2: To understand the operations of money and banking.

CO3: To study interaction of money and banking with the rest of the economy.

CO4: To understand monetary and banking systems in India.

Public Finance:

CO1: To study the significance and scope of Public Finance.

CO2: To provide detailed information about the fiscal policy, public revenue, public debt and public expenditure.

Statistical Methods:

CO1: To understand techniques of statistical analysis which are commonly applied to economic problems.

CO2: To study the tools and techniques of statistical methods.

CO3: To understand data collection, its presentation, analysis and making inferences.

Research Methodology:

CO1: To understand the concept of social science research.

CO2: To know the importance of social research, design of research problem, data collection and presentation of data.

CO3: To understand the idea of research in social sciences.

Industrial Economics:

CO1: To understand basics of industrial economics.

CO2: To study globalization and liberalization in contemporary world.

Economy of Maharashtra:

CO1: To understand the basic features of economy of Maharashtra.

CO2: To study the problems related with agriculture, industries, cooperative sector and infrastructure in the Maharashtra state.

COs: Political Science

B. A. Political Science Pol-101, Basic Concept of Political Science

CO1: To understand the basics of political science.

CO2: To study the development of rights- state background of political history.

CO3: To analyze transitions in societal systems - the structure and order of the system.

Pol-102, Government and Politics of Maharashtra

CO1: To establish pattern of Maharashtra State.

CO2: To examine the government and non-government responses.

CO3: To understand history of the Freedom Movement in India collected from the Bombay Government Records.

CO4: To understand historical and political background of Maharashtra.

CO5: To explain structure and functions of state government in India.

CO6: To understand the political process of Maharashtra.

Pol-103, Basic Concept of Political Science

CO1: To define terms in a social science outside their immediate area of expertise.

CO2: To create awareness among students about democracy.

CO3: To help students to understand social and political values in Indian political system.

CO4: To understand the concept of welfare state.

Pol-104, Government and Politics of Maharashtra

CO1: To study elections and election process.

CO2: To provide solution to social problems.

CO3: To study Panchayat raj History.

CO4: To orient the students about ideology and programme of political parties in Maharashtra.

Pol-105, Indian Government and Politics

CO1: To study the prosperity of society.

CO2: To understand political events in government of India.

CO3: To understand basic principles of Indian constitution.

CO4: To study the Indian constitution.

Pol-106 International Relations

CO1: To understand the behavior of individual entrepreneurs and firms rather than world politics, liberalism.

CO2: To understand important implications for international law and international relations.

CO3: To explain basic concepts in international relations.

CO4: To understand the stages of development of international relation as a separate discipline.

Semester - IV Pol-107, Indian Government and Politics

CO1: To explain structure of union government and budgetary process in India.

CO2: To understand the framework of Indian supreme court.

CO3: To explain party system and electoral reforms.

CO4: To evaluate the federal structure and center state relation.

Pol-108, International Relations

CO1: To explore the nature of informal reasoning in international relations and to consider how instruction could help enhance.

CO2: To study various international and regional organization.

CO3: To aware the students about major issues in internationalism.

CO4: To evaluate critically the non-alignment movement.

Semester V Pol - 109, Indian Political Thinkers

CO1: To understand modern political thinker's contribution.

CO2: To learn the problems in cultural transformation of Indians into non-Indians.

CO3: To study the religious, political, social and cultural thoughts of Indian political thinkers.

Pol - 110, Western Political Thinkers 33

CO1: To understand the views of western political thinkers.

CO2: To understand the ideas of western political thinkers and its relevance.

CO3: To understand the thoughts of Plato on various political concepts.

CO4: To know ideas of Aristotle and his role in western politics.

Pol - 112, Indian Political Thinkers

CO1: To study Dr. B. R. Ambedkar's thoughts on democracy, economy and society.

CO2: To evaluate critically M. N. Roy's radical humanism.

CO3: To understand Nehru's democratic and secular views and its applicability.

CO4: To know of ideas of Maulana Azad views on religion and politics.

Pol - 113, Western Political Thinkers

CO1: To present thoroughly the wealth of historical and institutional materials.

CO2: To study the thoughts of J. S. Mill and its applicability.

CO3: To evaluate critically the thoughts of Karl Marx and its relevance.

CO4: To understand the theory of utilitarianism.

Pol – 111, Political Ideologies

CO1: To study the development and features of political ideologies.

CO2: To understand relevance of political ideology in contemporary period.

CO3: To study the origin of ideologies and clash of three political ideologies - liberalism, communism, and fascism.

CO4: To correlate the theoretical discussion and analysis of ideologies to the transformations.

Pol - 114, Political Ideologies

CO1: To study of ideology of socialism.

CO2: To evaluate critically the ideology of fascism.

CO3: To study the development and features of communism.

CO4: To explain the ideology of feminism.

COs: History

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

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

CO2: To provide value based conceptual and thought provocative.

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

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

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

CO6: To understand the socio-economic, cultural and political background of 17th century of Maharashtra.

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

History of Modern Maharashtra (1818-1960)

CO1: To familiarize students to the study of Maharashtra.

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

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

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

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

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

CO1: To understand the ancient Indian history.

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

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

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

History General Paper-VIII History of Mughal India (A.D. 1526- A.D. 1757)

CO1: To understand the Mughal contribution to the Indian history.

CO2: To know the Mughal period.

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

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

History General Paper – IX Historiography

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

CO2: To understand writing of historical accounts.

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

CO4: To provide new angles to research and interpretations.

History General Paper-X History of Indian national Movement (A.D. 1885-A.D. 1947)

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

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

CO3: To develop nationalism in learner's mind.

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

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

COs: Psychology

Subject-Psychology

Semester-I Introduction to Psychology

CO1: To study introduction of Psychology

CO2: To understand the methods of studying and psychology

CO3: To understand principles and learning memory.

CO4: To solve thinking problems.

Paper-II Psychology of adjustment

CO1: To understand stress its types and effects.

CO2: To study self-responding stress.

CO3: To understand factors influencing stress to tolerance.

CO4: To study interpersonal community.

Semester –II Paper-I Understanding Psychology

CO1: To understand motivation, ordering and motivational needs.

CO2: To study personality and its types learning and behavioral theories.

CO3.To understand intelligence and attitudes.

Paper IV- Psychology of Living

CO1: To understand self-concepts.

CO2: To study body and health.

CO3: To understand caterers and work opportunity.

CO4: To study models of career choice and development.

B.A. II year PSY 110 Psychology for Living:

CO1: To understand the connection between psychology and its practical application to everyday life.

CO2: To apply psychological principles to face challenges in life.

CO3: To enable learners to solve issues encountered in life - stress, health, personal relationships communication and self-esteem.

PSY 111 Psychological Statistics:

CO1: To understand psychological assessment techniques.

CO2: To familiarize learners with statistical methods, their applications and interpretations.

CO3: To inculcate skills for selecting and applying different tests for evaluation, training, rehabilitation etc.

CO4: To enhance observation skills.

PSY 107 Psychology of Adjustment:

CO1: To understand psychology and its practical applications in daily life.

CO2: To enable learners for psychological principles and their applications.

CO3: To enables learners to analyze and face issues encountered in everyday life.

PSY 108 Psychological Testing:

CO1: To understand psychological assessment techniques.

CO2: To understand uses and interpretations of psychological tests.

CO3: To impart and enhance

B.A. III year PSY 113 Subsidiary Abnormal Psychology

After studying the course, leaners will be able to understand….

CO1: Critical Thinking

CO2: Effective Communication

CO3: Community and Civic Responsibility

CO4: Quantitative Literacy

CO5: Scientific and Technological Effectiveness

COs: Drama

B.A. DRAMA B.A. First Year First Semester Paper- I

CO1: To understand expressing ideas through Drama.

CO2: To understand apply different arts of culture.

CO3: Deep understanding of poetry, stories, novels in literature.

CO4: To understand history of theatre.

CO5: Introduction to Sanskrit theatre and it importance.

B.A.FIRST YEAR SEMESTER-II PAPER-III

CO1: To know the development of old theatre tradition around the world.

CO2: To create awareness and understand developments in the history of theater.

CO3: To understand structural analysis of play.

CO4: To writing story play.

CO5: To understand regional theater, understanding play and structure.

CO6: To apply acting techniques.

B.A.SECOND YEAR SEMESTER-III PAPER-III (THEORY)

CO1: Deep understanding of Sanskrit theatre and drama.

CO2: Understanding of developments in architecture and stage.

CO3: Understanding of religious cultures in India.

CO4: Understanding various types of drama.

CO5: Introduction to Indian folk culture.

CO6: Studying folk art in Maharashtra.

CO7: Studying folk art and folk culture in the western country

B.A.SECOND YEAR SEMESTER-III PAPER-IV (PRACTICAL)

CO1: To study different arts of color.

CO2: To introduce elements of lighting in the play.

CO3: To study enhancement of secrecy, concentration, and body language.

CO4: To understand personality development.

CO5: To develop cowardice and storytelling skills.

B.A.SECOND YEAR SEMESTER-IV PAPER-IV (PRACTICAL)

CO1: Personality development, command on self-voice, communication skill of language.

CO2: Details study of lighting, color effects.

CO3: Study make up, knowledge of colors and personality development.

CO4: Creation of learner's interest in reading, singing.

CO5: Improvement in body language and thinking power of learner.

B.A.THIRD YEAR SEMESTER-VI (SPECIAL) THEORY

CO1: Deep knowledge of European theatre, various types of drama school and their technique.

CO2: Understanding of play production technique and production planning.

CO3: Introduction to the development of various folk forms.

CO4: Understanding of folk plays.

CO5: Introduction and understanding of various actors and their techniques.

B.A. SECOND YEAR SEMESTER-VI PAPER-III (THEORY)

CO1: Understanding the features of personality development.

CO2: Enhancing observation ability of the learner.

CO3: Understanding of costumes and the sense of development.

CO4: Applying knowledge of makeup, lighting, music in Drama.

CO5: To inculcate the skills of director in the leaners.

B.A.THIRD YEAR SEMESTER-V PAPER-IX COMMON PAPER (THEORY)

CO1: To understand play production procedure, rehearsal technique development and theatre management development.

CO2: To understand different acting developments.

CO3: To set designing of knowledge development and perfection in set designing.

CO4: To develop costume designing knowledge in costume designing.

B.A.THIRD YEAR SEMESTER-VI PAPER-XI COMMON PAPER (THEORY)

CO1: Understanding of modern Marathi theatre.

CO2: Understanding of types of theatres and their development.

CO3: To apply skills of a stage manager.

CO4: Understanding knowledge development in play.

CO5: Introduction to gramin and dalit literature.

CO6: Introduction to street play.

B.Voc Theatre & Stage Craft Semester I History of Theatre (TH):

CO1: Introduction to theatre and drama.

CO2: Introduction to the origin of Sanskrit theatre.

CO3: Introduction to regional theatre.

CO5: To understand the forms of various plays and drama.

CO6: Introduction to folk theatre in Maharashtra.

Acting (TH) 1. Basic concepts of acting

CO1: To understand acting

CO2: To understand the concept of acting.

CO3: To study types of acting

CO4: To study actor and acting

CO5: To understand the actor's place in theatre

Theatre techniques (stage craft)

CO1: To introduce leaners to theatre techniques.

CO2: To understand scenic design.

CO3: To study costume design.

CO4: To understand make up and its significance.

CO5: To understand light design.

CO6: To learn background music.

Semester II History of Theatre (TH):

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

CO1: Basic concepts of theatre

CO2: Origin of theatre and difference between theatre and drama

CO3: Eastern theatre, Japanese theatre, Chinese theatre, Indian theatre and Russian theater.

CO4: Indian contemporary theatre

Acting (TH):

Students will be able to understand ……

CO1: Voice modulation and speech story telling.

CO2: Qualities of an actor.

CO3: Mechanism of voice production.

CO5: Actor and Acting.

CO6: Applying the skills of an actor.

Theatre techniques (stage craft) (TH):

CO1: To set design, lights, costumes.

CO2: To design for play.

CO3: To utilize team in play.

Semester III Indian theatre.

CO1: To understand Marathi theatre: its history, origin, various trends.

CO2: To understand Sanskrit theatre, Bengali theatre, Kanada theatre etc.

Folk theatre of Maharashtra

CO1: Basic knowledge of folk theatre.

CO2: Students will understand different folk arts including Bharud, Kirtan, Tamasha, Songa Gondhal, Dashavtaar, Lahlit, Jagran etc.

CO3: To acquire the skills of folk arts.

Acting theory

Learners will understand …..

CO1: Bharatmuni

CO2: Stanislawski

CO3: Meyer hold

CO4: Badal sarkar

CO5: Rattan thiyam

CO6: Uttpal dutta

Semester IV Indian theatre

CO1: Understanding of history of Marathi Theatre (1843 to 1920).

CO2: Understanding of developements in Marathi theatre.

CO2: Types of play: Detailed study of forms of Comedy, Tragedy Tragic Comedy, Farce, Melodrama absurd.

Indian Folk Theatre:

Students will learn in brief about …..

CO1: Tamasha

CO2: Jatra Bhavai, Nautanki, Ramleela, Yakshagana

CO3: A study of Two Plays.

CO4: Study of Musical Marathi Theatre:

Folk theatre of Maharashtra

After completing the course, students will be able to understand …..

CO1: Difference between modern Marathi Theatre and Folk theatre.

CO2: Modern experimental plays, techniques, acting styles, new subjects and different styles of drama.

CO3: Basic language of folk theatre and folk style.

CO4: Traditional artist in Maharashtra.

CO5. Folk literature of theatre.

CO6: Contribution of folk theatre for India.

CO7: Some Marathi folk plays.

CO8: Theatrical languages.

Acting theory

Students will understand…..

CO1: Fundamental of Acting

CO2: Study of Yoga

CO3: Interpretation and Planning of Acting

CO4: Study of Great Actors

CO5: Acting Techniques

COs: Music

B. A. Music B.A.F.Y INDIAN CLASSICAL MUSIC (VOCAL & INSTRUMENTAL)

CO1: Introduction to the basic concepts of music, its importance and development.

CO2: Understanding of basic Alankaars & Raaga's.

CO3: Understanding of Indian classical music

CO4: Understanding of biographies of musicians

B.A.S.Y INDIAN CLASSICAL MUSIC (VOCAL & INSTRUMENTAL)

CO1: To develop singing ability.

CO2: To understand Khayal's with Aalap & Tanas

CO3: To understand musical, technical terms & their characteristics.

CO4: To understand singing and playing

B.A.T.Y INDIAN CLASSICAL MUSIC (VOCAL & INSTRUMENTAL)

CO1: To study of difficult Taalas with their laykaris.

CO2: To enhance ability to sing Gayaki & write Khayals with their notations.

CO3: To understand musical Gharanas.

CO4: To understand musical Granthas.

CO5: To understand history & development of music.

CO6: To provide an overview of applications of music & their Raaga therapy.

COs: Home Science

Semester-I-paper-I Introduction to family Resource Management

CO1. To introduce the students to the field of home management.

CO2. To develop the ability to improve the work within less time and fatigue.

CO3. Students can solve the problems to new situation applying acquired knowledge facts technique.

CO4. Students can apply knowledge sharing and investment in various areas.

Paper-II-Basic Nutrition

CO1. Students can understand and acquired knowledge about food and nutrition.

CO2. Students can plan various recipes in day to day life.

CO3.Students can solve the problems of new symptoms of any disease by applying and improving the nutritional quality of food and nutrition.

Semester-II-Food and nutrition-I

CO1.To understand the meaning and importance and need of home science extension education.

CO2.To develop awareness about extension learning.

CO3. To understand the process of communication in development work.

Paper-II Food and nutrition II

CO1.Students can demonstrate and a work food prizing and food adulteration.

CO2. They gain knowledge about the needs various age groups.

CO3.Students can experiment with various management of theory by various methods.

CO4. To understand quality of food and nutritional values.

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 extension work & services under home science extension.

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 need & skills 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 different methods of food preservation.

CO4: To understand nutrient needs for various age groups.

CO5: To be aware of 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 understand adjustments in marriage & family.

CO3: To leanrn 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 purpose.

B.A.T.Y. Paper-13 Human development [Adulthood & Oldage]

CO1: To know different aspects in adulthood.

CO2: To understand adjustments during adulthood.

CO3: To understand the nature of developmental pattern in adulthood & old age.

B.A.T.Y. Paper 14 Fundamental of Art & Design

CO1: To understand elements and principles of art & design.

CO2: To apply various colors and harmonies in design.

CO3: To develop skills in creating design & making art objects.

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.

COs: Physics

Semester-I Paper-I- Heat and Thermodynamics

Course outcomes-

CO1: Develop to understand on the concept of Heat and Thermodynamics.

CO2: To describe and apply the physical concepts of heat, transport phenomenon and laws of thermodynamics.

CO3: To performs calculations of heat conduction in various geometrics.

CO4: To develop ability among the students to identify, remember and grasp the meanings, definitions and laws of heat and thermodynamics.

CO5: To develop attitudes such as concern for accuracy and precision, objectivity and enquiry.

Paper-II-optics

Course outcomes-

CO1: Students will able to acquire the basic concept of optics and its application.

CO2: Able to explain how image formation takes place in lenses.

CO3: To understand the operation of many modern optical devices.

CO4: To understand the optical phenomenon such as interference and diffraction.

Semester-II

Paper-I Electricity and Magnetism

CO1: Students to develop an understanding on the concepts of Electricity and magnetism.

CO2: To understand the knowledge of various mathematical operations required for electrostatics and magnostastics.

CO3: To increase the ability to perform calculations of various mathematical expressions and laws.

CO4: To understand the fundamental concepts and operations of vector analysis.

CO5: To develop ability among the students to identify, remember and grasp the meanings, definitions, and laws of electricity and magnetism.

Semester-II
Paper-II-optics

CO1: To acquire the basic concepts of optics and its application.

CO2: To explain how image formation takes place in lenses.

CO3: To understand the operations of many modern optical devices.

CO4: To understand the optical phenomenon such as interference and diffraction.

S. Y. B. Sc. Physics Semester III 201- Paper No VII: Mathematical, Statistical Physics and Relativity

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 mathematical methods to solve problems in physics.

202- Paper No VIII: Modern and Nuclear Physics

CO1: To familiarize learners 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

CO5: To understand photoelectric effect.

CO6: To study different photoelectric cells.

CO7: To enable students to solve numerical problems.

Semester IV 205- Paper No XI: General Electronics

CO1: To familiarize students with basic electronic components.

CO2: To understand semiconductors.

CO3: To have deep knowledge of semiconductor devices.

CO4: To familiarize learners with transistor circuits and their characteristics.

CO5: To understand oscillators and multi vibrators.

CO6: To understand the process of modulation and demodulation.

CO7: To solve numerical problems.

206- Paper No XII: Solid state Physics

CO1: To familiarize students with basic concepts of structure of solids.

CO2: To familiarize students with characterization techniques.

CO3: To understand bonding and band theory of solids deeply.

CO4: To understand transport properties thoroughly.

CO5: To enable students to solve numerical problems.

T. Y. B. Sc. Semester V 54 301- Paper No XV: Classical and Quantum Mechanics

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 historical background of quantum mechanics.

CO4: To understand wave function and its physical interpretations.

CO5: To familiarize learners with 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.

Paper No XVI: Electrodynamics

CO1: To familiarize students with various differential operators to study the Gauss law.

