



Anand Charitable Sanstha, Ashti's
Anandrao Dhonde Alias Babaji Mahavidyalaya,
(Arts, Commerce and Science)
Kada, Tal. Ashti. Dist. Beed 414 202 (Maharashtra)

Criteria - II

2.6.1 Course Outcome of All Departments



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INTENRAL QUALITY ASSURANCE CELL

Course Outcomes (COs)

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DEPARTMENT OF MARATHI

Course Outcomes

F. Y. B. A./B. Com./B. Sc. (Semester – I & II)

Paper No. I & II – गद्य-पद्य व उपयोजित मराठी (S. L.):

- CO1:** विद्यार्थ्यांचे भाषिक आकलन-अविष्करण समृद्ध होते.
- CO2:** वाङ्मयीन व भाषिक कौशल्याचे ज्ञान मिळते.
- CO3:** मराठीतील जुन्या व नव्या कवी/लेखकांच्या कलाकृतींचा परिचय होतो.
- CO4:** स्पर्धा परीक्षेच्या/व्यावहारिक भाषिक कौशल्याच्या दृष्टीने भाषिक कौशल्याचे ज्ञान होते.
- CO5:** दैनंदिन भाषेचा वापर साहित्यातील उपयोग व कार्यालयीन उपयोजनांची माहिती होते.

S. Y. B. A./B. Sc. (Semester – III & IV)

Paper No. III & IV – गद्य-पद्य व उपयोजित मराठी (S. L.):

- CO1:** मराठी साहित्यातील विविध प्रवाह व प्रकार लक्षात येतात.
- CO2:** मराठी भाषेतील लेखक कवींचे व्यक्तीमत्त्व त्यांच्या साहित्यातील आशय अभिव्यक्तीचा परिचय होतो.
- CO3:** मराठी साहित्याची आवड निर्माण होते.
- CO4:** माध्यमांच्या दृष्टीने अध्ययनांच्या कक्षा लक्षात येतात.
- CO5:** भाषेचा संवाद/उच्चार/लेखन/विस्तार/शब्दसंग्रह यांचा परिचय होतो.

S. Y. B. Com. (Semester – III & IV)

Paper No. III & IV – गद्य-पद्य व उपयोजित मराठी (S. L.):

- CO1:** वाणिज्य व्यवसायात मराठी भाषेचे आकलन होण्यास मदत होते.
- CO2:** मराठी भाषेचा कार्यालयीन, व्यवसायिक कामकाजात होणारा वापर, गरज व स्वरूप विशेषांची माहिती करून घेता येते.
- CO3:** वाचन संस्कृतीच्या माध्यमातून व्यवसायाला पुरक व मूलभूत सहाय्य होते.
- CO4:** कार्यालयीन/व्यवसायिक भाषा व्यवहारासाठी आवश्यक लेखन कौशल्याचे उपयोजन करता येते.
- CO5:** व्यवसायाच्या माध्यमातून मराठी भाषेला स्थान मिळवून देता येते.

F. Y. B. A. (Semester – I & II)

Paper No. I & II – काव्यात्म साहित्य आणि कथात्म साहित्य:

- CO1:** कविता वाङ्मय प्रकाराची समृद्धता अवगत होते.
- CO2:** आधुनिक काळातील नामवंत कवी-कवयित्रींचा परिचय होतो.

C03: कथा लेखकाचा व त्यांच्या वाङ्मयाचा परिचय होतो.

C04: काव्य व कथा लेखनाची रूची, तंत्र अवगत करता येते.

Paper No. III & IV – नाट्यात्म साहित्य आणि मुद्रित माध्यमासाठी लेखन कौशल्य:

C01: मराठी नाट्य वाङ्मयाची समृद्धता अवगत होते.

C02: आधुनिक काळातील नाट्य लेखक व त्यांच्या वाङ्मयाचा परिचय होतो.

C03: नाट्य लेखनाचे तंत्र अवगत होते.

C04: मुद्रितशोधन कौशल्याची ओळख होते.

C05: मुद्रितशोधक म्हणून रोजगार मिळवता येतो.

S. Y. B. A. (Semester – III & IV)

Paper No. V & VI – आधुनिक मराठी वाङ्मयाचा इतिहास (इ.स.१८०० ते इ.स.१९२०):

C01: आधुनिक काळातील नामवंत लेखक/कवींचा परिचय होतो.

C02: आधुनिक काळातील सामाजिक व सांस्कृतिक पार्श्वभूमी, सामाजिक चळवळींचा वाङ्मयावरील प्रभाव अवगत होतो.

C03: आधुनिक वाङ्मय निर्मितीची पार्श्वभूमी, तिच्या प्रेरणा, प्रवृत्ती, प्रवाह, महत्त्वाचे ग्रंथकार व त्यांच्या साहित्यकृतीचे स्वरूप लक्षात येते.

C04: आधुनिक कालखंडातील वाङ्मय प्रकर व लेखकांचा स्थूल परिचय होतो.

Paper No. VII & VIII – दृक-श्राव्य माध्यमांसाठी लेखन कौशल्य व साहित्य प्रकारांतर आणि साहित्याचे माध्यमांतर:

C01: दृक-श्राव्य माध्यमांसाठी लेखन कौशल्याचा अभ्यास अवगत होईल.

C02: इलेक्ट्रॉनिक मिडीयामुळे संपूर्ण जगातील माहिती घरा-घरात पोहचत आहे. त्याविषयीचा परिचय होईल.

C03: बातम्या, मुलाखती, रूपक मालिका, सिनेमा, नभोवाणी व दूरचित्रवाणीविषयक लेखन कौशल्यांची रूची निर्माण होते.

C04: साहित्य प्रकारांची संकल्पना लक्षात येते.

C05: माध्यमांचे महत्त्व स्पष्ट करून त्यांचा साहित्याशी असणारा अनुबंधांचा परिचय होतो.

S. Y. B. A. (Semester – V & VI)

Paper No. IX & XIII – भारतीय साहित्यविचार व पाश्चात्य साहित्य विचार:

C01: साहित्याचे शास्त्रोक्त स्वरूप अभ्यासता येते.

C02: साहित्याची प्रयोजने लक्षात येतात.

C03: साहित्याची निर्मितीप्रक्रिया जाणून घेण्याचे कौशल्य प्राप्त होते.

Paper No. X & XIV – भाषाविज्ञान, व्याकरण व निबंध :

CO1: भाषेचा वैज्ञानिक अंगाने परिचय होतो.

CO2: भाषेचे स्वरुप व निर्मितीच्या शास्त्रोक्त संकल्पना अवगत होतात.

Paper No. XI & XV – मध्ययुगीन मराठी वाङ्मयाचा इतिहास (प्रारंभ ते १८१८):

CO1: मध्ययुगीन कालखंडातील संतांचे अमूल्य संस्कार आत्मसात करता येतात.

CO2: विविध जीवनमूल्यांचा परिचय होतो.

CO3: महानुभाव संप्रदाय, दत्त संप्रदाय आनंद संप्रदाय तसेच संत, पंत व तंतांच्या वाङ्मयाची ओळख होते.

CO4: अभंग, ओवीतील नैतिकमूल्ये आंगिकारता येतात.

Paper No. XII & XVI – प्रकल्प कार्य:

CO1: वाचन-लेखन कौशल्याचा विकास होतो.

CO2: समीक्षणात्मक दृष्टी अवगत होते.

CO3: संशोधनात्मक दृष्टीचा विकास होऊन संशोधनाची रूची निर्माण होते.

CO4: भाषा, साहित्य, साहित्योतिहास, साहित्यशास्त्र, भाषाविज्ञान इत्यादी विषयांचे आकलन व परिचय होतो.

M. A. Marathi Course Outcomes

M. A. - I (Semester – I)

Paper No. I – आधुनिक मराठी वाङ्मयाचा इतिहास (१९२० ते १९६०):

CO1: मराठी वाङ्मयाच्या आधारे तत्कालीन समाज, साहित्य व संस्कृतीचा अभ्यास करणे.

Paper No. II – आधुनिक मराठी वाङ्मयाचा इतिहास (१९२० ते १९६०):

CO1: समीक्षेची चिकित्सक दृष्टी प्राप्त होते.

Paper No. III – आधुनिक मराठी वाङ्मयाचा इतिहास (१९२० ते १९६०):

CO1: मराठी वाङ्मयाच्या आधारे तत्कालीन समाज, साहित्य व संस्कृतीचा अभ्यास करणे.

Paper No. IV – आधुनिक मराठी वाङ्मयाचा इतिहास (१९२० ते १९६०):

CO1: मराठी वाङ्मयाच्या आधारे तत्कालीन समाज, साहित्य व संस्कृतीचा अभ्यास करणे.

DEPARTMENT OF HINDI

Course Outcomes

F. Y. B. A. (Semester – I)

Paper No. I – Samany Hindi (S. L.):

On completion of the course, students are able to

CO1: Understand ‘Kathantar by Dr. Madhav Sontakke.

CO2: Understand the stories by Kamaleshwar and Udayprakash.

CO3: Understand the stories by Sudha Arora and Yash.

F. Y. B. A. (Semester – I)

Paper No. I – Upanyas Sahitya (Opt.):

On completion of the course, students are able to

CO1: Understand the Amita by Yashpal.

CO2: Understand the Aap Ka Bunty by Mannu Bhandari.

CO3: Understand novel by Bhagwaticharan Varma.

CO4: Understand the characters in Chitrlekha Novel.

Paper No. II – Natak sahitya (Opt.):

On completion of the course, students are able to

CO1: Understand the meaning, Vijay Parva Drama by Dr. Ramkumar Varma.

CO2: Understand various forms of Drama Hori by Premchand.

CO3: Understand the Drama Alakh Aajadi Ki by Sushilkumar Shing.

CO4: Understand various forms of writing in media.

F. Y. B. A. (Semester –II)

Paper No. II – General Hindi (S. L.):

On completion of the course, students are able to

CO1: Understand various forms of Hindi language relating to internet.

CO2: Understand use of Second Language.

CO3: Understand the concept of Types of Literature.

CO4: Understand the concept of fundamental rights of Indian Constitution.

F. Y. B. A. (Semester – II)

Paper No. III – Hindi Gadya Sahitya (Opt.):

On completion of the course, students are able to

- CO1:** Understand the origin of Hindi language and its literature.
CO2: Understand Identifying the dialects of Hindi language family.
CO3: Analyse the development of Kathayatra By Harishankar Parsai.
CO4: Understand the concept of Kagbhagauda by Harishankar Parsai.

Paper No. IV – Ekanki Sahitya (Opt.):

On completion of the course, students are able to

- CO1:** Understand the basis of the classification of Hindi literature.
CO2: Understand the importance and basis of the names given to each period of Hindi literature.
CO3: Understand the features of Ekanki Naye Purane By Mayashing.
CO4: Understand the reason of emergence of Pratinidhi Ekanki by Madhav Sontakke.

S. Y. B. A. (Semester – III)

Paper No. III – Samany Hindi (S. L.):

On completion of the course, students are able to

- CO1:** Understand the concept of information technology.
CO2: Use study material from websites of Hindi literature.
CO3: Understand the Second Language Hindi Gadya Ke Vividh Aayam by Jagmohan.
CO4: Understand the role of General Hindi Knowledge

Paper No. V – Kathetar Gadya Sahitya (Opt.):

On completion of the course, students are able to

- CO1:** Understand Kathetar Gadya Sahitya, Gadya Prabha by Aalok Gupta.
CO2: Understand the impact of social media on society.
CO3: Understand the relation between social media and law.
CO4: Understand the Gadya Gaurav by Dr. Iresh Swami.

Paper No. VI – Prayojanmulak Sahitya (Opt.):

On completion of the course, students are able to

- CO1:** Understand the concepts of linguistic.
CO2: Understand the different flows of Hindi language (Rajbhasha, Bolibhasha).
CO3: Understand the introductory concepts of Hindi grammar.
CO4: Understand the importance of linguistic.

S. Y. B. A. (Semester – IV)

Paper No. IV – Samany Hindi (S. L.):

On completion of the course, students are able to

- CO1:** Understand the ancient and medieval period languages.

CO2: Understand the origin and development of Hindi language.

CO3: Understand the different forms of Khadiboli.

CO4: Understand the introductory concepts of Hindi grammar.

Paper No. VII – Adhunik Hindi Kavita (Opt.):

On completion of the course, students are able to

CO1: Understand the ancient and medieval period languages.

CO2: Understand the origin and development of Hindi Kavita.

CO3: Understand the different forms of Khadiboli.

CO4: Understand the introductory concepts of Hindi grammar.

Paper No. VIII – Prayojanmulak Hindi (Opt.):

On completion of the course, students are able to

CO1: Understand the ancient and medieval period languages.

CO2: Understand the origin and development of Hindi language.

CO3: Understand the different forms of Khadiboli (Hindi, Urdu).

CO4: Understand the introductory concepts of Hindi grammar.

T. Y. B. A. (Semester – V)

Paper No. IX – Pradesik Bhasha Sahitya (Opt.):

On completion of the course, students are able to

CO1: Understand the Translation of Marathi Language.

CO2: Understand the origin and development of Marathi Short Stories.

CO3: Understand the different forms of Khadiboli.

CO4: Understand the introductory concepts of Hindi grammar.

Paper No. X – Adi Tatha Madhykalin Sahitya Ka Itihas (Opt.):

On completion of the course, students are able to

CO1: Understand the ancient and medieval Sahitya Itihas.

CO2: Understand the origin and development of Aadikal.

CO3: Understand the Bhaktikal.

CO4: Understand the Ritikal.

Paper No. XI – Sahitya Shashtra (Opt.):

On completion of the course, students are able to

CO1: Understand the Bhartiya Sahityashtra.

CO2: Understand the origin and development of Sahitya ke Tatva Prayojan.

CO3: Understand the Vakrokti Sidhant.

CO4: Understand the Auchitya Sidhant.

Paper No. XII – Project Work (Opt.):

On completion of the course, students are able to

CO1: Understand the ancient and medieval period languages.

CO2: Understand the origin and development of Hindi language.

CO3: Understand the different forms of Khari Boli.

CO4: Understand the introductory concepts of Hindi grammar.

T. Y. B. A. (Semester – VI)

Paper No. XIII – Madhyakalin Kavya (Opt.):

On completion of the course, students are able to

CO1: Understand the ancient and medieval period languages.

CO2: Understand the origin and development of Hindi language.

CO3: Understand the Madhyakalin Kavi.

CO4: Understand the introduction of Hindi Poet.

Paper No. XIV – Adhunik Hindi Sahitya Ka Itihas (Opt.):

On completion of the course, students are able to

CO1: Understand the Adhunik Kal 1900 To till Date.

CO2: Understand the Bhartendu Harishchandra, Mahavirprasad Dwivedi.

CO3: Understand the Chayavad, Halawad.

CO4: Understand the Pragativad, Prayogvad and Nai Kavita.

Paper No. XV – Sahityashashtra (Opt.):

On completion of the course, students are able to

CO1: Understand the Pashtya Sahityashatra.

CO2: Understand the TS Iliyad Arstotal.

CO3: Understand Aalochana.

CO4: Aalochana ke Prakar.

Paper No. XVI – Project Work (Opt.):

On completion of the course, students are able to

CO1: Understand the Hindi Sahitya Ka Itihas.

CO2: Understand the origin and development of Hindi language.

CO3: Understand the Sahityashastra.

CO4: Understand the Sahitya Ke Prakar.

DEPARTMENT OF ENGLISH

Course Outcomes

F. Y. B. A. (Semester – I & II)

Paper No. I – Reading Literature:

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

- CO1:** To enable students to read and appreciate various forms of literature and critically interact with them from different perspectives.
- CO2:** To introduce students to appropriate literary strategies to read literature.
- CO3:** To pinpoint how far literary language deviates from ordinary language.
- CO4:** To unravel many meanings in a literary text.

