Shri Shivaji Education Society, Amravati's
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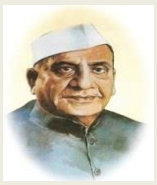

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THE COURSE OUTCOMES (COS)

FACULTY OF ARTS/HUMANITIES/ SOCIAL SCIENCES

COURSE OUTCOMES OF B. A. PROGRAMMES

[UG Level]

Marathi Department

Course Code	Name of the Course	Course Outcomes- After completing this course students will be able to
BA1MAR1S-1 to BA3MARS-6	B. A. Sem. I,II,III,IV,V & VI Compulsory Marathi	CO-1 : Understand the great human values in the society.
		CO-2 : Inculcate global mindset through the study of Language.
		CO-3 : Get the inspiration about entrepreneurship.
		CO-4 : Make the Great Approach about social solidarity and cultural solidarity in the changeable social environment.
		CO-5 : Understand Scientific Temper in the society.
		CO-6 : Develop social awareness and Social responsibility.
		CO-7 : Know professional interest and moral values through the study of Language.
		CO-8 : Recognize about gender equality.
		CO-9 : Know the literary journey of Marathi Language.
		CO-10: Know the concepts of Gandhiism, Marksism,Ambedkarism.
		CO-11: Understand the importance of interrelationship between Society and Literature.
		CO-12: Develop ethical thinking.
		CO-13 : Develop knowledge based society of the students

BA1MLTS-1 to BA3MLTS-6	**B. A. Sem. I,II,III,IV,V & VI Marathi Literature**	**CO-1**: Develop the knowledge about Literature among the students through establishment of MLT Association (Marathi Literary Association).
		CO-2: Develop 'Communal Harmony' among the students through the study of literature.
		CO-3: Develop Acting skill and language skill among the students
		CO-4: Develop personality of the students giving opportunities to them for presentation on the dais.
		CO-5: Develop interest in the study of Marathi Literature.
		CO-6: Introduce the various trends in Poetry of Marathi Literature
		CO-7: Know the necessity and importance of Literature for healthy human life.
		CO-8: Introduce the various trends in Literature.
		CO-9: Integrates Vocabulary and knowledge of language among the students.
		CO-10: Introduce social and cultural study of poems in Modern Age
		CO-11: Inculcate social, National, Moral values among the students.
		CO-12: Realize the social bind among the students.
		CO-13: Introduce various types of poem and the Poets in that typical (Prescribed) period
		CO-14: Introduce the History of Drama.
		CO-15: Introduce the process of how to make the words.
		CO-16: Know the purpose of Literature.
BC1MARS-1 to BC1MARS-2	**B. Com Sem. I to Sem. II Compulsory Marathi**	**CO-1:** Understand the great human values in the society.
		CO-2: Inculcate global mindset through the study of Language.
		CO-3: Get the inspiration about entrepreneurship
		CO-4: Make the Great Approach about social solidarity and cultural solidarity in the changeable social environment.
		CO-5: Understand Scientific Temper in the society.
		CO-6: Understand official Letter writing and process of translation.
		CO-7: Understand the Great Personalities with the study of Language
		CO-8: Understand how to make Professional Advertisement through the study of Upyogit Marathi.
		CO-9: Develop the skill of applying concepts and techniques for job.
		CO-10: Introduce the Great Personalities.
		CO-11: Know how to live happy life with defeating the social problems.
BS1MARS-1 to BS1MARS-2	**B. Sc. Sem. I to Sem. II Compulsory Marathi**	**CO-1:** Inculcate value of equality and tolerance among the students.
		CO-2: Learn Human Values in the life.
		CO-3: Introduce the social work done by the Great Personalities and Social Reformers.
		CO-4: Inculcate new thought and new concept about life and society.
		CO-5: Get information about Marathi Language in daily routine.
		CO-6: Make capable for Letter writing at professional level.
		CO-7: Make capable for How to write any information for social Media.
		CO-8: Develop scientific temper among the students.
		CO-9: Inculcate Liberal ideology
		CO-10: Know awareness about Rational thinking.
		CO-11: Develop Vocabulary and Language Skill
		CO-12: Develop aesthetic sense among the students
		CO-13: Enrich human life through the study of Language.
		CO-14: Know various stages of development of language.

English Department

Course Code	Name of the Course	Course Outcomes- After completing this course students will be able to
BA/B. Com/B. Sc.1ENGS-1 to BA/B. Com./B. Sc.3ENGS-6	Compulsory English	**CO-1:** learn analysis of the text from prose passages for understanding the contents
		CO-2: Prose passages will help improve reading and writing skills
		CO-3: They will develop imaginative thinking by reading and reciting poetry
		CO-4: Language activities will promote effective use of language in day to day life and enhance professional skills
		CO-5: The course content will enable rational thinking along with learning life skills.
		CO-6: learn professional ethics.
		CO-7: learn environmental consciousness. CO8: Developing sensitivity regarding gender equality.
BA1ELTS-1 to BA3ELTS-6	English Literature	**CO-1:** Analyze various forms of literature.
		CO-2: Acquaint them with the forms of structures and aesthetics of style and techniques of literary works
		CO-3: Analyze various elements of literature.
		CO-4: Communicate in English orally and in writing
		CO-5: Kindle critical thinking skills.

Economics Department

Course Code	Name of the Course	Course Outcomes- After completing this course students will be able to
BA1ECOS-1	B. A. Sem. I Micro Economics	**CO-1:** Understand fundamental concepts of economics i.e. Micro and Macro
		CO-2: Economics, definitions of Economics etc.
		CO-3: Understand economic demand and supply theories.
		CO-4: Understand Cost and Revenue Analysis
		CO-5: Know role of market in real life
		CO-6: Learn about various factors of Production.
BA1ECOS-2	B. A. Sem. II Economy of Maharashtra	**CO-1:** Understand Geographical and Economical Features of Maharashtra
		CO-1: Understand Agriculture in Maharashtra state.
		CO-2: Understand Industry and Infrastructure in Maharashtra
		CO-3: Know role of Small scale and Agro-based industries in Maharashtra state
		CO-4: Understand Economy of Vidarbha region.
		CO-5: Learn about resources of Vidarbha region.
BA2ECOS-3	B. A. Sem. III Macro Economics	**CO-1:** be able to understand macro economic analysis.
		CO-2: be able to understand of national income.
		CO-3: Able to understand classical & Keynesian theories of output and employment.
		CO-4: Able to understand consumption & Investment function.
		CO-5: be able to understand Quantity theory of money.
		CO-6: be able to understand various macroeconomic policy & Problems.
BA2ECOS-4	B. A. Sem. IV Banking	**CO-1:** be able to understand Meaning And Types Of Bank.
		CO-2: be able to understand money & banking.
		CO-3: be able to understand RBI Bank system in India.
		CO-4: be able to understand working & operation of RBI.
		CO-5: be able to understand nature, scope & importance of monetary policy.
		CO-6: be able to understand commercial banking system in India.
		CO-7: be able to understand cooperative and rural banking in India.
		CO-8: be able to understand None banking financial institutions & financial services in India.
		CO-9: be able to understand IBRD, IMF& WTO.
		CO-10: be able to Knowledge of ATM, Debit Card, E-Marketing, Cashless Transaction Mobile Banking, E-Wallets, and Core Banking RTGS &NEFT.
BA3ECOS-5	B. A. Sem. V Indian Economy	**CO-1:** be able to understand Basic Feature of Indian Economy.
		CO-2: be able to understand Planning (Objective of 11^{th} & 12^{th} Five year Plan) .
		CO-3: be able to understand Economics of Agricultural in India.
		CO-4: be able to understand Industrial in India.
		CO-5: be able to understand Environment and Pollution.

BA3ECOS-6	**B. A. Sem. VI Economics**	**CO-1:** be able to understand meaning and scope of Demography.
		CO-2: be able to understand Fertility and Mortality in India.
		CO-3: be able to understand Migration of Population.
		CO-4: be able to understand Effects of Migration on Population.
		CO-5: be able to understand Urbanization of Population.
		CO-6: be able to understand Population and Development.

Course Code	Name of the Course	Course Outcomes- After completing this course students will be able to
BA1PHIS-1	B. A. Sem. I Philosophy	**CO-1:** enrich with broad conceptual knowledge along with ethical approach.
		CO-2: be explored aims, objectives, goals, need, and determination regarding with philosophical knowledge.
		CO-3: Ethical concepts acknowledge the qualitative parameters among the students through assignments and projects of philosophy
		CO-4: The outcome of the course will inculcate psychologically and thoughtful approach within the students.
		CO-5: The outcome of the course is to understand the distinct features of Indian Culture and philosophy.
BA1PHIS-2	B. A. Sem. II Philosophy	**CO-1:** The outcome of the course is to understand the development and its conceptuality that has determine modern Indian Thought.
		CO-2: The outcome of the course is to make students aware about Vedas Ethics and Geeta's ethics
		CO-3: The outcome of the course is to generate good ideas about principles of punishments as well as importance of discipline
		CO-4: The outcome of the course is to make students familiar with Jaina Philosophy and ethics of Jainism.
		CO-5: The outcome of the course is to make students familiar with Buddha's Philosophy and ethics of Buddhism.
BA2PHIS-3	B. A. Sem. III Philosophy	**CO-1:** The outcome of the course is to develop cosmological knowledge.
		CO-2: The outcome of the course is to generate anthropological concepts.
		CO-3: The outcome of the course is to understand various theories of Monist philosophers such as Thelis, Enekjimendar Jenophenis, Heroklitas.
		CO-4: The outcome of the course is to understand in-depth analysis of the basic concept of Pluralist philosophers such as Pythagoras, Democritus, and Luscious.
		CO-5: The outcome of the course is to understand the concepts of repuretion of Pletos idea theory and its ten categories
BA2PHIS-4	B. A. Sem. IV Philosophy	**CO-1:** The outcome of the course is to know in details about advanced and western philosophy its types.
		CO-2: The outcome of the course familiarize about Chidnuwad its types and importance along with pre-established communication theory
		CO-3: The outcome of the course is to understand in-depth analysis of the basic concept of John Lock and Jorge Baklre.
		CO-4: The outcome of the course is to develop theories of doubts and reasons expressed by David Hum and G. W. Hegel.
		CO-5: The outcome of the course is to know about the Emanuel Kant.
BA3PHIS-5	B. A. Sem. V	**CO-1:** The outcome of the course is to understand Indian philosophical forms, features and its diversity.