CO2: To familiarize learners with basic concepts and equations related to time varying fields such as Faradays law, Len's law etc.

CO3: To write expression for pointing vectors for electromagnetic waves.

CO4: To enable to write wave equations.

CO5: To solve numerical problems.

Semester VI 305- Paper No XIX: Atomic, Molecular Physics and LASER

CO1: To familiarize students with conceptual development of atomic model.

CO2: To understand one and two valence electron systems deeply.

CO3: To understand Zeeman Effect, Paschan back effect, Stark effect etc.

CO4: To understand Molecular Raman Spectroscopy.

CO5: To have deep introduction to lasers.

CO6: To familiarize students with different types of LASERS.

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.

Paper No XX: Non-conventional Energy sources and Optical Fibers

CO1: To introduce students with various types of renewable energy sources.

CO2: To familiarize students with applications of solar energy.

CO3: To familiarize students with applications of biomass energy.

CO4: To familiarize students with wind mechanics.

CO5: To create awareness among students about energy conservation.

CO6: To familiarize students with optical fibers.

CO7: To familiarize students with applications of optical fibers.

CO8: To enable students to solve numerical problems.

COs: Chemistry

Subject: Chemistry

Semester – Paper I-ICHE 101: Analytical Chemistry

CO1: To understand the significance of statistical methods.

CO2: To understand the statistical treatment of analytical data.

CO3: To get knowledge about various separation techniques.

CO4: To acquire knowledge about distillation, extraction techniques.

CO5: To understand the principles and applications of chromatographic techniques.

Paper-II CHE 102: Inorganic Chemistry

CO1: To understand the concept of symmetry and classification of point groups.

CO2: To acquire knowledge about properties, applications of point groups.

CO3: To understand the reaction mechanism of metal complexes.

CO4: To acquire knowledge about stability of metal complexes and factors affecting their stability.

CO5: To understand the applications of metal complexes in biological systems.

Paper III-CHE 103: Organic Chemistry

CO1: To understand the nature of bonding in organic molecules.

CO2: To develop knowledge about reaction mechanism and thermodynamics.

CO3: To acquire knowledge about basic concepts of stereochemistry.

CO4: To understand the concept of nucleophilic and electrophilic reactions.

CO5: To develop ability to understand basic mechanisms of organic reactions.

Paper IV-CHE 104: Physical Chemistry:

CO1: To understand the thermodynamics of biochemical reactions.

CO2: To get knowledge about various reactions and theories of physical chemistry.

CO4: To understand the basic concepts and reactions of surface chemistry.

CO5: To acquire knowledge about theories, equations and applications of electrochemistry.

CHE 205: Spectroscopic Methods of Analysis

CO1: To introduce various spectral methods of analysis.

CO2: To get knowledge about principles of vibrational spectroscopy and analysis of polyatomic molecules.

CO3: To acquire knowledge about basic principle, instrumentation and applications of electronic spectroscopy.

CO4: To understand the concepts of UV and IR spectroscopy and factors affecting these methods.

CO5: To develop knowledge about NMR spectroscopy and factors affecting shifts.

CHE 206: Inorganic Chemistry

CO1: To understand the spectroscopic term symbols used in inorganic chemistry.

CO2: To get knowledge about the electronic spectra and magnetic properties of metal complexes.

CO3: To develop knowledge regarding structure, properties and classification of metal carbonyls.

CO4: To acquire knowledge about preparation and properties of metal nitrosyl compounds.

CO5: To understand the theories of metal-ligand bonding in complexes.

CHE 207: Organic Chemistry

CO1: To understand in detail the mechanism of electrophilic and nucleophilic substitution.

CO2: To understand the stereochemical aspects of addition reactions.

CO3: To get knowledge about reduction reactions of carbonyl compounds.

CO4: To understand the mechanism and reactivity of elimination reactions.

CO5: To acquire knowledge about basic concept and mechanism of rearrangement reaction.

CHE 208: Physical Chemistry

CO1: To understand the basic concepts of quantum chemistry and properties of quantum mechanical operators.

CO2: To study the term symbols and selection rules used in quantum chemistry.

CO3: To understand the various terms involved phase rule.

CO4: To acquire knowledge about basic principle and applications of crystallographic techniques.

CO5: To understand the various mechanisms & phenomena associated with photochemistry.

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, Van-der-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 – $LiAlH_4$, 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, $FeCl_3$-H_2O, phenol-water, trimethyl amine - water, nicotine- water system, acetone-dry 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.

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 co-ordination theory, EAN rule, VBT, isomerism, chelates.

CO3: To understand the concepts of acids and bases - Arrhenius, Bronsted-Lawry, 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 assignment 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 - ^{1}H 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

M. Sc. - I Chemistry CHE-101: Analytical Chemistry

CO1: To understand basic concepts in analytical chemistry - Role of analytical chemistry, qualitative and quantitative analysis, analytical processes of validation of a method.

CO2: To understand the methods of statistical treatment of analytical data.

CO3: To study the basic separation techniques in analytical chemistry.

CO4: To familiarize with different chromatographic techniques- theory, experimental and different parameters - TLC, column, liquid-liquid partition, gel permeation, ion exchange, gas and HPLC.

CHE-102: Inorganic Chemistry

CO1: To familiarize with different spectroscopic term symbols, Orgel diagrams and Tanabe Sugano diagrams for different configurations.

CO2: To understand the interpretation electronic spectra of metal complexes.

CO3: To study preparations, reactions and structures of metal carbonyls and nitrosyls and EAN rule.

CO4: To understand the chemistry of dioxygen, dinitrogen complexes and non-carbonyl metal clusters.

CO5: To understand bioinorganic chemistry involved in biological systems.

CHE-103: Organic Chemistry

CO1: To study aromatic electrophilic and nucleophilic substitutions with reference to orientation and reactivity, energy profile diagram, ortho/para ratio, IPSO substitution, orientation in other ring system, Recapitulation of halogenation, nitration, sulphonation and Friedel Craft's reaction, diazonium coupling.

CO2: To understand nucleophilic substitution - S_N^{Ar}, S_N1, benzyne mechanism

CO3: Effect of substrate structure, leaving group and attacking nucleophile on reactivity.

CO4: To study reaction mechanism and reaction intermediates- carbocations, carbanions, free radicals.

CO5: To study mechanism and stereochemical aspects of addition reaction involving electrophile, nucleophile and free radicals.

CO7: To understand regioselectivity and chemo selectivity, orientation and reactivity in addition to carbon-carbon multiple bond; Michael addition, Sharpless asymmetric epoxidation.

CO8: Study of elimination and rearrangement reactions.

CHE-104: Physical Chemistry

CO1: To understand ionic equilibrium and biological reactions.

CO2: To study theories of reaction rates, kinetics of reactions, methods of determining rates of reactions.

CO3: To study classical and statistical thermodynamics.

CO4: To understand models involved in surface chemistry.

CHE-205: Spectroscopic methods of analysis

CO1: General introduction to spectral methods.

CO2: Basic concepts, instrumentation and applications of Microwave, Vibrational and Raman spectroscopy.

CO3: To understand photoelectron spectroscopy.

CO4: To study thermal methods of analysis –TGA, DTA.

CO5: To understand the principle, instrumentation, applications of UV, IR and NMR spectroscopy.

CO6: To enable students to structure elucidation of compounds using combined spectral data.

CHE-206: Inorganic chemistry

CO1: To understand spectroscopic term symbols, microstates, Orgel diagram.

CO2: Study of electronic spectra and magnetic properties of transition metal complexes.

CO3: To understand the preparation, properties and reactions of metal carbonyls and nitrosyls.

CO4: Inorganic chemistry of haemoglobin and myoglobin.

CHE-207: Organic chemistry

CO1: To understand aliphatic and aromatic electrophilic as well as nucleophilic substitutions reactions.

CO2: Mechanisms and sterochemical aspects of additions to C-C double bonds and carbon-heteroatom multiple bonds.

CO3: To understand various named reactions with their mechanisms.

CHE-208: Physical chemistry

CO1: To understand basics and advanced concepts in quantum mechanics.

CO2: To understand phase rule and its applications to different systems.

CO3: To study laws in crystallography, symmetry elements, and principles of crystal structure.

CO4: To understand concepts in photochemistry, photochemical processes and mathematical equations.

M.Sc. II- Organic Chemistry Structural elucidation by spectral methods [CHEO-313]

CO1: To understand spin-spin and different types of couplings.

CO2: To study principles and applications of mass and NMR Spectroscopy.

CO3: To study the basic principles and applications of Mossbauer and ESR spectroscopy.

CO4: To understand structure elucidation of organic molecules by analysis of spectral data.

Organic Synthesis [CHEO-314]

CO1: To study applications of different oxidizing reagents.

CO2: To study applications of various reducing reagents.

CO3: To understand methods of synthesis and synthetic applications of organic reagents in synthetic organic chemistry.

CO4: To study carbon-carbon and carbon-heteroatom bond forming reactions.

CO5: Study of ylides and enamines.

Asymmetric synthesis of and bio-organic chemistry [CHEO-315]

CO1: To understand classification and extraction of enzymes.

CO2: To introduce the students to enzyme catalysis.

CO3: To study chemical structure of co-enzymes and cofactors.

CO4: To study chiral poll and Falkinanh model.

Photochemistry, free radical and pericyclic reaction [CHEO-316]

CO1: To study the principles and applications of pericyclic reactions.

CO2: To understand electro-cyclic reactions and their applications.

CO3: To study importance of cyclo-addition reactions with examples.

CO4: To understand applications of photochemistry.

CO5: To understand free radical reactions.

Organic Synthesis retro synthetic Approach [CHEO-417]

CO1: To study importance and applications of disconnection approach.

CO2: To understand protecting groups for different functional groups in organic synthesis.

CO3: To study disconnection approach of cycloadition reactions.

CO4: To study disconnection strategies for ring synthesis.

CO5: To understand retro-synthesis of complex organic molecules.

Advanced organic and heterocyclic chemistry [CHEO-418]

CO1: To study structure, synthesis and reactions of mono and fused ring heterocyclic compounds.

CO2: To understand advanced named reactions in organic chemistry.

CO3: To study rearrangement reactions and their applications.

CO4: To study nomenclature and classification of heterocyclic compounds.

Chemistry of Natural product [CHEO-419]

CO1: To study terpenoides and carotenoids.

CO2: To understand chemistry of natural products and its applications.

CO3: To study sources, synthesis and applications of steroids.

CO4: To understand the biogenesis of natural products.

Medicinal Chemistry [CHEO-420]

CO1: To understand classification of drugs.

CO2: To study synthesis and applications of antibiotics drugs in common medicines.

CO3: To understand basic principles and applications of medicinal chemistry.

CO4: To study concepts in pharmacokinetics.

CO5: To understand synthetic pathways for the synthesis of common drugs.

COs: Mathematics

Paper-I Geometry

Course Outcomes

CO1: To study three dimensional geometry plane right spheres, cone, cylinder along their properties and interpretations.

CO2: To identify and study equation of plane basic ideas of line, sphere, cones.

CO3: To learn equation of right circular cone, and cylinder.

Paper-II Differential Calculus

CO1: To classify the sequence.

CO2: To check the limits and continuity of functions.

CO3: To evaluate the derivative of functions.

CO4: To find the curl divergence and gradient of functions.

Differential and Integral Calculus

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

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

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

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

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

Number Theory

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

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

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

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

CO5: Students will be able to solve linear congruence.

Numerical Methods.

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

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

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

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

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

Integral Transform and Partial differential Equations

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

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

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

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

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

Mechanics (I & II)

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

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

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

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

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

Abstract Algebra (I & II)

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

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

CO3: Students can identify the difference between homomorphism and isomorphism of a group.

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

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

Ordinary Differential Equations (I & II)

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

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

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

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

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

Real Analysis (I & II)

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

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

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

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

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

COs: Botany

B. Sc.-I - Semester-I

Paper I-Diversity of Cryptogams-I

Course Outcomes

CO1: To understand diversity of Cryptogams

CO2: To understand Viruses, bacteria and mycoplasma.

CO3: To study families, life - cycle, General characters and classification of algae.

CO4: To study General characters, classification and economic importance of fungi.

CO5: To study systemic position and occurrence of lichens.

Paper-II Morphology of Angiosperm

CO1: To understand herbs, shrubs, trees, climbers, annual, binnials and perennials plant.

CO2: To study morphology of vegetative organs.

CO3: To understand morphology of reproductive organs.

CO4: To understand types of inflorescence, types of fruits and seeds dispersal strategies.

Semester-II

Paper-I

Diversity of Cryptogams-II

CO1: To understand diversity of cryptogams-II.

CO2: To study of bryophytes-Marchantia, Anthoceros, Funaria and its economic importance.

CO3: To study pteridophytes its general characters, systematic position, structure and reproduction and alternation of generation.

CO4: To study stellar evolution in Pteridophytes.

Paper-II-Histology, Anatomy and Embryology

CO1: To understand histology, anatomy and Embryology of plant.

CO2: To study various theories of cellular organization.

CO3: To study anatomy of monocot and dicot.

CO4: To understand primary and secondary growth of root, stem and leaf.

CO5: Study of embryology, pollination, double fertilization structure and types of ovules.

Taxonomy of Angiosperm

CO1: To familiarize with basic terminology, plant systematic and its different classification.

CO2: To identify angiosperm plants and their use.

Plant Ecology

CO1: Understanding of anatomical characterization of plants.

CO2: Study of eco-friendly conservation and sustainable utilization.

CO3: Students cop up with the ecosystem mechanism, analyzing plants ecosystem.

CO4: Understanding of ecological adaptations.

Gymnosperms and Utilization of plants

CO1: To make aware of economic and medicinal value of Gymnosperms and Angiosperms.

CO2: To understand important terminology in industrially and economically important higher plant species.

Plant Physiology

CO1: To understand plant physiology, life process, plant genetics and plant biotechnology.

CO2: To use the theoretical knowledge for advance study in plant sciences.

Cell and Molecular Biology

CO1: To create innovative approaches to aware the students in basic terminology of plant cells.

CO2: To understand cell at molecular level.

CO3: To apply theoretical understanding to the development of humankind.

BOT 521D Advanced plant physiology andCO1:

CO1.to create awareness about the plant resources.

CO2: To classify plants on the basis of morphological aspects.

CO3: To participate in laboratory experiments for understanding the basic principles of life sciences and helpful for gaining primary information.

Genetics and Biotechnology

CO1: To study basic terms in Mendelian and non-Mendelian genetics.

CO2: To focus on biotechnological importance for improvement and satisfaction of all needs of human kind.

CO3: To understand plant biotechnology and its application in agriculture, horticulture, medicinal and industrial crops.

BOT 522D Advanced plant physiology and Biochemistry-II

CO1: To study eco-friendly conservation and sustainable utilization of plants.

CO2: To understand flora.

Biology and Diversity of Bryophytes, Pteridophytes and Gymnosperms

CO1: To create the foundation of all plant life cycles of cryptogrammic plant species and it correlate with experimental techniques.

CO2: To understand characteristics of non-flowering primitive plants.

CO3: To aware the students about economic and medicinal values of cryptogrammic and gymnosperm plant.

Ecology and Conservation

CO1: To understand plant kingdom system and its ecology.

CO2: To distribute various biomes content for future higher environmental studies.

Biodiversity I

CO1: To study the major hotspots in world.

CO2: To increase confidence in students and percolate in research field.

CO3: To inculcate botanical techniques among the learners.

Biodiversity II

CO1: To demonstrate utility for different plant products.

CO2: To study numerical taxonomy, and modern methods of taxonomy.

M. Sc. Botany

BOT 401 Cell Biology

CO1: To enhance thinking ability.

CO2: To understand cell biology.

CO3: To design and execute an experiment.

BOT 402 Molecular Biology

CO1: To understand life processes at molecular level.

CO2: To understand molecular biology and its application in pharmaceutical, health, and agricultural industries.

CO3: To provide opportunity to enter in industries in biotechnology, and open avenues for answering basic and applied questions in life sciences.

BOT403 Biology and diversity of virus, phytoplasma, bacteria, algae and fungi

CO1: To study recent developments in plant science.

CO2: To understand flowering and non-flowering primitive plants.

CO3: To promote the interest of learners for selecting botany as a subject for higher education.

BOT Taxonomy of Angiosperms

CO1: To classify plants on the basis of morphological aspects with different classification systems.

CO2: To participate in laboratory experiments for understanding the basic principles of life sciences and helpful for gaining primary information.

CO3: To create awareness about the plant resources and to preserve them.

Seminars and Tutorial

CO1: To introduce recent developments in plant science.

CO2: To enhance, enthuse, sustain and promote the interest of learners.

Semester II BOT 405 Cytology and Genetics

CO1: to understand basic terms and their application in life sciences.

CO2: To develop opportunities in research, industry, pure or applied biology as well as teaching, media, government and management.

BOT 406 Plant developments and reproduction

CO1: To understand basic plant propagation techniques in horticulture and crop production.

CO2: To provide training in different skills for sustainable use of resources.

BOT 504 Genetic Engineering and Bioinformatics

CO1: To enhance understanding and competence in genetic engineering and bioinformatics.

CO2: To train provide skilled biologists with computer skills, database, tools and gene bank studies.

BOT 523D Advanced plant physiology and Biochemistry-III

CO1: To study different taxonomic tools.

CO2: To study diversity of plants.

BOT 524D Research component project work

CO1: To understand information about RET categorization.

CO2: To deal with global warming, red data book and species extinction.

CO3: To create public awareness.

CO4: To know the role of NGOS and industries in conservation of plants.

COs: Zoology

SEMESTER I- PAPER-ANIMAL DIVERSITY-I

CO1: To know the general characters and classification of nonchordates.

CO2: To understand the diversity and complexity of life form Protista to Echinodermata.

CO3: Students will be able to identify the major groups of organisms.

CO4: Students will be able to classify them within a phylogenetic framework.

SEMESTER-I-PAPER-CELL BIOLOGY

CO1: To understand the structure and function of cell.

CO2: Students will understand the architecture and function of cell.

CO3: To understand the different cell organelles.

CO4: Students will understand and identify different types of microscope.

CO5: Students will understand types of cell and function.

SEMESTER-II-PAPER-ANIMAL DIVERSITY-II

CO1: Students will learn and able to understand the general organization, diversity and adaptation of nonchordates.

CO2: The students will learn the importance of biodiversity conservation.

CO3: The students will understand different phylum and its examples.

CO4: Students will able to learn classification, external morphology and economic importance of different animal.

SEMESTER-II-PAPER-GENETICS

CO1: To study the hereditary biology and mechanism involved in hereditary diseases.

CO2: The student will understand genetics and heredity.

CO3: To study of different types of syndrome and abno and animal systematics.

CO2: To understand classification, anatomy and development of vertebrates.

CO3: To understand classification, morphological structures, identification of specimens and anatomy of some vertebrate animals.

CO4: To understand embryological process of development.

Genetics-II

CO1: To create awareness of mechanism of protein synthesis, DNA fingerprinting, recombinant DNA technology and rDNA.

CO2: To understand mechanism of protein synthesis and solve problems in genetics.

SEMESTER I- PAPER-ANIMAL DIVERSITY-I

CO1: To know the general characters and classification of nonchordates.

CO2: To understand the diversity and complexity of life form Protista to Echinodermata.