Paper No. II – Methodology of Literature:

- CO1:** Develop their appreciation for the purposes and pleasures of prose fiction and nonfiction.
- CO2:** Articulate ways that literary works construct values and ethical meanings.
- CO3:** Practice analytical reading on multiple examples of each genre chosen to illuminate different literary choices and conventions, including texts that are culturally and historically diverse.
- CO4:** Identify major features of literary form and construct arguments about the relationship between form and the work's meaning.
- CO5:** To understand of various forms of literature, the ode, the lyric, the Sonnet, the novel and dramatic type's comedy and tragedy
- CO6:** To understand the various aspects of novel and drama.

S. Y. B. A. (Semester – III & IV)

Paper No. III – Literature in English 1550-1660:

- CO1:** To enable students to read and appreciate various forms of literature and critically interact with them from different perspectives. Objectives of the Course
- CO2:** To introduce students to appropriate literary strategies to read literature.
- CO3:** To pinpoint how far literary language deviates from ordinary language.
- CO4:** To unravel many meanings in a literary text.

Paper No. IV – Literature in English 1550-1750

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

- CO1:** Interpret various forms of literature.

CO2: Distinguish and analyse 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 No. VI & VIII – Literature in English 1750-1900:

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

CO1: Understand the 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 the themes and styles of Oscar Wilde’s play.

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

T. Y. B. A. (Semester – V & VI)

Paper No. VI & VIII: English Optional:

CO1: To introduce the students to Modern English Literature as production of the age.

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

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

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

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

CO6: To make the students understand how the 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 the 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 the context.

Paper No. IX & XIII: Twentieth Century English Literature: 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 the plot, character setting in the novels of Kingsley Amiss and D.H Lawrence.

Paper No. X & XIV: Introduction to Literary Criticism and Terms Semester:

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

CO1: Identify and discuss the classical Greek critics of literature.

CO2: Provide a brief overview of the 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 No. XI & XV: Indian Writing in English:

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

CO2: To make aware the students 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 the artistic and innovative use of language employed by the writers to instil the values and develop human concern in students through exposure to literary texts.

CO4: To familiarize the students with the 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 the representation of culture, identity, history, constructions of nation, (post) national and gender politics, cross-cultural transformations.

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

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

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

CO3: Understand and evaluate the 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 No. XII & XVI: Project Work on History of English Literature:

CO1: To understand the background of the English literature and help students to write on its development.

CO2: To write down the aspect of research methodology.

CO3: To write research papers.

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

DEPARTMENT OF SOCIOLOGY

Course Outcomes

F. Y. B. A. (Semester – I)

Paper No. I – Introduction to sociology:

CO1: Introduction to the basic concept of Sociology, subject matter & Importance of Sociology and origin and development of sociology

Paper No. II – Individual and Society:

CO2: Understanding in brief the knowledge of human Society and the institutions and Other Structural elements

F. Y. B. A. (Semester – II)

Paper No. III – Introduction to Subfields of Sociology:

CO1: Student of Sociology must have the Knowledge of those branches to understand The Scope of sociology & its wideness

Paper No. IV – Indian Social Composition:

CO1: This course mainly covers the broad segments of Indian society which are India's Geographical ethnic and religious distinctiveness

S. Y. B. A. (Semester – III)

Paper No. V – Problems of Rural India:

CO1: A student of sociology must be aware about the changing scenario of Rural India and the Contemporary problems of rural development.

Paper No. VI – Contemporary Urban Issues:

CO1: Understanding and analytical capacity among students about urbanization urban planning and urban problems.

S. Y. B. A. (Semester – IV)

Paper No. VII – Population in India:

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

Paper No. VIII – Sociology of Development:

CO1: Provides broad introduction to many developments Issues in India.

T. Y. B. A. (Semester – V)

Paper No. IX – Sociological Tradition Paper:

CO1: To provide the students with the basic understanding of emergence of

Sociological Thought and to know about pioneer sociologists with their contributions to sociology.

Paper No. X – Introduction to Research Methodology:

CO1: To introduce the Research Methodology for better understanding of application of social Sciences.

Paper No. XI – Social Problems of India:

CO1: Conceptual analysis of social problems.

CO2: Findings of the pattern of social problems causes and extents.

CO3: To understand and diagnose the patterns of the extent of deviances.

T. Y. B. A. (Semester – VI)

Paper No. XIII – Sociological Theories:

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

Paper No. XIV – Social Research Methods:

CO1: Introduction to various steps in conducting research.

Paper No. XV – Social Disorganization in Contemporary India:

CO1: To study problem of disorganization and causes of social disorganization.

CO2: To analyse the violence and social disorder in the society and have awareness of naxalism and Terrorism in India.

DEPARTMENT OF ECONOMICS

Course Outcomes

F. Y. B. A. (Semester – I)

Paper No. I – Micro Economics:

This paper is a foundation of economics

CO1: To understand the meaning and scope of micro economics, the behaviour of an economics agent, namely, a consumer, a producer, a factor owner and the price fluctuation in a market.

CO2: To study the behaviour of a unit and analysis is generally static and partial equilibrium framework.

Paper No. II – Indian Economy:

CO1: To study the analytical factor of the students, by highlighting an integrated approach to be functioning aspects of Indian economy, keeping in view the scope for alternative approach.

CO2: To study social, political and economic environment influencing policy decisions.

CO3: To develop all these themes, the courses are divided into specific modules.

F. Y. B. A. (Semester – II)

Paper No. III – Price theory:

CO1: To understand various components regarding price determination under various types of markets.

CO2: To understand theory of production, cost and revenue analysis, forms of market and factor pricing theories.

Paper No. IV – Money Banking and finance:

CO1: Money and banking constitutes important components of modern economy.

CO2: To understand the operations of money and banking and their interaction with the rest of the economy is essential to realize how monetary forces operate.

CO3: To understand the monetary and banking system in India.

S. Y. B. A. (Semester – III)

Paper No. V – Macro Economics:

CO1: To study awareness of the basic theoretical framework underlying the field of macroeconomics.

Paper No. VI – Development Economics:

CO1: To understand theories of development underlying the field of development economics.

S. Y. B. A. (Semester – IV)

Paper No. VII – Public Finance:

CO1: To study the significance and scope of public finance.

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

Paper No. VIII – Statistical Methods:

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

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

CO3: To understand how to collect data, its presentation, analysis and making inferences.

T. Y. B. A. (Semester – V)

Paper No. IX – International Economics:

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

CO2: To understand and analyse the deference between various economics of the world.

Paper No. X – Agricultural Economics:

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

specialize in the area.

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

CO3: To analyse the issues using basic micro economics.

Paper No. XI – History of Economic Thought:

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

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

T. Y. B. A. (Semester – VI)

Paper No. XII – Research Methodology:

CO1: To understand the social sciences research to the students of economics.

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

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

Paper No. XIII – Industrial Economics:

CO1: In the contemporary world with globalization and liberalization more and more attention is being given to industry. this paper strengthens to the students to deal or adjust with above situation.

Paper No. XIV – Indian Economic Thinker:

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

CO2: To study the problems related agriculture industries, cooperative sector and infrastructure in the Indian economic sector.

DEPARTMENT OF PUBLIC ADMINISTRATION

Course Outcomes

F. Y. B. A. (Semester – I)

Paper No. I – Public Administration Principles and concepts of public Administration:

CO1: The student should be familiar with the history of the field of public administration.

CO2: This focuses on the beginning of the field in the U. S. with the Woodrow Wilson article “The Study of Administration” and the development of theories of public administration in India. The history should include the key figures of public administration and the evolution of theory as it develops up to and including the 21st Century.

CO3: The student must have a substantial knowledge of organizational and management

theory. This includes specific theories beginning with classical theory to more recent postmodernist.

CO4: The student must be able to describe how a theory is applied in managing public organizations.

Paper No. II – Public Administration in India:

CO1: The student should be able to identify the Constitutional framework of administrative law and how administrative adjudication and rule-making by executive branch agencies fit into the Constitutional framework.

CO2: The student will be able to identify how specific constitutional principles of structural, substantive, and procedural due process constrain quasi-legislative and quasi-judicial administrative action.

CO3: The student will be familiar with the process of administrative rule-making as a part of the legal process.

F. Y. B. A. (Semester – II)

Paper No. III – Maharashtra Administration:

CO1: The students understand the basic features of Maharashtra Administration.

CO2: The student should be able to identify the Constitutional framework of administrative law and how administrative adjudication and rule-making by executive branch agencies fit into the Constitutional framework in Maharashtra Government.

CO3: The student will be familiar with the process of administrative rule-making as a part of the legal processes.

CO4: The students will be able to understand the problems related agriculture, industries, Cooperative sector and infrastructure in the Maharashtra state.

Paper No. IV – District Administration:

CO1: This paper of District Administration makes undergraduate students aware of the local level District Administration framework and Functions. Personnel Administration

CO2: The student will be familiar with the merit system in public administration, including the Indian Civil Service System and those used in local governments.

CO3: The student will be able to describe performance evaluation systems that are used in public personnel administration. This description will include types of systems such as forced-choice, ranking, and interpretive.

CO4: The student will also be able to describe the various models of administering evaluation systems.

CO5: The students will be unable to develop a position description which includes the

observable performance measures and required qualifications.

S. Y. B. A. (Semester – III)

Paper No. V – Panchayati raj and Rural Development:

- CO1:** The student must be familiar with the most common forms of rural governments including the various municipal forms, county governments and regional administration of state and federal offices.
- CO2:** Students should be able to draw on multiple ways of knowing to gain an appreciation for the diverse people, landscapes, and cultural traditions that constitute rural India.
- CO3:** The student must develop a deeper understanding of selected issues currently confronting rural India. These include economic shifts, demographic changes, educational challenges, and cultural changes. The student must be able to evaluate the economic, social, environmental, and governmental impacts of changes in the structure of agriculture on rural areas.
- CO4:** The student will be conversant in the ethical challenges of rural communities, especially as they relate to issues of privacy and boundaries.

Paper No. VI – Financial Administration:

- CO1:** The student will be familiar with the general public budgeting process at the national, state and local levels.
- CO2:** This will include the constitutional and legal requirements as well as the established procedures. The student will be familiar with particular budgeting strategies, including line-item budgeting, performance budgeting, Planning, Programming Budgeting System (PPBS), Zero-based Budgeting (ZBB), Management by Objective budgeting (MBO), Target-based budgeting, and budgeting as political management.
- CO3:** The student should be able to describe the strengths and weaknesses of each of the strategies as well as the historical outcomes. The student will demonstrate the ability to develop a budget with a team at a basic level.
- CO4:** The budget presentation will include the technique used for developing the figures, the justification for the amounts, and the reasons for selecting the particular strategy applied.

S. Y. B. A. (Semester – IV)

Paper No. VII – Human Resource Development:

- CO1:** To understand the evolution and functions of HRD
- CO2:** To identify the content, process and the outcomes of HRD applications

CO3: To evaluate and understand diversity issues and their impact on organizations

CO4: To Analyse the key issues related to administering the human elements such as motivation, compensation, appraisal, career planning, diversity, ethics, and training
Explain fundamental concepts, principles, techniques and judgment in supply-demand forecasting and supply programs in determining HR planning.

Paper No. VIII – Administrative Thinker:

CO1: Students will understand basic ideas of classical, new classical and marginalist Management & administrative through this paper.

CO2: Students will be able to compare the basic Management & administrative ideas of various Management & administrative thinkers of the world.

T. Y. B. A. (Semester – V & VI)

Paper No. IX – Public Policy and Development:

CO1: The student will be able to describe the contribution of policy analysis to the policy process. This includes the influence of policy analysis as well as the impact of the analyst on the field in legal, political, and organization practice.

CO2: The student will be able to identify the manner in which the intent of a given policy is determined. This includes the enabling legislation, the administrative rules, and the mission statement of the relevant agency (ies).

CO3: The student will be familiar with the mechanisms operating in the major political institutions and agencies for the creation and implementation of public policies.

CO4: The student should be able to identify the problem being addressed in a given policy. The definition of the problem will either be stated in terms of the excess/deficiency or the identified policy options.

CO5: The student will be familiar with the predominant political, economic, and social actors that actively engage in the policymaking process, including expert communities, interest groups, the media, agency bureaucrats, and elected officials.

Paper No. X – Health Administration in India:

CO1: This paper of health Administration makes undergraduate students aware health and health related Problems.

CO2: Student will help Student to identify the content, process and the outcomes of rural health mission.

CO3: Student will be able to understand major issues of health in India.

Paper No. XI – Recent Trends in public Administration and Important Laws:

CO1: Critically engage various disciplinary perspectives and theoretical approaches to the study of public administration and governance.

CO2: Understand the core theories, concepts and approaches used in various subfields of

public administration.

CO3: Critically assess various administrative systems and modes of governance in specific policy contexts.

DEPARTMENT OF POLITICAL SCIENCE

Course Outcomes

F. Y. B. A. (Semester – I)

Paper No. I – Political Ideologies:

CO1: To study of ideology of socialism.

CO2: Critically evaluate the ideology of fascism.

CO3: To study the development and features of the communism.

CO4: To explain the ideology of feminism.

Paper No. II – Theories of International Relations:

CO1: This course aim of making the students understand changing nature of international relations in terms explain the traditional approaches as well as major scientific approaches.

CO2: To explain the theories of international relations.

CO3: TO understanding the basic concepts of international relations.

F. Y. B. A. (Semester – II)

Paper No. III – Comparative Politics: Theoretical Perspective:

CO1: To the research process and ought to precede the other objectives of comparison description and classification.

CO2: To help students of politics make such statements the best that Since the 1950s, political scientists have increasingly sought to use comparative methods to help build.

CO3: To know emergence of the new source of polities, comparative politics and comparative governments.

Paper No. IV – State Politics in India:

CO1: To introduce to the dynamics of state politics in India.

CO2: To focus on the study of the evolutionary nature of centre-state relationship in the country after independence.

CO3: To assist students to know elections and political parties, changing nature of political process in states.

S. Y. B. A. (Semester – III)

Paper No. V – Modern Political Ideologies:

CO1: The ideas serve as the foundation of political system.

CO2: This course is an attempt of teaching student's world's great ideas which are broadly considered as political creeds usually termed political ideologies: liberalism, conservatism, socialism, Marxism etc.

CO3: Orient student about political ideology and development.

Paper No. VI – World Politics: Issues and Debates:

CO1: To introduce students the critical analysis of new trends in the field of world politics.

CO2: To create awareness about important issues in contemporary world politics,

CO3: To explain the cold war and its impact on world politics.

S. Y. B. A. (Semester – IV)

Paper No. VII – Western Political Thought:

CO1: Political thoughts occupy central position in the knowledge mechanism of political science, without which students are incapable

CO2: To understand the theory debate and unable to make an inquiry into the socio-political problems. It is, therefore, necessary to generate their thinking by appearing this course.

CO3: To understand the views of western political thinkers on various political concepts.

Paper No. VIII – Research Methods in Social Science:

CO1: To acquaint the student with the basic concepts of research and to familiarize.

CO2: To understand the latest & scientific techniques and modern trends in social research.

CO3: To understand the major study in the research process concepts variables and hypothesis.

T. Y. B. A. (Semester – V)

Paper No. IX – Indian Political Thought:

CO1: The precise aim of the ant colonial movement in India was to institute citizenship and to put in place constitutionality that was derived not from colonial authority but from a constituent.

CO2: To set the evidence out fairly, interpret it strictly, and alert readers to their political aims were moderate, but pursued with a steady bureaucratic passion: they were driven far more the desire to achieve things than by the desire, common enough in politics.

CO3: To evaluate the British impact on Indian society, the theoretical perspective of social reforms movements in 19th century social v s political reforms.

Paper No. X – Indian's Foreign Policy:

CO1: To understand basic approaches in the study of foreign policy.

CO2: To explain elements in the making of foreign policy and particularly focus on the changing nature India's foreign policy.

CO3: To know the basic approaches to the study of foreign policy.

Paper No. XI – Modern Trends in Political Theory:

CO1: To provide an overview of the current trends in political theory.

CO2: To throw an insight into the divergent into the divergent trends in modern political theory.

CO3: To study the import ants of social justice, theory of rights, feminist political theory.