	Philosophy	**CO-2:** The outcome of the course is to make students aware about ancient and Upanishad and its concepts of philosophy.
		CO-3: The outcome of the course is to get the knowledge about physical diversions, knowledge concepts behavioral concepts and other concepts.
		CO-4: The outcome of the course is to familiarize with Jain Darshan with its knowledge Bonds live and alive Darshan and other diversions.
		CO-5: The outcome of the course is to know about Buddha Darshan its four arts of truth, reasons, Yoga its science and its practical diversities.
BA3PHIS-6	**B. A. Sem. VI Philosophy**	**CO-1:** The outcome of the course is to understand theories of Justice and its certificates.
		CO-2: The outcome of the course is to develop atomic theories for seven atoms of Vaisheshik Darshan.
		CO-3: The outcome of the course is to identify Statistical Darshan with Yog Darshan to know the Ashtang Yog Marg.
		CO-4: The outcome of the course is to classify knowledge its source, its diversity for its scrutiny of Darshan.
		CO-5: The outcome of the course is to identify Shankar Vedant for Brahmma, Maya and Moksha.

Course Code	Name of the Course	Course Outcomes- After completing this course students will be able to
BA1POLS-1	B. A. Sem. I Indian Constitutional Provisions and Local Self Government	CO-1: Salient features of the Indian Constitution, Nature and importance of Preamble, Fundamental Rights of Citizens.
		CO-2: Directive Principles of State Policy, Fundamental Duties of Indian Citizens and Laws about Citizenship.
		CO-3: Election Procedure of President of India and his Rights, Role and Rights of Vice-President, Rights and Role of Prime Minister of India.
		CO- 4: Parliament: Structure and Powers of Loksabha and Rajysabha
		CO- 5: Indian Judiciary- Structure and jurisdiction of Supreme Court and High Court.
BA1POLS-2	B. A. Sem. II	CO -1: Election Commission of India- Its structure, powers and function and importance.
		CO-2: Rights, Role and Position of Governor, Chief Minister and Council of Ministers
		CO-3: State Legislature- Structure and Powers of State Assembly and Council of States.
		CO-4: Local Self Government of Maharashtra-Muncipal Corporation, Nagar Palika& Gram Panchayat.
		CO-5: Political Participaton of women in Panchayat Raj, Nagpur Pact and Right to Information Act.
BA2POLS-3	B. A. Sem. III Comparative Government and Politics.	CO-1: Salient features of Constitution of United Kingdom,Historical background of King and Crown, Rights of King, Role and Rights of British Prime Minister.
		CO-2: Parliamentary System of U.K., Structure & Powers of House of Lords and House of Commons, Role of Opposition Party.
		CO-3: Salient features of United States Constitution, President of U.S.A.- Election Process and his Rights, Council of Ministers, Vice-President – Election Process and his Rights.
		CO-4: Legislature of U.S.A.- Structure and Powers of Senate and House of Representative, Supreme Court- Structure and Jurisdiction.
		CO-5: South Asian Association for Regional Co-operation(SAARC)-Structure, Objectives and Functions.
BA2POLS-4	B. A. Sem. IV	CO-1: Salient features of China's Constitution, Structure & Powers of National People's Congress, and Structure & Powers of Standing Committee.
		CO-2: President of China – Appointment, Role & Powers, Structure & Powers of State Council of China, Role of Communist Party of China.
		CO-3 : Historical Background of United Nations, Charter, Objectives of United Nations, Elements of United Nations & their functions.
		CO-4 : Security Council- Composition & Functions, Secretary General- Appointments & Functions
		CO-5: India & China Relations- Tibet Dispute, China's Role about India in

		United Nations, Impact of China's Goods &Market on Indian Economy.
BA3POLS-5	**B. A. Sem. V Modern Concepts and Policy in Politics**	**CO-1**: Meaning of Leadership, Factors of Leadership & Role of Leadership.
		CO-2: Meaning & Nature of Indian Reservation Policy, Reservation in Indian Parliament, Reservation & Politics in India.
		CO-3: Meaning & Nature of Nationalism, Factors of Nationalism, present Status of Indian Nationalism.
		CO-4: Meaning of Communalism, Role of Communalism in Indian Politics, Present Status of Communalism in India.
		CO-5: Meaning & Definition of Terrorism, Kinds of Terrorism, The Acts for Prevention of Terrorism in India.
BA3POLS-6	**B. A. Sem. VI**	**CO-1:** Aristotle's Concept of State, Mahatma Gandghi's Concept of Ramrajya.
		CO-2: Concept of Democracy of Walter Bagehot, Abraham Lincoln's Concept of Democracy, and Dr. B.R. Ambedkar's thought on Parliamentary Democracy.
		CO-3: Machiaveli's Concept of Nationalism, Swami Vivekanda's Concept of Nationalism.
		CO-4: Karl Marx's Concept of Socialism, Pandit Jawaharlal Nehru's Concept of Socialism, Concept of Socialism of Ram Manohar Lohiya.
		CO-5: Concept of Behaviouralism of David Eston, Concept of Post Behaviouralism of Gabrial Almond, John Austin's Concept of Sovereignty.

History Department

Course Code	Name of the Course	Course Outcomes- After completing this course Students will be able to
BA1HISS -1	B. A. Sem. I History of India (From B.C. to 1205A.D.)	**CO-1:** Understand the Political, Social, Economic, Religious status & changes in the Ancient Period. E.g. Harappa civilization, Vedic, Mouryan, Gupta,Vakataka, Vardhan dynasty.
		CO-2: Understand the origin and tents of Jainism & Buddhism.
		CO-3: Understand the administration, Literature, Art & architecture, Science & technology in Gupta, Mourya, Vakataka dynasty.
		CO-4: Understand the education, religious, economic system & status of women, culture in Ancient India.
BA1HISS -2	B. A. Sem. II History of India (From 1206 to 1525 A.D.)	**CO-1:** Understand the Delhi Sultanate.
		CO-2: Understand the administration system , reforms in agriculture, economy policy in Sultanate Period
		CO-3: Understand the education, religion, economic system & status of women, culture in Sultanate Period.
BA2HISS -3	B. A. Sem. III History of India (From 1526-1756 A.D.)	**CO1:** Understand Mughal rule Administration, art and architecture.
		CO-2: Understand the Causes of rise of Emergence Power of Maratha and The Maratha war of Independence.
		CO-3: Understand Political, Fiscal, Judicial Administration, Religious policy, Military System Under Chhatrapati Shivaji Maharaj & Chhatrapati Sambhaji Maharaj.
		CO-4: Understand the social, economic, religious bases of medieval India.
		CO-5: Understand the Political, Socio-Economic, Administrative and cultural history of medieval period.
BA2HISS -4	B. A. Sem. IV History of India (From 1757-1947A.D.)	**CO-1:** Evaluate consolidation of English Power in India.
		CO-2: Understand the process of rise of modern India.
		CO-3: Understand the history of Modern India from analytical perspective.
		CO-4: Understand the Nationalist &Revolutionary Movements: Pre-Gandhian and Post-Gandhian Era.
		CO-5: Understand the history of Modern India and Struggle for independent.
		CO-6: Understand and learn the contribution of political, Eco-social religious reformers And reform movements.
		CO-7: Understand the contribution of freedom fighters in Indian freedom Movements.
BA3HISS -5	B. A. Sem. V History of Modern Europe (From 1780-1920 A.D.)	**CO-1:**Understand Political, Eco-Social changes in European countries like France, Prussia(Germany) Italy, Russia, Austria, Eastern countries etc.
		CO-2: Understand the concept of Communism, Capitalism, and Socialism.
		CO-3: Understand an idea about the rise of nationalism in Europe, consequences and First World war.
		CO-4:.Understand & Learn the peace conferences as well as foundation and role of League of Nations.

		CO-5: Understand the most significant events, revolutions and Leadership, personalities of the period.
BA3HIS-61	**B. A. Sem. VI History of Modern Europe (From 1921-1965 A.D.)**	**CO-1:**.Understand an idea about the rise of nationalism in Europe, consequences and IInd World War.
		CO-2: Understand an idea about the Cold War Europe and its consequences, problems of Third World countries, foundation and role of UNO
		CO-3: Get knowledge of modern world and also acquainted the social-economic & political developments in the other countries.
		CO-4: Understand the economic transition in world during 20 th century.
		CO-5: Understand the important development in the 20 th century.

Course Code	Name of the Course	Course Outcomes- After completing this course Students will be able to
BA1MUS S-1	B. A. Sem. I (1112) Music	**CO-1:** To develop interest in classical music.
		CO-2: Recognize varieties of the particular region film songs.
		CO-3: Acquire knowledge of determining songs based on various ragas.
		CO-4: Application of their knowledge and skill by performing the song.
BA1MUS S-2	B. A. Sem. II (1112) Music	**CO1:** Analyze the musical terms as well as the contribution of musicscholars.
		CO-2: Compare the notation systems and apply while writing notations.
		CO-3: Understand & illustrate about other musical forms.
BA2MUS S-3 & S-4	B. A. Sem. III & IV (1112) Music	**CO-1:** Grow and flourish with the encouragement being given to the performing arts.
		CO-2: Develop mastery in the Indian classical music & decide type of instrumentation for specific needs.
		CO-3: To acquire skills in musical instrumentation.
		CO-4: Develop sense of musical melody along with body, volume, language, expressions, etc.
		CO-5: Implement the values of musical performance technique.
		CO-6: Know the types of Ragas & Talas.
BA3MUS S-5 &S-6	B. A. Sem. V& VI (1112) Music	**CO-1:** Learn about Tal, Notation writing fusion.
		CO-2: Get insight into different khyal and Taal, Tanas.
		CO-3: Learn techniques for improving Aaroh, Avaroh, Swar-vistar & Pakad
		CO-4: Get acquainted with the basic concept in science and Psychology of music.