CO3: Students will be able to identify the major groups of organisms.

CO4: Students will be able to classify them within a phylogenetic framework.

SEMESTER-I-PAPER-CELL BIOLOGY

CO1: To understand the structure and function of cell.

CO2: Students will understand the architecture and function of cell.

CO3: To understand the different cell organelles.

CO4: Students will understand and identify different types of microscope.

CO5: Students will understand types of cell and function.

SEMESTER-II-PAPER-ANIMAL DIVERSITY-II

Course outcomes

CO1: Students will learn and able to understand the general organization, diversity and adaptation of nonchordates.

CO2: The students will learn the importance of biodiversity conservation.

CO3: The students will understand different phylum and its examples.

CO4: Students will able to learn classification, external morphology and economic importance of different animal.

SEMESTER-II-PAPER-GENETICS

CO1: To study the hereditary biology and mechanism involved in hereditary diseases.

CO2: The student will understand genetics and heredity.

CO3: To study of different types of syndrome and albino

CO4: Students will be able to understand types of mutation and its examples.

CO5: Students will understand gene frequency and gene pool.

Vertebrate Zoology

CO1: To study different classes of vertebrate and examples.

CO2. To understand different system of classes.

Animal physiology

CO1: To study animal processes.

CO2: To understand life processes through experiments.

Biochemistry & Endocrinology

CO1: To focus on biochemical processes - metabolism and catabolism process.

CO2: To inculcate advance study in biochemical reactions, principle, functioning and & uses of instruments.

Ecology

CO1: To study basic terms and subject applications in life sciences.

CO2: To understand basic information of types of ecosystems, role of living things in ecosystems and basic ecological concepts.

CO3: To analyze biotic, abiotic factors and animal interactions.

Entomology-I

CO1: To familiarize students with basic terminology of insects, biodiversity of insects, and their classification.

CO2: To understand morphology, economic importance and anatomy of insects.

CO3: To understand usefulness of insect and their role in agro based industries.

CO4: To enable students to participate in field collection and their identification to understand insect ecology.

Evolution

CO1: To study basic terms and subject applications in life sciences.

CO2: To participate in laboratory experiments for understanding the basic principles of evolution through models and helpful for gaining primary information.

Entomology-II

CO1: To understand the useful and harmful insects.

CO2: To familiarize students with basic terminology and damage caused by pest.

CO3: To identify and classify pest and life cycles for their management.

CO4: To know plant protection appliances and its application.

COs: Computer Science

Computer Fundamental Course code: CSO1

CO1: To make the students familiar with computer environment.

CO2: To familiarize with the basics of Operating System and business communication tools

CO3: To identify parts of a computer system.

CO4: To explain adequately the functioning of computer components.

CO5: To understand problem solving using computers.

CO6: To design an algorithmic solution for a given problem.

Digital Electronics: Course code: CSO2

CO1: To familiarize with basic concepts of digital electronics.

CO2: To learn number systems and their representation.

CO3: To understand the basic logic gates, Boolean algebra and K-maps.

CO4: To study arithmetic circuits, combinational circuits and sequential circuits.

CO5: Study comparative aspects of logic families.

Operating System (CSO4)

CO1: To understand structures, functions and history of operating systems.

CO2: To understand designs and issues associated with operating systems.

CO3: To understand process management concepts including scheduling, synchronization, and deadlocks.

CO4: To familiarize learners with multi-threading.

CO5: To study master concepts of memory management including virtual memory.

CO6: To understand master system resources sharing among the users.

CO7: To understand issues related with system interface, implementation, disk management.

CO8: To familiarize with protection and security mechanisms.

Programming in C (CSO5):

CO1: To understand a programming language.

CO2: To apply problem solving techniques.

CO3: To enable learners to write programs in C-programming and to solve problems.

CO4: To read, understand and trace the execution of programs written in C language.

CO5: to write the C code for a given algorithm.

CO6: To implement programs with arrays and functions.

Course code: CS07: Advance C-Programming.

After completing the course, learning will be able …..

CO1: To create user defined functions for specific task in C language.

CO2: To understand the functions, types and working in C programming.

CO3: To understand use of user defined data types such as structures & unions.

CO4: Students will be able to deal with memory using pointers.

CO5: To understand library functions and storage classes in C language.

CO6: To learn pre-processor directives and operators in C language.

CO7: To study files stored on computer memory using file handling.

Course code: CS08 - Data Structure:

CO1: Student will be able to choose appropriate data structure as applied to specified problem definition.

CO2: Student will be able to handle operations like searching, insertion, deletion and traversing mechanism on various data structures.

CO3: Students will be able to apply concepts learned in various domains like DBMS, compiler construction etc.

CO4: Students will be able to use linear and non-linear data structures like stacks, queues, linked list etc.

Course Code: CS011 - Programming in CPP:

CO1: To understand basic object oriented concepts & issues involved in effective class design.

CO2: To write C^{++} programs involving the use object oriented concepts such as information hiding, constructors, destructors, inheritance etc.

Course Code: CS012 - DBMS Using SQL:

CO1: Understanding the database system basic concepts, architecture, features, purpose, and advantage of DBMS.

CO2: Learning about the component of a DBMS: Users, facilities & structure.

CO3: Learning about data modeling & design.

CO4: Learning about entity-relationship and data model.

CO5: Understanding the basics of relational model, normalization, relational algebra.

CO6: Introduction to oracle.

CO7: Student will able to deal with database system using SQL to manipulate data.

CO8: Understanding of physical storage of data.

CO9: Learning architecture of database system.

CO10: Learning about transaction processing and concurrency control.

CSO15- Software Engineering:

CO1: To manage selection and initiation of individual projects and of portfolios of projects in enterprise.

CO2: To conduct project planning activities that accurately forecast project costs, timelines, and quality.

CO3: To implement processes for successful resource, communication, risk and change management.

CO4: To demonstrate effective project execution and control techniques that result in successful projects.

CO5: To conduct project closure activities and obtain formal project acceptance.

CO6: To demonstrate a strong working knowledge of ethics and professional responsibility.

CO7: To demonstrate effective organizational leadership and change skills for managing projects, project teams, and stakeholders.

CSO16-VB .Net:

CO1: To understand the structure and model of programming language VB .Net

CO2: To use the programming language VB.Net for programming technologies.

CO3: To develop software in VB .Net.

CO4: To evaluate user requirements for software functionality required to decide whether the programming language VB .Net can meet user requirements.

CO5: To solve the given problem by applying technologies using implementation of VB.Net programming language.

CO6: To choose an engineering approach for solving problems, starting from acquired knowledge of programming and operating systems.

CSO19 -Data Communication and Networking:

Students will be able to…..

CO1: Understand types of networks, technologies and application of networks.

CO2: Understand types of addresses and data communication.

CO3: Understand the concept of networking models, protocols and functionality of each layer.

CO4: Learn basic networking hardware and tools.

CO5: Understand wired and wireless networks, its types, functionality of layer.

CSO20- Ethics and Cyber Law:

CO1: To describe laws governing cyberspace and analyze the role of internet governance in framing policies for internet security.

CO2: To discuss different types of cybercrimes and analyze legal frameworks of different countries to deal with these cybercrimes.

CO3: To explain the importance of jurisdictional boundaries and identify the measures to overcome cross jurisdictional cyber-crimes.

CO4: To illustrate the importance of ethics in legal profession and determine the appropriate ethical and legal behavior according to legal frameworks.

CO5: To identify intellectual property right issues in cyberspace and design strategies to protect intellectual property.

CO6: To assess legal issues with online trading, analyze applicable e-contracting and taxation regulations.

CO7: To create security policy to comply with laws governing privacy and develop policies to ensure secure communication.

COs: BCA (Science)

BCA (Science) CA101-T-Computer Fundamental:

CO1: To familiarize students with computer environment.

CO2: To familiarize learners with the basics of Operating System and business communication tools.

CO3: To identify parts of computer system.

CO4: To explain functioning of computer components.

CO5: To explain the process of problem solving using computers.

CO6: To design an algorithmic solution for a given problem.

CA102-T- Digital Electronics:

CO1: To familiar with concepts of digital electronics.

CO2: To learn number systems and their representation.

CO3: To understand basic logic gates, Boolean algebra and K-maps.

CO4: To study arithmetic circuits, combinational circuits and sequential circuits.

CO5: To study comparative aspects of logic families.

CA103-T- 8086 Microprocessor:

CO1: To understand basic architecture of 16 bit microprocessors.

CO2: To understand interfacing of 16 bit microprocessor with memory and peripheral chips involving system design.

CO3: To understand techniques for faster execution of instructions and improve speed of operation and performance of microprocessors.

CO4: To understand microprocessor instruction sets, assembly language programming.

CO5: To write programs to run on 8086 microprocessor based systems.

CA104-T-Programming in C –I:

CO1: To enable students to learn a programming language.

CO2: To apply problem solving techniques.

CO3: To write programs in C language.

CO4: To read, understand and trace the execution of programs written in C language.

CO5: To write the C code for a given algorithm.

CO6: To implement programs with pointers, arrays, perform pointer arithmetic, and apply the pre-processor.

CO7: To write programs using derived data types.

CA105-T -Communication skills:

CO1: To demonstrate preparation and research skills for oral presentations.

CO2: To develop proper listening skills.

CO3: To articulate and enunciate words and sentences clearly and efficiently.

CO4: To enhance confidence and clarity in public speaking projects.

CO5: To demonstrate ability to gather information and apply it to persuade or articulate one's own point of view.

Goal Two: Written Communication

CO1: To understand the rules of spelling and grammar.

CO2: To read, analyze text and apply ideas in writing.

CO3: To organize thoughts in a manner that emphasizes flow and paragraph development.

CO4: To acquire proper footnoting and bibliography skills.

CO5: To understand writing techniques and styles based on the communication medium.

Course code: CA106-T - Mathematical Foundation:

CO1: To distinguish between statement logic and predicate logic.

CO2: To visualize data numerically and/or graphically.

CO3: To evaluate mathematical principles and logic design.

CO4: To apply induction, proof techniques towards solving recurrences and problems in elementary algebra, adapt, and design elementary deterministic and randomized algorithms to solve computational problems.

CO5: To illustrate the basic terminology of functions, relations, and sets and demonstrate knowledge of their associated operations and understanding of mathematical modeling with appropriate examples.

CO6: To demonstrate effectively mathematical ideas/results verbally or in writing and apply the knowledge of computing and mathematics.

CO7: To understand functions and distinguish different types of functions.

CO8: To identify and describe different relations.

CO9: To explain graphs to formulate computational problems.

CO10: To develop ability to solve recurrence relations.

107P - Office Suite Practical (LAB):

A student will be able to ….

CO1: Demonstrate mechanics and uses of word tables to organize and present data.

CO2: Demonstrate working knowledge of using Word's themes and clip art to create a variety of visual effects.

CO3: Demonstrate working knowledge of Word's advanced formatting techniques and presentation styles.

CO4: Demonstrate applicable knowledge and uses of accepted business style formatting conventions.

CO5: Create and design a spreadsheet for general office use.

CO6: Demonstrate the basic mechanics of creating a power point presentation.

CA107P - Digital Electronics Practical (LAB)

A student will be able to …..

CO1: Understand and apply use of analog signals to represent digital values in logic families, including characterization of the noise margins.

CO2: Create appropriate truth table from a description of a combinational logic function.

CO3: Create a gate-level implementation of a combinational logic function described by a truth table using and/or/inv gates.

CO4: Evaluate combinational and sequential logic designs using metrics.

CA109-P - Microprocessor-I (8086) Practical (LAB):

A student is able to understand …..

CO1: Intel 8086 microprocessor architecture and real mode memory addressing.

CO2: Intel microprocessor addressing modes.

CO3: Assembly language programming and debugging.

CO4: Arithmetic calculations using 8086 microprocessor kit.

CO5: Transfer of data and exchange of data between various memory units.

CA110-P - C Programming-I Practical (LAB)

A student is able to …..

CO1: Understand the fundamentals of C-programming.

CO2: Choose loops and decision making statements to solve the problem.

CO3: Implement different operations on arrays.

CO4: Basic mathematical calculations.

CA201-T - Data Structures:

CO1: Students are able to choose appropriate data structure as applied to specified problem definition.

CO2: Students can handle operations such as searching, insertion, deletion, traversing mechanism etc. on various data structures.

CO3: Students can apply concepts learned in various domains like DBMS, compiler construction etc.

CO4: Students can use linear and non-linear data structures like stacks, queues, linked list etc.

CA202-T -Operating System:

Leaners will be able…..

CO1: To understand functions, structures and history of operating systems.

CO2: To understand design issues associated with operating systems.

CO3: To understand process management concepts including scheduling, synchronization, and deadlocks.

CO4: To familiarize with multithreading.

CO5: To study concepts of memory management including virtual memory.

CO6: To understand resources sharing among the users.

CO7: To understand master issues related with file system interface, implementation and management.

CO8: To familiarize with protection and security mechanisms.

CO9: To familiarize with various types of operating systems including UNIX.

CA203-T - I.T. Tools & Web Designing –I:

CO1: To learn understand the basics of internet and web designing.

CO2: To understand architecture of browser, server, web page, web sites & clients.

CO3: To know about internet domains, protocols, browser and server communication.

CO4: To know the basic knowledge of HTML and DHTML language for web page development.

CO5: To understand concepts of internet programming using JavaScript.

CA204-T - C-Programming-II:

CO1: To understand creation of user defined functions for specific task in C language.

CO2: To understand about functions and its types and working.

CO3: To understand use of user defined data types such as structures & unions.

CO4: To enable students for dealing with memory using pointers.

CO5: To get information about library functions and storage classes in C language.

CO6: To get knowledge about preprocessor directives and different operators used in C-language.

CO7: To deal with files stored on computer memory using file handling.

CA205-T - Communication Skill –II:

Leaners will be able…..

CO1: To demonstrate preparation and acquire skills for oral presentations.

CO2: To develop proper listening skills.

CO3: To articulate and enunciate words and sentences clearly and efficiently.

CO4: To show confidence and clarity in public speaking projects.

CO5: To demonstrate ability to gather information and apply it to persuade or articulate.

Goal Two: Written Communication

CO1: To understand the rules of spelling and grammar.

CO2: To read and analyze text and enable learner to summarize ideas in writing.

CO3: To organize thoughts in a manner that emphasizes flow and paragraph development.

CO4: To learn proper footnoting and bibliography skills.

CO5: To understand different writing techniques and styles based on communication medium being used.

CO6: To develop group communication skill.

CO7: To develop listening comprehension, reading comprehension and vocabulary.

CA206-T -Numerical Methods:

CO1: To demonstrate understanding of common numerical methods and their application to obtain approximate solutions to intractable mathematical problems.

CO2: To apply numerical methods to obtain approximate solutions to mathematical problems.

CO3: To derive numerical methods for various mathematical operations and tasks, such as interpolation, differentiation, integration, the solution of linear and nonlinear equations, and the solution of differential equations.

CO4: To analyze and evaluate the accuracy of common numerical methods.

CA207-P -Data Structure (LAB):

CO1: To understand the concepts of dynamic memory management, data types, algorithms, big O notation.

CO2: To understand basic data structures such as arrays, linked lists, stacks and queues.

CO3: To describe hash function and concepts of collision and its resolution methods.

CO4: To solve problem involving graphs, trees and heaps.

CO5: To apply algorithm for solving problems like sorting, searching, insertion and deletion of data.

CA208-P -I.T. Tools & Web Designing – I (LAB):

A student will be able to …..

CO1: Explain the history of internet and related internet concepts that are vital in understanding web development.

CO2: Discuss the insights of internet programming and implement complete applications over the web.

CO3: Demonstrate important HTML tags for designing static pages and separate design from content using Cascading Style sheet.

CA209-P- C Programming – II (LAB):

The course will enable students to …..

CO1: Implement programs with pointers and arrays, perform pointer arithmetic, and the use of pre-processor.

CO2: Write programs that perform operations using derived data types.

CO3: Use pointers and user defined data types.

CO4: Use functions used in C language.

CA210-P - Numerical Method (LAB):

A student will be able to …..

CO1: Identify different mathematical problems and reformulate appropriately for numerical data treatment.

CO2: Choose appropriate numerical methods for treatment of a given problem.

CO3: Explain choice of method by accounting for advantages and limitations.

CO4: Choose an algorithm that implies efficient calculations and implement in a programming language, suited for calculations.

CO5: Estimate reliability of results.

CO6: Use functions from the programming language library for efficient calculations and visualization.

CO7: Apply computer science for the solution of practical problems.

CA301-T - Database Management System:

CO1: To understand database system, basic concepts, architecture, features, purpose, advantage of DBMS.

CO2: To learn about component of a DBMS: Users, facilities & structure.

CO3: To learning about data modeling & design.

CO4: To learn about entity-relationship data model.

CO5: To understand basics of relational model, normalization, relational algebra.

CO6: To introduce students to oracle s/w.

CA302-T - Mobile Maintenance -I:

CO1: To study basic electronics and microcomputers.

CO2: To enable learners to handle mobile phones with the knowledge of testing batteries and battery charger.

CO3: To gain the knowledge of different mobile phones and also able to handle it.

CO4: To identify different chips and crystals on mobile PCB board.

CO5: To understand motherboard and different softwares for mobile repairing.

CA303-T - Principle of Management:

CO1: To understand basic concepts, scope, importance and evaluation of management.

CO2: To handle administrative section by applying work authority and responsibility.

CO3: To learn functions of management such as planning, organizing, staffing and so on.

CO4: To understand human factors in business administration and organization.

CO5: To enable learners to control and coordinate with colleagues.

CA304-T -Programming in CPP:

CO1: To acquire an understanding of basic object oriented concepts and issues involved in effective class design.

CO3: To write C^{++} programs that use object oriented concepts such as information hiding, constructors, destructors and inheritance.

CA305-T - Personality Development:

CO1: To develop and exhibit and accurate sense of self.

CO2: To develop and nurture a deep understanding of personal motivation.

CO3: To develop an understanding of practice of personal and professional responsibility.

CO4: To enhance self-confidence.

CO5: To identify, understand, and apply contemporary theories of leadership to a wide range of situations and interactions.

CO6: To develop and articulate personal philosophy of leadership.

CO7: To understand concepts of democratic leadership and processes.

CA306-T -Statistical Method:

CO1: To prepare for competitive examinations.

CO2: To apply statistics in real life.

CO3: To understand and calculate various types of averages and variations.

CO4: To understand application of discrete & continuous probability distributions to various business problems.

CO5: To understand organization, management, and data presentation.

CO6: To carry out exercises and small projects incorporating data presentation.

CO7: To demonstrate ability to write reports of statistical analysis giving summaries and conclusions using nontechnical language.

CA307-P - Programming in C++ & aDBMS (LAB):

A student will able to …..

CO1: Use C++ functions and concepts related to good modular design.

CO2: Apply one-dimensional and two-dimensional arrays.

CO3: Use C++ structures.

CO4: Understand pointers and reference parameters.

CO5: Use text file input/output

CO6: Understand C++ classes.

CO7: Explain features of database management systems.

CO8: Design conceptual models of a database using ER modeling.

CO9: Understand basics of relational model, normalization, relational algebra.

CO10: Understand basics of oracle s/w.

CA308P- Mobile Maintenance-I & SM using Excel (LAB):

A student will be able …..

CO1: To understand the basic internal structure of mobile phones.