Paper No. XII – Constitutional process in India:

CO1: To understand the constitution – various provisions, rights and duties.

CO2: The dignity of every citizen the emphasis is on secular values, liberty, equality, justice and brotherhood.

CO3: To know the framing of the Indian constitution background and working of the constituent assembly and philosophy of constitution.

T. Y. B. A. (Semester – VI)

Paper No. XIII – Political Ideologies:

CO1: To study of ideology of socialism.

CO2: Critically evaluate the ideology of fascism.

CO3: To study the development and features of the communism.

CO4: To explain the ideology of feminism.

Paper No. XIV – Theories of International Relations:

CO1: This course aims of making the students understand changing nature of international relations in terms explain the traditional approaches as well as major scientific approaches.

CO2: To explain the theories of international relations.

CO3: To understand the basic concepts of international relations.

Paper No. XVI – Comparative Politics: Theoretical Perspective:

CO1: To the research process and ought to precede the other three objectives of comparison description and classification.

CO2: To help students of politics make such statements the best that Since the 1950s political scientists have increasingly to use comparative methods to help build.

CO3: To know the emergence of the new source of polities, comparative politics and comparative governments.

Paper No. XVII – Indian Government and Politics:

CO1: The government is to secure all round progress and prosperity of society.

CO2: The more important political events in recent government of India.

CO3: To understand basic principle of Indian constitution.

CO4: To study various constitutional institutional in India.

Paper No. XVIII – International Relations:

CO1: To explain the behaviour of individual entrepreneurs and firms rather than world politics, liberalism contains a theory of international relations.

CO2: The study has important implications for international law and international relations generally.

CO3: To explain basic concepts in international relations.

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

Paper No. XIX – 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 about party system and electoral reforms.

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

Paper No. XX – International Relations:

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

CO2: To study the various international and regional organizations.

CO3: Critically evaluate the non-alignment movement.

DEPARTMENT OF PHYSICAL EDUCATION

Course Outcomes

F. Y. B. A. (Semester – I & II)

Paper No. I – तत्त्वज्ञान विषयक समाजशास्त्रीय आधार आणि शारीरिक शिक्षणाचा इतिहास:

CO1: शारीरिक शिक्षणात शिक्षणाच्या तत्त्वज्ञानाचे महत्व समाजशास्त्रीय आधार, पद्धतीचे स्वरूप तसेच 20 व्या शतकातील शारीरिक शिक्षण व प्रचीन ऑलिम्पिक खेळाचा एतिहासिक विकास व आधुनिक ऑलिम्पिक खेळाची सखोल माहिती मिळते.

Paper No. II – शारीरिक शिक्षणाची तत्वे व विकास:

CO1: क्रीडाशास्त्र, जीवशास्त्र, समाजशास्त्र, मानसशास्त्र, या चार हि शास्त्रांचा मुलभूत अभ्यास जिल्हा स्तर, राज्यस्तर, राष्ट्रीय आंतरराष्ट्रीय स्तरावरील आयोजन व विविध खेळातील क्रीडा संघटना.

Paper No. III – शारीरिक शिक्षणाचे प्रात्यक्षिक:

CO1: गोळाफेक, 100 मी रनिंग, लांबउडी कबड्डी- शारीरिक मानसिक बौद्धिक विकास होतो.

S. Y. B. A. (Semester – III & IV)

Paper No. IV – शारीरिक शिक्षण व खेळातील आरोग्य शिक्षण आणि मनोरंजन:

CO1: आरोग्य शिक्षण कौटुंबिक आरोग्य शिक्षण शारीरिक शिक्षणातील मनोरंजन आणि विविध क्रीडा स्पर्धा.

Paper No. V – शारीरिक शिक्षण आणि क्रीडा शिक्षणातील क्रीडा मार्गदर्शन आणि प्रशिक्षण पद्धती:

CO1: विविध खेळातील पंचगिरी मार्गदर्शन व प्रशिक्षण पद्धती.

Paper No. VI – शारीरिक शिक्षणाचे प्रात्यक्षिक:

CO1: 200 मी. रनिंग, तिहेरी उडी, हॉली बॉल, थाळी फेक या क्रीडा प्रकारामुळे शारीरिक क्षमता वाढीस उपयोग होतो.

T. Y. B. A. (Semester – V & VI)

Paper No. VII – प्राचीन आणि आधुनिक शारीरिक शिक्षणाचा इतिहास आणि क्रीडा:

CO1: प्राचीन भारतातील शारीरिक शिक्षण व आधुनिक भारतातील शारीरिक शिक्षणाचा इतिहास आणि विविध.

Paper No. VIII – क्रीडा प्रकाराचा अभ्यास:

CO1: क्रीडा मानसशास्त्र आणि शारीरिक शिक्षणातील व्यवस्थापन क्रीडा क्षेत्रात खेळाडूंचा मानसिक विकास हीच प्रवृत्ती सामाजिक जीवन जगत असताना जीवनामध्ये आलेला तन तणावाचे व्यवस्थानपण करण्यास खूप मदत होते.

Paper No. IX – संपन्न, प्रशासन, पर्यवेक्षण, युवक कल्याण आणि युवक सेवा:

CO1: सामाजिक जीवन जगात असताना आपल्या समोर अनेक समस्या उभ्या राहतात. या उलट

संघटनेने बनवलेली योजना हि सर्वा मीळून बनवलेली असते व अनेक समस्यांचे निराकरण करूनच ती बनवली जाते म्हणजेच कार्यक्रमांच्या योजना करण्यासाठी संघटनांचा उपयोग केला जाऊ शकतो.

Paper No. X – शारीरिक शिक्षणातील शरीररचनाशास्त्र शरीरक्रियाशास्त्र, शारीरिकगतिशास्त्र:

CO1: 1) स्नायुसंस्था 2) शासनसंस्था 3) शारीरिक गती अशा प्रकारे शरीरातील विविध संस्थेचा अभ्यास केला जातो.

Paper No. XI – शारीरिक शिक्षणातील प्रात्यक्षिक:

CO1: 1) भालाफेक 2) उंच उडी 3) 400 मी. धावणे 4) खो-खो.

Paper No. XII – शारीरिक शिक्षणातील प्रात्यक्षिक:

CO1: 1) 800 मी. धावणे 2) नियमावली 3) योगासने – प्राणायाम विविध मैदानी खेळामुळे खेळाडूंचे शारीरिक बौद्धिक विकास होतो. व त्याचे व्यक्तिमत्वचेही विकास वाढीस लागते.

DEPARTMENT OF HISTORY

Course Outcomes

F. Y. B. A. (Semester – I & II)

Paper No. I & II – Shivaji and His time (1630-1707) & History of the Marathas: (1707-1818)

CO1: Students will be able to analyse the Marathas policy of expansionism and its consequences.

CO2: They will understand the role played by the Marathas in the 17th & 18th century India.

CO3: They will be acquainted with the art of diplomacy in the Deccan region.

CO4: It will help to enrich the knowledge of the administrative skills and profundity of diplomacy.

Paper No. III & IV – History of Modern Maharashtra (1818-1905) & Twentieth Century Maharashtra (1905-1960)

CO1: Students will be able to analyse the British policy of expansionism and its consequences.

CO2: They will understand the role played by the Reformer, Political Leader in the 19th & 20th century India.

CO3: They will be acquainted with the art of diplomacy in the Deccan region.

CO4: It will help to enrich the knowledge of the administrative skills and profundity of diplomacy.

S. Y. B. A. (Semester – III & IV)

Paper No. V & VI – Ancient India- History of early India (Up to B.C.300) & History of India (B.C. 300-A. D. 650)

- CO1:** In this course Student will Learn After studying this lesson understand historical construction of India's ancient past.
- CO2:** In this course Student will Learn about various types of source material used by ancient historians and identify changing traditions of history writing.
- CO3:** In this course Student will Learn The student Identify and define the world's earliest civilizations, including the Neolithic Revolution, and describe how it shaped the development of these early civilizations.
- CO4:** In this course Student will Learn The student Identify, describe, and compare/contrast the first advanced civilizations in the world—Mesopotamia and Egypt.
- CO5:** In this course Student will Learn The student Identify and describe the emergence of the earliest civilizations in Asia: The Harappan and Aryan societies on the Indian subcontinent.
- CO6:** Describe Prehistory and Protohistory.
- CO7:** Student will learn the basic concepts of Political and legal institutions in Ancient India.
- CO8:** At the end of course, student will be able to apply, conceptual information of Ancient Indian Institutions in order to study and analyse the historical context.
- CO9:** Student will acquire fundamental logical skills to study Political and Legal institutions in Ancient India. At the end of course student will be able to apply conceptual information of Ancient Indian Institutions in order to study and analyse the historical context.

Paper No. V & VI – Medieval India – History of Delhi Sultanate (1200-1526) & History of Mughal India (1526-1757)

- CO1:** Provides examples of sources used to study various periods in history.
- CO2:** Relates key historical developments during medieval period occurring in one place with another.
- CO3:** Analyses socio - political and economic changes during medieval period.
- CO4:** Estimate the foreign invasion and the achievement of rulers.
- CO5:** Draws comparisons between policies of different rulers.
- CO6:** Understanding Role of Akbar in the consolidation of Mughal rule in India.
- CO7:** Understand Aurangzeb's conflict with Rajputas, Maratha and weakening

Mughal's age.

CO7: Analyses factors which led to the emergence of new religious ideas and movements (bhakti and Sufi).

T. Y. B. A. (Semester – V & VI)

Paper No. VII & VIII – Historiography & Fields of History:

CO1: To distinguish between primary and secondary sources and identify and evaluate evidence.

CO2: To demonstrate in discussion and written work their understanding of different peoples and cultures in past environments and of how those cultures changed over the course of the centuries.

CO3: To demonstrate in written work and class discussions the ability to recognize and articulate the diversity of human experience, including ethnicity, race, language, gender, as well as political, economic, social, and cultural structures over time and space.

CO4: To produce their own historical analysis of documents and develop the ability to think critically and historically when discussing the past.

CO5: To demonstrate ethical use of sources and provide accurate and properly formatted citations in formal papers.

CO6: Understand fields of history and opportunity of this fields.

CO7: Develop an ability to convey verbally their thesis research and relevant historiography and theory.

CO8: Demonstrate a superior quality of writing both in terms of mechanics and in developing an argument effectively.

Paper No. IX & X – History of Indian National Movement (1885-1947) & History of India (1757-1885)

CO1: Evaluate consolidation of English Power in India.

CO2: Analyse social religious consciousness in India.

CO3: Comparison of Nationalist movements- Pre-Gandhian and Post- Gandhian Era.

CO4: Identify Modern Indian Maps- sites of mutiny of 1857, Princely States in 1858, major sites of National congress sessions.

Paper No. XI & XII – Landmarks in the History of modern world & Nationalist movement in south-east Asia:

CO1: It will enable students to develop the overall understanding of the Modern

World.

CO2: The students will get acquainted with the Renaissance, major political, socio-religious and economic developments during the Modern World.

CO3: It will enhance their perception of the history of the Modern World.

CO4: It will enable students to understand the significance of the intellectual, economic, political developments in the Modern World.

CO5: It will enable students to develop the overall understanding of the Asian countries.

CO6: The students will get acquainted with the Communism in China & Imperialism of Japan.

CO7: It will enhance their perception of the developmental Policies of the Asian Countries.

CO8: It will enable students to understand the significance of China and Japan in the Modern World.

CO9: It will enable students to develop the overall understanding of the West Asian countries.

CO10: The students will get acquainted with the modernization of Turkestan, Arab Nationalism and the Arab-Israel Conflict.

CO11: It will enhance their perception of the developmental policies of the Asian Countries.

CO12: It will enable students to understand the significance of the West Asian countries in the Modern World.

DEPARTMENT OF GEOGRAPHY

Course Outcomes

F. Y. B. A. (Semester – I)

Paper No. I – Elements of Physical Geography:

CO1: Understand the effect of rotation of revolution the Earth.

CO2: Understand the effect of rotation of revolution the Earth.

CO3: Know the internal and interior structure of the earth.

CO4: Study the formation of Rocks.

CO5: Understand the work of internal and external forces and their associated landforms.

CO6: Understand the types of winds and composition of atmosphere. Atmospheric pressure of pressure of belts.

Paper No. II – Human Geography:

CO1: Studies of races of mankind's.

CO2: Understand the relationship of man environment.

F. Y. B. A. (Semester – II)

Paper No. III - Geography of Landform:

CO1: To know the fundamentals of physical geography.

CO2: Acquire knowledge about origin of various land forms.

CO3: Study the denudation process.

CO3: Knowledge about Regional geomorphology of Uttarakhand Himalaya and Middle Ganga Plain.

Paper No. IV - Regional Geography of Maharashtra:

CO1: Understand the location physio-graphy drainage climate and vegetation of China and U. S. A.

CO2: To know the silent feature problem and prospect of developed and developing countries.

Paper No. V - Practical Geography - I:

CO1: Develop an idea about scale and draw different types of scale like linear, diagonal and vernier.

CO2: Acquire knowledge different types of SOI maps & symbols.

S. Y. B. A. (Semester – III)

Paper No. VI - Climatology:

CO1: To understand the process of weather and climate, Climate Change & global warming.

CO2: Understand heat budget.

CO3: Study of Koppen and Thornthwaite classification.

Paper No. VII – Population Geography:

CO1: Understand the basic geographical personality variability of physio-graphy, climate in India.

CO2: Acquire knowledge agriculture, region, industry, transport and trade of India.

CO3: Importance the value of Regional and Regionalization of Indian geographers.

S. Y. B. A. (Semester – IV)

Paper No. VIII – Oceanography:

CO1: Understand importance of ocean.

CO2: Knowledge about effect of ocean Currents.

CO3: Understand human impacts on Ocean.

CO4: Study about types of tides.

CO5: To make aware about judicious use of water.

CO6: To understand Watershed management and water harvesting Structure.

Paper No. IX – Settlement Geography:

CO1: Build an idea about urban and rural settlements, and its relationship with environment and also different theories related to settlement geography.

CO2: Know about classification and morphology of settlements. **CO3:** Understand the trends and patterns of world urbanization. **CO4:** Know about different theories of urban growth.

Paper No. X – Practical Geography - II:

CO1: Know about diagrammatic data presentation like line, bar and circle. **CO2:** Learn to use of various meteorological instruments.

CO3: Gain knowledge about Indian daily weather report.

CO4: Acquire knowledge different types of map projection.

CO5: Gain knowledge about topographical maps and apply this knowledge in ground surface.

T. Y. B. A. (Semester – V)

Paper No. XI – Physical Geography of India:

CO1: Understand different physical regions of India.

CO2: To study of geomorphic ideas of Indian physical geography.

Paper No. XII – Environmental Geography:

CO1: Gain knowledge about concept, scope of environmental geography and components of environment.

CO2: Develop an idea about human-environment relationships.

CO3: Build an idea about ecosystem.

CO4: Know about environmental programmes and policies.

Paper No. XIII – Industrial Geography of Maharashtra:

On completion of the course, students are able to:

CO1: Understand study about the industrial geography, its nature, scope, and different study methods.

CO2: To study the locations of industry and their activities primary and secondary and its factors responsible for same.

CO3: To review on distribution of some industrial belts of Maharashtra.

CO4: To understand the nature of industrialization and related problems, methods of

Measuring the spatial distribution of manufacturing.

CO5: Understand the environmental degradation, industrial hazards and occupational health, manufacturing industry, role and factors affecting on the same.

T. Y. B. A. (Semester – VI)

Paper No. XIV – Agricultural Geography of India:

On completion of the course, students are able to:

CO1: Examining the introduction to agriculture, nature, scope, significance and development of agriculture geography, approaches to study.

CO2: Understand the fundamental concept, land use, crops, agricultural production and envelopment and study the determinants of agricultural activities, physical determinants, and socio-economic determinants.

CO3: To understand the agricultural system its meaning and concept, Whittlesey's classification of agricultural system, types of agricultural, study of the following types of agricultural in respect of area, salient features and their problems.

CO4: Understand the agricultural regionalization and modes in agricultural geography and their classification of agricultural models and some theories.