COURSE OUTCOME
COURSE OUTCOMES OF M. A. PROGRAMMES
[PG Level]

M. A. Marathi

Course Code	Name of the Course	Course Outcomes- After completing this course students will be able to
MA1MARS-1	M. A. Sem. I Marathi	CO-1: Know the form of Literature i.e.[poetry, Folk literature]
		CO-2: Understand concepts of Poetry and Folk literature
		CO-3: To know different literary types and analysis them.
		CO-4: To make students aware of literature which contribute in Indian culture.
		CO-5: To know various stages of development of Marathi Language.
		CO-6: To know the nature and purpose of Language.
MA1MARS-2	M. A. Sem. II Marathi	CO-1: Understand the importance of interrelationship between Society and Literature
		CO-2: Develop ethical thinking.
		CO-3: To criticize the literature
		CO-4: To understand the folk literature.
		CO-5: To know various stages of development of Marathi Language.
MA2EMARS-3	M. A. Sem. III Marathi	CO-1: Know the forms of Literature i.e.[poetry, Folk literature]
		CO-2: Understand concepts of Poetry and Folk literature.
		CO-3: To know different literary types and analysis then.
		CO-4: To make student aware of literature which contribute in Indian culture.
		CO-5: To know various stages of development of Marathi Language.
		CO-6: To know the nature and purpose of Language.
MA2MARS-4	M. A. Sem. IV Marathi	CO-1: To develop commutation skills and motivate them to make career in Marathi.
		CO-2: Know the form of Literature.
		CO-3: Understand concepts of Poetry and Folk literature.
		CO-4: To know different literary types and analysis then.
		CO-5: To make student aware of literature which contribute in Indian culture.
		CO-6: To know various stages of development of Marathi Language.
		CO-7: To know the nature and purpose of Language.

M. A. Economics

Course Code	Name of the Course	Course Outcomes- After completing this course students will be able to
ECO_01_101	M. A. Sem. I Micro Economics I	CO-1: Understand Basic Economic problem, Choice and Scarcity.
		CO-2: Understand Methodology of Economics, Deductive and Inductive methods.
		CO-3: Understand the demand analysis
		CO-4: Understand Consumer Behavior and Elasticity of Demand
		CO-5: Understand the Theory of Production and Costs
		CO-6: Understand the Cost and Revenue
ECO_01_102	M. A. Sem. I Macro Economics I	CO-1: Understand National Income
		CO-2: Understand Theory of Employment and Consumption Function
		CO-3: Understand the Multiplier and Investment Function
		CO-4: Understand Demand for Money
		CO-5: Understand the Supply of Money, RBI Approach to money supply etc.
ECO_01_103	M. A. Sem. I Statistics for Economics-I	CO-1: Understand Scope, Uses and Limitations of Statistics
		CO-2: Understand Types of measures of central Tendency
		CO-3: Understand the Co-efficient of Variation
		CO-4: Understand Correlation and Regression
		CO-5: Understand the CSO, NSSO, Recent Population Census
ECO_01_105	M. A. Sem. I History of Economic Thought	CO-1: be able to understand Pre Adamite Thought-Mercantilism & Physiocracy, Kautulys's Arthshastra and Buddha's Dhamma.
		CO-2: Classical Economic Thought- Adam Smith Recardo, Malthus, J. B. Say, J. S. Mill.
		CO-3: Modern Economic Thought: Pigou Marshall, Keynes, J. A. Schumpeter.
		CO-4: Indian Economists Thought: Dr. Ambedkar M. K. Gandhi, Dadabhi Navroji, Jyotirao Phule, Dr. Panjabrao Deshmukh.
ECO_02_201	M. A. Sem. II Micro Economics- II	CO-1: Understand Price and Output Determination
		CO-2: Understand concepts of monopolistic and imperfect competitions
		CO-3: Understand the demand analysis
		CO-4: Understand Duopoly and Oligopoly
		CO-5: Understand the Theory of Distribution
		CO-6: Understand the Welfare Economics
ECO_02_202	M. A. Sem. II Macro Economics- II	CO-1: Understand Interest Theories
		CO-1: Understand Theories of Inflation
		CO-2: Understand the Inflation of Developing Economies
		CO-3: Understand Post Keynesian Demand for Money
		CO-4: Understand the Trade Cycle and Financial Markets
ECO_02_203	M. A. Sem. II Statistics for	CO-1: Understand Sampling and Estimation
		CO-1: Understand Statistical Inference

	Economics-II	**CO-2:** Understand the Nature and decomposition of a time series
		CO-3: Understand various types of events classical and empirical of probability
		CO-4: Understand the Index Number – Meaning, Characteristics and uses, construction and limitations, Types of Index Numbers
ECO_02_204	**M. A. Sem. II Industrial Economics**	**CO-1:** To create an understanding of the role of industries in economic development.
		CO-2: To know the government's industrial policy since 1948 and from the period of economic reforms.
		CO-3: It is useful to know the impact of new economic policies on the industrial sector of India
		CO-4: It is important to study regional imbalance in industrial development.
		CO-5: Creating knowledge about the trade union movement in India and labor market reforms.
		CO-6: It is important to know the need for foreign capital for industrial development.
ECO_03_301	**M. A. Sem. III Economic Growth, Development andPlanning-I**	**CO-1:** Understand the Meaning, Indicators, Factors & Measurements of Economic Development and Growth
		CO-2: Understand the Social & Institutional Aspect of Development
		CO-3: Understand the Theories of Development
		CO-4: Understand the Development & Growth Model
ECO_03_302	**M. A. Sem. III International Trade & Finance -I**	**CO-1:** Understand the Theories of Trade
		CO-2: Understand the Recent Developments in International Trade Theories
		CO-3: Understand the Terms of Trade and Gains From Trade
		CO-4: Understand the Trade and Growth
		CO-5: Understand the Recent Balance of Payments :
ECO_03_303	**M. A. Sem. III Financial Institutions andMarket**	**CO-1:** Understand the Nature and Role of Financial System
		CO-2: Understand The Control Bank and Monetary Policy
		CO-3: Understand Banking System in India :
		CO-4: Understand the Financial Sector Reforms and Non-Bank Financial Institutions
		CO-5: Understand the National and International Financial Market :
ECO_03_306	**M. A. Sem. III Research Methodology forEconomics**	**CO-1:** Understand the Meaning& Definition of Research, Objectives of Research, Scope, Limitation
		CO-2: Understand Collection of Data and Sampling Techniques
		CO-3: Understand Classification of Data, Meaning and Functions
		CO-4: Understand the Processing and Analysis of Data
		CO-5: Understand the Interpretation of Data and Report Writing
ECO_04_401	**M. A. Sem. IV Economic Growth, Development andPlanning-II**	**CO-1:** Understand the Economic Planning - Concept, Need, Objective
		CO-2: Understand Theories of Development
		CO-3: Understand Spectral Aspects of Development
		CO-4: Understand the Trade and Economic Development
		CO-5: Understand the Policy and Development

ECO_04_402	**M. A. Sem. IV International Trade & Finance**	**CO-1:** understand the India's International Trade Policies
		CO-2: Understand Regional Economic Blocks
		CO-3: Understand WTO and India
		CO-4: Understand the Capital and Trade
		CO-5: Understand the MNCs and Foreign Trade
ECO_04_403	**M. A. Sem. IV Business Cycles**	**CO-1:** Understand the India's International Trade Policies
		CO-2: Understand Nature of Business Cycles
		CO-3: Understand History of Business Cycles, Nature of Business Cycles in 19^{th} & 20^{th} Century
		CO-4: Understand the Marx and Malthus Contribution to Theory of Cyclical Fluctuations
		CO-5: Understand the Various theories of Business Cycles
ECO_04_404	**M. A. Sem. IV Indian Economic Policy**	**CO-1:** Understand Management and Challenges of Balance of Payment
		CO-2: Understand Advantages and Disadvantages of Foreign Capital of India,
		CO-3: Understand Role and Critical Appraisal of MNCS, FERA and FEMA.
		CO-4: Understand GATT and Multilateral Trade Negotiations, WTO.
		CO-5: Understand the Reform in Money Market and Capital Market in India.
		CO-5: Understand the Importance, Objectives and Evaluation of Economic Planning.

Course Code	Name of the Course	Course Outcomes- After completing this course students will be able to
MA1MUS-1 &S-2	M. A. Sem. I& II Music DSC 1 theory	CO-1: Demonstrate ragas of syllabus having Sarang andBhairav Ragang.
		CO-2: Perform Swar Prastars & Khandmeru. Perform according to Voice Culture.
	DSC 2 theory	CO-1: Know about evolution of Music.
		CO-2: Know the origin, evolution and development of Instrument.
	DSC 3 viva	CO-1: To sing Alankars.
		CO-2: To perform Sargamgeet, Lakshangeet and DrutKhyal. To recognizes Taals.
	DSC 4 MAP	CO-1: Perform vilambit and DrutKhayal with Gayaki.
		CO- 2: Sing Natygeet and Gazals.
MA2MUSS-3 & S-4	M. A. Sem. III & IV Mus 3101 -3102 PRA	CO-1: Understand and recite Raga's like Abhogi, Shahana, lalit, etc.
		CO-2: Understand different concepts in natya sangeet, bhavgeet, abhang, etc.
	Mus 3103-3104 PRA	CO-1: Understand basics of Raga's Shree, Miya ki todi, Natbharav, Bhatiyar, etc.
		CO-2: Understand basics of Chatrang, Tarana, Triat, etc.
		CO-3: Understand Taal, Chautal, Dhamar, Dipchandi, etc.
	Mus 3105-3106 PRA	CO-1: Understand and recite Bade & Chote khyal.
		CO-2: Study dedicated efforts of poetess Bahinabai Chudhari.
		CO-3: Understand and realize the basic concepts of Paluskars swar and taal lekhan and their comparison with others.
	Mus 3107-3108 PRA	CO-1: Understand and realize importance of acoustics in music and science behind the same.
		CO-2: Understand basics of bhavas such as avirbhav, tirobhav, gayki and nayki, etc.
		CO-3: Understand basics of haveli sangeet,

FACULTY OF COMMERCE AND MANAGEMENT

COURSE OUTCOMES OF B. COM. PROGRAMMES

[UG Level]

B. COM.

Course Code	Name of the Course	Course Outcomes- After completing this course students will be able to
BC-13	B.Com. Sem. I Principle of Accountancy	CO-1: Student important basic accounting knowledge at applicable to business i.e. meaning of accountancy.
		CO-2: Able to handling account transaction.
		CO-3: Maintaining sub subsidiary books and all types of cash books.
		CO-4: Calculation of depreciation method of assets.
		CO-5: Preparation of all types of final account.
BC-14	B.Com. Sem. I Principle of Business Economics	CO-1: Application of Micro &Macroeconomic Concepts
		CO-2: Application of Utility & Indifference Curve Analysis
		CO-3: Application of Demand Pattern
		CO-4: Application of Supply and Production Pattern
		CO-5: Application of Cost & Revenue Pattern
BC-15	B.Com. Sem. I Principle of Business Management	CO-1: With this course, be able to have clear understanding of managerial functions.
		CO-2: have the knowledge of planning process in the organization.
		CO-3: be able to demonstrate the ability to directing, leadership and communicate effectively.
		CO-4: Students able to analyze isolate issues and formulate best control tools and techniques.
		CO-5: Prepare write up for controlling measures adopted by your principles for administrative examination and student affair.
BC-16	B.Com. Sem. I Computer Fundamental and Operating System-I	CO-1: Get information about evolution and application of computer & its development.
		CO-2: Know about different elements of computer system.
		CO-3: Aware about different types of memory.
		CO-4: Get to know about different input devices and output devices.
		CO-5: Learn to prepare a text document with complete formatting and page setting.
BC-23	B.Com. Sem. II Financial Accounting	CO-1: Rectification of Journal entry.
		CO-2: Student Acquire the Knowledge of nonprofit organization.
		CO-3: Prepare the all types of cooperative society account
		CO-4: Students should be acquired partnership farm accountancy
		CO-5: The bill of exchange contest and unconditional order to pay a create amount on as agree day.