CO2: To learn how to connect the mobile chips and battery.

CO3: To explain different types of mobile phones with its IC's.

CO4: To learn applications and security issues of mobile phones.

CO5: To draw the different graphical representation of the raw data in statistical method using excel.

CO6: To differentiate graphs.

CO7: To describe the quantitative results easily.

CO8: To handle statistical functions of excel.

CA401-T - Advance Database Management System:

CO1: Student will able to deal with database system using SQL to manipulate data.

CO2: Understanding of physical storage of data.

CO3: Understanding of architecture of database system.

CO4: Learning about transaction processing and concurrency control.

CA402-T - Advance Mobile Repairing:

CO1: Student will understand of mobile phone technology.

CO2: Student will be familiarized with microchip and microprocessor technology.

CO3: Student will get practical training of handling various components of mobile phone.

CO4: Learning of circuit diagram of mobile phone with complete software installation.

CO5: Student will be able to find the fault in hardware and software.

CO6: Student can read the track of mobile phone.

CA403-T - Software Project Management:

CO1: To manage selection and initiation of individual projects and of portfolios of projects in enterprise.

CO2: Implement processes for successful resource, communication, risk and change management.

CO3: To conduct project planning activities that accurately forecast project costs, timelines, and quality.

CO4: To demonstrate effective project execution and control techniques that result in successful projects.

CO5: To conduct project closure activities and obtain formal project acceptance.

CO6: To demonstrate a strong working knowledge of ethics and professional responsibility.

CO7: To demonstrate effective organizational, leadership and skills for managing projects, project teams, and stakeholders.

CA404-T - Core Java

CO1: To implement object oriented programming concepts.

CO2: To use and create packages and interfaces in a Java program.

CO3: To use graphical user interface in Java programs.

CO4: To create applets.

CO5: To implement exception handling in Java.

CO6: To implement multithreading.

CO7: To use Input/output streams.

CO8: To handle security implementations in Java.

CA405-T - Aptitude and Logical Reasoning:

CO1: To prepare for competitive examinations.

CO2: To evaluate critically various real life situations by resorting to analysis of key issues and factors.

CO3: To read in between the lines and understand language structures.

CO4: To demonstrate principles involved in solving mathematical problems and reducing the time taken for performing job functions.

100 CA406-T - Linear Programming Problem (LPP):

CO1: To know the role of linear programming.

CO2: To understand applications of linear programming.

CO3: To define LPP and formulate the LPP in general and graphical form.

CO4: To understand methods of LPP.

CO5: To learn transportation and assignment problems using simple steps.

CA407-T - Programming in Java &Adv. DBMS using SQL (LAB):

A student will able to …..

CO1: Understand structure and model of Java programming language.

CO2: Use the Java programming language for various programming technologies.

CO3: Evaluate user requirements for software functionality required to decide whether the Java programming language can meet user requirements.

CO4: Propose the use of certain technologies by implementing in Java programming language to solve a given problem.

CO5: Choose an engineering approach to solve problems, starting from the acquired knowledge of programming and knowledge of operating systems.

CO6: Define database system concepts and apply normalization to the database.

CO7: Explain the basic processing and optimization techniques for high level query.

CO8: Describe different transaction processing concepts and use different concurrency control techniques.

CO9: Discuss different types of databases such as object oriented and distributed databases.

CO10: Identify different types of database failures and techniques to recover from such failures.

CO11: Discuss advanced database technologies and products used in enterprise.

CA408-T - Mobile Maintenance-II & Mini project (LAB):

A student will able to….

CO1: Know various features of mobile phones.

CO2: Handle internal part of mobile.

CO3: Handle software's of mobile phones.

CO4: Formulate a real world problem and develop its requirements.

CO5: Develop a design solution for a set of requirements.

CO6: Test and validate conformance of the developed prototype against the original requirements of problem.

CO7: Work as a responsible member and possibly a leader of a team in developing software solutions.

CO8: Express technical and behavioral ideas and thought in oral settings.

CO9: Prepare and conduct oral presentations.

CO10: Self learn new tools, algorithms, and/or techniques that contribute to software solution of the project.

CO11: Generate alternative solutions, compare them & select optimum one.

Code: CA501-T - Software Project Management II:

CO1: To recognize, trace and resolve IT related crises using project management software.

CO2: To identify the impact of IT projects on the performance of organizations.

CO3: To manage the phases and infrastructure of IT projects.

CO4: To develop strategies to calculate risk factors involved in IT projects.

CO5: To use project management software to control the design, implementation, closure, and evaluation of IT projects.

CO6: To estimate, plan, calculate, and adjust project variables.

CA502-T - Computer Graphics-I:

CO1: To learn basic concepts in computer graphics which includes different input-output devices and graphics file formats.

CO2: To use different functions of graphics for creating objects.

CO3: To be able to move an object from one place to another, rotate, scale, reflect the object easily.

CA503-T- Core Java-II:

CO1: To understand input/output stream used in java.

CO2: To learn different utilities in java language.

CO3: To have an overview of database access and details for managing information using JDBC API.

CO4: To enable learners to write simple GUI interfaces for a computer program, to interact with users, and understand event-based GUI handling principles.

CO5: To learn use of Java applets for creating interactive web programs: Fonts, color, graphics, and animation.

CO6: To understand use of Java applets to create interactive web programs by sending and receiving parameters in an applet.

CA504-T- Data Warehousing:

CO1: To evaluate models of OLAP and data pre-processing.

CO2: To enlist algorithms used in information analysis of data mining techniques.

CO3: To demonstrate the knowledge retrieved through solving problems.

CA506-T - Data Communication & Networks

CO1: To understand types of networks, technologies and applications of networks.

CO2: To understand types of addresses and data handling.

CO3: To understand networking models, protocols and functionality of each layer.

CO4: To learn basics of networking hardware and tools.

CO5: To understand wired and wireless networks, their types, functionality of layer.

CO6: To understand the importance of network security and cryptography.

Course Code: CA507-T- Beginners Programming with PHP

CO1: To understand server-side programming works on the web.

CO2: To learn PHP Basic syntax for variable types and calculations.

CO3: To create conditional structures.

CO4: To store data in arrays.

CO5: To use PHP built-in functions for creating custom functions.

CA509-P - Pr. Based on Comp. Graphics & Pr. Based on Core Java-II (LAB):

CO1: To study and make an object based on graphical functions.

CO2: To learn drawing of different shapes using various algorithms.

CO3: To handle various movements of an object for animation - translate, rotate, scaling and reflection.

CO4: To understand input/output stream in Java.

CO5: To learn utilities in Java language.

CO6: To have an overview of database access and details for managing information using the JDBC API.

CO7: To write simple GUI interfaces for a computer program, interact with users, and understand the event-based GUI handling principles.

CO8: To learn use of Java applets to create interactive web programs: Fonts, color, graphics, and animation.

CO9: To learn use of Java applets to create interactive web programs by sending and receiving parameters in an Applet.

CA510-P -Pr. Based on DCN & Pr. Based on PHP (LAB):

CO1: To describe standard network models.

CO2: To understand guided transmission media.

CO3: To analyze error detection and error correction codes.

CO4: To understand the concepts behind medium access control sub layer.

CO5: To understand working of server-side programming on the web.

CO6: To learn PHP basic syntax for variable types and calculations.

CO7: To create conditional structures.

CO8: To store data in arrays.

CA601-T - Software Testing and Quality Assurance:

CO1: Students will be able to identify benefits and the needs to enforce software quality.

CO2: Students will be able to differentiate between quality control, quality management and quality assurance.

CO3: Students will be able to discuss different software quality factors models.

CO4: Students learn systematic approach to the development, operation, maintenance, and retirement of software.

CO5: To understand methods and tools of testing and maintenance of software's.

CO6: Student can understand the use of resources to develop software, reduce cost of software and quality maintenance of software.

CA602-T - Computer Graphics-II

CO1: Student will understand three dimensional (3-D) basic concepts.

CO2: Students will be able to perform different operations on an object such as 3D-rotation, scaling and translation.

CO3: Students can clip objects using different methods/algorithms.

CO4: To understand curves and fractals concept.

CO5: To enable students to identify and describe different color models for defining an object.

CO6: To understand the concept of animation and implement in real time applications.

CA603-T- Java Server Pages (JSP)

CO1: Students will understand Java server pages by its life cycle.

CO2: Students can learn different scripting tags.

CO3: Students can understand different tags helpful to the server pages such as directive tags, action tags and also depth knowledge of Java Beans.

CO4: To handle database access to JSP page.

CO5: To understand JSTL, Core and XML tag library.

Code: CA604-T - Data Mining:

CO1: To build basic terminology.

CO2: To display a comprehensive understanding of different data mining tasks and the algorithms most appropriate for addressing them.

CO3: To evaluate models/algorithms with respect to accuracy.

CO4: To demonstrate capacity to perform a self-directed piece of practical work that requires the application of data mining techniques.

CO5: To analyze critically the results of data mining exercise.

CO6: To develop hypotheses based on the analysis of results and test them.

CA606-T - Cloud computing:

CO1: Students can learn cloud computing fundamentals with cloud services.

CO2: Students can learn different cloud computing technologies and their applications.

CO3: Students can understand key enabling technologies for virtual private clouds and their applications.

CO4: Students can understand different role of networks in cloud computing.

CO5: Students can learn architecture of cloud and data-intensive technologies along with their characteristics and system architecture for cloud computing.

Course Code: CA607-T - Advanced Programming with PHP:

CO1: To maintain state using cookies, session variables, hidden form fields and query strings.

CO2: To use PHP to manipulate files.

CO3: To identify and handle errors that can occur while programming with PHP.

CO4: To introduce to OOP (Object Oriented Programming) in PHP.

CO5: To understand use of an object-oriented API to access SQL to SELECT, INSERT, UPDATE and DELETE data from tables.

CO6: To use phpMyAdmin utility to administer the MySQL database.

CO7: To use OOP in PHP to define and use classes.

Code: CA609-P - Pr. Based on PHP & JSP (LAB)

CO1: To identify and handle the types of errors that can occur while programming with PHP.

CO2: To introduce learners to OOP (Object Oriented Programming) in PHP.

CO3: To use an object-oriented API to access SQL to SELECT, INSERT, UPDATE and DELETE data from tables.

CO4: To use php MyAdmin utility to administer the MySQL database.

CO5: To use OOP in PHP to define and use classes.

CO6: To choose an engineering approach to solve problems, starting from the acquired knowledge of programming and knowledge of operating systems.

CO7: To implement programming using various action tags in JSP.

CO8: To understand scripting tag manipulations.

CO9: To learn JSP & Java beans.

CO10: To study session API in JSP.

CO11: To understand database access to JSP page.

CO12: To study SQL tagged library and function tag library in JSP.

CA610P - Major Project:

CO1: To formulate a real world problem and develop its requirements.

CO2: To develop a design solution for a set of requirements.

CO3: To test and validate conformance of the developed prototype against the original requirements of a problem.

CO4: To work as a responsible member and a leader of a team in developing software solutions.

CO5: To express technical, behavioral ideas and thought in oral settings.

CO6: To participate in and possibly moderate, discussions that lead to make decisions.

CO8: To express technical ideas, strategies and methodologies in written form. software solution of the project.

CO11: To generate alternative solutions, compare and select the optimum one.

COs: B.Sc. (Computer Science)

Semester-I

Paper –I Computer Fundamentals

Course Outcomes

CO1: To understand the block diagram of hardware peripherals.

CO2: To understand the concepts of software and its type.

CO3: To understand the number of system and its conversion between different number of system.

CO4: To understanding the computer based application such as email and video conference.

CO5: To gain knowledge of computer fundamentals CPU and its functionalities.

Paper-II-Digital Electronics

CO1: To study number systems and Arithmatics.

CO2: To understand Algebra and logic gates AND OR NOT, EXOR and EX-NOR.

CO3: To understand minimization techniques.

CO4: To understand combinational and Arithmetic logic circuit.

CO5: To study flip FLORS,RS,FF and DFR race around condition.

Paper-III- Operating System

CO1: To understand types of operating system, basic functions of O.S. and Evolution of O.Sc

CO2: To understand the concept of process, process control Block and Threads.

CO3: To understand the CPU scheduling Non preemptive and preemptive scheduling algorithms.

CO4: To understand the concept of Synchronization and Deadlock.

Paper-IV Mathematical Foundation

Corse Outcomes

CO1: To study of language C and structure language and features C.

CO2: To understand basic elements and operators.

CO3: To understand data types.

CO4: To understand C program and IT statements.

Paper-V- Programme Methodology

CO1: To know how to represent various statements using set relation, functions, permutation, combination, groups, graphs and trees.

CO2: Use logical notations to formulate and reason about fundamental concepts such as sets, relation, functions and algebraic structures.

CO3: To analyses growth of function and real world problem using various concepts like recurrence relations graph implementation.

CO4: To apply mathematical logic to solve problems, pigeonhole principal to solve real time problems.

CO5: Model and solve real world problems using graphs and trees,

Paper –VI English communication skills

CO1: To understand the different styles of communication,

CO2: To understand the effectives peaking skills and develop effective reading comprehensions.

CO3: To understand how to write a good personal profile and improve one presentation skills

CO4: To develop good writing skills.

Semester II
Paper –I Data structures
Course Outcomes

CO1: Ability to understand fundamental data structures like arrays, linked lists, stack. queues, trees, grapgs.

CO2: Ability to understand abstract data types.

CO3: Ability to program data structures and use them in implementation of abstract data type.

CO4: To understand basic algorithmic complexity.

CO5: To understand searching and sorting algorithms their implementation and suitable applications.

Paper-II 8086 Microprocessor

CO1: To learn function of block diagram of 8086 microprocessor.

CO2: To understand function of each pin of 8086 microprocessor.

CO3: To understand the instructions in different addressing modes .

CO4: To write an assembly language program.

Paper-III. Operating system II

CO1: To gain knowledge of memory, management, paging and segmentation.

CO2: To understand concept of file, operation file, file allocation methods.

CO3: To understand Disk fundamentals Disk scheduling, disk management.

CO4: To understand dedicated devices, shared devices, I/O devices, I/O hardware.

CO5: To understand security policy mechanism, protection & authentication.

Paper IV- Advance programming in C

CO1: To develop and implement modular applications in C using functions.

CO2: To develop applications in using C structures and pointers.

CO3: To design applications using sequential and random access file processing.

CO4: To identify the difference between call by value and call by reference.

Paper V- Programming Methodology

CO1: To learn and develop simple algorithms and flow charts to solve problems.

CO2: To develop problem solving skills coupled with top design principles.

CO3: To learn the strategies of writing efficient and well structures computer programs.

CO4: To develop skill for formulating solutions to a problem.

Paper –VI English communication skills

CO1: To learn fundamentals of parts of speech.

CO2: Detailed study of spelling, silent letters, and Articles.

CO3: To learn Auxiliary verbs, subject and object and how to make Questions and Questions tag.

CO4: To enhance the vocabulary building, word formation, synonyms and Antonyms word substitutes and phrasal verbs.

CO5: To improve listening, oral and reading skills.

CS105-T - Communication Skill –1:

CO1: To enhance communication skills of students.

CO2: Students can apply types and methods of communication.

CO3: Students will able to communicate in English properly.

CO4: Students will learn English grammar and vocabulary.

CO5: Students will be able to express speeches and presentations in English.

CO6: To acquaint practice to read, write and speak in English.

CS106-T - Mathematical Foundation:

CO1: Students will learn set theory useful for higher studies.

CO2: Students will learn graph theory.

CO3: Students will understand different binary relations and functions.

CO4: Students will learn Boolean algebra.

CS107-P - Practical based on Office Suite:

CO1: To use basic computer operations.

CO2: To use internet.

CO3: To demonstrate the mechanics and uses of Word tables to organize and present data.

CO4: To demonstrate working knowledge of Word's themes and clip art.

CO5: To demonstrate Word's advanced formatting techniques and presentation of styles.

CO6: To demonstrate accepted business style formatting conventions.

CO7: To create documents using Microsoft word in writing applications, letters and office use.

CO8: To create and design a spreadsheet for general office use.

CO9: To enable students for delivering presentations using computer.

CS108-P - Practical based on Digital electronics:

CO1: To express use of analog signals to represent digital values in logic families, including characterization of the noise margins.

CO2: To create appropriate truth table from a description of a combinational logic function.

CO3: To create a gate-level implementation of a combinational logic function described by a truth table using and/or/in gates.

CO4: To evaluate combinational and sequential logic designs using metrics.

CS109-P - Practical based on Micro Processor - I:

A student will be able to …..

CO1: Understand Intel-8086 microprocessor architecture and real mode memory addressing.

CO2: Apply Intel microprocessor addressing modes.

CO3: Assemble language programming and debugging.

CO4: Perform arithmetic calculations using 8086 microprocessor kit.

CO5: Transfer and exchange data among memory units.

CS110-P- Practical based on 'C' Programming:

CO1: To understand the fundamentals of C programming.

CO2: To choose loops and decision making statements for solving problems.

CO3: To implement different operations on arrays.

CO4: To understand the basic mathematical calculations.

B.Sc. [CS] Semester-II CS201-T- Data Structure:

CO1: Students will understand basics of data structure.

CO2: Students will learn the use of arrays in data structure.

CO3: Students will understand working of linked list, stacks and queues.

CS202-T- Operating System:

CO1: Students will learn the working of operating system.

CO2: Students can processes and manage operating systems.

CO3: Students can understand storage and device management.

CO4: Students can handle file structure managed by operating system.

CS203-T-Micro Processor - II:

CO1: Students will learn the logic and control instructions of 8086.

CO2: Students will be familiarized to modular programming, assembler, linker and macros.

CO3: Students will understand interrupts, their types, DMA and DMA control I/O.

CS204-T- 'C' Programming - II

CO1: Students can write user defined functions.

CO2: Students will be able to use structures and union within C-programs.

CO3: Students will able to use pointers within program to access the computer memory location directly.

CO4: Students will learn to use preprocessor directives and miscellaneous features.

CO5: Students will be able to work on files using C-programs.

CS205-T- Communication Skill-II

CO1: Apply communication skills to write letters, notices, minutes, manual, leaflet, complaints & suggestion and job application.

CO2: Write reports.

CO3: Discuss in groups and enhance communication skills.

CO4: Write CV for interview.

CO5: Prepare for interview.

CS206-T - Numerical Computation Methods:

CO1: Students will understand types of errors in mathematics.

CO2: Students can understand the matrix and determinants.

CO3: Students can understand the roots of linear and nonlinear equations.

CO4: To learn interpolation and regression methods.

CS207-P-Practical based on Data Structure:

CO1: To understand the concept of dynamic memory management, data types, algorithms and big O notation.

CO2: to understand the basic data structures.

CO3: To describe the hash function, concepts of collision & resolution methods.

CO4: To solve problem involving graphs, trees and heaps.

CO5: To apply algorithm for solving problems.

CS208-P-Practical based on Micro Processor - II:

CO1: Students will learn to implement arithmetic operations on 8-bit numbers.

CO2: Students will learn to write 8086 program to find smallest/largest number.

CO3: Students will learn to write 8086 program for sum of array elements, reverse of array elements.

CO4: Students can design programs over 8086.

CS209-P- Practical based on C Programming-II:

After studying the course, a student will be able to ….

CO1: Implement programs with pointers, arrays, perform pointer arithmetic, and use the pre-processor.