CO5: Understand the agricultural statistics & land use survey techniques and Agrarian evolution, meaning & merit and demerit of green revolution and white revolution.

Paper No. XV – Geography of Natural Climaty:

CO1: Understand the nature & scope of world naural climaties

CO2: Aqire knowledge about various natural climaties.

CO3: Understand all natural climaties, causes, effect, & remedies.

CO4: To make awareness about natural hazards.

Paper No. XV – Practical Geography Subsidiary - V, and VI:

CO1: Understand the representation of Statistical data.

CO2: Know the Importance of Statistic in Geography.

CO3: Compute of Measures of Central tendency of dispersion.

CO4: Calculation and plotting moving Average.

CO5: Compute the Correlation of Pearson's and Spearman's methods.

Paper No. XVII – Biogeography:

CO1: Understand the history of Bio geography.

CO2: Arrive knowledge about environment habitat and animal association.

CO3: Get knowledge about plant and zoo geography.

Paper No. XVIII – Practical Main:

CO1: Brings direct interaction of different types of surveying instruments like Dumpy level and Theodolite with environment.

CO2: Develop an idea about different types of the Matic mapping techniques.

Paper No. XIX – Project Work:

CO1: They can know how prepare a questionnaire on the basis of perception survey on environmental problems.

CO2: Gain knowledge about doing project on environmental problems of North Bengal.

CO3: They have to know how prepare a project report based on any one field-based case study on flood, land slide, earthquake and human induced disaster.

DEPARTMENT OF PSYCHOLOGY

Course Outcomes

F. Y. B. A. (Semester – I & II)

Paper No. I – General Psychology:

CO1: To provide solid foundation for the basic principles of psychology.

CO2: To familiarize students with the historical trends in psychology, major concepts, theoretical perspectives, empirical findings.

CO3: To provide an overview of the applications of psychology.

Paper No. II – Social Psychology:

CO1: To enable student to appreciate how individual behaviour is influenced by social and cultural contexts.

CO2: To enable student to develop an understanding of functioning of dyads, groups and organization.

CO3: To understand the unique features of the Indian socio-cultural context.

CO4: To understand how social problems can be analysed in terms of various social psychological theories.

Paper No. IV – Basic Concepts in Psychology:

CO1: To provide solid foundation for the basic principles of psychology.

CO2: To familiarized students with the historical trends in psychology, major concepts, theoretical perspectives, empirical findings.

CO3: To provide an overview of the applications of psychology.

Paper No. V – Basic Concepts in Social Psychology:

CO1: To enable student to appreciate how individual behaviour is influenced by social and cultural contexts.

CO2: To enable student to develop an understanding of functioning of dyads, groups and

organization.

CO3: To understand the unique features of the Indian socio-cultural context.

CO4: To understand how social problems can be analysed in terms of various social psychological theories.

Paper No. III & VI – Psychology Practicum's: Experiments & Test:

CO1: To nurture the skill of observation.

CO2: To create interest in psychological phenomenon.

CO3: To develop awareness of psychological tools, techniques and tests.

S. Y. B. A. (Semester – III & IV)

Paper No. VII – Psychology for Living:

CO1: To enable student to make the connection between psychology and its practical application to everyday life.

CO2: To train student how psychological principles can help them to face life's challenges

CO3: To enables students to relate what they are learning in class to issues that they encounter in their everyday life, such as stress, health, work, personal relationships communication and self-esteem.

Paper No. VIII – Psychological Statistics:

CO1: To train students in various psychological assessment techniques.

CO2: To acquaint the student and make them understand the different statistical methods with their uses and interpretations.

CO3: To impart skills necessary for selecting and applying different tests for different purpose such as evaluation, training, rehabilitation etc.

CO4: To nurture the skill of observation.

Paper No. IX – Psychology of Adjustment:

CO1: To enable student to make the connection between psychology and its practical application to everyday life.

CO2: To train student how psychological principles can help them to face life's challenges.

CO3: To enables students to relate what they are learning in class to issues that they encounter in their everyday life, such as stress, health, work, personal relationships, communication and self-esteem.

Paper No. XII – Psychological Testing:

CO1: To train students in various psychological assessment techniques.

CO2: To acquaint the student and make them understand the different statistical methods with their uses and interpretations.

CO3: To impart skills necessary for selecting and applying different tests for different.

T. Y. B. A. (Semester – V & VI)

Paper No. XIII – Subsidiary Abnormal Psychology:

CO1: Critical Thinking

CO2: Effective Communication

CO3: Community and Civic Responsibility

CO4: Quantitative Literacy

CO5: Scientific and Technological Effectiveness.

Paper No. XIV – Organizational Psychology:

CO1: This course aims and understanding the behaviour of individuals along with other organizational assets

CO2: Students are expected to learn not only the theoretical aspects of the course but also to familiarize themselves with the skills, techniques and their application.

Paper No. XIX – Subsidiary Psychopathology:

CO1: To impart knowledge about the normality and Abnormality.

CO2: To make students understand the nature and Course of various abnormal conditions.

CO3: To impart knowledge and skills needed for psychological assessment of different abnormal conditions.

CO4: To impart Knowledge and skills needed for psychological assessment of different abnormal conditions.

Paper No. XVI - XVIII – Project Work:

CO1: Students should able to write a project in psychology.

CO2: Students should acquire the skills of presentation – PPT ***Paper No. XV & XXI***

CO3: To nurture the skill of observation.

Paper No. XXII – Main counselling in action:

CO1: To impart Knowledge about the counselling

CO2: To make students understand the nature and Course of various conditions in which counselling is needed.

CO3: To impart Knowledge and skills needed for psychological assessment of different counselling conditions.

DEPARTMENT OF DRAMA

Course Outcomes

F. Y. B. A. (Semester – I & II)

Paper No. I – Drama:

- CO1:** An introduction to a drama, expressing or expressing socialization. The study of different arts reveal the human life of that period, as well as the introduction, beliefs, ritual, culture of the time.
- CO2:** Study of poetry, stories, novels, etc. in literature.
- CO3:** Knowledge development of theatre, understanding theatre history.
- CO4:** Introduction of regional theatre, introduction of various types of theatre. 4. Introduction of Sanskrit theatre and its importance.

Paper No. II – Drama:

- CO1:** Knowledge development about old theatre tradition around the world.
- CO2:** Awareness development about theatre history.
- CO3:** To understand structural analysis of the play
- CO4:** Writing story play.
- CO5:** Understand regional theatre, understanding play and structure.
- CO6:** Acting techniques development, use of body and voice, acting knowledge development.

S. Y. B. A. (Semester – III & IV)

Paper No. III – Drama: (Theory)

- CO1:** Deep knowledge of Sanskrit theatre, Sanskrit drama.
- CO2:** Knowledge development of architecture and stage.
- CO3:** The purpose of the study of various religious rituals, their culture in India, as well as the study of folk art, folk culture in the western country.
- CO4:** Understanding various types of drama.
- CO5:** An introduction to Indian folk culture.
- CO6:** To study of folk art in Maharashtra.

Paper No. IV – Drama: (Practical)

- CO1:** To study different arts of colour.
- CO2:** To introduce important elements of lighting in the play.
- CO3:** To study enhancement of secrecy, concentration, and body language.
- CO4:** Personality development.
- CO5:** Physical exercise should be practical as well as the development of cowardice skills,

story telling skills.

CO6: Music is an important part of human being. Music bring rhythm to life, the creative mind develops.

CO7: To enhance communication skills.

Paper No. V – Drama: (Practical)

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

CO2: Details study of lighting, colour effects.

CO3: Study make up is very useful art in life. Colours knowledge, personality development.

CO4: Interest development in reading, singing.

CO5: Improvement in body language and thinking power.

T. Y. B. A. (Semester – V & VI)

Paper No. VI – Drama: (Special Theory)

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

CO2: Knowledge of play production technique, production planning.

CO3: Introduction and deep knowledge development of various folk forms.

CO4: Understanding folk play.

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

Paper No. VII – Drama: (Special Theory)

CO1: Knowing how to use your voice and body can help develop personality.

CO2: Enhance observation ability of different people, create a different view of the world.

CO3: Details study of costume in different times. Costume sense development, colour sense development.

CO4: Practically knowledge development about makes up, lighting, cue sheet, music etc.

CO5: Development of director in ourself, progress in management of any event.

Paper No. VIII – Drama: (Common Paper Theory)

CO1: Play production procedure knowledge rehearsal technique development, theatre management development.

CO2: Different acting schools knowledge development of whole world.

CO3: Set designing knowledge development, perfection in set designing.

CO4: Costume designing knowledge development perfection in costume designing.

Paper No. IX – Drama: (Common Paper Practical)

CO1: Stage structure building knowledge development, stage measurements knowledge.

CO2: Introduction of make-up, perfection in make-up, various types of make-up knowledge development.

CO3: Lighting knowledge development and perfection in handling light equipment's.

Paper No. X – Drama: (Special Practical)

CO1: Speech perfection technique development character builds up technique.

CO2: Deep knowledge of light plan, music plan, costume plan, movements plan, become a such a good artist.

Paper No. X – Drama: (Common Paper Theory)

CO1: Modern Marathi theatre knowledge building, introduction of gramin, dalit and street play.

CO2: Various types of theatre introduction, knowledge development.

CO3: Knowledge level development of work as stage manager.

CO4: Understanding knowledge development in play.

DEPARTMENT OF COMMERCE

Course Outcomes

F. Y. B. Com. (Semester – I) (CBCS pattern)

Paper – Financial Accounting-I:

CO1: To develop conceptual understanding of fundamentals of financial Accounting system and to import skill in accounting for various kinds of business transactions.

CO2: Explain Accounting Procedure in the Books of the firm under conversion of Partnership firm into Ltd .and solve the problems.

CO3: Understand the accounts of non-Trading concerns.

Paper - Business & Industrial Economies:

CO1: this course is to acquit the student with the business & Industrial Economic principles on are applicable in business.

CO2: Describe relationship between industrial and Economic Development.

CO3: Understand the role of business and Industrial economics in decision making.

Paper - Entrepreneurship Development- I:

CO1: To provide knowledge and information about Entrepreneurship Development create ability for setting up an enterprise within given Environment. Create awareness on various Entrepreneurship Development programme.

CO2: To enable them to understand project formulation.

CO3: To familiarize the student with EDP schemes.

Paper - Business Mathematics & Statistics- I:

CO1: The course introduces business statistics and fundamentals aspects of mathematical symbols & notations and few basic formulae.

CO2: Differentiate various types and methods of calculating correlation and regression for the bivariate data.

CO3: Understand the various measures of dispersion and solve related problems.

Paper - Computer Application in business:

CO1: Understand the components of computer.

CO2: To provide computer skills & knowledge for commerce students and to enhance the student understands of usefulness of information technology tools for business operations.

CO3: Provide the knowledge about an overview of E-Commerce and E-business.

F. Y. B. Com. (Semester – II) (CBCS pattern)

Paper - Financial Accounting-II:

CO1: To provide Knowledge of basic accounting concepts, accounting standards and accounting principles the aim is also to provide the practical accounting knowledge.

CO2: To make an ability to understand accounts of non-trading concern and branch accounts.

CO3: To enable students about depreciation and royalty account.

Paper - Business Mathematics & Statistics -II:

CO1: To make students learn and understand the concept of co-relation.

CO2: This course provides knowledge about Index Numbers, its types and uses.

CO3: To understand the procedure of application of probability.

Paper - Business Organization and Management:

CO1: To make student learn and understand the foundation of Indian Business & emerging opportunities in business.

CO2: To understand the procedure of leadership, Motivation & Control.

CO3: This course provides knowledge about process of Management & Organization.

Paper - Business Communication:

CO1: To make students learn and understand Business Communication.

CO2: This course provides knowledge about report writing.

CO3: To understand the procedure of oral presentation.

Paper - Entrepreneurship Development-II:

CO1: To make students learn and understand the role of entrepreneurship in economic development.

CO2: To understand the procedure of entrepreneurship Development program.

CO3: This course provides knowledge for students how to selection, preparation & what are the requirement for the project.

S. Y. B. Com. (Semester – III) (CBCS pattern)

Paper - Corporate Accounting-I:

CO1: To understand knowledge of new trends in corporate accounting issue of shares & redemption of shares and Debentures.

CO2: To understand knowledge and Explain amalgamation, Absorption, & reconstruction accounting procedure.

CO3: Identify the methods of valuation of good will and shares

Paper - G. S. T. Account -I:

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 providing Knowledge of supply under GST and valuation of supply.

Paper - Cost Accounting-I:

CO1: To understand knowledge of cost accounting, single output costing, material costing, labour cost and overhead.

CO2: This course exposes the students to the basic concepts and the tools used in cost accounting

CO3: Helps to a other knowledge on preparation of cost sheet in its practical point view. Develop the knowledge about remuneration and incentives.

Paper - I.T. Application in Business-I:

CO1: Awareness of basics computer knowledge.

CO2:To provide basic knowledge & skills of computer Language and introduction to E-commerce, E-marketplaces, E-business application an E-payment system

CO3: Analyse the different types of E-marketing techniques.

Paper - Banking:

CO1: The study the Indian Banking system, Banking Regulation act.1949, commercial Bank, Development Bank and Digital Bank.

CO2: This course enables the students to know the fundamental of Insurance and working of the Indian Banking system.

CO3: Understand the functions of RBI and methods of credit control.

S.

Y. B. Com. (Semester – III) (CBCS pattern)

Paper - Corporate Accounting-II:

CO1: To create awareness about Corporate Accounting in conformity with the provisions of companies Act and as per Indian Accounting Standards.

CO2: To make practice the final account of joint stock company.

CO3: To understand the knowledge of profit prior to incorporation.

Paper - Cost Account-II:

CO1: To create ability of student to understand basic cost accounting concept and classification of cost.

CO2: To provide the knowledge of Contract and process costing.

CO3: To develop overheads knowledge and methods of distribution.

S. Y. B. Com. (Semester – IV) (CBCS pattern)

Paper - I. T. Application in Business-II:

CO1: To aware about C-Language and relevant software.

CO2: To guide students about loop its type.

CO3: To make practice arrays and strings.

Paper - GST Account-II:

CO1: To Provide Knowledge about goods service Tax.

CO2: To understand the procedure for registration, payment and refund of GST.

CO3: To create employability to the students I the commercial tax practices.

Paper - Insurance:

CO1: This course enables the students to know fundamental of Insurance.

T. Y. B. Com. (Semester – V) (CBCS pattern)

Paper - Advanced Financial Accounting-I:

CO1: After studying this subjects' students will be able to understand how to prepare Final Accounts of banking and Insurance companies.

CO2: To Provide basic knowledge about the accounting principles and procedure

CO3: To objective of this course is to equip the students with the ability to analyse, interpreter & use financial accounts in business enterprises.

Paper - Management Accounting-I:

CO1: The objective of the course is to equip the students with the ability to analysis interpret and use accounting information in managerial decision making.

CO2: The student is accepted to have a good working knowledge of the subject. This

course provides the students an understanding of the application of accounting techniques for management.

CO3: Gain knowledge about the preparation of fund flow statement.

Paper - Auditing-I:

CO1: The study of various components of this course will enable to know about the Auditing procedure.

CO2: Discuss the various concepts of audit like types of errors and frauds, various classes of Audit programme, Audit Note Book, Working Papers, Internal Control-Internal Check-Internal Audit.

CO3: Understand the various aspects of vouching.

Paper - Business Regulatory Framework-I:

CO1: The Objective of this course is to provide a brief idea about the framework of Indian Business Law.

CO2: The student will verse in basic provisions regarding legal frame work governing the business world.

CO3: To develop the awareness, among the students regarding these laws affecting trade business, and commerce.

Paper - Computerized Accounting-I:

CO1: To benefit the student to work with well-known accounting software e. g. Tally ERP.9

CO2: To enable student to process and record the business transactions and manage the accounts information using Software.

CO3: To train students with required skill for greater employability.

