KLE Society's
S. NIJALINGAPPA COLLEGE
II-Block, Rajajinagar, Bengaluru-10
Re-accredited by NAAC at A+ grade with 3.53 CGPA
College with UGC-STRIDE Component – I
Phone: 080-23526055, 080-23325020, Fax 080-23320902
Website: www.klesnc.org E-mail: info@klesnc.org kleaccts@yahoo.com

PROGRAMME OUTCOMES

Dissemination of POs & COs:

- Attributes of graduates are derived from Vision, Mission & Goals of the institution.
- The policy provides the guidelines for designing, mapping and attainment of outcomes
- The POs and COs are integrals for holistic development are displayed on college website and communicated to faculty and students through curriculum manual, FDP, SDP and orientation/ induction programmes

POs

- On successful completion graduates and post graduates learn fundamental and relevant domain specific knowledge
- The acquired skills are used to solve complex problems
- Contribute their learning outcome for the betterment of socio-economic and environment
- Demonstrate congenial interpersonal communication skills, strong personal & professional ethics and social integration in their career

KLE Society's
S. NIJALINGAPPA COLLEGE
II-Block, Rajajinagar, Bengaluru-10
Re-accredited by NAAC at A+ grade with 3.53 CGPA
College with UGC-STRIDE Component – I
Phone: 080-23526055, 080-23325020, Fax 080-23320902
Website: www.klesnc.org E-mail: info@klesnc.org kleaccts@yahoo.com

PROGRAMME OUTCOMES - UG

- **BA** : Human values, Critical thinking and responsibility towards society.
- **B.Sc**.: Knowledge of Physical, Chemical, Mathematical and Life science to support & empower engineering and technologies to improve the quality of life and to address environmental problems
- **B.Sc. FAD**: The knowledge of local fibers & textile to design and develop novel patterns of garments, boutiques and accessories to promote the desi culture, heritage and modern trends at global level
- **B.Com**: Trading, Banking & finance, Insurance, GST, Income tax, Small & Large scale industries, Entrepreneurial qualities
- **B.Com Tourism**: History and heritage, hospitality, tour & travel at various levels
- **BCA**: Computer applications in public and private sectors at national and global level
- **BBA**: Solutions to business related problems. Use technology for innovative business plans and timely decisions for effective management with professional ethics and values.
- **BHM**: To inculcate the required managerial skills by using resources for furbishing global hotel and hospitality needs.

KLE Society's
S. NIJALINGAPPA COLLEGE
II-Block, Rajajinagar, Bengaluru-10
Re-accredited by NAAC at A+ grade with 3.53 CGPA
College with UGC-STRIDE Component – I
Phone: 080-23526055, 080-23325020, Fax 080-23320902
Website: www.klesnc.org E-mail: info@klesnc.org kleaccts@yahoo

PROGRAMME OUTCOMES - PG

- **M.Sc**.: Local, National/ global scientific achievements, agriculture, environmental issues and remedies, research, innovation, incubation, start-ups, IT& industries
- **MCA**: Employable IT workforce to meet national & global industrial, scientific needs and to customize solutions for Small, Medium & Large-Scale Enterprises.
- **M.Com**.: Cost & Financial analysis of manufacturing, services, taxation, accounting and banking at national and global level
- **MTTM**: Transportation, exploration of history, destinations, heritage and culture for local/ state/ national and global integrity

PROGRAMME SPECIFIC OUTCOMES

FACULTY OF ARTS

BA-HEP (History, Economics, Political Science)

Program Specific Outcomes:

PSO1: Acquire knowledge of specific subjects such as History, Economics, Political Science, etc.

PSO2: Possess a broad, foundation and an understanding of progresses in social and intellectual history shape and affect human values and institutions.

PSO3: Understand the basic concepts, important principles, and various theories in the concerned subjects. Understand notions, principles and theories related to history, economics and political science and acquire capacity to explain how and why important events happen

PSO4: Aquire the analytical ability to analyze the social, historical, economic and political issues and suggest enhancements for better results.