BC-24	**B.Com. Sem. II Business Economics**	**CO-1:** Examine the difference between business and managerial economics.
		CO-2: Application of Discriminative nature of monopolist.
		CO-3: Application of monopolistic competition oligopoly, and prefect competition.
		CO-4: Application of demand and supply pattern of rent and wage.
		CO-5: Application of the theories of interest and profit.
BC-25	**B.Com. Sem. II Principle of Business Organization**	**CO-1:** Familiar with business organization.
		CO-2: Understand the concepts related to Business polices.
		CO-3: Demonstrate the roles, skills and functions of management.
		CO-4: To diagnose and solve organizational problems
		CO-5: Develop optimal managerial decisions.
BC-26	**B.Com. Sem. II Computer Fundamental and Operating System-II**	**CO-1:** system- Get basic introduction of Computer and mobile operating MS
		CO-2: Know concept of windows
		CO-3: Create and delete file in File Explorer.
		CO-4: Know concept of modern communication and network topologies
		CO-5: e-mail Create e- mail account and compose massage.
		CO-6: Create table, utilizing existing Template provided by Microsoft and add customization on Template according to user needs.
		CO-7: Identify steps in the process and completes an activity to create a mail merge.
		CO-8: Develop the skill of power point programs.
		CO-9: Insert various graphical objects on slide.
		CO-10: Add different Transition, Animation, Sound and Timing effect to Slide.
		CO-5: Run a presentation on computer screen
BC-33	**B.Com. Sem. III Company Accounts**	**CO-1:** Able to handling Issue, forfeiture and re issue of shares.
		CO-2: Able to handling Final Accounts of the company.
		CO-3: Learned Profit prior to incorporations of company.
		CO-4: Learned Amalgamation and absorption of company.
		CO-5: Learned Absorption of Company.
BC-34	**B.Com. Sem. III Business Mathematics**	**CO-1:** Integers H.C.F. & L .C.M.
		CO-2: Linear Equation with application.
		CO-3: Able to calculate percentage, discount, commission & brokerage.
		CO-4: Able to calculate average, simple & compound interest.
		CO-5: To find out ratio & proportion.
BC-35	**B.Com. Sem. III Auditing**	**CO-1:** Auditing, Objectives & Advantages, Types of Audit, commencement of business audit.
		CO-2: Internal Check system, Audit programme, Routine checking and Vouching, Verification and Valuation of Assets and liabilities.
		CO-3: Company Auditor, Appointment, Power, duties, Liabilities.
		CO-4: Audit of Divisible Profit, Dividend, Audit Report, Types of Report.
		CO-5: Audit of Banking, Insurance & Educational Institutions.
BC-36	**B.Com. Sem. III**	**CO-1:** Functions and Importance of Money

	Monetary System	**CO-2:** Students learned the monetary system which includes term & value of Money
		CO-3: Learned price fluctuations
		CO-4: Features and Objectives Indian Money Market-Structure and Components
		CO-5: Structure of Capital Market
BC-37	**B.Com. Sem. III Information Technology & Business Data Processing-I**	**CO-1:** Learned the concept of Data and Data Processing and Applications in Business
		CO-2: Learned the concept and Objective of Database, Data warehousing and Data Mining and its Applications.
		CO-3: Learned about Database Management System (DBMS)
		CO-4: have a working knowledge of Spreadsheet Package.
		CO-5: have a working knowledge of basic functions and formulas in Ms-Excel.
BC-43	**B.Com. Sem. IV Corporate Accounting**	**CO-1:** Learned Final Accounts of Banking Company
		CO-2: Learned Final Accounts of fire and accident Insurance Company
		CO-3: Learned Liquidation of Company
		CO-4: Learned Valuation of Goodwill
		CO-5: Learned Valuation of Shares
BC-44	**B.Com. Sem. IV Business Statistics**	**CO1:** Types of data, Collection, Tabulation and presentation of statistical data
		CO-2: Index Numbers and construction of Index Number
		CO-3: Construction of a frequency of distribution, concept of central tendency & their measures, Mean, Median, Mod
		CO-4: Concept of Dispersion and Absolute & Relative measures of dispersion skewness.
		CO-5: Co-efficient of correlation, Pearson's formula, Calculation of Co-efficient of correlation, Probable error
BC-45	**B.Com. Sem. IV IV Income Tax**	**CO-1:** Income from Salary & Income from House property.
		CO-2: Income from other sources, Deductions to be made from Gross Total Income, reading to resident Individual.
		CO-3: Income tax Authorities, Power of Income tax Officer & Commissioner and Assessment procedure.
		CO-4: Return of Income, e-filling procedure.
		CO-5: Filling of From No .16 Form No. 10 E, Tax Planning, Advance tax , PAN, TAN and TDS
BC-46	**B.Com. Sem. IV Indian Financial System**	**CO-1:** Financial System in Indian Economy.
		CO-2: Banking Services in India Concept Importance & of Core Banking.
		CO-3: Role & Importance of Commercial Bank in India
		CO-4: Role of RBI in Indian Economy
		CO-5: Concept of SENSEX & NIFTY
BC-47	**B.Com. Sem. IV Information**	**CO-1:** Understands the Concepts and uses of Information and Information Technology

	Technology & Business Data Processing-II	**CO-2:** Understands the Concepts of Manual V/s Computerized Accounting.
		CO-3: Learned about the Company Information menu and Gateway of Tally menu.
		CO-4: Student will have a working knowledge of Company Creation, Groups Creation, Ledger and Voucher Creations in Tally.
		CO-5: Learned about the Various Accounting Reports Displaying and Various Report Printing in Tally.
BC-53	**B.Com. Sem. V Cost Accounting**	**CO-1:** Difference between Cost Accounting and Financial Accounting.
		CO-2: Material Purchase Procedure; Store Keeping; Stores Record.
		CO-3: Attendance Register (Muster Roll); Token or Disc Method; Time Recording Clocks; Biometric Time Recording Clocks.
		CO-4: Learned Reconciliation of Cost and Financial Accounts.
		CO-5: Problems on Process Costing (Excluding Problems on Abnormal Gain/Loss and Internal Process Profit).
BC-54	**B.Com. Sem. V Business Environment**	**CO-1:** Indian Business Environment
		CO-2: Indian Agricultural Environment
		CO-3: Indian Industrial Environment
		CO-4: Indian Service Environment
		CO-5: India and Foreign Trade Environment
BC-55	**B.Com. Sem. V Business Regulatory Frame work**	**CO-1:** Indian Contract Act and Agreement
		CO-2: Special Contacts, Indemnity & Guarantee, Bailment and Pledge , Agency , Appointment of Agent and Termination of Agency
		CO-3: Sales of Goods Act, 1930 and Consumer Protection Act, 1986
		CO-4: Negotiable Instrument Act, 1981
		CO-5: Goods and Services Tax Act, 2017
BC-56	**B.Com. Sem. V Internet & WWW-I**	**CO-1:** Understand the concept of Network and Types of Network.
		CO-2: Understand the evolution of internet, its applications and its basic services.
		CO-3: have a working knowledge of Electronic Mail and Gmail.
		CO-4: Learned about the concept of WWW and Importance of Website in current era.
		CO-5: designing website and webpage.
BC-57	**B.Com. Sem. V E-Commerce-I**	**CO-1:** learn and evaluated about the various components of E-Commerce.
		CO-2: learn about the current scenario and Government FDI policy about e-commerce in India
		CO-3: learn about the B2C, C2B, C2C Retail e-commerce & Procedure and benefits of E-auction.
		CO-4: learn about the Meaning, Characteristics and e-Marketplace models of B2B E-Commerce.
		CO-5: learn about concept and importance of e-payment and e-banking in current era.
BC-63	**B.Com. Sem. VI Management Accounting**	**CO-1:** Comparison: Between Management Accounting and Financial Accounting, Between Management Accounting and Cost Accounting.
		CO-2: Decision making, Cost-Profit-Volume Relationship, Fixed Cost

		Variation. **CO-3:** Learned Ratio Analysis
		CO-4: Learned budget
		CO-5: Budgetary Control, Objectives of Budgetary Control; Limitations of Budgetary Control.
BC-64	**B.Com. Sem. VI Economics of Development**	**CO-1:** Economic Development V/s Economic Growth
		CO-2: Economic Growth Models
		CO-4: SEZ: A Solution over Unbalanced Growth in India
		CO-5: Development of Capital: Human & Financial
BC-65	**B.Com. Sem. VI COMPANY LAW**	**CO-1:** Types of company and Promoters, Functions of promoter, Duties and liabilities of promoter
		CO-2: Incorporation of company.
		CO-3: Share capital of company.
		CO-4: Securities market.
		CO-5: Company secretary responsibility and company meetings.
BC-66	**B.Com. Sem. VI Internet & WWW-II**	**CO-1:** Understand the Concept and importance of web browser for browsing.
		CO-2: Learned about the meaning, Features and Types of web directory and search engine.
		CO-3: Student will able to understand the meaning and features of Facebook, Instagram, Twitter, and website.
		CO-4: Get working knowledge of Google Drive, Google Forms & Google Classroom.
		CO-5: Learned about the various tools of FrontPage application for designing website in easy way.
BC-67	**B.Com. Sem. VI E-Commerce-II**	**CO-1:** learn about the Internet based E-Commerce Business models.
		CO-2: learn about the Internet Marketing and online marketing strategies.
		CO-3: learn the concept of EDI and JIT.
		CO-4: understood the meaning & objectives of E-governance in G2B, B2G and C2G.
		CO-5: conceptually learned the various e-governance models.