Paper - Rural Development and Agricultural Business:

CO1: This course aims at developing the understanding of students regarding the basic theoretical concepts of rural development and agribusiness for future entrepreneurial venture.

T. Y. B. Com. (Semester – VI) (CBCS pattern)

Paper -Advance Financial Accounting-II:

CO1: After studying this subjects' students will be able to understand how to prepare the final Account of farm, Electricity and local self-Government.

Paper -Management Accounting-II

CO1: To understand give students a good understanding about the concepts and techniques of management accounting.

CO2: It will help student to understand the background of fast changing global market.

Paper -Direct Taxes:

CO1: student will be able to learn about the Direct taxes with different Income Tax Act with latest Amendments.

Paper -Business Regulatory Framework:

CO1: To acquaint student with the basic concept, Terms, Provision and Application of business Laws.

Paper - Computerized Accounting-II:

CO1: To enable students to process advanced accounting and inventory transactions using accounting software.

CO2: To equip students with advanced GST functionality through Computerized Accounting.

Paper - Advertising and salesmanship:

CO1: To understand the concept of salesmanship & advertising.

CO2: To understand the role of salesman in the changing scenario in global marketing.

CO3: To know various types of salesman & skills of successfully salesman.

M. Com. - Course Outcomes

M. Com. (Semester – I) (CBCS pattern)

Paper - Management Process and Organizational Behaviour Statistics:

CO1: To understand the basic organizational process of management.

CO2: To study organizational behaviour.

Paper - Corporate Financial Accounting:

CO1: To acquaint student corporate accounting system in corporate and global level.

Paper - Managerial Economic:

CO1: To help students to understand managerial economic and cost benefit analysis.

CO2: To help students in the performance of job.

Paper - Business Environment:

CO1: To understand the various aspects of business Environment and their Impact on industry, international trade.

M. Com. (Semester – II) (CBCS pattern)

Paper - Statistical Analysis:

CO1: To make student learn and understand the various application of statistical tools and techniques.

Paper - Marketing management:

CO1: To understand the policies and procedures market and market research and analysis.

Paper - Financial Management:

CO1: To understand basics of financial transitions applied in business and industry.

CO2: To understand various crucial decisions regarding financial aspects of business.

Paper - 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 student about best practices followed by business.

M. Com. (Semester – III) (CBCS pattern)

Paper - Research Methodology:

CO1: To understand research work concepts of research and practical implication of knowledge acquired through subjects dall collection and analysis, sampling, report writing etc.

Paper - Human Resources Planning and Development:

CO1: To expose students to the Human Resources planning methodologies and the various aspects of HR practices.

Paper - Business Legislation:

CO1: To update the knowledge of different business legislation in practice.

Paper - International Marketing:

CO1: To understand the importance of international marketing, entry strategies, foreign market selection, product development and distribution.

M. Com. (Semester – IV) (CBCS pattern)

Paper - Quantitative Techniques:

CO1: To understand Operational Research smf frvodopm sms udod & decision tree.

Paper - Securities Analysis:

CO1: To update subject knowledge among the students at corporate level about Security and portfolio management.

Paper – Advertisement:

CO1: To expose students to the advertising basics and the various methodologies to develop, implements and measure the effect of advertisement.

Paper - Project Report:

- CO1:** To update the subject knowledge of students of statistics & business.
- CO2:** To study the cost data relating to manufacturing companies.
- CO3:** To analyse the financial and cost data with the help of statistical information

DEPARTMENT OF PHYSICS

Course Outcomes

F. Y. B. Sc. Physics (Semester – I)

Paper No. I - Mechanics, Properties of Matter and Sound:

- CO1:** To study the Mechanical properties of body using Newton's law of gravitation.
Understanding the behaviour of different types of Pendulum using Newton's law.
- CO2:** To study the differences of plastic and elastic body their behavior and properties with and without load. Studying viscosity and surface tension of different types of liquid.
- CO3:** To study the use of ultrasonic wave, piezo electric effect, Magnetostriction effect application of ultrasonic wave, Reverberation, Acoustical demands of an auditorium, Sabine's Law – Derivation of Reverberation time, conditions of good acoustical designs of room.

Paper No. II - Heat and Thermodynamics:

- CO1:** To study the thermal conductivity of material with Transference of heat, Coefficient of thermal conductivity, rectilinear flow of heat along a metal bar, Methods of radial flow of heat, comparison of conductivities of different metals.
- CO2:** To study the Real Gases, Reason for modification of gas equation, Van der Waals equation of state, comparison with experimental curves, critical constants, constants of Van der Waals equation. and Transport phenomena Mean free path, sphere of influence, and expression for mean free path, variation of mean free path with temperature and pressure, transport phenomena, viscosity,
- CO3:** To study the Adiabatic process, Adiabatic equation of a perfect gas, Isothermal process, Indicator diagram, work done during isothermal process and adiabatic process, reversible and irreversible process, Second law of thermodynamics. (Kelvin and Clausius statement), Heat engines, Carnot's ideal heat engine, Carnot's cycle (work done and Efficiency).

F. Y. B. Sc. Physics (Semester – II)

Paper No. IV - Geometrical Optics and Optical Instruments:

- CO1:** To study the Cardinal points of optical system - Focal points, Principal points, Nodal points and corresponding planes, coaxial lens system - equivalent focal length and cardinal points. Huygens's Eyepiece, Ramsden's eyepiece and their cardinal points,
- CO2:** To Study the Interference in thin film due to reflected and transmitted light, wedge shaped thin film, Newton's rings by reflected light, determination of wavelength, Michelson's Interferometer, type of fringes, determination of wavelength and difference in wavelength. and Diffraction at a thin wire, Fraunhofer diffraction at double slit (Interference and diffraction maxima, minima), Plane Transmission diffraction grating, Determination of wavelength (Normal incidence), Resolving power of optical instruments (Rayleigh's criterion), R. P. of prism and grating.
- CO3:** To study the polarization of Malus law, Double refraction, Huygens's theory of double refraction in uniaxial crystal, Nicol prism. Optical activity, Fresnel's theory of optical rotation, specific Rotation, Laurentz's half – shade polarimeter, Determination of specific rotation of sugar solution.

Paper No. V - Electricity and Magnetism:

- CO1:** To study the Vector Algebra Dot and cross product (Revision), scalar triple product and its geometrical interpretation, vector triple product, gradient of a scalar and it's physical interpretation, Divergence and curl of vector function and their physical interpretation, line, surface and volume integrals, Gauss's divergence theorem and Stoke's theorem.
- CO2:** To study the Electrostatics Coulomb's Law, Electric field, field due to point charge, flux of electric field, Gauss's law (with proof), Differential form of Gauss law, electric potential, potential due to a point charge, Potential and field due to electric dipole. Dielectrics, polarization of dielectric, Gauss's law in dielectrics, Relation between D, E and P.
- CO3:** To study the Magnetic field, Magnetic induction, magnetic flux, Biot-Savart law, Magnetic induction due to straight conductor carrying current, magnetic induction on the axis of solenoid, Ampere's Law, Differential form Ampere's Law, Moving coil ballistic Galvanometer - expression for charge. Transient Currents Growth and decay of current in a circuit containing L and R , charge and discharge of a capacitor through resistor, Growth and decay of charge in LCR circuit.

Paper No. III and VI – Practical's:

CO1: Verification of theoretical knowledge by experimental work in laboratory and the aim of practical is to be verified.

S. Y. B. Sc. Physics (Semester – III)

Paper No. VII – Mathematical, Statistical Physics and Relativity:

CO1: To study the Differentiation and ordinary differential equation, Limit of function, partial differentiation, successive differentiation, total differentiation, exact differentiation, chain rule. Ordinary differential equation, order and degree of differential equation, solution of first order differential equation, and solution of second order linear differential equation with constant coefficient a) Homogeneous equations, b) Inhomogeneous equation, Special case of exponential right hand to find P.I.

CO2: To study the Statistical basis and classical statistics, probability, principle of equal a priori probability, probability and frequency, some basis rules of probability theory, permutation and combination, macrostates and microstates, phase space, thermodynamic probability, division of compartments into cells, Maxwell-Boltzmann energy distribution law, evaluation of α and β , M.B. distribution function for ideal gas, M.B. Speed distribution law.

CO3: To study the Quantum statics, Need of quantum statistics, Bose-Einstein distribution law, Planck's radiation law, Fermi-Dirac distribution law, electron gas, Fermi level and Fermi energy, EFO for electrons in a metal, comparison of three static, difference between classical and quantum statistics.

CO4: To Study the Theory of relativity, frame of reference, Galilean transformation equations, Michelson Morley experiment, special theory of relativity, Lorentz transformation equation, length contraction, time dilation, addition of velocities, variation of mass-energy equivalence.

Paper No. VIII – Modern and Nuclear Physics:

CO1: To Study the Photoelectric Effect, Lenard's method to determine e/m for photoelectrons, Richardson and Compton experiment, Relation between photoelectric current and retarding potential, Relation between velocity of photoelectrons and frequency of light, photoelectric cells- (1) Photo- emissive cell (2) Photo- voltaic cell (3) Photoconductive cell, Applications of photoelectric cells.

CO2: To Study the X-rays, The absorption of X-ray's, Laue's experiment, Bragg's

Law, The Bragg's X-ray spectrometer, powder crystal method, The Laue method, X-ray spectra, Main features of continuous X-ray spectrum, Characteristics x-ray spectrum.

CO3: To Study the Nuclear forces and models, Binding energy, nuclear stability, Nuclear forces, Meson theory of nuclear forces, liquid drop model, shell model, Energy released in Fission, Chain reaction, Atom bomb, Nuclear Reactors, Nuclear fusion, Source of stellar energy.

CO4: To Study the Particle Accelerators and Detectors, Linear accelerator, Cyclotron, Synchrocyclotron, Betatron, Ionisation chamber, proportional counter, Geiger – Muller counter.

Paper No. IX and X – Practical's:

CO1: Verification of theoretical knowledge by experimental work in laboratory and the aim of practical is to be verified.

S. Y. B. Sc. Physics (Semester – IV)

Paper No. XI – General Electronics:

CO1: To study the Semiconductor, Construction, Working and Characteristics of semiconductor diode, Zener diode, Zener diode characteristics, Transistor (PNP and NPN), Transistor's characteristics (CE, CB and CC), Construction, Working and Characteristics of FET & MOSFET.

CO2: To study the Transistor Biasing and Amplifiers, Transistor biasing, Selection of operating point, bias stability, transistor biasing circuits - fixed bias or base bias, collector feedback bias, emitter feedback bias or self-bias. Single stage transistor amplifier, frequency response of RC coupled amplifier, Noise in amplifiers, feedback in amplifiers, Op-Amp characteristics, inverting & non-inverting amplifier, Op-Amp as an adder and subtractor.

CO3: To study the Oscillators and Multivibrators, Two port network representation of a transistor, Hybrid parameters or h – parameters, Positive feedback, Basic principle of Oscillators, requirements of feedback, RC Oscillator (Phase shift Oscillator), LC Oscillator (Hartley Oscillator) Transistorised. Astable multivibrator, monostable multivibrator, bistable Multivibrator,

CO4: To study the Modulation and demodulation, Amplitude modulation, Modulation index, frequency modulation, phase modulation, demodulation, advantages of frequency modulation over amplitude modulation.

Paper No. XII – Solid State Physics:

- CO1:** To study the Crystal Structure, Crystal lattice- plane lattice, space lattice, translation vectors, Unit cell, (primitive, non-primitive Wigner-Sietz primitive cell) Basis, symmetry operations, point groups and space groups, type of lattices (two dimensional and three-dimensional lattices), lattice directions and planes, Miller indices, inter planer spacing, simple crystal structure.
- CO2:** To study the Bonding and Band theory of solids, concept of inters-atomic forces, cohesive energy and types of bonding, primary bonds- (ionic bonds, covalent bond and metallic bond), secondary bonds- (Vander Walls bonds and hydrogen bonds). The Kroning-Penney model, Energy versus Wave vector relationship, different representations (Brillouin zone)
- CO3:** To study the Thermal properties of solids, Classical theory of lattice heat capacity (Concept and comparison with experimental values), Einstein's theory of lattice heat capacity, Debye's model of lattice heat capacity, density of modes, limitations of Debye's model.
- CO4:** To study the Free electron theory of metals and Transport properties, Drude-Lorentz's classical theory, electrical conductivity, thermal conductivity, Wiedemann Franz law, significance of Fermi energy level, Hall effect, Hall voltage and Hall coefficient, experimental determination of Hall coefficient, Importance of Hall effect.

Paper No. XIII and XIV – Practical's:

- CO1:** Verification of theoretical knowledge by experimental work in laboratory and the aim of practical is to be verified.

T. Y. B. Sc. Physics (Semester – V)

Paper No. XV – Classical and Quantum Mechanics:

- CO1:** To study the Classical Mechanics, Mechanics of Particle, Mechanics of system of particles Constraints, Classification of Constraints, Virtual Work, D'Alembert's principle, Lagrange's equation, Simple application of Lagrangian formulation – Simple Pendulum, Particle in space, Linear Harmonic Oscillator, Atwood's Machine.
- CO2:** To study the Origin of Quantum theory, Failure of Classical mechanics, Black body Radiation (Distribution of Energy), Plank's Quantum theory-Plank's Quantum postulates, linear momentum of photon in terms of wave vector, Plank's radiation law-Wein's law and Rayleigh's law, Einstein's equation: Quantum theory of photoelectric effect, Quantum effect.

- CO3:** To study the Wave Particle duality, de-Broglie's hypothesis for matter waves, de-Broglie's wavelength in terms of energy and temperature, de-Broglie phase velocity and particle velocity (relation between them), Group velocity, Relation between group velocity and phase velocity, Davisson-Germer Experiment, Heisenberg uncertainty principle, Applications of Heisenberg uncertainty principle (1) Nonexistence of electrons in nucleus (2) Binding energy of an electron in an atom.
- CO4:** To study the Schrodinger Equation and its applications Wave Function (Ψ) of a moving particle, Time dependent Schrodinger's wave equation, Expectation value, Operators, Time independent Schrodinger equation (steady state form), particle in one dimensional box, Quantization of energy and momentum.

Paper No. XVI – Electrodynamics:

- CO1:** To study the Electrostatics Electric field lines, electric flux and Gauss law, the divergence of E, Curl of E, Application of Gauss law: i) Electric field due to a uniform charged sphere ii) Electric field due to charged cylinder, Gaussian pillbox, Poisson's equation, Laplace's equation, Uniqueness theorem (First and Second)
- CO2:** To study the Time varying field Faraday's Law of Electromagnetic induction, Lenz's law, Self-Induction, Mutual Induction, equation of continuity, Maxwell's displacement current, Maxwell's equation (Derivation, Differential form)
- CO3:** To study the Electromagnetic waves, Origin of electromagnetic waves, characteristics of electromagnetic wave, electromagnetic wave equations in a conducting medium, transverse nature of electromagnetic wave, plane polarized electromagnetic wave, The Poynting Vector, Poynting theorem, Polarization of Electromagnetic waves
- CO4:** To study the Interaction of Electromagnetic waves with matter, Boundary condition for the electromagnetic field vector $-B, E, D$ and H at the interface between the two media, reflection and refraction at the boundary of two non-conducting media.

T. Y. B. Sc. Physics (Semester – VI)

Paper No. XIX – Atomic, Molecular Physics and LASER:

- CO1:** To study the Atom model Introduction, Thomson atom model, the Rutherford nuclear atom model, drawbacks of Rutherford atomic model, the Bohr's atom model, Bohr's theory of origin of spectral lines, diagrammatic representation of the series spectrum of the H-atom in the light of Bohr's theory.

CO2: To study the Vector Atom Model, Quantum numbers associated with the vector atom model, L-S coupling, j-j coupling, The Pauli's exclusion principle, Selection rules, Intensity Rules, Interval Rule, Normal Zeeman effect, Anomalous Zeeman effect, Stark effect and its experimental study.