PSO5: Establish a more advanced working knowledge of at least one social science discipline.

BA (Journalism, Political Science & Economics)

PSO1: Obtain knowledge of specific subjects such as Journalism, Economics and Psychology

PSO2: Possess a broad, foundation and an understanding of how journalism and cultural aspects shape and affect human values and institutions.

PSO3: Comprehend the basic concepts, fundamental principles, various theories in the concerned subjects. Able to comprehend various forms of literature.

PSO4: Acquire capacity to explain how and why important events happen and gain the logical ability to analyze the social, historical, cultural issues and suggest improvements for better results.

PSO5: Able to understand major concepts, theories, principles, perspectives, historical roots and empirical findings making students theoretically informed and insightful about one's own and others' behaviors and mental processes.

FACULTY OF SCIENCE

B.Sc - CHEMISTRY

PSO 1: The course is inundated with innovative scientific skills pertaining to chemical science, the students are well trained in chemical science attributes of higher levels both in Inorganic and Organic Chemistry

PSO 2: The extracurricular activities besides the co curriculum, the students are inclined towards the innovative and updated knowledge through series of Guest lectures, Interactive workshops and Faculty Exchange programmes.

PSO 3: The students are trained well in practicals that help them to pursue their synthetic skills in the industry either in Research & Development (R&D), Quality Control (QC), Quality' Assurance (QA) and Production departments.

PSO 4: The Students are well exposed to teaching paradigm by conducting seminars and Peer tutorial programmes to UG classes

PSO 5: Title course is gazed with high training sessions and build the competency among the students to clear off NET, SET, SLET or GATE exams

B.Sc - PHYSICS

PSO 1: Imbibed ethical, moral and social values in personal and social life leading to highly cultured and civilized personality

PSO 2: Realized how developments in physics helps in the development of other science subjects and vice-versa and how interdisciplinary approach helps in providing better solutions and new ideas for the sustainable developments.

PSO 3: Realized that knowledge of subjects in other faculties such as humanities, performing arts, social sciences etc. can have greatly and effectively influence which inspires in evolving new scientific theories and inventions.

PSO 4: Understood the basic concepts, fundamental principles, and the scientific theories related to various scientific phenomena and their relevancies in the day-to-day life

PSO 5: Acquired the skills in handling scientific instruments, planning and performing in laboratory experiments

B.Sc – MATHS

PSO 1: Students will demonstrate an understanding of the common body of knowledge in maths and demonstrate the ability to apply analytical and theoretical skill to model and solve the mathematical problems

PSO 2: Understand the nature of mathematical proofs and be able to write clear and concise proofs. PSO3: Be able to communicate effectively in oral and written form

PSO 3: Be able to write simple computer programs to perform the mathematical competition.

PSO 4: Learn about application of mathematics in other field and gain experiences in mathematical modeling

PSO 5: Develop the ability to read, understand and use basic definition in linear and abstract algebra and real analysis and be able to prove simple consequence of this definition

B.Sc – BOTANY

PSO 1: Understanding the nature and basic concepts of all the plant groups, their metabolism, components at the molecular level, biochemistry, taxonomy and ecology.

PSO 2: The course will make them aware of natural resources and environment and the importance of conserving it.

PSO 3: Hands on training in various fields will develop practical skills, handling equipments and laboratory use along with collection and interpretation of biological materials and data.

PSO 4: Knowledge gained through theoretical and lab based experiments will generate technical personnel in various priority areas such as genetics, cell and molecular biology, plant systematic and biotechnology

PSO 5: Scope and importance of Botany: Understand scope and importance of Botany in every field especially in dealing with societal and environmental issues, agriculture, ethics and healthcare.

B.Sc – COMPUTER SCIENCE

PSO 1: Knowledge and understanding: Students will have a strong foundation in the core concepts of computer science, including mathematics, algorithms, data structures, software engineering, and computer systems.