FACULTY OF COMMERCE AND MANAGEMENT

COURSE OUTCOMES OF M. COM. PROGRAMMES

[PG Level]

M. COM.

Course Code	Name of the Course	Course Outcomes- After completing this course students will be able to
MCOM – 11	M.Com. Sem. I Managerial Economics	**CO-1:** Application of concepts of Managerial Economics in the process of business decision making
		CO-2: Application of demand supply concepts towards consumer choices
		CO-3: Compare economies and dis-economies scale of production in real life situation
		CO-4: Assessment of Production process determination in various industries.
		CO-5: Impact of business cycles in Agriculture, Industry, Services and Share Market
		CO-6: Application of pricing practices in various markets and bargaining tendencies thereof
MCOM – 12	M.Com. Sem. I Service Marketing & Customer Relationship Management	**CO-1:** understand seven phases of marketing of service in depth.
		CO-2: Student will understand strategic issues peculiar of service marketing
		CO-3: understand an importance of new and innovative concepts of CRM, especially E-CRM.
		CO-4: demonstrate idea creation and implementation of CRM for different service sector.
MCOM – 13	M.Com. Sem. I Advanced Financial & Cost Accounting	**CO-1:** Investments are assets held by an enterprise for earning income.
		CO-2: Final Accounts gives an idea about the profitability and financial posting of business to its management, owners and other interested parties.
		CO-3: The cost sheet is prepared to ascertain cost of product/job / operation or to give autotimer or to determine tender price for supply of goods or providing service.
		CO-4: Operating result the operating result is the surplus or deficit for the year under the Accounting Standard framework and getting result recognizes all revenues and operating expenditure.
		CO-5: Accounting for construction contracts is the allocator of contract revenue and contract.
MCOM – 14	M.Com. Sem. I Computer	**CO-1:** Application of CIBIL Score in qualifying the proposal of advances
		CO-2: Impact of Monetary Policy on various industries

	Fundamental and Operating System-I	**CO-3:** Impact of PMJJBY & PMSBY
		CO-4: Assessment of Claim Settlement Procedure of Life Insurance.
		CO-5: Assessment of Claim Settlement Procedure of General Insurance
MCOM – 21	**M.Com. Sem. II Accounting for Managerial Decision**	**CO-1:** Ratio analysis compares line item data from a company's financial statements to reveal regarding profitability individually operated ... and solvency.
		CO-2: A cash flow analysis determines a company's working capital the amount of money available to run business operation and complete transaction. That is Calculate as current assets and current liabilities.
		CO-3: The outcome of Anoint in the statistics this ratio shows the difference between the within group variance and which ultimately produces a figure which allows a conclusion that the hypothesis is supported or rejected.
		CO-4: BEP tells you how many units of a product must be sold to cover the fixed and variable cost of production The BEP is considered to measure of the margin of profit.
		CO-5: Budgetary control is the process of preparation of budgets for various activities and company the budget figures for arriving at deviation of any which to be elemental in future. Thus budget is a means and budgetary control is the end result.
MCOM – 22	**M.Com. Sem. II Strategic Management**	**CO-1:** demonstrate decision making ability and dynamism.
		CO-2: understand major theories, background work, concept and research output in the field of strategies management.
		CO-3: demonstrate a proper meaning of the tools and technique used by executives in executing strategies and will appreciate its integrative and interdisciplinary nature.
		CO-4: demonstrate practical situation for diagnosing and solving organizational issues.
		CO-5: relate theories and device application of it.
MCOM – 23	**M.Com. Sem. II Management Concept & Organizational Behavior**	**CO-1:** decision making process both at individual level and in group.
		CO-2: understand Power, Politics, and Accomplishing organizational goals.
		CO-3: demonstrate ability to manage conflicts.
		CO-4: determine Leadership style according to the situation.
MCOM – 24	**M.Com. Sem. II Computer Applications in Business**	**CO-1:** Word processing allows students to interpret and process to understand higher standard of word processing. Students can perform the practical parts and remove mistakes on word documents.
		CO-2: demonstrate and understanding of accounting theory. Apply accounting procedure by using computer accounting software. Perform accounting reports and records.
		CO-3: Enable to gain expert knowledge, principles and procedure of computerize accounting and taxation and Critical thinking and problem

		solving skills in analyzing financial information and taxation.
		CO-4: know basic data types in spreadsheets. Is able to determine database and convert them. Know basic functions to calculate mathematical, statistical and logical operations. Have skills of data visualizing depending on data and task types.
		CO-5: understand how to start MS –Excel and SPSS. Enter basic data into SPSS and carry out statistical analysis that can test hypothesis. Develop various required graphs.
MCOM – 31	**M.Com. Sem. III Research Methodology.**	**CO-1:** Demonstrate the ability to choose methods appropriate to research aims and objectives
		CO-2: Understand the limitations of particular research methods.
		CO-3: Develop skills in qualitative and quantitative data analysis and presentation.
		CO-4: Develop advanced critical thinking skills.
		CO-5: Demonstrate enhanced writing skills.
MCOM – 32	**M.Com. Sem. III Statistical Analysis.**	**CO-1:** become conversant with the corporate assessment.
		CO-2: become conversant with the concepts of corporate tax planning and Indian tax law
		CO-3: perform parametric and non-parametric test and association of attributes.
		CO-4: perform probability theory, probability distribution, statistical decision theory and parabolic curve method.
		CO-5: perform analysis of time series manually.
MCOM – 33	**M.Com. Sem. III Corporate Tax Planning & Management.**	**CO-1:** conversant with the corporate assessment.
		CO-2: become conversant with the tax planning and financial management.
		CO-3: Students are able to become conversant with the tax planning and financial management.
		CO-4: become conversant with special tax provisions relating to free trade zones.
		CO-5: become conversant with tax planning with reference to amalgamation of companies.
MCOM – 34	**M.Com. Sem. III E-Commerce & Legal Security.**	**CO-1:** gain knowledge about e-commerce and its various components with legal security.
		CO-2: explain internet, applications of e-commerce e-mechanism with provisions and penalties of information technology act.
		CO-3: gain knowledge about electronic payments system.
		CO-4: gain knowledge about website designing through HTML and Front page express.
		CO-5: gain knowledge about cyber stacking and security issues in e-commerce.
MCOM – 41	**M.Com. Sem. IV Entrepreneurship and skill development**	**CO-1:** Understand the concepts related to Entrepreneurial Characteristics and skill and demonstrate the Factors affecting Entrepreneurial growth.
		CO-2: Identify Role of NGOs in rural entrepreneurship and problems of women entrepreneurs.

		CO-3: Understand the concepts related to Industrial Development Bank of India(IDBI), Industrial Finance Corporation (IFCI), Industrial Credit and Investment corporation of India (ICICI), Industrial Reconstruction Bank of India (IRBI)
		CO-4: create Inter personal communication and relationship, Leadership Skill, Team Building and Public Speaking.
		CO-5: Understand the concepts related to Skill development of rural industrial sector and small scale industries.
MCOM – 42	**M.Com. Sem. IV Corporate Accounting**	**CO-1:** Demonstrate basic understanding of International Finance v/s Domestic Finance.
		CO-2: Demonstrate basic understanding of Structure of Balance of Payment and Capital Account Convertibility
		CO-3: Demonstrate basic understanding of Gold Standard & Its Suspension-Global Finance.
		CO-4: Demonstrate critical and analytical skills wherein they should be able to make sense out of a mass of information to address relevant issues in global money markets.
		CO-5: Understand the concepts related to Structure & Functions of Asian Development Banks.
MCOM – 43	**M.Com. Sem. IV Sales and Distribution Management**	**CO1-** The student will be able to execute Market Analysis, Marketing strategy and sales planning.
		CO-2: The student will understand the essentials of good salesmanship
		CO-3: The student will be able to create Sales Audit and cost analysis
		CO-4: The student will evaluate and design sustainable sales & distribution strategies
		CO-5: The student will evaluate Marketing strategy of wholesaler.
MCOM – 44	**M.Com. Sem. IV Co-operative Management**	**CO-1:** Students are able to understand the Traditional Management in Co-operation and Need of professional Management.
		CO-2: Students are able to understand the Role of Members, Board of Directors, Executives and Employees in Human Resources Management.
		CO-3: Students are able to understand the three tire credit system in Co-operation funding agencies like NABARD, RBI, SBI, NCDC and GOVT.
		CO-4: Students are able to understand the RBI Regulations on Co-operative Credit and Co-operative Banks.
		CO-5: The student will be able to execute Audit memo and its rectification.

FACULTY OF SCIENCE AND TECHNOLOGY
COURSE OUTCOMES OF B. SC. PROGRAMMES
[UG LEVEL]

Physics Department

Course Code	Name of the Course	Course Outcomes- After completing this course students will be able to
BS1PHYS-1	B. Sc. Sem. I Physics	**CO-1:** Explain the basics of Kepler's laws, Newton's law, Gauss theorem and its application.
		CO-2: Explain linear momentum, angular momentum and moment of inertia (MI) of the bodies and determination of MI with the help of principal of perpendicular and parallel axis.
		CO-3: Explain fundamentals of harmonic oscillator model, including damped and forced oscillators and grasp the significance of terms like quality factor and damping coefficient.
		CO-4: Understand the principal of superposition of SHM, determination of velocity of wave using Kund's tube.
		CO-5: Understand elastic properties of materials, concept of bending behavior of beam and determination of elastic modules of given structure.
		CO-6: Understand viscous properties of fluids and applications of the Bernoulli's theorem
		CO-7: Understand the concept of surface tension and to determine of surface tension by experimental methods
BS1PHYS-2	B. Sc. Sem. II Physics	**CO-1:** Explain kinetic theory of gases and its implications familiarized with the thermodynamic parameters.
		CO-2: Understand the various thermodynamic process and work done in each of these processes.
		CO-3: Understanding about reversible and irreversible processes and also working of a Carnot's engine, and knowledge of calculating change in entropy for various processes.
		CO-4: Understand the importance of Thermo dynamical functions and applications of Maxwell's relations.
		CO-5: Understand the basic concept of motion of charge particle under electric and magnetic fields.
		CO-6: Apply the knowledge of basic circuital law and simplify the network using reduction techniques.
		CO-7: Analyze the circuit using Kirchhoff's law and Network simplification theorems like Thevenin's theorem, Norton's theorem, Superposition theorem, Milliman's theorem, etc.
		CO-8: Obtain the maximum power transfer to the load.