CO2: Write programs that perform operations using derived data types.

CO3: Use pointers and user defined data types.

CO4: Use functions used in C-language.

CS210-P- Practical based on Numerical Computational Method:

A student will be able to….

CO1: Identify mathematical problems and reformulate them with appropriate numerical treatment.

CO2: Choose appropriate numerical method for treatment of a given problem.

CO3: Explain choice of method by accounting for advantages and limitations.

CO4: Choose an algorithm that implies efficient calculations and implement in programming language, suited for calculations.

CO5: Estimate the reliability of results.

B.Sc.[CS] Semester-III Advance Data Structure (CS301-T)

CO1: Students can use graph theory.

CO2: Students can understand sorting techniques.

CO3: Students can apply searching techniques.

Unix Operating System (CS302-T)

CO1: Students will be able to understand UNIX operating system.

CO2: Students will learn the basic commands to work on UNIX operating system.

CO3: Students can create and use files on UNIX operating system.

CO4: Students can learn shell script in programming on UNIX.

110 PC Maintenance (CS303-T)

CO1: Students will learn computer hardware and its maintenance.

CO2: Students will learn s/w installations for PC and its settings.

CO3: Students will understand networking, settings and antivirus installation.

CO4: Students will understand laptop and its components.

Programming in CPP (CS304-T)

CO1: To acquire basic object oriented concepts in oriented programming for software development.

CO2: To learn history, structure of C^{++} language and functions in C^{++}.

CO3: To learn use of class, object and friend function.

CO4: To apply programming in C^{++} to solve the real world problem using class and objects.

CO5: To learn constructors, destructors and operator overloading.

Database management System (CS305-T)

CO1: To understand database, architecture, features, purpose and advantages of DBMS.

CO2: To understand components of a DBMS: Users, facilities & structure.

CO3: To learn data modeling & design.

CO4: To learn entity-relationship data model.

CO5: To understand the basics of relational model, normalization, relational CO algebra.

CO6: To introduce to oracle s/w.

Statistical methods (CS306-T)

CO1: To enable learners for competitive examinations.

CO2: To apply statistics in real life.

CO3: To understand and calculate types of averages and variations.

CO4: To apply discrete and continuous probability distributions in business problems.

CO5: To organize, manage, and present data.

CO6: To exercise small projects that incorporate data presentation.

CO7: To write reports on the results of statistical analysis, summarize and conclude using non-technical language.

Practical based on data structure using CPP. (CS307-P)

CO1: To apply sorting techniques using C-language.

CO2: To apply searching techniques using C-language.

Practical based on DBMS (CS307-P)

CO1: To explain the features of database management systems.

CO2: To draw a scheme for their database.

CO3: To design conceptual models of a database using ER modeling.

CO4: To understand basics of relational model, normalization, relational algebra.

CO5: To introduce to oracle s/w.

Practical based on PC Maintenance (CS308-P)

CO1: To understand computer hardware and motherboard.

CO2: To learn connecting of input, output and storage devices.

CO3: To understand installation of software on PC.

CO4: To learn formatting of hard disk and creating partitions on HD.

CO5: To study installation of device drivers and antivirus.

Practical based on UNIX (CS308-P)

CO1: To understand working with UNIX Operating System (OS).

CO2: To execute commands of UNIX OS.

CO3: To create and access files on UNIX OS.

CO4: To write and execute shell script for UNIX OS to get the desired result.

B.Sc. [CS] Semester-IV Software Engineering (CS401-T)

CO1: To understand software development process.

CO2: To learn different types of s/w.

CO3: To study different models of s/w.

Fedora (CS402-T)

CO1: Introduction to fedora operating system.

CO2: Understanding of basic commands of Linux and fedora installation.

CO3: Understanding of software package administration, user and group administration.

CO4: Learning file system and file permissions.

Basics of Networking (CS403-T)

CO1: Learn networks, topologies and applications of networks.

CO2: Learn types of transmission media used in data communication.

CO3: Introduction to mobile telephone system, generations and its working.

Core Java (CS404-T)

CO1: To implement object oriented programming concepts.

CO2: To study inheritance and interfaces.

CO3: To study packages.

CO4: To create package in java.

CO5: To implement exception handling in Java.

Implement Multithreading: Adv. DBMS (CS405-T)

Student will be able to ….

CO1: Deal with database system using SQL to manipulate data.

CO2: Extract information on physical storage of data.

CO3: Architect database system.

CO4: Learn transaction processing and concurrency control.

Web Fundamental (CS406-T)

Students will be able …..

CO1: To understand HTML, XHTML, HTML5 and its elements.

CO2: To create static web pages.

CO3: To code program in web page.

CO4: To create dynamic web pages.

CO5: To study CSS3 for designing web page.

CO6: To design web pages using cascaded style sheets.

Practical based on Java in fedora OS (CS407-P):

CO1: To understand structure and model of Java programming language.

CO2: To use Java programming language.

CO3: To evaluate and analyze user requirements for software functionality.

CO4: To propose the use of certain technologies by implementing in Java programming language to solve problems.

CO5: To apply engineering approach for solving problems.

CO6: To create user defined packages and handle the errors.

Practical based on Web Fundamentals (CS407-P)

CO1: To understand higher level of HTML, CSS using HTML5 and CSS3.

CO2: To validate web pages/ web sites as per requirement.

CO3: To develop HTML forms and different attributes.

CO4: To work with drag and drop event handling.

CO5: To use JavaScript in HTML.

Practical based on Adv. DBMS and N/W (CS408-P)

CO1: To define database system concepts and apply normalization to the database.

CO2: To explain basic processing and optimization techniques for high level query.

CO3: To describe transaction processing concepts and use different concurrency control techniques.

CO4: To discuss databases such as object oriented and distributed databases.

CO5: To identify database failures and techniques.

CO6: To discuss advanced database technologies and products used in enterprise.

Practical based on Mini Project (CS408-P)

CO1: To formulate a real world problem and develop its requirements.

CO2: To develop a design solution for a set of requirements.

CO3: To test and validate conformance of developed prototype against the requirements of the problem.

CO4: To work as a responsible member and possibly a leader of a team in developing software solutions.

CO5: To express technical and behavioral ideas and thoughts in oral settings.

CO6: To prepare and conduct oral presentations.

B.Sc. [CS] Semester-V Software Cost Estimation (CS501-T)

CO1: To learn software planning process, software scope and feasibility, types of resources, project estimation.

CO2: To study documentation techniques.

CO3: To study estimation of models.

Basic of Android O. S. (CS502-T)

CO1: To study environmental setup for android development.

CO2: To understand application components used in android development.

CO3: To learn the basic components of an android application.

CO4: To study resource organization, filters and user interface controls.

CO5: To understand event handling in android.

CO6: To describe the basics of graphics and multimedia support in android.

CO7: To demonstrate basic skills using an integrated development environment (android studio) and android software development kit (sdk) for implementing android applications.

CO8: To demonstrate a simple application of the understanding of basic concepts of android.

Core Java-II (CS503-T):

CO1: To understand input/output system in java.

CO2: To understand utilities in java language.

CO3: To provide an overview of database access and details of managing information using the JDBC API.

CO4: To learn use of Java applets to create interactive web programs: Fonts, color, graphics, and animation.

CO5: To understand the use of Java applets to create interactive web programs by sending and receiving parameters in an applet.

Basic of Computer Graphics (CS504-T)

CO1: To understand basic concepts of computer graphics.

CO2: To create graphics using C-programming.

CO3: To perform 2D transformation.

CO4: To create algorithms.

CO5: To apply character generation techniques.

Beginners Programme with PHP (CS505-T)

CO1: Introduction to PHP.

CO2: To understand working of server-side programming on the web.

CO3: To use PHP basic syntax for variable, data types, operators and expressions and constant.

CO4: To create conditional structures.

CO5: To store data in arrays.

CO6: To use PHP built-in functions and create custom functions.

Advanced Networking (CS508-T)

CO1: To understand OSI reference model.

CO2: To study data link layer, data link controls and protocols.

CO3: To understand network layer and its protocols.

CO4: To study transport layer and application layer.

Pr. Based on Adv. Java (CS509P -A)

CO1: To learn input/output stream used in java.

CO2: To learn utilities in java language.

CO3: To provide an overview of database access and details for managing information using the JDBC API.

Practical Based on Computer Graphics (CS509P -B)

CO1: Students can understand graphical functions of C-Language.

CO2: Students can perform 2D transformation, translation, scaling, and rotation of 2D object using C-Language.

CO3: Students can implement algorithms to draw line and circle.

Practical Based on Android O.S. (CS510P -A)

CO1: To appreciate mobility landscape.

CO2: To design and develop mobile apps, using android as development platform, with key focus on user experience design.

CO3: To understand native data handling and background tasks and notifications.

CO4: To appreciate nuances such as native hardware play, location awareness, graphics, and multimedia.

CO5: To perform testing, signing, packaging and distribution of mobile apps.

Practical Based on PHP (CS510P -B)

CO1: PHP basic syntax for variable types and calculations.

CO2: To create conditional structures.

CO3: To store data in arrays.

CO4: To use PHP built-in functions and create custom functions.

B.Sc. [CS] Semester-VI Software Quality & Testing (CS601-T)

CO1: To understand software quality concepts.

CO2: To understand quality assurance.

CO3: To understand software testing strategies, verifications and validations.

CO4: To validate conventional applications.

CO5: To test web applications.

Android Application Development (CS602-T)

CO1: To familiarize learners with android development tools.

CO2: To apply advanced features of Android SDK.

CO3: To develop android apps with different tools.

CO4: To use location services APIs to get information about device location, receive periodic location updates, and turn geographic coordinates into physical addresses.

CO5: To integrate Google maps into apps and use features such as location markers, map styling, street view, and location tracking.

CO6: To learn messaging services used by android apps.

CO7: To learn data storage, retrieval, and sharing.

CO8: To use Bluetooth, Wi-Fi in android applications.

Theory of Computation (CS603-T)

CO1: To study sets, relations, functions, graphs, trees and mathematical inductions.

CO2: To study regular expressions.

CO3: To learn finite automate, NFA and DFA.

CO4: To learn formal languages, classification of languages, their relation and automaton.

CO5: To understand programming languages.

Advanced Computer Graphics (CS604-T)

CO1: To understand 3D transformations.

CO2: To create curves and fractals.

CO3: To understand basics of color models.

CO4: To create animations.

Advanced Programming with PHP (CS605-T)

CO1: To handle HTML forms in PHP.

CO2: To maintain state using cookies, session variables, hidden form fields and query strings.

CO3: To use PHP to manipulate files.

CO4: To use database in PHP.

CO5: to use an object-oriented API to access SQL to SELECT, INSERT, UPDATE and DELETE data from tables.

CO6: To use MySQL functions.

Ethics and Cyber Law (CS608-T)

CO1: To understand the of scope of cyber laws, cyber jurisprudence and digital contracts.

CO2: To identify intellectual property right issues in the cyberspace and design strategies to protect intellectual property.

CO3: To describe laws governing cyberspace and analyze the role of internet

governance in framing policies for internet security.

CO4: To understand cybercrimes and analyze legal frameworks of different countries to deal with these cybercrimes.

CO5: To explain the importance of jurisdictional boundaries and identify the measures to overcome cross jurisdictional cybercrimes.

CO6: To illustrate the importance of ethics in legal profession and determine appropriate ethical and legal behavior according to legal frameworks.

Study of Information Technology Act 2000 Cyber Law Practical Based on Android Development (CS609 P -A)

CO1: To understand advanced features of Android SDK.

CO2: To familiarize with android development tools.

CO3: To develop android apps.

CO4: To use location services of APIs to get information about device location, receive periodic location updates, and turn geographic coordinates into physical addresses.

CO5: To integrate Google Maps into apps and use features such as location markers, map styling, Street View, and location tracking.

CO6: To understand messaging services used by android apps.

Practical Based on PHP (CS609 P -B)

CO1: To identify and handle types of errors while working with PHP.

CO2: To introduce Object Oriented Programming.

CO3: To understand the use of object-oriented API, SELECT, INSERT, UPDATE and DELETE data from tables.

CO4: To use MySQL database.

CO5: To use OOP in PHP to define and use classes.

CO6: To choose an engineering approach to solve problems, starting from the acquired knowledge of programming and operating systems.

Major Project (CS610P)

CO1: To formulate a real world problem and develop its requirements.

CO2: To develop a design solution for a set of requirements.

CO3: To test and validate the conformance of the developed prototype against the original requirements of a problem.

CO4: To work as a responsible member and a leader of a team in developing software solutions.

CO5: To express technical and behavioral ideas and thoughts in oral settings.

CO6: To participate in and possibly moderate, discussions that lead to making decisions.

CO7: To express technical ideas, strategies and methodologies in written form.

CO8: To prepare and conduct oral presentations.

CO9: To develop software.

COs: Electronics

Semester I

Paper –I Network Analysis and semiconductor Devices

CO1: To understand components, network theorems, diodes, transistors and power supplies.

CO2: To make them understand the concept of network analysis, types of diodes, transistors, configuration and various aspects of regulated power supply.

CO3: To enable students to design and construct circuits based of various network theorems.

CO4: To understand the transistor configurations and half wave and full wave rectifiers.

Paper II-Digital Electronics-I

Course Outcomes

CO1: To introduce students to various fundamental concepts of digital Electronics.

CO2: To make them understand the concept of number system logic gates and combinational logic circuits.

CO3: To enable students to design and construct based of various logic gates and combinational logic circuits.

CO4: To design and develop a cost effective digital devices on adder subs tractor multiplexes and multiplexes.

CO5: To design various digital circuit using concept of number system, logic gates, combinational logic circuits.

Semester -II

Paper –I Paper –I Amplifiers

CO1: To introduce students to various fundamental concepts of Amplifiers.

CO2: To make them understand the concepts of brasing for transistor amplifiers, small signal amplifiers, feedback amplifiers and multistage transistors amplifiers.

Paper-II-Digital Electronics-II

CO1: To introduce students to various advance concepts of digital electronics.

CO2: To make them understand the concepts of flip-flops, counters, shift registers, memories analogue to digital

CO3: Design to develop cost effective digital devices base

LINEAR INTEGRATED CIRCUITS]

CO1: To understand the working of OP-AMP integrated amplifier system.

C**O2:** To understand the applications of OP-AMP.

CO3: To learn and understand the working of oscillators used in electronic generators.

CO4: To understand the working of timer IC 555 and its applications.

[8086 MICROPROCESSOR]

CO1: To understand the basics of 8086 microprocessor.

CO2: To enable learners to understand the instruction Set of 80806 microprocessor.

CO3: To enable learners to understand the assembly language programming.

Semester-IV

ELE 401 [COMMUNICATION ELECTRONICS]

CO1: To understand the types of modulation techniques.

CO2: To understand the pulse modulation techniques.

CO3: To understand the different ways of modulation and detection.

CO4: To understand the digital communication techniques.

ELE 402 [8086 MICROPROCESSOR INTERFACING]

CO1: To understand the interfacing of memories and I/O.

CO2: To understand the programming using IC 8255.

CO3: To understand the communication interface using IC 8251.

CO4: To understand the programmable interval timer IC 8253.

Semester-V Ele 501: Power Electronics

CO1: To familiarize with the power components and their characteristics.

CO2: To understand the concept of electronic sensors.

CO3: To understand the knowledge of different types of electronic sensors.

CO4: To apply sensors for detection of an object.

CO5: To get an idea of industrial motors and power requirements.

CO6: To understand the concept of industrial motor speed control and methods.

Ele 502(A): Microcontroller –I

A learner of this course will be able to understand ……

CO1: Embedded systems.

CO2: Difference between microprocessor and microcontroller

CO3: Fundamentals of microcontroller

CO4: Basics of microcontroller hardware specific to 8051 microcontroller

CO5: Microcontroller instructions

CO6: Applications of microcontroller.

Semester-VI Ele 601(A): Programmable Logic Controller

Students will be able to understand …..

CO1: Industrial controls

CO2: Relay logic concept

CO3: Ladder logic concept

CO4: Basics of PLC system

CO5: PLC instructions

CO6: Development of ladder logic for specific industrial control system.

Ele602 (A): Microcontroller – II

After completing the course, students will learn and understand…..

CO1: Microcontroller internal blocks.

CO2: Timer and counter block and their programming.

CO3: Serial communication and its programming.

CO4: Interrupt and its programming.

CO5: Programming to LCD, ADC and DAC to microcontroller.

CO6: Application of microcontroller in various domains.

COs: Microbiology

Semester-I

PAPER-I-FUNAMENTALS OF MICROBIOLOGY

CO1: To understand history of microbiology

CO2: To study of Microbiology

CO3: To understand the taxonomy of microorganisms.

CO4: To understand general characteristics of microorganisms.

CO5: To understand fungi Actinomycetes, algae, mycoplasma, Rickettsia, Archaeo bacteria and protozoa and characteristics.

PAPER-II-MICROBIAL TECHNIQUE

CO1: To understand sterilization and disinfection.

CO2: To study pure culture technique.

CO3: To understand stains and staining techniques.

CO5: To understand fundamental of microbial staining.

Semester-II

PAPER-I MICROBIAL CHEMISTRY

CO1: To understand amino acids and proteins.

CO2: To study carbohydrates lipids

CO3: To study mRNA, t-RNA, r-RNA, purine and pyrimidine bases.

CO4: To understand techniques of microbial techniques.

PAPER-II BACTERIAL:

CO1: To understand cytology of a typical bacterial cell.

CO2: To study morphology to outer ultrastructure of cell.

CO3: To understand the bacterial morphology and inner ultrastructure of cell.

CO4: To understand viral morphology and genomic structure.

CO5: To understand classification and multiplication cultivation and impact of viruses.

B.Sc. II year- Semester III Paper VIII. Immunology

CO1: To study the significance of normal flora, normal defensive mechanism of host, virulence factors of microorganisms and process of infection.

CO2: To understand the types of immunity and their mechanism, general methods of prophylaxis.

CO3: To understand the immunological concepts with reference to antigens, antibody and antigen- antibody reaction.

Paper XI. Applied Microbiology.

CO1: To understand the composition of milk, sources of microorganisms in milk, desirable and undesirable changes brought by microorganisms in milk, diseases spread by milk, microbiological examination of milk.

CO2: To understand sterilization and pasteurization of milk.

CO3: To understand the groups of microorganisms in food, principles of food preservation, microbial spoilage of canned and non- canned foods, food borne diseases, intoxication, fermented foods and probiotics.

B.Sc. II year- Semester IV Paper XII. Clinical Microbiology.

CO1: To understand concepts in etiology, pathogenesis laboratory diagnosis, epidemiology, prophylaxis, chemotherapy of human diseases caused by bacteria, viruses, fungus and protozoa.

CO2: To understand diseases caused by microbes such as tuberculosis, syphilis, malaria, typhus fever, candidiasis, typhoid, and cholera, infection caused by Staphylococcus aureus, Streptococcus pneumoniae, HIV, Hepatitis virus, and oncogenic viruses.

B.Sc. III year- Semester V Paper XV. Microbial Genetics

CO1: To understand and apply the principles and techniques of molecular biology which prepares students for further education and employment in teaching, basic research, or the health professions.

CO2: To study core molecular genetics and concepts including molecular biology, genetics, cell biology and physiology.