PSO 2: Problem-solving skills: Students will be able to apply their knowledge and skills to identify, formulate, and solve computational problems.

PSO 3: System design and implementation: Students will be able to design, implement, and evaluate computational systems to meet desired needs within realistic constraints.

PSO 4: Communication and teamwork skills: Students will be able to communicate effectively with technical and non-technical audiences, both orally and in writing. They will also be able to work effectively on teams to achieve common goals.

PSO 5: Professionalism and ethics: Students will demonstrate professionalism and ethical behaviour in their work.

B.Sc - ZOOLOGY

PSO 1. Understand the nature and basic concepts of cell biology, genetics, taxonomy,physiology, ecology and applied Zoology

PSO 2. Analyze the relationships between animals and microbes

PSO 3. Perform procedures as per laboratory standards in the areas of Taxonomy, Cell biology, Clinical science, tools and techniques of Zoology, Toxicology, Biochemistry, Animal biotechnology, Immunology and research methodology

PSO 4. Understand the applications of biological sciences in Apiculture, Aquaculture,Agriculture and Medicine

B.Sc – FAD

PSO 1: Demonstrate knowledge in the history of fashion, patterns, and the basic theories of fashion design (color, line, shape, texture, scale, and proportion), pattern making, illustration, and construction of garments.

PSO 2. Proficiency in examining trends, drawing designs based on their ideas, choosing colors and fabrics, and supervising the production of their designs. Impart the knowledge of fibers, sources, their identification and properties.

PSO 3. To gain knowledge on woven fabrics with different variation in it.

PSO 4: Understand the concept of garment making, the cut, and silhouette, fitting and finishing of styles.

PSO 5: Study of textile and garment wet processing, processes, techniques involving printing, dyeing and surface ornamentation.

B.Sc – BIOTECHNOLOGY

PSO1: Acquire knowledge on the fundamentals of biotechnology for sound and solid base which enables them to understand the emerging and advanced engineering concepts in life sciences.

PSO2: To bestow the students with all the research skills required to work independently.

PSO3: To develop scientific temperament and social responsibilities in the students.

PSO4: To inculcate nature care by imparting knowledge of advance modern techniques.

PSO5: As Biotechnology is an interdisciplinary course, empower the students to acquire technological knowhow by connecting disciplinary and interdisciplinary aspects of biotechnology.

PSO6: Impart knowledge in students of biotechnology enabling their applications in industry and research.

Faculty of Commerce

B.Com

PSO 1: Providing a well-trained professional to the requirements of Industries, Banking sectors, Insurance companies, Financing Companies, Transport agencies and corporates.

PSO 2: The knowledge of different specializations in accounting, costing, banking and finance with the practical exposure helps the students to stand in organization.

PSO 3: To impart industry needed skill, problem solving and decision-making competencies.

PSO 4: To make students industry ready and develop various managerial and accounting skills for better professional opportunities.

PSO 5: To enrich students to adapt to an ever changing and dynamic business environment

BBA REGULAR

PSO 1: Obtaining theoretical accuracy of different areas of competence

PSO 2: Capacity to research different functional concerns impacting the company

PSO 3: The capacity to create models or frameworks for critical reflection on particular business situations should be demonstrated.

PSO 4: Effective Oral and Written Communication Skills

PSO 5: Show Your Capability to Work in a Group

BBA AVIATION

PSO 1: To prepare students to manage business difficulties on a professional level.

PSO 2: To improve pupils' ability to work in a team.

PSO 3: To employ creative teaching methods in order to close the gap between students' theoretical and practical knowledge

PSO 4: To cultivate business leaders who are morally and socially responsible.

PSO 5: To improve students' hard and soft skills.

B.Com- TOURISM AND TRAVEL MANAGEMENT

PSO 1: One will be familiar with basic definition and with the travel and tourism cluster.