BS2PHYS-3	**B. Sc. Sem. III Physics**	**CO-1:** Familiarized with gradient, divergence and curl of scalar and vector fields and their physical significances, evaluate the electrostatic fields and potential in free space.
		CO-2: Understand the production of magnetic field due to steady current and calculate magnetic fields using Boit-Savart and Ampere's law.
		CO-3: Understand the Maxwell's equation of electrodynamics, its applications to propagation of electromagnetic waves and significance of Poynting theorem (vector).
		CO-4: Formulate and solve the basic science problems on electromagnetism.
		CO-5: Explain the physical principles and applications of Electronics..
		CO-6: Understand the nature of semiconducting materials and the physicsthat influences the presence of charge carriers in a semiconductor.
		CO-7: Describe the factors that influence the flow of charge insemiconductors and the operation of semiconductor devices.
		CO-8: Familiarized with the operation of circuits based on diodes, bipolar transistors and field effect transistors.
		CO-9: Using the test equipments such as a Function Generator, an Oscilloscope, a digital multimeter, and variable Power Supplies.
		CO-10: Understand the thermodynamic principles of atmospheric processes, physical processes and physical properties of the Earth and its surrounding space environment.
BS2PHYS-4	**B. Sc. Sem. IV Physics**	**CO-1:** Generate the ability to predict behavior of optical instruments using geometric and wave approaches.
		CO-2: Formulate their understanding of fundamental optics to articulate the concepts and operating principles of super-resolution optical microscopes.
		CO-3: Understand the phenomenon of Interference, diffraction and polarization and to analyze the intensity variation of light due to this effect.
		CO-4: Understanding of optics and quantum mechanics to articulate the operational principles of lasers and the unique properties of laser light.
		CO-5: Explain working principle of lasers and its applications.
		CO-6: Explain working principles of optical fiber and its use in Communication.
		CO-7: Explain solar energy radiation, solar collectors, energy conversion systems and also power generation using geothermal and wind energy
BS3PHYS-5	**B. Sc. Sem. V Physics**	**CO-1:** Familiar with the main aspects of the historical development of quantum mechanics and be able to discuss and interpret experiments that reveal the wave properties of matter, as well as how this motivates replacing classical mechanics with a wave equation.
		CO-2: Understand the central concepts and principles in quantum mechanics, such as the Schrödinger equation, the wave function and its statistical

		interpretation, the uncertainty principle, stationary and non-stationary states.
		CO-3: Solve the Schrödinger equation on their own for simple systems in one to three dimensions.
		CO-4: Understand the vector atom model and apply its principles to the study of atoms and its behavior, origin of X- ray spectra and its characteristics.
		CO-5: Explain Raman effect and its importance as spectroscopic technique.
		CO-6: Understand the structure of atomic nuclei basic properties of a nucleus such as binding energy and nuclear forces.
		CO-7: Understand the basic properties of a nucleus such as bindingenergy and nuclear forces.
		CO-8: Understand mechanism of decay process of alpha beta and gamma particles.
		CO-9: Familiar the process of nuclear fission and fusion and concept of particle detector and accelerators.
		CO-10: Explain the concept of feedback in amplifiers. Design and analysis of amplifier and oscillator using BJT.
BS3PHYS-6	**B. Sc. Sem. VI Physics**	**CO-1:** Understand the concept of microscopic and macroscopic states and relationship between thermodynamics and statistics.
		CO-2: Familiar with classical (Maxwell-Boltzmann) statistics and quantum statistics (Bose and Fermi Dirac) statistics and able to apply for different systems of particles.
		CO-3: Distinguish amorphous and crystalline solids.
		CO-4: Knowledge of crystal systems and spatial symmetries and how crystalline materials are studied using diffraction. Calculate thermal and electrical properties in the free-electron model.
		CO-5: Explain the concept of energy bands and effect of the same on electrical properties, various types of magnetic phenomenon, physics behind them and their properties.
		CO-6: Superconductivity, its properties, important parameters related to possible applications.
		CO-7: Understand the concept of nano-materials and the effect of increasein S/V ratio on the properties of materials.
		CO-8: Understand the concept of quantum confinement and its consequences.

Botany Department

Course Code	Name of the Course	Course Outcomes- After completing this course students will be able to
BS1BOTS-1	B. Sc. Sem. I Botany	**CO-1:** Know Introduction of Cryptogams and general account of viruses.
		CO-2: To know Classification and general characters of algae.
		CO-3: Explain the Classification and general characters of Fungi.
		CO-4: Classify and know general characters of Bryophytes.
		CO-5: Classify and know general characters of Pteridophytes.
		CO-6: Understand economic importance of microbes and cryptogams.
		CO-7: Know the systematic, morphology and structure of algae, fungi, bryophytes, and Pteridophytes.
		CO-8: Know life cycle pattern of cryptogams.
BS1BOTS-2	B. Sc. Sem. II Botany	**CO-1:** Explain Geological time scale and fossil gymnosperms.
		CO-2: Understand Brief Classification and general accounts of Gymnosperms.
		CO-3: Understand Morphology of food, oil, fiber crop plants. Uses of plants Parts.
		CO-4: Focus on deep study of Pharmacognosy and photo chemistry of medicinal plants.
		CO-5: Know, scope and application of Palaeobotany.
		CO-6: To understand role of living and fossil plants in our life. CO7 Systematic study of gymnosperms
BS2BOTS-3	B. Sc. Sem. III Botany	**CO-1:** Explain Origin and evolution of angiosperms.
		CO-2: Know deep study on Systematic of Classification of Angiosperms.
		CO-3: An account on Systematic study of Dicotyledons and monocotyledons (Families).
		CO-4: Brief about general characteristics and anatomy of root and stem.
		CO-5: Know about Embryology
		CO-6: Make herbarium and identify the plants.
		CO-7: Section cutting, make Permanent slides and differentiate tissues .
BS2BOTS-4	B. Sc. Sem. IV Botany	**CO-1:** Understand the basic concepts of Cell biology, Genetics and biochemistry.
		CO-2: Explain Structure and function of cell organelles.
		CO-3: Understand Mendel's Law and solve Problem of genetics.
		CO-4: Explain Enzymes their activities and Understand Carbohydrates
		CO-5: Analyze various biochemical tests like protein, lipid, oil, starch and cellulose.
		CO-6: Understand the Significance of mitosis and meiosis
BS3BOTS-5	B. Sc. Sem. V Botany	**CO-1:** Brief about the Mechanism of Water translocation in plants.
		CO-2: Have ideas of Metabolic activities - photosynthesis and respiration.
		CO-3: Have deep knowledge of Nitrogen metabolism and growth hormones.

		CO-4: Explain Concept of Photoperiodic and plant movements.
		CO-5: Structure and function of ecosystem.
		CO-6: Know scope, importance of plant physiology and Understand plant & water relation.
		CO-7: Observe amazing things regarding photosynthesis and respiration.
		CO-8: Study of morphology and anatomy in hydrophytes and xerophytes plants**.**
BS3BOTS-6	**B. Sc. Sem. VI Botany**	**CO-1:** Explain Structure and function of DNA.
		CO-2: Understand Transcription and Translation in Eukaryotes.
		CO-3: Gene regulation in Prokaryotes.
		CO-4: Do Techniques of gene transfer.
		CO-5: Clear ideas of Plant tissue culture and understand Role of Biotechnology in Agriculture, Industry and Health care
		CO-6: Have experiential learning in advanced subjects of Molecular Biology and Plant Biotechnology
		CO-7: Joyful experience of observing most precious bimolecular like DNA, RNA and proteins and their Qualitative and Quantitative estimations
		CO-8: Demonstrate of advanced tools like electrophoresis

Zoology Department

Course Code	Name of the Course	Course Outcomes- After completing this course students will be able to
BS1ZOO S-1	B. Sc. Sem. I Zoology	**CO-1:** Develop a deeper sense with respect to phylum Protozoa to Echinodermata in relation to taxonomy, classification, body organization and general the strengthens students' capability in basic zoology.
		CO-2: Grasp various the systematic positions from Protozoa to Echinodermata their pathogen city and its epidemiology.
		CO-3: Describe unique characters and recognize life functions of Protozoa, Porifera, Coelenterate, Helminthes, Arthropoda, Annelid, Mollusca and Echinodermata.
		CO-4: Improve ability and apply knowledge of Non-chordates for its execution in Agriculture especially with the phylum Arthropod.
		CO-5: Implement an extensive idea about economic and ecological significance of various non-chordates phylum's in human life.
BS1ZOOS-2	B. Sc. Sem. II Zoology	**CO-1:** Know what the chordates are.
		CO-2: Learn about the different phylum of chordates.
		CO3: Confidently explain the general characters and classification of Protochordates upto class Mammalia.
		CO-4: Understand the level of organization in chordate.
		CO-5: Explain the origin and evolutionary relationship in different subphylum of chordates.
		CO-6: Describe specific features of Protochordates upto class Mammalia.
		CO-7: Recognize and differentiate life functions of Protochordates up to class Mammalia.
		CO-8: Understand Migration in fishes and birds, parental care in Amphibians and Poisonous and non-poisonous snakes.
		CO-9: Explain the adaptations in Birds and Mammals.
BS2ZOOS-3	B. Sc. Sem. III Zoology	**CO-1:** Knowledge regarding the basic anatomical concepts of Primary Structure of body of higher animals.
		CO-2: Knowledge regarding evolutionary evidences –direct and indirect.
		CO-3: Animal adaptation-terrestrial, aquatic and desert.
BS2ZOOS-4	B. Sc. Sem. IV Zoology	**CO-1:** Knowledge of various factors of environment and their impact on growth and development of animals.
		CO-2: Understanding the structure and function of ecosystem..
		CO-3: Understanding the structure, types and aberration of chromosome.
		CO-4: Understanding gene interaction and develop skill to solve genetically problem
		CO-5: Knowledge about gene mutation, linkage and crossing over etc.

		CO-6: Understand the Significance of mitosis and meiosis
BS3ZOOS-5	**B. Sc. Sem. V Zoology**	**CO-1:** Advance knowledge about animal physiology, metabolism and ecology.
		CO-2: Understanding animal's growth mechanism, role of growth hormones in animal's development.
		CO-3: Knowledge of various factors of environment and their impact on animal's growth and development.
		CO-4: Understanding the structure and function of ecosystem.
BS3ZOOS-6	**B. Sc. Sem. VI Zoology**	**CO-1:** Knowledge about genetic material i.e. DNA, RNA etc.
		CO-2: understanding about the recombinant DNA technology, protein synthesis, protein sorting, cloning techniques to construct genomic libraries and abroad view about cloning vector types and strategies.
		CO-3: have knowledge about parameters involved in gene transfer techniques.
		CO-4: understand the different techniques used in Animal Tissue Culture and their Applications.
		CO-5: understand the functioning of various equipment's used in Tissue Culture Work.
		CO-6: understanding gene interaction and develop skill to solve genetically problem
		CO-7: Acquire knowledge about gene mutation, linkage and crossing over etc.