CO3: To study the Molecular spectra, origin of pure rotational spectrum of a molecule, origin of vibration rotation spectrum of a molecule, Rayleigh's law of scattering, Raman effect- Discovery, experimental study, Applications of Raman effect- molecular structure, Nature of liquids, Crystal Physics, Nuclear Physics, Chemical effects.

CO4: To study the LASER, induced absorption, spontaneous emission, stimulated emission, population inversion, properties of laser beam, laser pumping, Types of laser-Ruby laser, He-Ne laser, carbon dioxide (CO₂) laser, Applications of laser- Biological, medical and industrial.

Paper No. XX - Non-conventional energy sources and Optical fiber

CO1: To study the non-conventional energy sources, Biomass, wind energy, tidal energy/Ocean energy, geothermal energy, biogas hydro energy, wind energy, solar energy Biogas plant-fixed dome type Wind energy: Introduction to wind energy, terms and definition: wind, wind farm, wind turbine, vertical axis wind turbine (VAWT), horizontal axis wind turbine (HAWT), propeller (wheel), wind mill, types of wind turbines generator units, monoblade HAWT, twin blade HAWT, merits and limitation of wind energy.

CO2: To study the Solar Photovoltaic Systems, Solar Cell fundamentals: i) Semiconductor, ii) P-N junction, iii) Generation of electron-hole pair by photon absorption, iv) I-V characteristics of solar cell Electrical storage: Lead acid battery, basic battery theory

CO3: To study the optical fiber, importance of optical fiber, classification of optical fiber- stepped index fiber, stepped index monomode fiber, Disadvantages of monomode fiber, plastic fiber, latest developed types of optical fibers- HPSUV; HPSIR; Halide; Tapered.

CO4: To study the Fiber cables and fabrication, Classification of fiber fabrication techniques; external chemical vapour deposition (external CVD), axial vapour deposition (AVD), internal chemical vapour deposition (internal CVD) Fiber Cables: Construction, Strength members, cable tensile loading, minimum bend

radius losses incurred during installation of cables or during subscriber service testing of cable, selection criteria, optical cable fiber laying in telephone.

Paper No. XVII and XVIII – Practical's:

CO1: Verification of theoretical knowledge by experimental work in laboratory and the aim of practical is to be verified.

DEPARTMENT OF ELECTRONICS

Course Outcomes

F. Y. B. Sc. Electronics (Semester – I)

Paper No. I - Network Theorems and Semiconductor Devices:

- CO1:** To study the Components and Network Theorems, Active & passive elements, Resistors, Capacitors, Inductors, Transformers, Relays and Fuses {classification, specification & Applications}, Voltage divider theorem, current divider theorem, ideal Constant voltage source, Ideal constant current source, superposition theorem, Thevenin's theorem, maximum power theorem,
- CO2:** To study the P-N junction Diode, Biasing a semiconductor diode, Static and Dynamic resistance of a diode, breakdown of PN junction, ideal diode, Special diodes (Zener diode, Tunnel diode, Varactor diode, Light Emitting diode and Photodiode)
- CO3:** To study the Transistor, transistor action, transistor symbols, transistor configurations, characteristics of transistor in common base, common emitter, common collector configurations, comparison of CE, CB and CC configuration, transistor current gains α and β , relation between α and β , Junction field effect transistor, Static characteristics of JFET, JFET characteristics with external bias, transfer characteristics, small signal JFET parameters, MOSFET.

Paper No. II - Digital Electronics-I:

- CO1:** To study the Number System: Decimal, Binary, Hexadecimal Number Systems and their inter conversions, Binary arithmetic (addition, subtraction, multiplication and division), 1's and 2's compliment method for binary subtraction, Hexadecimal addition and subtraction, Binary Codes (8421 (BCD) code, Gray code, Excess-3 code), BCD addition and subtraction, Excess-3 addition and subtraction, ASCII Code
- CO2:** To study the Logic gates Positive and negative logic, Logic Gates (NOT gate,

AND gate, OR gate, NAND gate, NOR gate) using diodes & transistors, Ex-OR gate, Ex-NOR gate, Boolean Operations, Rules and laws of Boolean algebra, DeMorgan's theorems, minterms, maxterms, SOP and POS form of Boolean expressions, Simplification of Boolean Expressions, Karnaugh map [K-map] (up to four variables only)

CO3: To study the Combinational logic circuits, NAND and NOR gate as universal building blocks, Half adder, Full adder, Half subtractor, full subtractor, 4 bit parallel adder and subtractor, 2's complement adder /subtractor, 3 bit binary decoder, decimal to BCD encoder, 8 to 1 multiplexer, 1 to 8 demultiplexer

F. Y. B. Sc. Electronics (Semester – II)

Paper No. III - Amplifiers:

CO1: To study the Bias for Transistor Amplifiers Transistor load line analysis, Operating point, Inherent variation of transistor parameters, Stabilisation, essentials of transistor biasing circuit, stability factor, methods of transistor biasing, base resistor method, voltage divider bias method.

CO2: To Study the Small signal Amplifiers Two port network, h-parameter equivalent circuit, equivalent circuit for BJT, transconductance model, CE amplifier, CB amplifier, emitter follower circuit, equivalent circuit for JFET, Common Source amplifier, source follower amplifier.

CO3: To study the Feedback Amplifier An amplifier black box with feedback, stabilization of gain by negative feedback, reduction of nonlinear distortion by negative feedback, effect of feedback on output resistance, effect of feedback on input resistance, voltage series feedback.

Paper No. IV - Digital Electronics – II:

CO1: To study the flip flops (SR, D, JK and T) [using gates], Methods of triggering flip flops, Edge triggered flip flops (SR, D, JK and T), Asynchronous inputs, Master slave JK flip flop, Operating characteristics.

CO2: To study the Concept of counter, Asynchronous Counters (three and four bit), Synchronous Counters (three and four bit), decade Counter (asynchronous), Up/Down Synchronous Counter.

CO3: To study the Shift register functions, Serial In – Serial Out Shift Register, Serial In – Parallel Out Shift Register, Parallel In – Serial Out Shift Register, Parallel In – Parallel Out Shift Register, Bidirectional Shift Register, Ring Counter, Buffer Register **D/A and A/D converters** R-2R Ladder type D/A converter, DAC

Characteristics (Monotonicity, Resolution, Accuracy and Setting Time), Successive approximation A/D converter, Dual slope A/D converter.

Paper No. V and VI – Practical's:

CO1: Verification of theoretical knowledge by experimental work in laboratory and the aim of practical is to be verified.

S. Y. B. Sc. Electronics (Semester – III)

Paper No. VII – Linear Integrated Circuits:

CO1: To study the Differential Amplifier-Dual input balanced output differential amplifier, block diagram of typical Op-Amp, schematic symbol, interpreting data sheet, the ideal Op-Amp, equivalent circuit of an Op-Amp, Op-Amp Parameters- Input-Impedance, Output impedance, input offset voltage, Open Loop Voltage gain, input bias current, slew rate [definitions only] open loop Op-Amp configurations.

CO2: To study the Voltage series feedback amplifier, Voltage shunt feedback amplifier, DC and AC amplifiers, summing, scaling and averaging amplifiers, voltage to current converter (Low voltage DC voltmeter and low voltage AC voltmeter only). integrator, differentiator, basic comparator, zero-crossing detector, Schmitt trigger.

CO3: To study the Oscillator principle, oscillator types, frequency stability, phase shift oscillator, Wien Bridge oscillator, square wave generator, triangular wave generator, saw tooth wave generator, voltage-controlled oscillator.

CO4: To Study the 555 as monostable multivibrator, monostable multivibrator applications, The 555 as an astable multivibrator, a stable multivibrator application, Free running ramp generator.

Paper No. VIII - 8086 Microprocessor:

CO1: To Study the Generation of Microprocessor, registered organization of 8086, features of 8086, Pin diagram (Signal Description), CPU architecture, Physical Memory Organization general bus operation, I / O processing capability, special processor activities, minimum mode 8086 system and timing, maximum mode 8086 system and timing.

CO2: To Study the Machine language instruction formats, addressing modes of 8086, Data copy / transfer instructions, Arithmetic instructions, logical instruction, Branch instructions, loop instructions, machine control instructions, Flag manipulation instructions, Shift and rotate instructions, String instructions

CO3: To Study the Assembly language programs- addition of two numbers, addition

of a series of 8 bit numbers, find the largest number from given array of 8 bit numbers, find out odd and even numbers from the given series of hexadecimal numbers, find out positive numbers and negative numbers from a given series of signed numbers, move a string of data from one location to other location, arrange given array of 8 bit numbers in ascending order, arrange given array of 8 bit numbers in descending order, one byte BCD addition, factorial of a 8 bit number , average of block of 8 / 16 bit data

Paper No. IX and X – Practical's:

CO1: Verification of theoretical knowledge by experimental work in laboratory and the aim of practical is to be verified.

S. Y. B. Sc. Electronics (Semester – IV)

Paper No. XI – Communication Electronics:

CO1: To study the Amplitude modulation, expression for amplitude modulated voltage, waveforms of amplitude modulated voltage, sidebands produced in amplitude modulated wave, Frequency modulation, expression for frequency modulated voltage, waveforms of frequency modulated voltage, sidebands produced in frequency modulated wave, Phase modulation, comparison of frequency modulated and phase modulated expressions

CO2: To study the Pulse amplitude modulation, pulse code modulation, pulse frequency modulation, pulse position modulation, pulse width modulation Amplitude modulation theory, Square Law modulation, class C linear diode detector, varactor diode frequency modulator, Armstrong modulator, phase discriminator, AM transmitter, Superheterodyne receiver

CO3: To study the Synchronization, Asynchronous transmission, Probability of error in base-band transmission, Matched filter, Bit timing recovery, Digital carrier system, amplitude shift keying, frequency shift keying, phase shift keying, differential phase shift keying

Paper No. XII – 8086 Microprocessor Interfacing:

CO1: To study the Semiconductor memory interfacing, static RAM interfacing, dynamic RAM interfacing, interfacing I/O ports

CO2: To study the Features of 8255, PIO 8255 pin diagram and architecture, modes of operation of 8255, Interfacing ADC, interfacing of DAC, stepper motor interfacing

CO3: To study the Features of 8251, Methods of data communication, architecture and Signal description, operating modes, interfacing and programming of 8251

CO4: To study the Features of 8253 Pin diagram and architecture, control word, operating modes, programming and interfacing 8253.

Paper No. XIII and XIV – Practical's:

CO1: Verification of theoretical knowledge by experimental work in laboratory and the aim of practical is to be verified.

T. Y. B. Sc. Electronics (Semester – V)

Paper No. XV – Thyristors:

CO1: To study the Silicon control rectifier, unijunction transistor, Diac and Triac and IGBT.

CO2: To study the Detections sensors, limit switches proximity detectors, sensor interface capacitive proximity switches photoelectric switches.

CO3: To study the DC Drive and its working.

CO4: To study the AC Drive and its working.

Paper No. XVI – Microcontroller

CO1: To study the 8085 microcontroller its history block diagram and working.

CO2: To study the Addressing modes and instruction cycles.

CO3: To study the Application of MICs-51

T. Y. B. Sc. Electronics (Semester – VI)

Paper No. XIX – Programmable logic controlles:

CO1: To study the programmable controllers.

CO2: To study the Fundamental of PLC programming.

CO3: To study the advance programming PLC interfacing and troubleshooting.

Paper No. XX – Microcontroller:

CO1: To study the 8051-timer programming in assembly language.

CO2: To study the 8051 serial port programming in assembly language.

CO3: To study the LCD, Keyboard, ADC DAC and sensor interfacing.

Paper No. XXI and XXII – Practical's:

CO1: Verification of theoretical knowledge by experimental work in laboratory and the aim of practical is to be verified.

DEPARTMENT OF CHEMISTRY

Course Outcomes

F. Y. B. Sc. Chemistry (Semester – I)

Paper No. I - Inorganic Chemistry:

- CO1:** To adopt basics of atomic structure – Concept of atomic orbitals, Quantum numbers, Heisenberg uncertainty, Aufbau and Pauli exclusion principles, Hund's multiplicity rule. Electronic configurations of the elements, Bohr's atomic model.
- CO2:** To Briefly elaborate trends in some periodic properties - atomic and ionic radii, ionization energy, electron affinity and electro negativity with reference to trends in periodic table and application in predicting chemical behaviour.
- CO3:** To study basic chemistry of elements of S and P - block elements.

Paper No. II - Organic Chemistry:

- CO1:** To understand basic concepts in organic chemistry- reactions, reagents and mechanisms of organic reactions.
- CO2:** To learn fundamental concepts from stereochemistry and its importance.
- CO3:** To familiarize open chain compounds like alkanes, alkenes and aromatic compounds chemistry and their importance.

F. Y. B. Sc. Chemistry (Semester – II)

Paper No. IV - 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 behaviour, 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 learn basics and classification of liquid and solid state - Intermolecular forces, structures, liquid crystals: Classification, structure of nematic and cholesteric phases.
- CO6:** To adopt concept of solids, Miller Indices, laws of crystallography, X-ray

diffraction by crystals. Derivation of Bragg equation.

CO7: To familiarize with colloidal state

Paper No. V - Inorganic Chemistry:

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

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

CO3: To adopt basics and applications of nuclear chemistry - Isotopes, Isobar's 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.

Paper No. (III+VI) - Practical Chemistry:

At the end of practical course student will able to -

CO1: Set up the apparatus properly for the given experiments. Perform all the activities in the laboratory with neatness and cleanness;

CO2: To handle laboratory glassware's, hazardous chemicals safely in laboratory;

CO3: Determine equivalent weight of Mg.

CO4: Determine Viscosity of ethanol-water by viscometer measurement.

CO5: Maintain records of quantitative and qualitative analysis.

CO6: Acquire laboratory skills for preparation of 0.1N NaOH solution and standardization by oxalic acid solution.

CO7: Explain mole concept and its application in the preparation of normal and molar solutions, and use of mole concept in quantitative calculations.

CO8: apply the effect of acid strength on the hydrolysis of an ester.

CO9: perform verification of Lambert-Beers law using Colorimeter.

CO10: To handle laboratory glassware's, hazardous chemicals safely in laboratory;

S. Y. B. Sc. Chemistry (Semester -III)

Paper No. VII - Organic Chemistry:

CO1: To understand structure, reactivity, and methods of preparation and chemical

reactions of different types of compounds - alcohols, Phenols, aldehydes-ketones, amines and carboxylic acids.

CO2: To adopt and develop skills of writing mechanism of some named reactions- Pinacol-Pinacolone rearrangement, Fries Rearrangement, Claisen Rearrangement, Gattermann Synthesis and Reimer Tiemann Reaction, Baeyer-Viliger Oxidation, Benzoin, Aldol Knoevenagel condensations, Mannich Reactions. Hoffmann Bromamide Reactions, Gattermann Koch synthesis, Hell-Volhard-Zelinsky Reaction.

CO3: To learn uses of some reagents in organic chemistry - LiAlH_4 , LTA, PTC.

CO4: To understand the basic functional group transformations, Aromatic electrophilic substitution reactions, nucleophilic additions.

Paper No. VIII - Physical Chemistry:

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: Able 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.

S. Y. B. Sc. Chemistry (Semester –IV)

Paper X - Inorganic Chemistry:

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

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

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

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

Paper XI - Physical Chemistry:

CO1: To study the basic terms and laws- Henry law, Raoul's law in phase equilibrium and phase rule.

- CO2:** Know the meaning of phase, component and degree of freedom, To understand different systems- Water, Pb-Ag, Mg-Zn, FeCl₃-H₂O, phenol-water, trimethyl amine - water, nicotine- water system, acetone-dry ice. CO3: To understand the concept of ideal behaviour and deviations from ideality.
- CO4:** Know the terms cell constant, specific conductivity, equivalent conductivity and molar conductivity. 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, pK_a and their determination, Buffers- types, and mechanism of action, Henderson-Hasselbalch equation. Corrosion: Concept, types and electrochemical theory.