PSO 2: To prepare students for Managerial positions in destination planning, consultancies, policy making, tour operations, travel agencies, small and medium enterprises (SME), hospitality and aviation.

PSO 3: after completing the program the student should be able to work in travel and tourism related organizations, at various capacities in government levels, event and entertainment industry, hotels, food & beverages services etc.

PSO 4: The program also bestows entrepreneurial skills among the students to start new business in the above areas.

PSO 5: To develop the hospitality culture and behavior and to enhance student competencies

KLE Society's
S. NIJALINGAPPA COLLEGE
II-Block, Rajajinagar, Bengaluru-10
Re-accredited by NAAC at A+ grade with 3.53 CGPA
College with UGC-STRIDE Component – I
Phone: 080-23526055, 080-23325020, Fax 080-23320902
Website: www.klesnc.org E-mail: info@klesnc.org kleaccts@yahoo.com

FACULTY OF COMPUTER SCIENCE

BCA

PSO 1: Analyse the given problem and develop algorithm to solve the problem and improve upon a solution to the problem.

PSO 2: Analyse and apply amortised analysis on data structures

PSO 3: Understanding the fundamentals and framework of test and analysis

PSO 4: To develop software development skills.

PSO 5: To train and equip the students to meet the requirements of the industrial standards

FACULTY OF HOTEL MANAGEMENT

BHM

PSO 1: To acquire technical skills in the core areas of the hotel and other hospitality sectors

PSO 2: To adopt professional techniques and use tools competently in the preparation, presentation and service of quality foods

PSO 3: To work in a sustainable manner as per trends and issues in the interdependent hospitality sectors

PSO 4: To understand the functions of non-core departments like accounts, human resource, marketing, etc.,

PSO 5: To pertain the acquired knowledge to manage and evaluate functional systems in hospitality industry

DEPARTMENT OF HISTORY

DSC 1
Title of the paper: Political history of Karnataka (BCE-300toCE 1000)
Course Outcomes: At the end of the course the student should be able to:
CO1: Understand the continuity of Political developments and strategies.
CO2: Analysis the importance of causes for the rise of regional political dynasties.
CO3: Understand contextual necessities which influenced the era of political supremacy.
CO4: Understand and describe the contemporary political history.
CO5: Appreciate the confluence of diverse political elements.

DSC 2
Title of the paper: Cultural Heritage of India
Course Outcomes: At the end of the course the student should be able to:
CO1: Provide an insight about an extensive survey of heritage of India
CO2: Familiarize Indian history and culture
CO3: Expertise to analyse further development of culture of India
CO4: Analyse the factor responsible for origin and decline of culture
CO5: Provide the opportunity to understand the process of cultural development

OE 1
Title of the paper: Cultural History of Karnataka (CE300-CE1000)
Course Outcomes: At the end of the course the student should be able to:
CO1: Provide an insight about the cultural development of Karnataka.
CO2: Familiarize Karnataka history and culture.
CO3: Expertise to analyze further development of culture of Karnataka.
CO4: Analyze the factors responsible for origin and decline of dynasties.
CO5: Provide the opportunity to understand the process of cultural diversities.

OE 1
Title of the paper: Introduction to Archaeology
Course Outcomes: At the end of the course the student should be able to:
CO1: Understand the concept of Archaeology as an ancillary for study of history
CO2: Help to study features of Archaeology in understanding history
CO3: Familiarize the students to know about scope of Archaeology.

CO4: Understand the various tools and techniques imbibed in Archaeology
CO5: Study various schools of disciplines of Archaeology.

OE 1
Title of the paper: History and Historians
Course Outcomes: At the end of the course the student should be able to:
CO1: Understand the meaning, nature and scope of History.
CO2: Study the relationship between history and other social sciences.
CO3: Understand how History has been written through the ages.
CO4: Growth of History during different periods and in different countries.
CO5: Critical evaluation of historical narratives.