Course Code	Name of the Course	Course Outcomes- After completing this course students will be able to
BS1CHES-1	B. Sc. Sem. I Chemistry	CO-1: Develop a deeper sense with respect to phylum Protozoa to Echinodermata in relation to taxonomy, classification, body organization and strengthens students' capability in basic zoology.
		CO-2: Grasp various the systematic positions from Protozoa to Echinodermata their pathogen city and its epidemiology.
		CO-3: Describe unique characters and recognize life functions of Protozoa, Porifera, Coelenterate, Helminthes, Arthropoda, Annelid, Mollusca and Echinodermata.
		CO-4: Improve ability and apply knowledge of Non-chordates for its execution in Agriculture especially with the phylum Arthropod.
		CO-5: Implement an extensive idea about economic and ecological significance of various non-chordates phylum's in human life.
BS1ZOOS2	B. Sc. Sem. II Zoology	CO-1: Know what the chordates are.
		CO-2: Learn about the different phylum of chordates.
		CO3: Confidently explain the general characters and classification of Protochordates upto class Mammalia.
		CO-4: Understand the level of organization in chordate.
		CO-5: Explain the origin and evolutionary relationship in different subphylum of chordates.
		CO-6: Describe specific features of Protochordates upto class Mammalia.
		CO-7: Recognize and differentiate life functions of Protochordates upto class Mammalia.
		CO-8: Understand Migration in fishes and birds, parental care in Amphibians and Poisonous and non-poisonous snakes.
		CO-9: Explain the adaptations in Birds and Mammals.
BS2ZOOS-3	B. Sc. Sem. III Zoology	CO-1: Knowledge regarding the basic anatomical concepts of Primary Structure of body of higher animals.
		CO-2: Knowledge regarding evolutionary evidences –direct and indirect.
		CO-3: Animal adaptation-terrestrial, aquatic and desert.
BS2ZOOS-4	B. Sc. Sem. IV Zoology	CO-1: Knowledge of various factors of environment and their impact on growth and development of animals.
		CO-2: Understanding the structure and function of ecosystem..
		CO-3: Understanding the structure, types and aberration of chromosome.
		CO-4: Understanding gene interaction and develop skill to solve genetically problem
		CO-5: Knowledge about gene mutation, linkage and crossing over etc.
		CO-6: Understand the Significance of mitosis and meiosis
BS3ZOOS-	B. Sc. Sem. V	CO-1: Advance knowledge about animal physiology, metabolism and ecology.

5	**Zoology**	**CO-2:** Understanding animal's growth mechanism, role of growth hormones in animal's development.
		CO-3: Knowledge of various factors of environment and their impact on animal's growth and development.
		CO-4: Understanding the structure and function of ecosystem.
BS3ZOOS-6	**B. Sc. Sem. VI Zoology**	**CO-1:** Knowledge about genetic material i.e. DNA, RNA etc.
		CO-2: To have an understanding about the recombinant DNA technology, protein synthesis, protein sorting, cloning techniques to construct genomic libraries and abroad view about cloning vector types and strategies.
		CO-3: To have knowledge about parameters involved in gene transfer techniques.
		CO-4: To understand the different techniques used in Animal Tissue Culture and their Applications.
		CO-5: To understand the functioning of various equipment's used in Tissue Culture Work.
		CO-6: For understanding gene interaction and develop skill to solve genetically problem
		CO-7: To acquire knowledge about gene mutation, linkage and crossing over etc.

Course Code	Name of the Course	Course Outcomes- After completing this course students will be able to
BS1MTHS-1	B. Sc. Sem. I Mathematics (Algebra and Trigonometry)	CO-1: Apply De Moivre's theorem to solve problems on roots.
		CO-2: Have full knowledge of Trigonometric series, Gregory series, Euler's series, Machin's series, and Rutherford series.
		CO-3: Find the characteristic equation, Eigen values and corresponding Eigen vectors of a given matrix.
		CO-4: Find the coefficients of quadratic equations by using relation between roots and coefficients of equations.
		CO-5: Find the inverse of square matrix.
	B. Sc. Sem. I Mathematics (Differential and integral Calculus)	CO-1: Have full knowledge of limit and continuity for study the functions.
		CO-2: Study differentiability to apply it for day to day problems.
		CO-3: Know the geometrical applications of mean value theorems.
		CO-4: study the difference between ordinary and partial differentiation.
		CO-5: Find nth derivative of product of two functions using Leibnitz's theorem and study integration for finding values of product of functions.
BS1MTHS-2	B. Sc. Sem. II Mathematics (Differential equation Ordinary and Partial)	CO-1: Solve first order differential equation using different techniques
		CO-2: How to find the solution of linear and differential equations of second order with constant coefficients.
		CO-3: be introduced to the complete solution of non-linear differential equations by using different method.
		CO-4: Students willknow the methods of solving partial differential equations for more than one variable.
		CO-5: study applications of differential equations.
	B. Sc. Sem. II Mathematics (Vector Analysis and Solid analytic Geometry)	CO-1: Students have knowledge about the vectors, their products, Differentiation and integration.
		CO-2: They study divergence, curls directional derivative which are useful in physics.
		CO-3: Students have knowledge about integration which will be used to calculate the area under the curve.
		CO-4: Students studied the concepts of Geometry.
		CO-5: They study sphere, cone and Cylinder.
BS2MTHS-3	B. Sc. Sem. III Mathematics (Advance Calculus)	CO-1: Students learn about sequence and their convergence using different test.
		CO-2: They have the knowledge of calculating the sum of infinite number of terms.
		CO-3: Students know that how to work on functions of two or more variables.
		CO-4: Students aware about the application of extremum value problem to solve industrial, society problems.
		CO-5: To solve the double and triple integrations.
	B. Sc. Sem. III Mathematics	CO-1: Students learn about divisibility, prime numbers, congruence, quadratic reciprocity, Diophantine.

	(Elementary Number Theory)	**CO-2:** Learn methods and techniques used in number theory.
		CO-3: Write programs/functions to compute number theoretic functions.
		CO-4: Use mathematical induction and other types of proof writing techniques.
		CO-5: Students are able to effectively communicate mathematics.
BS2MTHS-4	**B. Sc. Sem. III Mathematics (Advance Calculus)**	**CO-1:** Have knowledge of algebraic structures groups, rings.
		CO-2: Know definition of homomorphism, isomorphism, and natural homomorphism.
		CO-3: Algebra of ideals, prime ideal, principal ideal, and quotient rings.
		CO-4: Knowledge of ring, integral domain, field.
		CO-5: Extend group structure to finite permutation group.
	B. Sc. Sem. III Mathematics (Classical Mechanics)	**CO-1:** Knowledge of degree of freedom generalized coordinates and constraints.
		CO-2: Knowledge of solving the problems of motion of a system of particles.
		CO-3: Kepler's problem to know the universe.
		CO-4: Variation techniques for extremum.
		CO-5: Different principles to study motion of particles and study the motion of a rigid body.
BS3MTHS-5	**B. Sc. Sem. V Mathematics (Mathematical Analysis)**	**CO-1:** To solve examples of improper integral.
		CO-2: be introduced to the concept of continuity of complex functions.
		CO-3: have a working knowledge of differentiability for complex functions and be familiar with the Cauchy - Riemann equations.
		CO-4: be introduced to metric spaces, Cauchy sequences.
		CO-5: Understand purpose and functions of the gamma and beta functions.
	B. Sc. Sem. V Mathematics (Mathematical Methods)	**CO-1:** have full knowledge of Legendre's equation.
		CO-2: The students are expected to learn Bessel's equation, generating function for Jn (x), Sturm Lowville boundary value problem.
		CO-3: Understand Fourier series.
		CO-4: Apply Laplace transform to solve ordinary and partial differential equation.
		CO-5: To understand Fourier transforms.
BS3MTHS-6	**B. Sc. Sem. VI Mathematics (Linear Algebra)**	**CO-1:** Analyze finite and infinite dimensional vector spaces and subspaces over a field and their properties, including the basis structure of vector spaces.
		CO-2: be introduced to Recognize the concepts of the terms span, L.I, basis, and dimension, and apply these concepts to various vector spaces and subspaces.
		CO-3: Use the definition and properties of linear transformations and matrices of linear transformations and change of basis, including kernel, range and isomorphism.
		CO-4: Compute inner products and determine orthogonality on vector spaces, including Gram Schmidt orthogonalization process.
		CO-5: Understand Modules and Sub Modules
	B. Sc. Sem. VI Mathematics	**CO-1:** Use tensor notation in relativity theory.
		CO-2: Apply the concept of length contraction and time dilation as well as use

	(Special Theory of Relativity)	Lorentz transformation.
		CO-3: Solve simple kinematical problems.
		CO-4: Analyze Maxwell's equations and use their relativistic invariance.
		CO-5: Compute basic quantities in differential geometry. CO6 Analyze Einstein's Field equations.