Paper No. (IX+XII) Practical Chemistry:

After completion of practical course student should be able to

- CO1:** Laboratory skills for the purpose handling different equipment's
- CO2:** determine critical solution temperature of phenol- water system.
- CO3:** determine the solubility of benzoic acid at different temperature.
- CO4:** determine the refractive index of ethanol –water system.
- CO5:** determine heat of neutralization of NaOH and HCL/ Acetic Acid.
- CO6:** Determination of molecular mass of polymer from viscosity measurement.
- CO7:** the estimation of Nickel gravimetrically as Ni-DMG complex.
- CO8:** preparation of benzoyl derivative of Aniline b-Naphthol
- CO9:** estimation of ester by hydrolysis.
- CO10:** determination of normality and strength of HCL/Acetic Acid using 0.1N NaOH solution.

T. Y. B. Sc. Chemistry (Semester –V)

Paper No. XIII - Physical Chemistry:

- CO1:** To study basic concepts in Quantum Mechanics - Black body radiation, Planck's radiation law, photoelectric effect, Bohr's modes of hydrogen atom, Compton Effect. De Broglie Hypothesis, the Heisenberg's uncertainty principle, Hamiltonian operator, Schrödinger wave equation postulates of quantum mechanics. Schrödinger wave equation for H-atom.

CO2: To acquire basic features 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, Jablonski 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.

Paper No. XIV - Organic Chemistry:

CO1: Are skilled in solving combined problems of spectroscopy - ¹H NMR, shielding and deshielding, chemical shifts, interpretation of PMR spectra of simple organic molecules, combined problems on UV, IR and PMR spectroscopic techniques.

CO2: To familiarize students with organometallic compounds - Structure, methods of synthesis and synthetic applications of Grignard reagents, Organozinc and organolithium compound.

CO3: To understand organic synthesis via enolates - Active methylene compounds, Claisen condensation, Acidity of alpha hydrogen and its synthetic applications.

CO4: Able to analyse Fats, oils and detergents - Saponification value, iodine value, and acid value. Detergent's preparation of sodium alkyl sulphonates, alkyl benzene sulphonates, and amide sulphonate, cleansing action of detergent.

T. Y. B. Sc. Chemistry (Semester –VI)

Paper No. XVI - Organic Chemistry:

CO1: To understand nature 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 organometallic 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:** It covers synthesis and properties of some five- and six-member heterocyclic compounds.
- CO3:** It helps to study carbohydrates chemistry and their importance.
- CO4:** It covers synthesis and properties of some polymers, polymerization reactions.
- CO5:** It covers constitution, classification, synthesis and properties of some dyes.
- CO6:** It covers constitution, classification, synthesis, properties and applications of some drugs.

Paper No. (XV+XVIII) Practical Chemistry:

After completion of practical course student should be able to—

- CO1:** Maintaining records of chemical and instrumental analysis.
- CO2:** Laboratory skills for the purpose of collecting, interpreting, analysing, of various practical data.
- CO3:** Laboratory skills for the purpose handling different analytical instruments.
- CO4:** Interpretation of results of experiment and their correlation with theory.
- CO5:** Study of conduct metric, potentiometric, and pH metric principles.
- CO6:** Apply of conduct metric, potentiometric, colorimetric and pH metric measurement in quantitative analysis.
- CO7:** apply the use of Refractometric measurement and its application.
- CO8:** Maintaining records of quantitative and qualitative analysis.
- CO9:** Laboratory skills for the purpose of collecting, interpreting, analysing, and reporting of chemical data.
- CO10:** Separation and identification skill of various binary mixtures.
- CO11:** Identify methods and instruments that can be used qualitative and quantitative analysis.
- CO12:** understand Mole concept and its application in the preparation of normal and molar solutions, and use of mole concept in quantitative calculations for inorganic analysis
- CO13:** Synthesis and purify coordination compounds.
- CO14:** Statistical treatment to quantitative data
- CO15:** Perform organic synthesis and follow the progress of the reaction by using TLC technique

M. Sc. Chemistry - Course Outcomes

M. Sc. - Chemistry – I year: (Semester –I)

CHE-101: Analytical Chemistry:

- CO1:** To understand basic concepts in analytical chemistry - Role of analytical chemistry, qualitative and quantitative analysis, the analytical process, validation of a method.
- CO2:** Interpret and evaluate statistical treatment of analytical data.
- CO3:** To study the basic separation techniques in analytical chemistry.
- CO4:** Able to understand fundamental principles, theories and applications of Chromatography. 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 the 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:** Be able to evaluate biological activities of metal complexes and 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 - SN Ar, SN 1, 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 aspect of addition reaction involving electrophile, nucleophile and free radicals.

CO6: To understand regioselectivity and chemo selectivity, orientation and reactivity in addition to carbon-carbon multiple bond; Michael addition, Sharpless asymmetric epoxidation.

CO7: Study of elimination and rearrangement reactions.

CHE-104: Physical Chemistry:

CO1: To understand ionic equilibria and biological reactions.

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

CO3: To study deeply classical and statistical thermodynamics.

CO4: Concepts and models to understand surface chemistry.

CO5: To understand advanced concepts in electrochemistry.

M. Sc. - Chemistry – I year: (*Semester –II*)

CHE-205: Spectroscopic methods of analysis:

CO1: General introduction to spectral methods.

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

CO3: To understand the concept of photoelectron spectroscopy.

CO4: To study the thermal methods of analysis –TGA, DTA. **CO5:** To understand the principle, instrumentation, applications of UV, IR and NMR spectroscopy.

CO6: To enable students for 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 stereochemical aspects of additions to C-C double bonds and carbon-heteroatom multiple bonds.

CO3: To understand various named reactions with 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 crystallography- law, symmetry elements, principles of crystal structure.
- CO4:** To understand concepts in photochemistry, photochemical processes and mathematical equations.

M.Sc. Chemistry – II year (Semester –III)

CHEO-313: Structural elucidation by spectral methods:

- 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.

CHEO-314: Organic Synthesis:

- CO1:** To study applications of different oxidizing reagents.
- CO2:** To study applications of various reducing reagents.
- CO3:** Synthesis and synthetic applications of organic reagents applicable in synthetic organic chemistry.
- CO4:** To study carbon-carbon and carbon-heteroatom bond forming reactions.
- CO5:** Study of ylides and enamines.

CHEO-315: Asymmetric synthesis of and bio-organic chemistry:

- CO1:** To understand classification and extraction of enzymes.
- CO2:** To introduce the students to enzyme as catalysts.
- CO3:** To study chemical structure of co-enzymes and cofactor.
- CO4:** To study chiral pool and Fokinan model.

CHEO-316: Photochemistry, free radical and pericyclic reaction:

- CO1:** To study the principles and applications of pericyclic reactions.
- CO2:** To understand electrocyclic reactions and their applications.
- CO3:** To study importance of cycloaddition reactions with examples.
- CO4:** To understand applications of photochemistry.
- CO5:** To understand free radical reactions.

M.Sc. Chemistry – II year (Semester –IV)

CHEO-417: Organic Synthesis retro synthetic Approach:

- 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 cycloaddition reactions.
- CO4:** To study disconnection strategies for ring synthesis.
- CO5:** To understand retrosynthesis of complex organic molecules.

CHEO-418: Advanced organic and heterocyclic chemistry:

- CO1:** To study structure, synthesis and reactions of mono and fused ring heterocyclic compounds.
- CO2:** To have deep understanding advanced name reactions or research level in synthetic organic chemistry.
- CO3:** To study rearrangement reaction and its application.
- CO4:** To study the nomenclature and classification of heterocyclic compounds.
- CO5:** To understand synthesis and reactions of simple mono as well as fused heterocyclic compounds.

CHEO-419: Chemistry of Natural product:

- CO1:** To study terpenoids 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.

CHEO-420: Medicinal Chemistry:

- CO1:** To understand the classification of drugs.
- CO2:** To study synthesis and applications of antibiotics drugs in common medicines.
- CO3:** To understand the basic principles and applications of medicinal chemistry.
- CO4:** To study concepts in pharmacokinetics.
- CO5:** To understand synthetic pathways for the synthesis of common drugs.

DEPARTMENT OF MATHEMATICS

Course Outcomes

F. Y. B. Sc. (Semester – I)

Paper No. I - MAT101: Calculus -I:

- CO1:** Students 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:** Student understands definite integral as the limit of a sum.
- CO5:** Student will be able to understand the concept of divergence, curl, gradient and its applications.

Paper No. II - MAT102: Differential Equations:

- CO1:** Define the terms differential equation, order, degree, exact differential equation, exact condition, Linear equation, Bernoulli's equation.
- CO2:** Find complementary function, particular integral, complete integral, case of auxiliary equations, short method of finding particular integral.
- CO3:** Define homogeneous linear equation, method of finding the solution of particular integrals. Equation reducible to homogeneous linear form.
- CO4:** Define exact differential equation, solution of exact diff. equations, first integral forms of the diff. equations.
- CO5:** Solve of the simultaneous diff. equations which are linear and of the first order.
- CO6:** Define partial diff. equation, explain the method of PDE by elimination of constants and arbitrary function.

Paper No. III - MAT201: Calculus – II:

- CO1:** Student will be able to learn reduction formulae of Some standard functions, trigonometric functions.
- CO2:** To learn integrations of algebraic rational functions.
- CO3:** To develop the knowledge of application of integration in evaluating the length of arc, area, Volume of revolution of a curve.
- CO4:** To develop the knowledge about surface and line integral.
- CO5:** Student will know evaluation of integrals using Green's, Stoke's and Gauss

theorems.

Paper No. IV - MAT202: Geometry:

- CO1:** Explain the concepts of Geometry by using basic definitions.
- CO2:** Calculate shortest distance between skew lines, radius, centre of sphere and angle between planes and lines, cylinder, cone by using some formulae.
- CO3:** Determine the condition of tangency for the Sphere by using basic formulae.
- CO4:** Students can derive the equation of right circular cone and right circular cylinder.
- CO5:** Define central conicoid, intersection of line and central conicoid, equations of tangent lines and tangent plane, find the condition that a plane may touch a central conicoid.

S. Y. B. Sc. (Semester – III)

Paper No. V - MAT 301: Number Theory:

- CO1:** Define the terms division algorithm, gcd, lcm, Euclidean algorithm, solve the Diophantine equations.
- CO2:** Explain the fundamental theorem of arithmetic.
- CO3:** Explain Fermat 's thm, Little thm, Willson's thm.
- CO4:** Define the function Toe and sigma, explain the Mobius inversion formulae.
- CO5:** Define Euler phi – function and explain Euler's thm.

Paper No. VI - MAT 302: Integral Transform:

- CO1:** Define the terms beta and gamma function, properties of gamma function, relation of between beta and gamma function.
- CO2:** Define the terms piece-wise continuous function, exponential order, function of class A, Laplace transform, some standard results of L.T.
- CO3:** Define the inverse of L.T. Null function, some thm on inverse of L.T. Example of inverse of L.T. Partial fraction, Heaviside expansion formula.
- CO4:** Application of L.T. to the differential equations.
- CO5:** Define the Fourier sine and cosine transform, find the relation between Fourier and Laplace transform, finite Fourier sine and cosine transform, explain Fourier integral thm.

Paper No. VII - MAT 303: Mechanics -I:

- CO1:** After completion of this course student will able to learn forces acting on a particle, equilibrium of forces acting on a particle.
- CO2:** To learn forces acting on a rigid body.

CO3: Define Centroid and Centre of gravity and to learn Centre of gravities of some standard uniform bodies like rod, triangular lamina and parallelogram.

S. Y. B. Sc. (Semester – IV)

Paper No. VIII - MAT 401: Numerical Methods:

CO1: Recall definitions and formulae of various numerical methods for finding roots of the equations, interpolation,

CO2: Explain least square curve fitting procedures, explain method of fitting of straight line and non-linear curve fitting, find the Chebyshev polynomials.

CO3: Solution of linear system of equation by different numerical method.

CO4: Solution of ordinary differential equations by using numerical methods.

CO5: Solve the problems in Numerical methods, apply theorem to find numerical solution.

CO6: Explain concepts of numerical methods and evaluate problems.

Paper No. IX - MAT 402: Partial Differential Equations:

CO1: Define the terms PDE, Lagrange's Linear PDE, Explain method of the Lagrange's LPDE.

CO2: Define the terms complete integral, particular integrals, general integrals, singular integrals, explain the standard forms I to IV, solve the non-linear PDE of order one by using Charpit's method and Jacobi's method.

CO3: Define the linear homogeneous PDE, non-homogeneous linear PDE, explain the method the equation reducible to linear form with constant coefficient.

CO4: Solve the PDE of second order by using Monge's method and method of transformation.

Paper No. X - MAT 403: Mechanics -II

CO1: After completion of this course student will able to learn kinematics and dynamics of a particle in two dimensions.

CO2: Expressions for velocity and acceleration and their components in different directions.

CO3: To learn Newton's law of motions and their deductions.

CO4: To develop the knowledge about momentum, Impact of bodies, Energy, field and conservative field of force, potential function.

CO5: Student will able to learn rectilinear motion, Projectile, Equation of projectile, Time of flight, horizontal range and highest point of trajectory and parabola of safety.

CO6: Student will able to learn Kepler's laws of planetary motions.

CO7: Define central orbit, Apses, law of force. Evaluate the differential equation of the central orbit in polar and pedal form.

T. Y. B. Sc. (Semester – V)

Paper No. XI - MAT 501: Real Analysis -I:

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

CO2: Students are able to define and recognize the basic properties of the field of real numbers.

CO3: Students are able to understand the concept of series of real numbers, convergence and Divergence.

CO4: Students are able to understand the definition of Metric Space and continuous function on metric space and difference between open sets and closed sets.

CO5: Students are able to define Riemann integral and its properties and also Fourier series and its application.

Paper No. XII - MAT 502: Abstract Algebra -I:

CO1: Define the terms group, subgroup, normal subgroup, factor group, cyclic group, some preliminary lemma on group and subgroups, explain Lagrange's thm.

CO2: Justify converse of Lagrange's thm in Group Theory by giving counter examples.

CO3: Give examples of group, subgroup, abelian group, normal group, factor group, cyclic group.

CO4: Solve examples to find order of quotient group, left cosets, right cosets, Direct products.

CO5: Classify the normal, quotient group, Classify the groups as homomorphic and non-homomorphic,

CO6: Define the terms ring, subring, integral domain, Field, the definitions and illustrate it giving examples, define the integral domain, Field.

CO7: Solve examples of ideals, prime, principal and maximal ideals, Apply the theorems for solving examples of finding elements of factor ring, irreducible polynomials.

Paper No. XIII - MAT 504: Ordinary Differential Equations-I:

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

CO2: Students are able to find the solution of linear differential equation of first and Second order.

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

CO4: Students know the concept Wronskian of solution.

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

T. Y. B. Sc. (Semester – VI)

Paper No. XIV - MAT 601: Real Analysis -II:

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

CO2: Students are able to define and recognize the basic properties of the field of real numbers.

CO3: Students are able to understand the concept of series of real numbers, convergence and Divergence.

CO4: Students are able to understand the definition of Metric Space and continuous function on metric space and difference between open sets and closed sets.

CO5: Students are able to define Riemann integral and its properties and also Fourier series and its application

Paper No. XV - MAT 602: Abstract Algebra -II:

CO1: Define concepts as Vector Spaces, subspace, span, kernel, linearly dependent etc.

CO2: Describe spanning of vector space, inner product of vectors, linear transformation for set of vectors.

CO3: Give counter examples of vector space and subspace, linear dependence, basis set.

CO4: Apply dimension theorem to find nullity and dimension of vector space.

CO5: Calculate coordinate vector, orthogonality, orthonormality, norm of vectors using formulas, Explain Gram Schmidt process to convert basis to orthonormal basis.

CO6: Define the terms modules, R-modules sub-modules and its examples. Some theorems on modules and sub- modules.

Paper No. XVI - MAT 604: Ordinary Differential Equations--II:

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

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

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

CO4: Students know the concept Wronskian of solution.

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

DEPARTMENT OF BOTANY

Course Outcomes

F. Y. B. Sc. (Semester – I)

Paper No. I - Diversity of cryptogams - I:

CO1: Knowledge and understanding about plant diversity.