B. Sc. III year- Semester V Paper XVI. Microbial Metabolism.

CO1: To understand the basic concepts of metabolism and free energy.

CO2: To introduce learners with types of energy yielding metabolism, comparative account of fermentation, respiration and photosynthesis.

CO3: To aware the students of pathways of carbohydrate fermentation.

CO4: To familiarize students with basic concepts of action, functioning and inhibition of enzymes.

CO5: To understand the aspects of aerobic respiration, biosynthesis of nucleotides, catabolism of unsaturated fatty acids and nucleic acids.

B.Sc. III year- Semester VI Paper XIX. Recombinant DNA technology

CO1: To understand core molecular genetics concepts including molecular biology, genetics, cell biology and physiology.

CO2: To demonstrate working knowledge in a defined skill set of molecular biology and biotechnology protocols including PCR, plasmid isolation, gene isolation, cloning and DNA sequencing.

B. Sc. III year- Semester VI Paper XX. Industrial Microbiology.

CO1: To acquaint with historical events in industrial microbiology, design of a fermenter, IP and WHO standards of sterility.

CO2: To familiarize learners with screening methods, preservation of industrial strain, strain improvement methods, inoculum and fermentation medium development.

CO3: To make aware of different typical fermentations such as penicillin, vitamin B12, L-Lysin, ethyl alcohol, citric acid, amylase and Baker's yeast.

M.Sc. I & II Year Microbiology

M.Sc. Microbiology: COs

Semester I

TH1: Biostatistics, Computer Applications and Research Methodology

CO1: To understand the various terms of biostatistics and applications of biostatistics in different fields.

CO2: To understand the basics of measures of central tendency.

CO3: To acquire the knowledge about correlation, regression and variance and statistical analysis using these methods.

CO4: To develop knowledge about tests of significance and rules of probability.

CO5: To develop the ability to use computer applications for accessing the biological data.

CO6: To understand the basics of research methodology and steps of research.

TH 2: Bioenergetics and Enzymology

CO1: To understand the various pathways of carbohydrate catabolism and microbial growth of compounds.

CO2: To understand the basics of bacterial fermentations and biosynthesis.

CO3: To get knowledge about basic endogenous metabolism and degradation of aliphatic, aromatic compounds.

CO4: To understand the various properties of enzymes and factors affecting enzyme action.

CO5: To acquire knowledge about basics of enzyme kinetics.

TH 3: Bioinstrumentation Techniques and Applications

CO1: To understand the basic principles, working and applications of laboratory instruments.

CO2: To understand the basic principles, applications of chromatographic techniques.

CO3: To acquire knowledge about theory, basic principle and applications of electrophoretic techniques.

CO4: To develop knowledge about basic principle, working and applications of various spectroscopic techniques.

CO5: To understand the principle, application of radio-isotopic techniques.

TH 4: Industrial Food and Dairy Microbiology

CO1: To understand the basics of fermentation process and its application at industrial scale.

CO2: To understand the importance of fermentation in dairy industry and nutritional aspects of dairy products.

CO3: To understand the applications of microbial enzymes in food and dairy industry.

CO4: To get knowledge about various methods of food preservation and utilization of dairy waste.

CO5: To understand the concepts of food spoilage, food borne infections and importance of quality maintenance, assurance.

TH5: Recent Trends in Virology

CO1: To understand basics of morphology and classification of viruses.

CO2: To acquire knowledge about components, assay & cultivation of viruses.

CO3: To understand principle, mechanism of transmission & multiplication.

CO4: To get knowledge about pathogenesis, infection of viruses.

CO5: To understand the concept of virus neutralization, control of viral infections.

TH 6: Molecular Immunology

CO1: To understand the basics of immune system, types and functioning of immune cells.

CO2: To understand the concept of antigen and immunoglobulins.

CO3: To get knowledge about of antigen-antibody reactions and properties of antibodies.

CO4: To understand the concept of immune response, its expression and regulation.

CO5: To acquire the knowledge about immune deficiencies, autoimmunity, hypersensitivity.

TH 7: Microbial Physiology

CO1: To understand the concept, mechanism of photosynthesis.

CO2: To understand the significance of aerobic and anaerobic respiration.

CO3: To get knowledge about structure, organization and transport through plasma membrane.

CO4: To understand the concept of bacterial sporulation, affecting factors and heat resistance

CO5: To acquire knowledge about bacterial chemolithotrophy and nitrogen metabolism.

TH 8: Microbial Diversity and Extremophiles

CO1: To understand the basic concept of microbial biodiversity.

CO2: To get knowledge about basic concept of community ecology, microbial interactions.

CO3: To understand characteristics, classification and applications of archae bacteria.

CO4: To understand the classification, application of alkalophiles and acidophiles.

CO5: To acquire knowledge about halophiles, barophiles and their extermozymes.

Semester III

TH 9: Enzyme Technology

CO1: To understand the importance of enzyme purification, different sources of enzymes.

CO2: To acquire knowledge about the concept of enzyme inhibition and regulation of enzyme activity.

CO3: To understand the basic principle, techniques of enzyme immobilization.

CO4: To acquire knowledge about the basic principle, strategies, techniques and applications of enzyme/protein engineering.

CO5: To develop ability to understand the concepts of clinical enzymology, enzyme sensors and enzyme therapy.

TH 10: Bioprocess Engineering and Technology

CO1: To understand the basic concepts of bioprocess engineering and utilization of these techniques in industrial sector.

CO2: To understand the principle, components and applications of bioreactors.

CO3: To get knowledge about the mass transfer and sterilization of bioreactors.

CO4: To understand the process of formulation of production media, inoculum development and sterilization of media.

CO5: To understand the concept of downstream processes, maintenance and product recovery.

TH 11: Molecular Microbial Genetics

CO1: To recapitulate the knowledge about basic structure, functions of chromosome & amp; DNA.

CO2: To understand the concept of DNA replication, mutation and DNA repair.

CO3: To understand the molecular mechanism of gene expression.

CO4: To get knowledge about transcription and translation in prokaryotes.

CO5: To acquire knowledge about types, procession, properties of RNA and properties of genetic code.

CO6: To understand the concept of operons.

TH12: Environmental Microbial Technology

CO1: To understand various concepts related to environment, biotic and abiotic factors.

CO2: To understand the concept, structure, characteristics and functions of ecosystems.

CO3: To get knowledge about eutrophication, water pollution and control measures.

CO4: To understand various techniques of solid waste and waste water treatment.

CO5: To develop knowledge about GMOs, bioremediation of xenobiotics.

CO6: To create awareness regarding global environmental problems.

CO7: To understand the importance of microbial technology in achieving sustainable development.

Semester IV:

TH 13: Recombinant DNA Technology

CO1: To recapitulate the knowledge regarding basic techniques of RDT.

CO2: To get knowledge about various techniques, enzymes used in Recombinant DNA Technology.

CO3: To understand the basics of advanced techniques viz., DNA sequencing, cloning, amplification etc.,

CO4: To acquire the knowledge about concept of cloning vectors, their properties and applications.

CO5: To understand the concept, applications of gene cloning techniques.

TH 14: Pharmaceutical Microbiology

CO1: To understand the concept, principle and applications of antimicrobial chemotherapy.

CO2: To get knowledge about mechanism, molecular aspects of antimicrobial chemotherapy.

CO3: To acquire knowledge about manufacturing and spoilage of pharmaceutical products.

CO4: To know about various regulatory practices and policies in pharmaceutical industries.

CO 5: To acquire knowledge regarding the layout of laboratory, quality assurance and validation.

TH 15: Bioinformatics, Microbial Genomics and Proteomics

CO1: To acquire knowledge about basics of bioinformatics, types and importance of biological databases.

CO2: To understand the whole background, uses and applications of human genome project.

CO3: To develop knowledge about sequence alignment, algorithms and phylogenetic trees.

CO4: To understand the concept, principle, advantages and disadvantages of DNA microarray.

CO5: To understand the composition, properties of protein sequences and applications of protein microarray.

TH 16: Pharmaceutical Microbiology

CO1: To recapitulate the knowledge about antibiotics, vitamins and enzymes.

CO2: To understand the history, concept and significance of antimicrobial chemotherapy.

CO3: To acquire knowledge about small scale and large-scale manufacturing of vaccines and general aspects of immunization.

CO4: To get knowledge about microbial contamination, spoilage and

preservation of medicines.

CO5: To get knowledge about the process of sterilization (parameters, utility & validity)

CO6: To acquire knowledge about the quality assurance, R & D, regulatory policies in pharmaceutical industries.

PAPER TH-XII (ENVIRONMENTAL MICROBIAL TECHNOLGY

CO1: To understand environment and ecosystems

CO2: To understand eutrophication

CO3: To understand effluent treatment techniques

CO4: To understand bioremediation of Xenobiotics

CO5: To understand global environmental problems

PAPER TH - XIII RECOMBINANT DNA TECHNOLOGY

CO1: Introduction, Core technique and Enzymes in gene manipulation

CO2: Tools and Techniques involved in genetic engineering

CO3: Vectors used in gene cloning

CO4: Technique of gene cloning

CO5: Applications of genetic engineering and PCR

PAPER TH-XIV: FERMENTATION TECHNOLOGY

Students will be able to understand….

CO1: Microbial fermentations

CO2: Microbial production of therapeutic compounds

CO3: Modern trends in microbial production

CO4: Biofuels and plant tissue culture

CO5: IPR and patents

PAPER TH-XV Bioinformatics, Microbial Genomics and Proteomics.

CO1: To introduce learners to bioinformatics.

CO2: To understand the history of bioinformatics and internet.

CO3: To understand genome analysis

CO4: To know the sequence analysis

CO5: To understand DNA – Microarray

CO6: To understand proteomics

Paper XVI: Pharmaceutical Microbiology

Students will be able to understand…..

CO1: Principles of antimicrobial chemotherapy

CO2: Molecular aspects of antimicrobial chemotherapy

CO3: Microbial production and spoilage of pharmaceutical products

CO4: Regulatory practices and policies in pharmaceutical industries.

CO5: Quality assurance and validation.

COs: Biotechnology

Semester-I-Paper-I Physical Chemistry

CO1: To understand the structure of atomic structure and periodicity of elements.

CO2: To understand the chemical bonding and molecular structure of ionic bonding.

CO3: To understand Chemical bonding and molecular structure of covalent bonding.

CO4: To understand ionization of energy and atomic radii and electron affinity.

Paper-II Organic Chemistry and inorganic chemistry

CO1: To understand alkanes, alkenes.

CO2: To study isomerism and stereochemistry.

CO3: To understand methods of preparation of reaction.

CO4: To understand the modern periodic table, laws, extended periodic table, elements of S,P and F blocks elements.

Paper-III Biostatics

CO1: To understand biostatics, basics, notations, application and sampling.

CO3: To understand data collection and presentation.

CO4: To understand statistical measures, variability, correlation and regression.

C05: To understand ANOVA and test significance-test, F-test and Z-test.

Paper IV-Instrumentation

CO1: To understand basic laboratory instruments.

CO2: To study spectroscopy.

CO3: To understand microscopy and flow cytometry.

Paper-V-Introduction to Microbiology

CO1: To study of characteristics and importance of microorganisms.

CO2: To study of general proportions and importance.

CO3: To study cytology of bacteria.

CO4: To understand stains and procedure.

Co5: To understand viruses and plant, animal viruses and bacteriophages.

Paper-VI -Biomolecules

CO1: To understand introduction of biochemistry its significance scope and application.

CO2: To study of carbohydrates, monosaccharides, and polysaccharides.

CO3: To understand vitamins, water soluble vitamins and fat soluble vitamins.

CO4: To understand classification of harmones, regulation, secretions and metabolic role, deficiency disorders and clinical significance.

After completion of course, students will be able to understand….

CO1: Basic components or biomolecules of living organisms

CO2: To understand the classification, biological function and chemical and physical properties of carbohydrates, lipids, nucleic acids and proteins.

Paper-VII: Organic Chemistry

After completion of course, students will be able to:

CO1: Demonstrate an intermediate ability to use effective written and/or oral communication through the application of organic chemistry concepts and reasoning using the language of chemistry.

CO2: Demonstrate basic understanding of organic chemistry impacts on natural and technological environments.

CO3: Demonstrate an intermediate ability to use detailed data collection and analysis in order to explore organic chemical principles, effectively communicate, and critically evaluate results in the context of the material covered in organic chemistry.

CO4: Demonstrate basic understanding of organic chemistry principles effectively to solve problems encountered in everyday life and in science using appropriate computational skills.

Paper-VIII: Inorganic and Physical Chemistry

CO1: Students will be able to design and carry out scientific experiments as well as accurately record and analyze the results of experiments.

CO2: Students will be skilled in problem solving, critical thinking and analytical reasoning as applied to scientific problems.

CO3: Students will be able to clearly communicate the results of scientific work in oral, written and electronic formats to both scientists and the public at large.

CO4: Students will be able to explore new areas of research in both chemistry and allied fields of science and technology.

Paper-IX: Microbial growth and control

After completion of course, students will be able to…..

CO1: Recognize and explain the significant role that microbes play in the world around us.

CO2: Recognize and explain similarities and differences of microbes as compared to higher forms of life.

CO3: Identify microbes and explain methods of growth and cultivation as well as structural and biochemical differences.

CO4: Demonstrate an understanding of microbial structure, function, metabolism, growth, genetics, and control including antibiotic usage.

CO5: Explain the basic principles of immunology related to host resistance, antigen-antibody reactions, vaccination, organism virulence and their ability to cause disease.

CO6: Evaluate the physical and chemical methods of microbial control.

Paper-X: Biomathematics

After completion of course, students will be able to …..

CO1: Apply mathematical concepts and principles to perform computations in life sciences.

CO2: Apply mathematical concepts to solve problems in biology.

CO3: Create, use and analyze graphical representations of mathematical relationships.

CO4: Communicate mathematical knowledge and understanding.

CO5: Apply technology tools to solve problems in biological systems.

Paper-XI: Macromolecules

After completion of course, students will be able to:

CO1: Name and outline mechanisms for the non-covalent forces that operate in biomolecules.

CO2: Discuss the four structure levels of proteins

CO3: Explain the significance of hydrophobic and hydrophilic forces for the structure of biomolecules and give examples thereof.

CO4: Explain the significance of steric effects for the structure of biomolecules and give examples thereof.

CO5: Outline and exemplify the relation between structure and function of biomolecules.

CO6: Draw the basic structure of carbohydrates, nucleic acids, peptides/proteins and lipids.

CO7: Name the functional groups in carbohydrates, nucleic acids, peptides/proteins and lipids.

CO8: Name heterocyclic rings.

CO9: Sketch common chemical and enzymatic reactions for functional groups and heterocyclic rings.

CO10: Be familiar with the principles in chemical syntheses of nucleic acids and peptides.

CO11: Use nomenclature from stereochemistry on biomolecules.

Paper-XII: Bio techniques

After completion of course, students will be able to:

CO1: Understand of practical techniques used in biotechnology, including background information and theory, applications, limitations, advantages and disadvantages, common problems and troubleshooting.

CO2: Understand fundamental biochemical calculations.

CO3: Demonstrate an understanding of the principles behind searching, finding and evaluating pertinent scientific information.

CO4: Understand the structure, format and principles of writing in a technical scientific method.

CO5: Understand awareness of current events in biotechnology and their financial, social and ethical implications.

B.Sc. Biotechnology S.Y. (III semester) Paper-XIII: Basics of immunology

After completion of course, students will be able to…..

CO1: Conceptualize the coordination of adaptive immune responses coordinate for fighting against pathogens.

CO2: Determine immunomodulatory strategies those can be used to enhance immune responses or suppress unwanted immune responses such as hypersensitivity reactions, transplantations or autoimmune diseases.

CO3: Review critically the sample literature to determine the strengths and weaknesses of the data published in immunology and its novelty.

CO4: Explore strategies to improve existing vaccines.

Paper-XIV: General Virology

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

CO1: Describe elements of the viral life cycle.

CO2: Explain viral replication strategies and compare replication mechanisms used by viruses relevant for human diseases.

CO3: Explain host antiviral immune mechanisms.

CO4: Describe viral strategies to evade host immune and cellular factors.

CO5: Discuss principles of virus pathogenesis.

CO6: Describe methods used for laboratory diagnosis of viral infections.

CO7: Explain vaccine strategies and mechanisms of antiviral drugs.

CO8: Coherently report outcomes of biological research.

Paper-XV: Developmental Biology

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

CO1: Understand the process of animal development.

CO2: Understand the process of early embryonic development.

CO3: Understand the process of morphogenesis & organogenesis in animals.

CO4: Understand the cell death and regeneration.

Paper-XVI: Chromosome structure and inheritance

After completion of course, students will be able to….

CO1: Describe how cellular information is relayed and the process of genetic replication is undertaken in cells.

CO2: Demonstrate an understanding of the basic concepts of genetics, including Mendelian genetics, DNA and chromosome structure and gene expression and apply the knowledge to real life problems and case studies.

CO3: Solve simple problems arising from changes in genetic and biochemical processes at the cellular level, especially as these may relate to the activities of whole organisms.

CO4: Defend an opinion on ethical issues related to controversial procedures, and offer informed comment on current views and hypotheses dealing with cell level biology and biotechnology.

Paper-XVII: Basics of enzymology

After completion of course, students will be able to…..

CO1: Understand the major classes of enzyme and their functions in the cell.

CO2: Role of co-enzyme cofactor in enzyme catalyzed reactions

CO3: Differentiate between equilibrium and steady state kinetics and analyze simple kinetic data and estimate important parameters (Km. Vmax, Kcat etc).

CO4: To define and describe the properties of enzymes and regulate biochemical pathways (inhibition, allosterism).

Paper-XVIII: Animal Physiology

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

CO1: Understand the physiological processes that regulate body functions and the regulation of an organ system from the molecular all the way to the whole animal level.

CO2: Describe interactions among different organ systems (homeostasis).

CO3: Understand the anatomy of different physiological systems and their specific functions.

CO4: Understand impact of one system on another.

CO5: Apply knowledge of a physiological mechanism to explain whole animal physiological processes.

Paper-XIX: Cell Biology

After completion of course, students will be able to understand …..

CO1: Basic chemical composition of living matter.

CO2: Structural characteristics of prokaryotic and eukaryotic cells.

CO3: Taxonomy and characteristics of the major kingdoms.

CO4: Mechanics of membrane transport.

CO5: Basic concepts of bioenergetics, photosynthesis, and cellular respiration.

CO6: Mechanics of cellular reproduction.

CO7: Mendelian genetics and genetic change.

CO8: Nucleic acids and basic concepts of protein synthesis and gene .

Paper-XX: Plant physiology

After completion of course, students will be able to…..

CO1: Understand metabolism, physiology and structure of plants.

CO2: Understand regulation of growth and development of plants.

CO3: Understand influence of environment of plants.

Paper-XXI: Genetics

After completion of course, students will be able to…..

CO1: Comprehend the chemical basis of heredity.

CO2: Comprehend and understand the of genetic methodology.

CO3: Understand how genetic concepts affect broad societal issues including health and disease, food and natural resources, and environmental sustainability.

CO4: Understand the role of genetic mechanisms in evolution.

CO5: To provide an overview of heritable traits in families and populations and insights into cellular and molecular mechanisms.

Paper-XXII: Central dogma

After completion of course, students will be able to…..