DSC 3
Title of the paper: Political History of Karnataka (1000CE to 1750CE)
Course Outcomes: At the end of the course the student should be able to:
CO1: Understand the rise and fall of Political dynasties in Karnataka.
CO2: Familiarize with the patterns of administration.
CO3: Analyze the traditional values and ethos of political development.
CO4: Understand the rise and fall of regional variations.
CO5: Study the complexities involved in polity of the time.

DSC 4
Title of the paper: Cultural Heritage of Karnataka
Course Outcomes: At the end of the course the student should be able to:
CO1: Understand the concept of cultural heritage of Karnataka
CO2: Study various cultural factors which influence the flow of culture
CO3: Familiarize the factors which influenced in influencing culture and society
CO4: Analyze the factors responsible for formation of pluralistic society
CO5: Understand the concept" Unity in diversity".

OE 2
Title of the paper: Cultural History of Karnataka(CE 1100 to CE 1750)
Course Outcomes: At the end of the course the student should be able to:
CO1: Understand the concept of cultural heritage of Karnataka
CO2: Study various cultural factors which influence the flow of culture
CO3: Familiarize the factors which influenced in influencing culture and society
CO4: Analyze the factors responsible for formation of pluralistic society
CO5: Understand the concept "Unity in diversity".

OE 2
Title of the paper: Manuscript logy
Course Outcomes: At the end of the course the student should be able to:
CO1: Understand the importance of manuscripts
CO2: Study manuscripts as an ancillary for study of history
CO3: Understand the concept of cataloguing of manuscripts

CO4: Practice the science of conservation and preservation of manuscripts
CO5: Visit libraries and Archives to study conservation and preservation

OE 2
Title of the paper: India as seen by foreign travelers / Travelogue's on Indian History.
Course Outcomes (COs): At the end of the course the student should be able to:
CO1: India's contacts with outside world
CO2: Importance of foreign accounts as a source for Indian history.
CO3: A critical view of foreign accounts.

DSC 5
Title of the paper: Political History of Karnataka (1000CE to 1750CE)
Course Outcomes: At the end of the course the student should be able to:
CO1: Understand the history and culture of Political History of India region.
CO2: Analyse the importance of causes for backwardness of this region.
CO3: Understand the influence of political influence on the people and culture of this region.
CO4: Understand the political, Social, Religious and Cultural history of the region.
CO5: Appreciate the divergent cultural and communal harmony of this region.

DSC 6
Title of the paper: Bangalore in Time and Space
Course Outcomes: At the end of the course the student should be able to:
CO1: Understand the history and culture of Bangalore in Time and Space region.
CO2: Analyze the importance of causes for backwardness of this region.
CO3: Understand the influence of political influence on the people and culture of this region,
CO4: Understand the political, Social, Religious and Cultural history of the region.
CO5: Appreciate the divergent cultural and communal harmony of this region.

OE 3
Title of the paper: Introduction to Epigraphy
Course Outcomes: At the end of the course the student should be able to:
CO1: Understand the Freedom Movement in Karnataka (1800-1947)
CO2: Analyse the importance of causes for backwardness of this region.
CO3: Understand the influence of Freedom Movement in Karnataka (1800-1947)
CO4: Understand the political, Social, Religious and Cultural history of the region.
CO5: Appreciate the divergent cultural and communal harmony of this region.

OE 3
Title of the paper: Freedom Movement in Karnataka
Course Outcomes: At the end of the course the student should be able to:
CO1: Understand the Freedom Movement in Karnataka (1800-1947)
CO2: Analyse the importance of causes for backwardness of this region.
CO3: Understand the influence of Freedom Movement in Karnataka (1800-1947)
CO4: Understand the political, Social, Religious and Cultural history of the region.
CO5: Appreciate the divergent cultural and communal harmony of this region.