CO2: Career opportunities and job opportunities.

CO3: After completion of this course the students are expected to describe the cryptogams, plant diversity like viruses, Bacteria, Lichens Algae and Fungi.

CO4: Understand the useful and harmful activities of algae.

CO5: Know the economic importance of fungi.

Paper No. II - Morphology of Angiosperm:

CO1: It gives knowledge of identification of flowering plants and its classification system up to genus to species level and also describes economic importance.

CO2: It gives knowledge different plant families and species of Angiosperm plant and describe conservation method of different plants.

CO3: Understand the habit of angiosperm plant body.

CO4: Know the vegetative characteristics of the plants.

CO5: Understand the plant morphology and basic taxonomy.

F. Y. B. Sc. Botany (Semester – II)

Paper No. IV - Diversity of cryptogams - II:

CO1: After completion of this course the students are expected to describe the cryptogams plant diversity like Bryophytes and Pteridophytes..

CO2: Understand the morphological diversity of bryophytes.

CO3: Understand the economic importance of the bryophytes.

CO4: Know the economic importance of pteridophytes.

Paper No. V - Histology, Anatomy and Embryology:

CO1: After completion of this course students are expected to describe the morphology of angiosperm plant and its histology, Anatomy & Embryology.

CO2: The general term, anatomy for the study of internal structure of plants.

CO3: Understand the scope and importance of anatomy.

CO4: Understand the normal and anomalous secondary growth in plants and their causes.

CO5: Know various tissue systems.

S. Y. B. Sc. Botany (Semester – III)

Paper No. VII - Taxonomy of Angiosperms:

CO1: Understand the systems of classification of Angiosperms, nomenclature and interdisciplinary approaches.

CO2: Recognize members of the major Angiosperms.

CO3: Families by identifying their diagnostic features and economic importance.

CO4: Understand the general range of variations in the group of angiosperms.

CO5: To learn about the characters of biologically important families of angiosperms.

Paper No. VIII – Plant ecology:

CO1: After completion of the course the students are expected to know how to conserve soil and water.

CO2: To understand how to control air, water and noise pollution

CO3: To know the structure and function of ecosystem.

CO4: To understand the ecological pyramids.

CO5: To know the adaptation of hydrophytes, xerophytes, epiphytes and halophytes.

S. Y. B. Sc. Botany (Semester – IV)

Paper No. X – Gymnosperm and utilization of plant:

CO1: After completion of this course students are expected to know about Gymnosperm and utilization of plants.

CO2: After completion of this course, students are well known about economic importance of Cycas, Pinus and Gnetum.

CO3: To know the economic importance of gymnosperms.

CO4: Understand the diversity of gymnosperms in India.

CO5: To know the evolution of bryophytes, pteridophytes and gymnosperms.

Paper No. XI – Plant Physiology:

CO1: To understand the process of photosynthesis in higher plants with particular emphasis on light and dark reaction, C3 and C4 pathway.

CO2: To understand the plants and plant cells in relation to water.

CO3: To know the concept of enzyme activity and general features of enzymes.

CO4: To know importance and scope of plant physiology.

CO5: To understand the plants and plant cells in relation to water.

CO6: Understand the process of photosynthesis and respiration in higher plants.

T. Y. B. Sc. Botany (Semester – V)

Paper No. XIII – Cell Biology and molecular biology:

- CO1:** On completion of the course students of the course students are able to understand the eukaryotic cell cycle and able to understand the eukaryotic cell cycle and mitotic and meiotic cell division.
- CO2:** In this subject student will understand the cell at molecular level as well as how the process like replication of DNA occurred.
- CO3:** Understand cell wall, plasma membrane, cell organelles and cell division.
- CO4:** Understand the biochemical nature of nucleic acid and their role in living systems.
- CO5:** Understand the process of synthesis of proteins and role of genetic code in polypeptide formation.

Paper No. XIV – Diversity of Angiosperms – I:

- CO1:** Accurately interpretation of collected information and use taxonomical information to evaluate and formulate position of plant in taxonomy.
- CO2:** To understand plant morphology and basic taxonomy.
- CO3:** Understand the major evolutionary trends in various parts of angiosperm plants.
- CO4:** Understand the phylogeny of angiosperms – A general account of origin of angiosperms.
- CO5:** Trace the history of development of system of classification emphasizing angiosperm taxa.

T. Y. B. Sc. Botany (Semester – VI)

Paper No. XVI – Genetics and Biotechnology:

- CO1:** Students are able to understand Mendel's law of inheritance.
- CO2:** Students understand different type of genetic interaction.
- CO3:** Students know about genetic engineering.
- CO4:** To study phenomenon of dominance, laws of segregation and independent assortment.
- CO5:** To understand different types of genetic interactions, incomplete dominance, co-dominance.

Paper No. XVII – Diversity of Angiosperms II.:

- CO1:** Students understand the role of plants in human welfare.
- CO2:** To gain knowledge about various plants and plants or economic use.
- CO3:** To know importance of plants and plant products.
- CO4:** Understand the general range of variations in the group of angiosperms.

CO5: Know the floral variations in angiosperm families their phylogeny and evolution.

DEPARTMENT OF ZOOLOGY

Course Outcomes

F. Y. B. Sc. (Semester – I)

Paper No. I - Protozoa to Annelida:

CO1: Students will have learning about the basic taxonomy and systematics and classification of phylum Protozoa to Annelida.

CO2: They also will acquire knowledge about the biology of these taxonomic categories.

Paper No. II - Cell Biology:

CO1: The student will understand the architecture and functions of cell.

CO2: Students will understand the structures, positions and functions of all cellular organelles in details.

CO3: They will acquire knowledge about chromosomes and cell divisions.

F. Y. B. Sc. (Semester – II)

Paper No. IV - Arthropoda to Echinodermata and Protochordata:

CO1: On completion of the course the students will be able to understand the general organization, diversity and adaptation of non-Chordates.

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

Paper No. V - Vertebrate Zoology:

CO1: On completion of the course the student should be able to know the general organization of Chordates as a group and know the taxonomy and characteristic features of the various Chordate phyla.

S. Y. B. Sc. (Semester –III)

Paper No. VII - Genetics I:

CO1: At the end of the course, students will be able to describe gene's structure, chromosomes, proteins and different methods of genetic testing.

Paper No. VIII - Animal Physiology:

CO1: Students will learn about basics of histology and tissue staining.

CO2: They will also understand the physiology of muscles, nerves, reproductive systems and bone.

CO3: They will learn details of endocrinology with classification of hormones.

S. Y. B. Sc. (Semester –IV)

Paper No. X - Biochemistry and Endocrinology:

CO1: Students will understand the basic and fundamental biochemistry of carbohydrates, proteins, lipids and nucleic acids.

CO2: They will also understand the nature, mechanism, and kinetics of enzyme action.

Paper No. XI - Ecology:

CO1: Students will be understanding the various features and aspects of population ecology, community ecology and ecosystem ecology.

CO2: They will acquire knowledge about various tools and techniques of field ecology.

T. Y. B. Sc. (Semester –V)

Paper No. XIII - Evolution:

CO1: After studying this course, students should be able to understand that by biological evolution, natural selection, Darwin's theory of evolution through natural selection, struggle for existence; variation; and inheritance etc.

CO2: The student will demonstrate knowledge of the origins of hereditary variations.

CO3: The student will demonstrate knowledge of processes of microevolution, mutation, genetic drift, and natural selection.

Paper No. XIV - Fishery Science:

CO1: The students will be able to learn about the basics of Taxonomy of fresh water and marine water fishes.

CO2: Gain the knowledge about the taxonomy of marine organisms.

CO3: The biology of aquatic organisms will be fully understood by the students and capable of distinguishing the biology of each group of organisms.

DEPARTMENT OF B. Voc. NURSERY

Course Outcomes

F. Y. B. Sc. (Semester – I & II)

Paper No. I - Generic Skill I (for Specific Skill):

CO1: Generic skills are defined the set of skills or abilities essential to fulfilling the three potential outcomes of higher education, namely, the needs and requirements of employers in the marketplace, lifelong learning, and good citizenship.

CO2: There is a high demand for generic skills in the workplace. Employers seek to ensure business success by recruiting and retaining employees who have a variety of skills and personal attributes, as well as technical skills.

Paper No. II - Structure of Nursery:

CO1: Mango trees (*Mangifera indica*) are deep-rooted plants that may become large

specimens in the landscape. Mango trees begin fruit production in three years and form fruit quickly.

CO2: Prepare the site by digging a hole that is twice as wide and deep as the root ball.

Check the drainage by filling the hole with water and watching how fast it drains.

Mango trees can survive some periods of flooding, but the healthiest plants are produced where soils percolate well.

Paper No. III - Fruit Nursery:

CO1: Some of them specialize in one phase of the process: propagation, growing out, or retail sale; or in one type of plant: e.g., groundcovers, shade plants, or rock garden plants. Some produce bulk stock, whether seedlings or grafted, of particular varieties for purposes such as fruit trees for orchards, or timber trees for forestry.

CO2: Some produce stock seasonally, ready in springtime for export to colder regions where propagation could not have been started so early, or to regions where seasonal pests prevent profitable growing early in the season.

Paper No. IV - Introduction, Ornamental Plant Nursery:

CO1: A nursery is a portion of agriculture where plants are propagated, nurtured, grown, and sold out to the home garden or commercial purpose. Under favourable conditions, improved quality seedlings are grown until they are prepared for planting on a small scale or on a big scale.

CO2: The availability of quality and true-to-type planting material is the prerequisite of successful and remunerative ornamental crop production. Setting up of a nursery is a long-term venture, and requires planning and expertise.

Paper No. V - Introduction, Flower Plant Nursery:

CO1: In nursery, the land may be divided into minimum four parts: area for mother plant, area for seed production, area for raising flower seedlings and area for storing of seedlings or vegetatively propagated perennial plants. The land of a nursery is prepared by ploughing and cross ploughing. Greenhouses are frames of inflated structure covered with a transparent material in which crops are grown under controlled environment conditions.

CO2: Greenhouse cultivation as well as other modes of controlled environment cultivation have been evolved to create favourable micro-climates, Classification of greenhouse based on suitability and cost.

Paper No. VI - Soil Cultivation:

CO1: Language proficiency is the ability of an individual to use language with a level of

accuracy that transfers meaning in production and comprehension.

CO2: There is no singular definition of language proficiency, however, and this has implications for its application in other language domains such as literacy, testing, endangered languages, language impairment, etc.

CO3: They are also known by several other names, including key skills, core skills, essential skills, key competencies, necessary skills, transferable skills and employability skills. Communication skills allow you to understand and be understood by others.

Paper No. VII - Propagation Techniques:

CO1: Plant propagation is the process of creating new plants. There are two types of propagation: sexual and asexual. Sexual reproduction is the union of the pollen and egg, drawing from the genes of two parents to create a new, third individual. Sexual propagation involves the floral parts of a plant.

CO2: Asexual propagation involves taking a part of one parent plant and causing it to regenerate itself into a new plant.

CO3: The resulting new plant is genetically identical its parent. Asexual propagation involves the vegetative parts of a plant: stems, roots, or leaves.

Paper No. VIII - Plant Biology:

CO1: study of fungi and algae by mycologists and phycologists respectively, with the study of these three groups of organisms remaining within the sphere of interest of the International Botanical Congress.

Paper No. IX - Nursery Management:

CO1: Nursery management may be defined as the sum of the activities performed for the successful production, care, and marketing of different planting materials (seeds, seedlings, cuttings, etc.) in a different nursery section.

CO2: Conducting employees properly, maintenance care and protection of properties, etc.

Paper No. X - Grafting and budding techniques:

CO1: Grafting and budding are horticultural techniques used to join parts from two or more plants so that they appear to grow as a single plant. In grafting, the upper part (scion) of one plant grows on the root system (rootstock) of another plant. In the budding process, a bud is taken from one plant and grown on another.

CO2: Although budding is considered a modern art and science, grafting is not new. people recognized the incompatibility problems that may occur when grafting olives and other fruiting trees.

CO3: Since grafting and budding are asexual or vegetative methods of propagation, the

new plant that grows from the scion or bud will be exactly like the plant it came from.

CO4: These methods of plant reproduction are usually chosen because cuttings from the desired plant root poorly.

DEPARTMENT OF B. VOC. DEPARTMENT OF ACCOUNTING AND TAXATION

Course Outcomes

F. Y. B. Sc. (Semester – I & II)

Paper No. I - Office Management:

Student will familiar with modern office environment that can lead them working confidentially in modern office.

CO1: Office and its Management.

CO2: Mail and its Procedure.

CO3: Modern Office Equipment.

CO4: Budgets.

CO5: Managing Banking.

Paper No. II - Auditing-I:

Student will familiar with Auditing process and they will able to handle the Auditing process.

CO1: Audit Planning and programme.

CO2: Internal Check System, Internal Audit & Vouching.

CO3: Audit and Limited Companies.

CO4: Audit Report.

Paper No. III - Financial Accounting -I:

CO1: This course is aims to acquainting student with Basic as make them familiar with process of Recording of Transactions.

CO2: Classification and Interpretation. Make theme familiar with overall Book-keeping in business Organization.

Paper No. IV - Direct Tax -I:

CO1: This course is aims to familiar student with Taxation system and Law in India, make them acquaint the calculation of Income under various sources of Income.

CO2: Introduction of Indian Taxation System.

CO3: Income Tax Act 1961.

CO4: Residential status and incidence of tax and Exemption.

CO5: Income from Salary.

CO6: Income from House Property.

Paper No. V - Computerized Accounting -I:

CO1: This course is aims to introduce the computerized accounting software and it use in Accounting and Taxation.

CO1: Basics of Accounting.

CO2: Fundamentals of Tally ERP 9.

CO3: Creating Accounting Masters in Tally ERP 9.

CO4: Inventory Management masters In Tally ERP 9.

CO5: Voucher Entries.

Paper No. VI - Auditing-II:

CO1: This course is aims to make student familiar with various types of Audits and audit procedure

CO2: Student will able to handle various types of Auditing and Auditing process

CO3: Cost and Management Audit.

CO4: Human Recourse & management Audit.

CO5: Tax Audit.

CO6: Investigation.

CO7: Audit and Various Items.

Paper No. VII – I. T. Application in Business:

CO1: This course is aims to familiarize the students with use of Information Technology in Business and profession specially the use of MS-Excel in Accounting and Taxation.

CO2: Student will get expertise of use of I.T. in Accounting and Taxation i.e., use of Excel. That can lead students better Presentation.

CO3: Working with Data.

CO4: Data Presentation.

CO5: Managing Workbook and worksheet.

Paper No. VIII – Financial Accounting-II:

CO1: This course is aims to acquainting student with accounting of firms and well as accounting practices in Business organization.

CO2: Student will familiar and able to prepare final accounts of particular firms.

CO3: Depreciation.

CO4: financial statement of proprietary concern.

CO5: Financial statement of partnership firm.

CO6: Accounts of Not-for-Profit making concern.

CO7: Introduction to company final Accounts.

Paper No. IX – Direct Tax- II:

CO1: This course is aims to acquitting students with computation of income from particular Income sources.

CO2: Student will able to compute Income from particular Income Sources.

CO3: profit and gain of business.

CO4: Income from Capital gains.

CO5: Income from other sources.

CO6: Income Tax Authorities, Advance Tax, tax deduction at source and introduction to tax collection at source.

CO7: Provisions for filing return of income and self-assessment.

Paper No. X – Computerized Accounting - II:

CO1: This course is aims to Introduce the Computerized accounting software and it use in Accounting and Taxation.

CO2: Student will familiar and able to use of Computerized Accounting Tally ERP 9.0 in Business activities.

CO3: Generating Basic Report in Tally ERP 9.

CO4: Advanced Accounting Features in Tally ERP 9.

CO5: Job Costing.

CO6: Advantages of technology.

CO7: Advanced Inventory features in Tally ERP 9.



Name : Prin. Dr. H. G. Vidhate
Signature of the Chairperson,

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Kada, Tal. Ashti, Dist. Beed

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