CO1: Differentiate among the three kinds of RNA in terms of structure and functions.

CO2: Understand the codes present in the nucleotide sequence of DNA.

CO3: Describe the process of transcription, its machinery, and end products.

CO4: Describe the process of translation, its machinery, and end products.

CO5: Understand how specific amino acids are added to the proper tRNAs.

CO6: Describe the process of protein synthesis.

CO7: Understand the concept of transcription, translation, and protein synthesis and their relation.

Paper-XXIII: Advanced enzymology

After completion of course, students will be able to……

CO1: Understand the theories of enzyme catalytic power.

CO2: Understand the relationship between 3D enzyme structure and catalytic and kinetic properties.

CO3: Understand the diversity of catalytic strategies.

CO4: Possess the knowledge about enzymes' application in recent biotechnology.

Paper-XXIV: Advanced Immunology

CO1: To have a detailed understanding of lymph node microanatomy and know how B and T cells encounter antigen and develops in different locations.

CO2: To know antigen expression and autophagy on molecular level.

CO3: To understand immunology of mucosal surfaces and the interplay between commensal flora and the immune system in the gut.

CO4: To understand the cellular and molecular basis for autoimmune disease and allergies.

CO5: To understand tumor immunology and the development of novel recombinant antibodies for treatment of cancer and autoimmune disease.

CO6: To acquire in depth knowledge of a relevant research article and present this for the group.

Paper-XXV: Regulation of gene expression

After completion of course, students will be able to……

CO1: Explain the mechanism of initiation of transcription in eukaryotic cells.

CO2: Illustrate methods to identify key regulatory elements within a eukaryotic promoter.

CO3: Explain how transcriptional control is achieved through alterations in chromatin structure.

CO4: Outline the mechanisms of achieving the post-transcriptional control.

CO5: Explain the structure, formation and function of micro RNAs.

CO6: Outline the mechanisms and factors that control the process of translation.

CO7: An ability to critically evaluate and discuss original research articles in the area of gene regulation.

Paper-XXVI: Introduction to Bioinformatics

After completion of course, students will be able to….

CO1: Have a deep understanding of awareness of the basic principles and concepts of biology, computer science and mathematics.

CO2: Extract information from large databases and to use this information in computer modeling.

CO3: Solve enhance problem-solving skills, including the ability to develop new algorithms and methods of analysis.

CO4: Understand the intersection of life and information sciences, the core of shared concepts, language and skills the ability to speak the language of structure-function relationships, information theory, gene expression, and database queries.

Paper-XXVII: Principles of genetic engineering

After completion of course, students will be able to…..

CO1: Understand versatile techniques in recombinant DNA technology.

CO2: Understand application of genetic engineering techniques in basic and applied experimental biology.

CO3: Acquire proficiency in designing and conducting experiments involving genetic manipulation.

Paper-XXVIII: Fermentation design and process

After completion of course, students will be able to…..

CO1: To understand the different concepts of fermentation.

CO2: To know the differences between aerobic and aerobics fermentation and the classification of microorganisms.

CO3: To understand the growth of micro-organisms.

CO4: Isolate and identify micro-organisms from fermenting fruits, cereals and milk.

CO5: Design a simple containment system (bioreactor/fermenter).

Paper-XXIX: Plant Tissue Culture

After completion of course, students will be able to….

CO1: Explain the various steps taken to establish and optimize media for particular purposes in particular species.

CO2: Explain different components of plant tissue culture media.

CO3: Explain various cell lines used in tissue culture, their origins and uses.

Paper-XXX: Clinical Biochemistry

After completion of course, students will be able to….

CO1: Assess clinically laboratory indicators of physiologic conditions and diseases.

CO2: Know the biochemical and molecular tools needed to accomplish preventive, diagnostic, therapeutic intervention on hereditary and acquired disorders.

Paper-XXXI: Genomics and Proteomics

After completion of course, students will be able to…..

CO1: Infer the basic concepts of genomics, transcriptomics and proteomics.

CO2: Enlist and discuss the use of genomics and proteomics in human health.

CO3: Suggest and outline solution to theoretical and experimental problems in genomics and proteomics fields.

Paper-XXXII: RDT

After completion of course, students will be able to…..

CO1: To illustrate creative use of modern tools and techniques for manipulation and analysis of genomic sequences.

CO2: To expose students for application of recombinant DNA technology in biotechnological research.

CO3: To train students in strategizing research methodologies and employing genetic engineering techniques.

Paper-XXXIII: Fermentation Technology

After completion of course, students will be able to…..

CO1: Understand the various concepts of fermentation.

CO2: Know the differences between aerobic and aerobics fermentation and the classification of micro-organisms.

CO3: Understand the growth of micro-organisms.

CO4: Isolate and identify micro-organisms from fermenting fruits, cereals and milk.

CO5: Design a simple containment system.

Paper-XXXIV: Bioethics

After completion of course, students will be able to…..

CO1: Identify the historical forces that have contributed to the current global systems and consequences for humanity and/or the environment.

CO2: Explain how the theoretical approaches of the social sciences analyze and evaluate the impact of social class, race and/or gender on self and group identity and people's responses to diversity.

CO3: Communicate effectively the about major social and cultural trends of people living in non-western regions, particularly their religious patterns.

CO4: Critically integrate academic insights in global systems, social and cultural trends as well as theoretical approaches of the social sciences into coherent arguments in the field of global bioethics.

CO5: Perform research and write brief scholarly essays that present cogent arguments, engage in scholarly literature.

CO6: To enhance critical thinking and analytical skills regarding global bioethics.

Paper-XXXV: Ecology and evolution

After completion of course, students will be able to…..

CO1: Understand the structure and functions of ecosystem.

CO2: Understand population study.

Paper-XXXVI: Metabolism

After completion of course, students will be able to …..

CO1: Demonstrate and understand metabolic pathways.

CO2: Understand disease related metabolic pathways.

M.Sc. Biotechnology Paper-I: Biomathematics and statistics

After completion of course, students will be able to…..

CO1: Apply basic statistical concepts commonly used in health and life sciences.

CO2: Use basic analytical techniques to generate results.

CO3: Interpret results of commonly used statistical analysis in written summaries.

CO4: Demonstrate statistical reasoning skills correctly and contextually.

Paper-II: Biomolecules and Bioenergetics

After completion of course, students will be able to….

CO1: Describe/recognize amino acid structures, their physical and chemical properties, and predict how their ionic charges change with pH.

CO2: Define primary, secondary, tertiary and quaternary structures in proteins and identify the types of interactions in each case.

CO3: Describe the chemical nature of enzymes and their functions in biochemical reactions.

CO4: Explain regulation of enzyme activity with changes in temperature, pH, and concentration.

CO5: Explain the mechanism of digestion of proteins, catabolism of amino acids and the urea cycle.

CO6: Enlist the essential and non-essential amino acids and describe the general strategies for amino acid synthesis.

CO7: Describe/recognize the structure of mono-, di-, and polysaccharides; their physical as well as chemical properties and their functions in living organisms.

CO8: Predict the products of chemical reactions of carbohydrates (acetal/hemiacetal formation or oxidation).

CO9: Describe the mechanism of carbohydrate digestion, glycolysis, glycogenesis, and glycogenolysis.

CO10: Describe/recognize lipid structures including lipids found in cell membranes and their transport across membranes.

CO11: Describe the process of fatty acid oxidation and synthesis as well as ketogenesis.

M.Sc. - Biotechnology I st year

Paper-I Biostatistics and biomathematics

CO1: To understand elements of Mathematics.

CO2: To study elements of Mathematics.

CO3: To understand matrix and logarithms.

CO4: To study sampling.

CO5: To understand data collection and prevention, central tendency, test significance, computer based statistics techniques.

Paper-II-Biomolecules and Bioenergetics

CO1: To understand fundamentals.

CO2: To study of Carbohydrates, proteins and lipids.

CO3: To understand nucleic acids A, B and Z-DNA, RNA, rRNA, mRNA and nucleic acids.

CO4: To study lipids, hormones and vitamins.

Paper-III-Microbiology

CO1: To study Microscopic technique.

CO2: To understand the diversity of the microbial growth and world.

CO3: To study of nutrition and pure culture technique.

Paper-*IV*- Inheritance Biology

CO1: To study of gene concept, Mendelists and Principles.

CO2: To understand mutation and structural alterations of chromosome.

CO3: To study of microbial genetics.

CO4: To understand gene mapping methods.

Paper-V-Molecular Biology:

CO1. To study of DNA and repair mechanisms.

CO2. To understand recombination, DNA and replication.

CO3. To study transcription.

CO4. To understand translation.

Paper-VI –Enzyme Technology

CO1: To study of Enzymology and types of enzymes.

CO2: To understand experimental measures of enzyme activity.

CO3: To study enzyme kinetics and inhibition.

CO4: To understand enzyme immobilization

CO5: To study of use of enzyme in industries, textile, leather and food

M.Sc. Biotechnology-II year

Paper-I Bioprocess Engineering

CO1: To study bioreactors

CO2: To understand and control of bioprocess, physical and chemical sensor for the medium gases, online sensors cell properties, analytical methods.

CO3: To understand microbial growth and kinetics.

CO4: To study bioreactors-configuration.

CO5: To understand transfer in reactors.

Paper-II Gene Expression and Genetic Engineering

CO1: To understand operon concepts.

CO2: To study gene expression and eukaryotes.

CO3: To understand ingredients of Genetic Engineering.

CO4: To study plasmid, cosmid vectors.

Paper III- Bioinstrumentation and Research Methodology

CO1: To study of proteins for purification

CO2: To understand principles of liquid chromatography.

CO3: To understand methods of protein purification.

CO4: To study monitoring protein purification.

Paper-IV Medical Biotechnology

CO1: To understand vaccines and clinical immunology

CO2: To study molecular basis of human diseases.

CO3: To study of molecular and clinical diagnostic.

CO4: To understand prenatal and biomarker based diagnosis.

CO5: To study of vectors used in gene therapy.

Paper V Environmental Biotechnology

CO1: To understand environmental biotechnology.

CO2: To study environmental pollution.

CO3: To understand waste management.

CO4: To understand water pollution and control and solid waste management and conservation of biodiversity.

Paper-VI-Fermented Foods

CO1: To understand fermented foods, past present and future.

CO2: To understand oriental fermented foods.

CO3: To study cultured diary products.

CO4: To knowledge about yogurt, cheese, fermented vegetables.

M.SC-Biotechnology IInd year

Semester-I

Paper-I Biostatics and biomathematics

CO1: To understands elements of Mathematics.

CO2: To study elements of Mathematics.

CO3: To understand matrix and logarithms.

CO4: To study sampling.

CO5: To understand data collection and prevention, central tendency, test significance, computer based statistics techniques.

Paper-II Biomolecules and Bioenergetics

CO1: To understand fundamentals.

CO2: To study of Carbohydrates, proteins and lipids.

CO3: To understand nucleic acids A,B and Z-DNA, RNA, rRNA, mRNA and nucleic acids.

CO4: To study lipids, hormones and vitamins.

Paper-IV Microbiology

CO1: To study Microscopic technique.

CO2: To understand the diversity of the microbial growth and world.

CO3: To study of nutrition and pure culture technique.

CO4: To understand microbial physiology.

Paper-V- Inheritance Biology

CO1: To study of gene concept,Mendelists and Principles.

CO2: To understand mutation and structural alterations of chromosome.

CO3: To study of microbial genetics.

CO4: To understand gene mapping methods.

Paper-VI-Molecular Biology

CO1: To study of DNA and repair mechanisms.

CO2: To understand recombination, DNA and replication.

CO3: To study transcription.

CO4: To understand translation.

Paper-III: Microbiology

After completion of course, students will be able to:

CO1: Acquire, articulate, retain and apply specialized language and knowledge relevant to microbiology.

CO2: Acquire and demonstrate competency in laboratory safety in routine and specialized microbiological laboratory skills applicable to microbiological research or clinical methods, including accurately reporting observations and analysis.

CO3: Communicate scientific concepts, experimental results and analytical arguments clearly and concisely, both verbally and in writing.

CO4: Demonstrate engagement in the microbiology discipline through involvement in research or internship activities, the microbiology student

association club and outreach or mentoring activities specific to microbiology.

Paper-IV: Inheritance biology

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

CO1: Apply quantitative problem-solving skills to human genetics problems and issues.

CO2: Evaluate biological factors that influence human heredity.

CO3: Demonstrate ability to reason inductively and deductively with experimental data.

CO4: Explain the molecular and biochemical basis, diagnosis and treatment of genetic diseases.

CO5: Select and apply experimental procedures to genetic screening.

Paper-V: Molecular biology

After completion of course, students will be able to…..

CO1: Apply problem-solving skills to biological issues.

CO2: Write the results of an experimental study in a lab report.

CO3: Demonstrate their ability to reason both inductively and deductively with experimental information and data.

CO4: Explain the function, replication and evolution of genomes.

CO5: Select and apply experimental procedures to solve biological problems.

Paper-VI: Enzyme Technology

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

CO1: Appreciate the suitability of enzyme biotechnology as a sustainable alternative to the chemical industry.

CO2: Understand applications of enzymes in varied industrial processes.

CO3: Justify the critical conditions involved in the selection of typical enzymes in industrial processes.

Paper-VII: Cell Biology

After completion of course, students will be able to…..

CO1: Describe cytological, biochemical, physiological and genetic aspects of cells, including cellular processes common to all cells, to all eukaryotic cells as well as processes in certain specialized cells.

CO2: Relate normal cellular structures to their functions.

CO3: Explain cellular processes and mechanisms that lead to physiological functions as well as examples of pathological state.

CO4: Apply modern cellular techniques to solve aspects of scientific problems.

CO5: Describe the intricate relationship between various cellular structures and their corresponding functions.

Paper-VIII: Basic immunology

After completion of course, students will be able to…..

CO1: Conceptualize how the innate and adaptive immune responses coordinate to fight invading pathogens.

CO2: Determine what immunomodulatory strategies can be used to enhance immune responses or to suppress unwanted immune responses such as might be required in hypersensitivity reactions, transplantations or autoimmune diseases.

CO3: Review critically the sample literature to determine the strengths and weaknesses of the data published in immunology and its novelty.

CO4: Explore strategies to improve existing vaccines.

Paper-IX: Applied immunology and virology

CO1: To understand lymph node microanatomy and know how B and T cells encounter antigen and develops in different locations.

CO2: To know antigen presentation and autophagy on a detailed molecular level.

CO3: To understand immunology of mucosal surfaces and the interplay between commensal flora and the immune system in the gut.

CO4: To have deep knowledge of the cellular and molecular basis for autoimmune disease and allergies.

CO5: To have basic knowledge of tumor immunology and the development of novel recombinant antibodies for treatment of cancer and autoimmune disease.

CO6: To explain vaccine strategies and mechanisms of antiviral drugs, coherently report outcomes of virological research in oral and written output.

CO7: To gain in depth knowledge of a relevant research article and present this for the group.

CO8: To describe elements of the viral life cycle.

CO9: To explain viral replication strategies and compare replication mechanisms used by viruses relevant for human disease.

CO10: To explain host antiviral immune mechanisms.

CO11: To describe viral strategies to evade host immune and cellular factors.

CO12: Discuss principles of virus pathogenesis; describe methods used for laboratory diagnosis of viral infections.

Paper-X: Gene expression and engineering

After completion of course, students will be able to…..

CO1: Explain the mechanism of transcription initiation in eukaryotic cells.

CO2: Illustrate methods to identify key regulatory elements within a eukaryotic promoter.

CO3: Explain how transcriptional control is achieved through alterations in chromatin structure and methylation.

CO4: Outline the mechanisms by which post-transcriptional control is achieved.

CO5: Explain the structure, formation and function of micro RNAs.

CO6: Outline the mechanisms and factors that control the translation.

CO7: To evaluate critically and discuss original research articles in the area of gene regulation.

Paper-XI: Developmental biology

After completion of course, students will be able …..

CO1: To understand the process of animal development.

CO2: To know the process of early embryonic development.

CO3: To understand the process of morphogenesis & organogenesis in animals.

CO4: To study the cell death and regeneration.

Paper-XII: Bioinstrumentation

After completion of course, students will be able …..

CO1: To understand safety measures in laboratory, handling and care of instruments.

CO2: To determine pKa and prepare standard solutions.

CO3: To understand monochrome staining, negative staining and Gram ´s staining.

CO4: To understand biochemical test, specific gravity and viscosity.

Paper-XIII: Industrial technology

After completion of course, students will be able to …..

CO1: Have a working knowledge of business practices in industry.

CO2: Convey good people and communication skills.

CO3: Demonstrate knowledge of common practices of employer and employee relationships.

Paper-XIV: RDT

After completion of course, students will be able to…..

CO1: To illustrate creative use of modern tools and techniques for manipulation and analysis of genomic sequences.

CO2: To expose students to application of recombinant DNA technology in biotechnological research.

CO3: To train students in strategizing research methodologies employing genetic engineering techniques.

Paper-XV: Tissue technology

After completion of course, students will be able to …..

CO1: Explain the various steps taken to establish and optimize media for particular purposes.

CO2: Explain the components of plant tissue culture media.

CO3: Explain various cell lines used in tissue culture, their origins and uses.

Paper-XVI: Bioinformatics

After completion of course, students will be able to …..

CO1: Understand the basic principles and concepts of biology, computer science and mathematics.

CO2: Extract information from large databases and to use this information in computer modeling.

CO3: Acquire problem-solving skills, including the ability to develop new algorithms and analysis methods.

CO4: Understand of the intersection of life and information sciences, the core of shared concepts, language and skills the ability to speak the language of structure-function relationships, information theory, gene expression, and database queries.

Course outcomes BCA

Accountancy I

CO1: To understand double entry accounting system and application of its rules.

CO2: To understand business transactions in preparing 'financial statements' of sole traders and partnership firms.

CO3: To know the mechanism of maintaining 'Single and Double Column Cash Books

CO4: To find early step employability in MSMEs in accounts.

CO5: To develop confidence for the preparation of professional courses like CA, CMA and CS.

Industrial Economics

CO1: To understand the importance of micro and macro economics

CO2: To analyze the impact of e-commerce on business models and strategy.

CO3: To describe the major types of economics.

CO4: To understand the obstacles in the development of an under developed economy.

CO5: To identify the factors of production and its rewards

CO6: To understand the indifference curve analysis.

Business Statistics

CO1: To produce appropriate graphical and numerical descriptive statistics for different types of data.

CO2: To apply probability rules and concepts related with discrete and continuous random variables to answer questions within a business context.

Operating System I

Learners will be able to understand….

CO1: Fundamental concepts of operating system

CO2: Types and functions of operating systems

CO3: DOS structure and commands

CO4: Applications of batch file programming

CO5: To create and execute basic batch file scripts

CO6: to understand differences between Windows and DOS

Communication Skills

CO1: To understand and apply knowledge of human communication and language processes.

CO2: To understand and acquire communication skills.

Basics of Web Technology I

CO1: To understand the basics of web technology.

CO2: To make aware the learners about coding in editors.

CO3: To understand web designing

CO4: To understand the basics of web designing.

CO5: To create and execute web pages.

CO6: To understand Html tags, CSS and JSS.

Semester II Financial Accountancy II

CO1: To describe, explain, and integrate fundamental concepts underlying accounting, finance, management, marketing, and economics.

CO2: To apply information to support business processes, practices, such as problem analysis and decision making.