Course Code	Name of the Course	Course Outcomes- After completing this course students will be able to
BS1CPSS-1	B. Sc. Sem. I Fundamentals of Information Technology and 'C' Programming	CO-1: Understand the basic concept of Computer Architecture, Memory, Input Output Devices, and Peripheral devices.
		CO-2: Understanding the concept of Operating System, Need and Types of Operating system and File Handling
		CO-3: Understanding Networking concepts and Introduction to Internet
		CO-4: Understand the concept of Constants and Variables and Data types.
		CO-5: Learn the concept of Control statements in C Language.
		CO-6: Able to define data types and use them in simple data processing applications.
BS1CPSS-2	B. Sc. Sem. II Web Technology and Advanced programming in C	CO-1: Understanding the concept of Markup Languages including HTML, XML and Style Sheet.
		CO-2: Understand best technologies for solving web client/server problems
		CO3: Choose, understand, and analyze any suitable real time web application.
		CO-4: Integrate java side scripting languages to develop web applications.
		CO-5: Recognize the basic terminology in Advance C programming through Array, Pointer, String, Function, Structure Union and File handling concept.
		CO-6: Extend this knowledge to .Net platforms.
		CO-7: Extend the knowledge of problem solving in advance programming.
BS2CPSS-3	B. Sc. Sem. III Data Structure aml C-4- I	CO-1: I understand the concept or Dynamic memory management, data types, and algorithms.
		CO-2: Understand basic data structures such as arrays, linked lists, stacks and queues.
		CO-3: Describe common applications Ibr arrays, records, linked structures, stacks, queues, trees, and graphs.
		CO-4: Apply Algorithm for solving problems like sorting, searching, insertion and deletion of data.
		CO-5: Implement data structure algorithms using C-H-.
		CO-6: Describe the procedural and object oriented concepts with streams, classes, functions, data and objects.
		CO-7: Built ability to implement stack, queue and linked list operation through Programming.
BS2CPSS-4	B. Sc. Sem. IV	CO-1: Explain the basic concepts of Databases Management System and Data

	RDBMS and PL/SQL	Models.
		CO-2: Explain Relational Model, Relational Algebra and Relational Calculus.
		CO-3: Understand the E R model and relational model
		CO-4: Understand Functional Dependency and apply various normalization techniques.
		CO-5: Understanding the concept of DDL and DML and Clauses.
		CO-6: Design a relational database system (Oracle, My SQL) by writing SQL using the system.
BS3CPSS-5	**B. Sc. Sem. V Net Technology and Java Programming**	**CO-1:** Design and develop professional console and window based .NET application.
		CO-2: Construct classes, methods, and assessors, and instantiate objects.
		CO-3: Design and Implement Windows Applications using Windows Forms.
		CO-4: Create a program to connect with database and manipulate the records in the database using ADO .NET
		CO-5: Apply object oriented programming features and concepts for solving given problem.
		CO-6: Use java standard API library to write complex programs
		CO-7: Implement object oriented programming concepts using java
BS3CPSS-6	**B. Sc. Sem. VI Advanced Java and VB.net**	**CO-1:** Understand the basic structure of VB.Net and features of IDE
		CO-2: Develop programs using primitives and constructs in VB .NET
		CO-3: Handle controls in Forms (message Box, Input Box),Windows MDI forms and Controls (Textbox, Creating Multiline, Word Wrap textboxes)
		CO-4: Understand various controls in VB.NET and able to develop programs using controls
		CO-5: Connect database by using ADO.NET and manipulate the database
		CO-6: Identify Java code utilities in applets, Java packages, and classes.
		CO-7: Write Java code using advanced Java features.

COURSE OUTCOMES OF M. Sc. PROGRAMMES [PG Level]:

M. Sc. Chemistry

Course Code	Name of the Course	Course Outcomes- After completing this course students will be able to
CY101	M.Sc. Sem. I Chemistry Paper I	**CO-1:** Learn stereochemistry of and bonding in main group elements like PCl5 and molecular orbital representation of some polyatomic molecules with special reference to CH4
		CO-2: Tounder stand metal ligand bonding with their copulation of CFT and from the next part they have learned about molecular orbital representation of some co-ordination compounds.
		CO-3: Study the classification, nomenclature, structure and bonding in boranes and the topology of boranes and again learned about the formation of metal clusters and the formation of macro cyclic complexes.
		CO-4: Know about what non-aqueous solvent is and how to use inorganic solutes in organic solvents with solvent system concept. From the next part they have understood the concept of metal-ligand equilibria in solution.
		CO-5: Understand Concept like symmetry of elements, determination of point group and to draw group multiplication tables of various compounds, Milliken symbolism of irreducible representation etc.
CY102	M.Sc. Sem. I Chemistry Paper II	**CO-1:** Think about nature and bonding in organic compounds, delocalization of bonds and conjugation in it. They are also able to learn about aromaticity in benzenoid and non-benzenoid compounds, satiric effect etc.
		CO-2: Handle the molecule in 3D space for understanding stereochemistry of molecules, interconversion of configuration and dealing with reaction with respect to stereochemistry.
		CO3: Reaction mechanism, thermodynamic and kinetic aspects and different conditions required for completion of reaction and equation like Hammet equation and Taft equation have been able to tally.
		CO-4: To work with some Aliphatic Nucleophilic substitution, nucleophile, selectivity and the examples related with it. Understand about elimination reactions and the conversation from one group to another.
		CO-5: What are Aromatic electrophonic substitution and formation of electrophones, attack on aromatic ring and delocalization, stability. On the other hand also able to work on aromatic nucleophilic substitution and the difference between them.
		CO-6: Handle laboratory equipment, chemicals and using different practical apparatus. To do practically some reactions like Aldol condensation,

		Diel's-Alder reaction etc. Instruments can handle with precautions.
CY103	**M.Sc. Sem. I Chemistry Paper III**	**CO-1:** Understand Schrodinger equation in one and three dimensional box, perturbation theory, rigid rotor, and the application in Quantum Chemistry. Think about ordinary and generalized angular momentum, eigen concept and can solve numerical based on that concept.
		CO-2: Deal with thermodynamics containing classical and non-classical thermodynamics, phenomenological equations and the numerical based on this concept.
		CO-3: Learn about Chemical dynamics which contains collision and transition state theory, application of TST to reaction between atoms and molecules. Know about unimolecular reaction and reactions in solvent.
CY104	**M.Sc. Sem. I Chemistry Paper IV**	**CO-1:** Study the Basic concepts of Analytical Chemistry, Role of Analytical Chemistry, The nature of analytical chemistry, the role of analytical chemistry, qualitative and quantitative analytical methods, Classification of analytical methods-classical & instrumental. Types of instrumental analysis. Selecting an analytical method.
		CO-2: Study of Advanced level treatment of solvent Extraction: Introduction, Liquid-liquid extraction continuous and counter current extractions, synergic extraction, ion-pair or ion association extraction, Extraction by equilibrium shifts. Also know about ion exchange separation and its application in analytical Chemistry.
		CO-3: Safe storage and disposal of waste chemicals, recovery, recycling and reuse of laboratory chemicals, disposal of chemicals in the sanitary sewer system, incineration and transportation of hazardous chemicals. Explosives &Chemical weapons, Chemical explosives: Origin of explosive properties in organic compounds, classification of that is understandable to students.
CY201	**M.Sc. Sem. II Chemistry Paper V**	**CO-1:**Introduction of electronic spectra of transition metal complexes. Derivation of term symbols for ground and excited states of dn configurations, (L-S coupling and j-j coupling), microstates, Types of experimental recording of the spectra, Selection rules and the concept of magnetochemistry is understandable
		CO-2: Reaction Mechanism of Transition Metal complexes-II, Substitution reaction in square planer complexes, the trans effect, trans-directing series, cis effect, steric effect, solvent effect, effect of leaving group, effect of charge, effect of nucleophile, effect of temperature. Trans effect theories, uses of trans-effect, mechanism of substitution reactions in Pt(II) complexes. Electron transfer reactions.
		CO-3: Concept of Overview of Bioinorganic chemistry, biological role of alkali metal ions, ligands, ion transport across the membrane, Classification as enzymatic and non-enzymatic metals. Bioinorganic chemistry of Fe: Hemoglobin and myoglobin, their structures and

		functions, Bioinorganic chemistry of Co-Vitamin-B12, its structure and biochemical function and mechanisms of action.
CY202	**M.Sc. Sem. II Chemistry Paper VI**	**CO-1:** Addition to C-C & C-X multiple bond, Mechanistic and stereo chemical aspects of addition reaction involving electrophiles, nucleophiles and free radicals, Orientation and stereochemistry. Classification and General mechanistic treatment of electrophilic, nucleophilic and free radical molecule rearrangement.
		CO-2: From Photochemistry- Interaction of radiation with matter, types of excitation, quenching, Quantum efficiency, quantum yield, transfer of excitation energy, actinometry, Photoinduced energy transfer, FRET, singlet and triplet states, experimental methods in photochemistry of carbonyl compounds, and transition, Norrish type I and Norrish type II reactions Paterno –Buchi reaction, Photoreduction, Photochemistry of enones can study easily.
		CO-3: Design a green synthesis: Choice of starting material, choice of solvents. Basic principle of green chemistry: Prevention of waste by products, Maximum incorporation of the reactants (starting material and reagents) into the final products. Rearrangements reaction, Addition reaction, substitution, elimination reaction, Prevention or minimization of hazardous products. Designing of safer chemical.
CY203	**M.Sc. Sem. II Chemistry Paper VII**	**CO-1:** Catch about A) Kinetics of Complex reactions: Chain reaction (H2+Br, ® 2 HBr thermal and photo chemical reaction), Homogeneous catalysis (acid-base and enzymes), oscillating reactions. B) Fast reactions: General features of fast reactions, Stopped flow method, relaxation method, Nuclear magnetic resonance method, Flash Photolysis, Numerical.
		CO-2: Tell about Macromolecules, types of polymers, Random coils, configuration and conformation of macromolecules, electrically conducting molecular wires, fire resistant, liquid crystal polymers, kinetics of polymerization, and mechanism of polymerization. stability of biological polymers, Application of polymers.
		CO-3: Deal with Statistical Thermodynamics, Thermodynamic probability, most probable distribution. Maxwell-Boltzmann distribution law Fermi-Dirac statistics, distribution law and applications to metals. Bose-Einstein statistics - distribution law and application to helium. Partition function, calculations of thermodynamic properties in terms of partition functions. Applications and Numerical
		CO-4: Do practical's from physical chemistry by handling viscometer, to determine solubility and in part B they can handle pH meter, refrectometer, polarimeter for different instrumental practical.
CY204	**M.Sc. Sem. II Chemistry Paper VIII**	**CO-1:** Understand about Optical Methods containing spectrophotometry and colometry and application of quantitative and qualitative analysis and problems based on it. Theory, instrumentation and applications of

		fluorimetry, Nephelometry, turbidimetry, Polarimetry & Refractometry.
		CO-2: Know about what is Flame Emission and atomic spectrometry, Elementary theory of flame photometry. Instrumentation and experimental techniques. Interferences, analytical techniques and applications. Introduction, principles of AAS.
		CO-3: Learn what are sources and sinks of gases pollutants, classification of air pollutants, and effect of air pollutants on living and non-living things. Sources of air pollution, air quality standards and sampling. Analysis of air pollutants, Green house effect, acid rain, ozone depletion and their consequences on environment. Effects of air pollution, photochemical smog and monitoring of air pollution.
		CO-4: Tally the Chemistry of soil, soil irrigation by effluents. Agricultural pollution, role of micronutrients in soil, trace element analysis in soil Pesticides and pollution. Also able to study the effect of radiation on soil.