Operating System II

CO1: To understand fundamental operating system abstractions.

CO2: To understand processes, threads, files, semaphores, IPC abstractions, shared memory regions etc.

Business Mathematics

CO1: To demonstrate basic marketing mathematics.

CO2: To apply logic to solve problems including trade discounts, cash discounting, and markup and markdown calculations.

Programming in C

CO1: To understand the fundamental concepts of programming

CO2: To become aware of steps of problem solving, designing an algorithm and flowchart

CO3: To understand the structure of procedure oriented programming

CO4: To acquire ability to convert problems into programs

Principles of management

CO1: To understand the primary functions of management and the roles of managers.

CO2: To aware students about the major contributions done in the field of management.

Basics of Web Technology II

CO1: To analyze a web page and identify its elements and attributes.

CO2: To create web pages using XHTML and Cascading Style Sheets.

CO3: To build dynamic web pages using JavaScript.

CO4: To create XML documents.

Principles of management

CO: To gain knowledge about all management process and create understanding in detail about the application of management in various specialized activities such as finance management, material management, HRM, etc.

Semester III

OOPs using CPP

CO1: To describe the object-oriented programming approach in connection with C^{++}

CO2: To apply the concepts of object-oriented programming.

Business law I

CO1: To understand the changing time business needs.

CO2: To create awareness about rights and the safety.

CO3: To understand amendments in business.

CO4: To understand threats and legal consequences

CO4: To acquire skills to survive in business world

CO5: To study rights of consumers and help students to develop their overall skills.

DBMS

CO1: To understand the basics of DBMS.

CO2: To make the learners about DBMS and relational database.

CO3: To understand relation between database systems.

CO4: To understand the techniques of concurrency.

CO5: To understand normalization and its rule.

CO6: To learn how to fetch fire the query in DBMS

E- Business Essential

CO1: To understand the concepts and nature of e- business.

CO2: To make aware of ethics of e-business.

CO3: To understand the relation between e-business and ICTs.

CO4: To understand e-business model and supply chain management.

CO5: To gain knowledge of internet banking.

Semester IV

Data Structure & algorithm

CO1: To understand the fundamental concepts of Data Structure

CO2: To make learners aware of sorting techniques

CO3: To understand algorithms and their development

CO4: To applying the understanding in solving basic programming problems

CO5: To create and execute ideas using problem solving approach

Cost Accountancy

CO1: To enable learners to acquire management skills.

CO2: To account for costs by factoring in both variable and fixed costs.

Java Programming

CO1: To understand the differences between Java and CPP

CO2: To differentiate between structured and object-oriented programming approaches.

CO3: To understand the significance of Java and jdk environment

CO4: To become aware of code in java and develop applications

CO5: To understand debug and remove errors

CO6: To create Applets in Java

MIS & DSS

CO1: To analyze the impact of MIS on the working of an organization.

CO2: To describe the major types decisions.

CO3: To explain the process of Supply Chain Management.

CO4: To identify the Limitations of Information Technology.

Business law – II

CO1: To understand basic and broad knowledge in business laws in management.

CO2: To learn the concepts, principles and theories.

CO3: To understand simple business laws.

CO4: To create awareness of the different business laws.

Entrepreneurship development

CO1: To understand the nature of entrepreneurship.

CO2: To understand the function of the entrepreneur in the successful, commercial application of innovations.

CO3: To confirm an entrepreneurial business idea.

Advance Networking

CO1: To plan the interworking of distributed application basing on Semantic Web technology.

CO2: To develop and evaluate distributed application architectures according to functional requirements.

Semester V: Management Accounting

CO1: To explain the relationship between cost accounting-financial accounting and managerial accounting.

CO2: To explain the concept of management accounting

CO3: To explain the importance of management accounting for businesses

SQL 2017

CO1: To build and maintain database using SQL commands.

CO2: To use DML statements like insert, update and delete.

CO3: To write and call stored procedures in database.

CO4: To use functions stored in database.

VB:

CO1: To understand the visual programming concepts.

CO2: To explain basic concepts and definitions.

CO3: To express constants and arithmetic operations.

CO4: To distinguish between variable and data types

Organizational Behavior

CO1: To demonstrate the applicability of the concept of organizational behavior.

CO2: To demonstrate the applicability of analyzing the complexities associated with management of individual behavior in the organization.

CO3: To analyze the complexities associated with management of the group behavior in the organization.

Software engineering

CO1: To understand the SDLC and various software development models

CO2: To become aware of the needs and requirements of software development

CO3: To understand the development of applications.

Banking & Insurance

CO1: To introduce the banking system in India.

CO2: To explain the various functions of Reserve Bank of India.

CO3: To enhance the understanding of factors of Electronic Banking educate

CO4: To know the meaning of Insurance and study Insurance companies with its role and functions

Semester VI

Elements of Commercial Portal (HTML 5)

CO1: To acquire the skills for website development skills.

CO2: To become aware of current trends and technologies

CO3: To understand the mobile OS development and get industry competent skills.

Business Law III

CO1: To explain the concepts in business laws with respect to foreign trade.

CO2: To apply the global business laws to current business environment.

CO3: To analyze the principle of international business and strategies adopted by firms to expand globally.

Software testing

CO1: To understand different software testing techniques and strategies and be able to apply specific (automated) unit testing method to the projects.

CO2: To distinguish characteristics of structural testing methods.

CO3: to discuss the relevance of the services

COs of BBA

Semester III SUBJECT-BBA

Paper-I Business Accountancy-I

CO1: To understand the double entry accounting.

CO2: To study Cash book-single column and double column.

CO3: To knowledge about partnership accounting.

CO4: To study depreciation of fixed installment method and reducing balance.

Paper-II Management Perspective

CO1: To study management concepts.

CO2: To understand fundamentals of management science.

CO3: To study evolution of management.

CO4: To classification of social responsibility problem of change recommendations for environmental planning.

CO5: To principles of management schools of management theory, management movements in India and problem of management development.

Paper-III Business statistics

CO1: To study of growth statistics.

CO2: To understand organizing statistical survey planning the survey, scope of survey, scope of survey techniques of data collections.

CO3: To understand sampling and sample designs.

CO4: To understand classification and tabulation of data.

CO5: To understand correlation analysis

Paper-IV-Fundamentals

CO1: To understand fundamentals of computer, data formation, data processing, input process, output FDP, IT on business, types and generations of computer.

CO2: To study different input and output storage devices.

CO3: To familiarizing students with different devices and facilities of computer system.

CO4: To understand MSDOS command.

CO5: To study working in windows, settings, control panel, display and new printer, mouse date and time, regional settings, calculator, MS DOS, scanning.

Paper-V- Human communication in Business

CO1: To study nature function and scope of communication its elements, channels, media of communication, types of communication.

CO2: To understand facilitators and barriers in organization and managerial communication skills, listening skills, merits, demerits techniques of media.

CO3: To study Business correspondence.

CO4: To understand E-communication.

Paper-VI-Business organization

CO1: To study business industry, commerce profession vocation.

CO2: To understand ownership organization decision choice of form of organization the initial choice, problem of expansions.

CO3: To understand business and its environments.

CO4: To study rationalization and automation.

CO5: To understand business combination and monopoly.

Cost Accountancy –I

CO1: To understand the various concepts, terminologies, tools & amp; techniques used in cost accounting

CO2: To understand the significance of cost accounting into business organizations.

CO3: To understand the production methods and importance of production planning.

CO4: To identify the production problems.

CO5: To understand concepts of materials management.

Management Perspective III

CO: To understand the complexities associated with management of human resources in the organizations and integrate the learning in handling these complexities.

Environmental Awareness-II

CO1: To explain the importance of environment

CO2: To analyze the impact of natural disasters on the environment

CO3: To describe the types of waste and its management.

CO4: To explain the process of rain water harvesting and water shed management concept.

Business law –I

CO1: To understand regulations and contracts.

CO2: To bring awareness among students about their rights and the safety provided by such acts.

CO3: To safeguard against threats and legal consequences

CO4. To understand latest acts amended to survive in business world and accordingly cultivated for consumers

CO5: To study rights of consumers and help students to develop their overall skills.

Entrepreneurship Development

CO1: To introduce the originating theories of entrepreneurship.

CO2: To explain opportunities in business.

CO3: To enhance the understanding of factors of market research and innovation in entrepreneurship.

CO4: To know the tools and techniques to upgrade entrepreneurship.

Human Factors in Business

CO1: To explain the importance of human factor in business.

CO2: To analyze the impact of motivation on employees.

CO3: To describe perception, learning, impression management to students.

CO4: To inculcate values and good attitude towards job.

Semester IV Cost Accountancy –II

CO1: To understand the concepts of costing and accounting procedures.

CO2: To study practical adjustments in production with elements of cost.

Management Perspective IV

CO1: To understand the concepts related to business.

CO2: To demonstrate the roles, skills and functions of management.

CO3: To understand the complexities associated with management of human resources in the organizations and integrate the learning in handling these complexities.

Operational Research

CO1: To understand the fundamental concepts and history of operations research.

CO2: Students become aware of mathematical models for solving analyzing managerial problems.

CO3: To understand simplex method and model problems in LPP manner

CO4: To understand transportation models

Business law –II

CO1: To explain the concepts in business laws with respect to foreign trade.

CO2: To apply the global business laws to current business environment.

CO3: to analyze the principle of international business and strategies adopted by firms to expand globally

I.T. Applications in Business –II

CO1: Gain familiarity with the concepts and terminology used in the development, implementation and operation of business application systems.

CO2: Explore various methods that Information Technology can be used to support existing businesses and strategies

OE & C

CO1: Gaining knowledge about organizational development process.

CO2: To develop organizations.

CO3: Better understanding of the change management model.

CO4: To develop skills for the development process.

Semester V Management Accounting

CO1: To understand the meaning, importance, objectives, scope, functions, terminologies, used in management accounting.

CO2: To understand the significance of financial statement analysis and tools and techniques of its.

CO3: To understand the meaning, advantages, limitations, classifications of ratios and importance of its in the analysis of Financial Statements.

CO4: To understand the concept of fund flow statement and cash flow statement.

Management Perspective V

CO1: To understand the concepts related to business.

CO2: To demonstrate the roles, skills and functions of management.

CO3: To understand the complexities associated with management of human.

Capital Markets I

CO1: To explain the basic concepts about capital market.

CO2: To define money markets and instruments.

CO3: To define the legal arrangements about money markets.

CO4: To classify the functions of capital market.

Taxation Laws I

CO1: To utilize the definitions of the various components of income tax law.

CO2: To apply basic tax concepts to simple fact situations and communicate potential income tax ramifications in writing and orally.

Institutional Assistance to Business

CO1: To focus on the economic and industrial development of backward, hilly and tribal areas of India.

CO2: To understand growth of small-scale industries and business units and to suggest.

Cyber law –I

CO1: To introduce the cyber world and cyber law in general

CO2: To explain about the various facets of cyber crimes

CO3: To enhance the understanding of problems arising out of Cyber Jurisdiction aspects

CO4: To educate about the regulation of cyber space at national and international level.

Semester VI

Auditing

CO: Basic understanding of generally accepted auditing standards, audit reporting, and the theory and methodology of auditing.

Management Perspective VI

CO1: To understand organizational structure and culture contribute to management control in organizations.

CO2: To analyze an organizational structure.

CO3: To understand an organization's characteristics.

Capital Markets II

CO1: To explain the importance of capital market.

CO2: To understand financial markets.

CO3: To understand trading in the stock market.

Taxation Laws II

CO1: To enable the students to identify the basic concepts, definitions and terms related to income tax.

CO2: Students will identify the technical terms related to income tax.

CO3: To enable the students to determine the residential status of an individual and scope of total income.

Cyber Law –II

CO1: To acquire knowledge about securing both clean and corrupted systems, protect personal data, and secure computer networks.

CO2: To understand key terms and concepts in cyber law, intellectual property and cybercrimes, trademarks and domain theft.

CO3: To examine secure software development practices.

CO4: To understand principles of web security.

COs: Com.

Paper-I Financial Accounting

CO1: To study financial accounting.

CO2: To understand the course of aims at acquitting the students with the emerging issues in business.

CO3: To understand trade and commerce regarding recording, maintaining and presenting the accounting and financial facts.

CO4: To study of final account of sole trader.

CO5: To understand royalty accounts.

Paper-II Business Mathematics and Statistics-I

CO1: To gain knowledge of students in order to improve their logical reasoning.

CO2: To understand the statistics meanings importance and limitations and tabulations.

CO3: To understand the central tendency.

CO4: To understand the determinants

CO5: To study of matrices.

Paper-III-Business and Industrial Economics

CO1.To study with principles of business, economics and application in business.

CO2.To understand the consumer behavior.

CO3.To study market structure.

CO4.To understand factor

Paper-IV-IT-Application in Business-I

CO1. To provide computer skills and knowledge for commerce students.

CO2. To enhance the students understand of usefulness of information technology tools for business operations.

CO3. To understand the computer codes and languages.

CO4. To study word processing presentations.

CO5. To understand the probability-addition and multiplication law of probability and conditional probability.

CO6. To understand the statistical application with computers, use of excel knowledge of SPSS and tools and software.

Semester-II

Paper-I-Business organization and Management

Course outcomes

CO1: To provide basic knowledge to the students about the organization and management of business enterprise.

CO2: To understand management and organization.

CO3: To study leadership, notification and control.

CO4: To understand functional areas of managements.

CO5: To understand leadership, motivation –IT

Paper II-IT-Application in Business-

CO1: To study of communication, verbal and nonverbal, barriers to communications.

CO2: To study letter writing presenting inviting questions placing orders memorandum, memo and notice.

CO3: To study electrons, communications.

CO4: To understand social networking and oral presentations.

Semester-III

Paper-III Entrepreneurships Development-II

CO1: To provide knowledge and formation about nrepreurship development.

CO2: To provide knowledge and creates ability for setting up an enterprise within given environments.

CO3: To study market research.

CO4: To understand the innovation entrepreneurships

CO5: To understand project management.

Paper-IV-Office Management

CO1: To study and provide knowledge and information office management practices.

CO2: To create skill and ability to operate activities effectively.

CO3: To study EDP environment for effective office managements.

CO4: To provide officially services.

CO5: To record management.

B. Com. S. Y. III Semester III (CBCS Pattern) Corporate Account-I (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.

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.

CO6: To understand the knowledge of profit prior to incorporation.

Cost Account-I (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 I (Paper -V)

CO1: To aware about C-Language and relevant software.

CO2: To acquaint the student about importance of operators in C and use of computer for it.

CO3: To enhance the knowledge of control benchmarking and decision making in C.

CO4: To guide students about loop and its type.

CO5: To make practice arrays and strings.

CO6: To encourage students to learn practical application of C- Language.

GST Account-I (Paper -VI)

CO1: Creating ability of students to learn tax concepts, procedure and legislation pertaining to GST in India.

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.

Financial Management-(Paper -VII)

CO1: To enhance financial literacy of students.

CO2: To make aware students about financial planning and financial sources.

CO3: To analyses budgeting and learned different methods or techniques of capital structure.

CO4: To acquaint about working capital management of a firm and its importance.

CO5: To learn how to analyze leverages.

CO6: To enlighten students regarding the dividend policy and decision making in finance.

Indian Economy (Paper -VII)

CO1: To orient the students about the recent trends in Indian Economy.

CO2: To create awareness about economic reforms in India since 1991.

CO3: To inculcate knowledge of various aspects of Indian Economy through practical approach like calculation of GDP, national income etc.

CO4: To provide detail information of causes, effects and government measures to reduce unemployment in India.

CO5: To acquaint the knowledge of five years plans and budget.

B. Com. T.Y. Old Pattern (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 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.

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.

Cost Accounting-I (XXXI) and Cost Accounting-II (XXXVII)

CO1: To expose the students to the basic concepts and the tools used in cost accounting.

CO2: To provide the knowledge about Single and output costing.

CO3: To explain the different accounting methods such as contract costing, operating costing and process costing.

Indirect Taxes and Direct Taxes-I (XXXII) and Indirect Taxes and Direct Taxes-II (XXXVIII)

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) and New Auditing Trends-II (XXXIX)

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.

Optional Group Banking and Insurance-I (XXXIV) and Banking and Insurance-II (XXXX)

CO1: To familiarize student with banking and practices of banking.

CO2: To equip the students with the knowledge of modern banking.

CO3: To develop employability of student in banking, financial and other economic sector.

CO4: This course enables the students to know Fundamental of Insurance.

Information and Communication Technology-I (XXXIV) and Information and Communication Technology-II (XXXX)

CO1: To familiarize the students with the programming in C environment.

CO2: To familiarize the student with all the latest new age system prevalent in business Domain.

CO3: To Provide the knowledge of E-banking, Security in e-banking, ERP, BPO and Knowledge Management.

M. Com. M. Com. (First Sem) Management Process and Organizational Behavior Statistics:

CO1: To understand the basic organizational process of management.

CO2: To study organizational behavior.

M.COM. I YEAR (First Sem) Managerial Economic

CO1: To help students to understand managerial economic and cost benefit analysis.

CO2: To help students in the performance of job.

M.COM. I YEAR (First Sem) Corporate Financial Accounting

CO1: To acquaint student corporate accounting system in corporate and global level.

M.COM. I YEAR (First Sem) Business Environment

CO1: To understand the various aspects of business environment and their impact on industry, international trade.

M.COM. I YEAR (Second Sem) Statistical Analysis.

CO1: To make students learn and understand the various application of statistical tools and techniques.

M.COM. I YEAR (Second Sem) Marketing Management

CO1: To understand the policies and procedures market and market research and analysis.

M.COM. I YEAR (Second Sem) Financial Managements

CO1: To understand basics of financial transitions applied in business and industry.

CO2: To understand various crucial decisions regarding financial aspects of business.

M.COM. I YEAR (Second Sem) Strategic Management

CO1: To acquaint students as enhance the decision making abilities of students in situations of uncertainty in dynamic business environment.

CO2: To aware students about best practices followed by business.

M.COM. II YEAR (Third Sem) Research Methodology

CO1: To understand research work concepts of research and practical implication of knowledge acquired through subject's data collection and analysis, sampling, report writing etc.

M. COM. II YEAR (Third Sem) Human Resources Planning and Development.

CO1: To expose students to the Human Resources Planning methodologies and the various aspects of HR Practices.

M. COM. II YEAR (Third Sem) Business Legislation

CO1: To update the knowledge of different business legislation in practice.

M. COM. II YEAR (Third Sem) International Marketing.

CO1: To understand the importance of international marketing, entry strategies, foreign market selection, product development and distribution.

M. COM. II YEAR (Fourth Sem) Quantitative Techniques.

CO: To understand Operational Research

M. COM. II YEAR (Fourth Sem) Securities Analysis.

CO1: To update the subject knowledge among the students at corporate level about Security and Portfolio Management.

M. COM. II YEAR (Fourth Sem) Advertisement

CO1: To expose students to the advertising basics and the various methodologies to develop, implements and measure the effect of advertisement.

M. COM. II YEAR (Fourth Sem) Project Report.

Diploma of Business Management (DBM) DBM (First Sem) Management Accounting & Applied Statistics

CO1: To update the subject knowledge of students of statistics & business.

CO2: To study the cost data relating to manufacturing companies.

CO3: To analyze the financial & cost data with the help of statistical information.