DSC 7

Title of the paper: History of Medieval India

Course Outcomes: At the end of the course the student should be able to:

This course enables students to explore various aspects of political, Culture and Heritage of Cultural History of India (From Saraswati – Indus Culture to 1206 CE) in historical perspective that discusses numerous cultural practices that have evolved over centuries. The students will gather knowledge about the cultural heritage, cultural forms and cultural expressions performing arts, fairs and festivals.

CO1: Understand the history and culture of Political History of India region.
CO2: Analyse the importance of causes for backwardness of this region.
CO3: Understand the influence of political influence on the people and culture of this region.
CO4: Understand the political, Social, Religious and Cultural history of the region.
CO5: Appreciate the divergent cultural and communal harmony of this region.

DSC 6

Title of the paper: Cultural History Of India (From Saraswati - Indus culture to 1206 CE)

Course Outcomes (COs): At the end of the course the student should be able to:

CO1: Understand the concept and meaning of culture
CO2: Establish the relationship between culture and civilization
CO3: Establish the link between culture and heritage
CO4: Discuss the role and impact of culture in human life.
CO5: Describe the distinctive features of Indian culture
CO6: Identify the central points and uniqueness of Indian culture
CO7: Explain the points of diversity and underlying unity in it and trace the influence and significance of geographical features on Indian culture

OE 4

Title of the paper: Freedom Movement in India (1885-1947)

Course Outcomes (COs): At the end of the course the student should be able to:

CO 1: Understand the History of Freedom Movement in India (1885-1947).
CO 2: Analyse the importance of causes for backwardness of this region.
CO 3: Understand the influence of History of Freedom Movement in India (1885-1947).
CO 4: Understand the political, Social, Religious and Cultural history of the region.
CO 5: Appreciate the divergent cultural and communal harmony of this region

DEPARTMENT OF ECONOMICS

DSC 1.1.
Title of the paper: Economic Analysis -I
Course Outcomes: By the end of the course the student will be able to
CO1: Identify the facets of an economic problem.
CO2: Learn basic economic concepts and terms.
CO3: Explain the operation of a market system
CO4: Analyse the production and cost relationships of a business firm
CO5: Evaluate the pricing decisions under different market structures
CO6: Use basic cost-benefit calculations as a means of decision making (i.e., thinking like an economist)

DSC 1.2.
Title of the paper: Contemporary Indian Economy
Course Outcomes: By the end of the course the student will be able to
CO1: Understand the current problems of Indian Economy
CO2: Identify the factors contributing to the recent growth of the Indian economy
CO3: Evaluate impact of LPG policies on economic growth in India
CO4: Analyze the sector specific policies adopted for achieving the aspirational goals
CO5: Review various economic policies adopted

OEC 1
Title of the paper: Kautilya's Arthashastra
Course Outcomes: By the end of the course the student will be able to
CO1: This course will enlighten the students about the ancient fundamentals about political and economic constituents, which will frame out a basic land of understanding the modern trends. This will help them to understand the upcoming needs in the area of policy making for states at national and international level.
CO2: This treatise deals with the science of Governance, so it projects out all the dimensions needed to be understood by students about the present socio-economic and political rules and regulations of the state.

OEC 1
Title of the paper: Indian Economy Prior to Economic Reforms (OEC)
Course Outcomes: By the end of the course the student will be able to
CO1: Trace the evolution of Indian Economy
CO2: Identify the structural features and constraints of the Indian economy
CO3: Evaluate planning models and strategy adopted in India

CO4: Analyze the sector specific problems and contributions towards overall economic growth
CO5: Review various economic policies adopted

DSC 2.1.
Title of the paper: Economic Analysis - II
Course Outcomes: By the end of the course the student will be able to
CO1: Understand the operation of the overall economic system
CO2: Calculate national income and related aggregates
CO3: Explain the relationship between macroeconomic aggregates
CO4: Analyse the nature of business cycles and policies towards controlling them
CO5: Evaluate the macroeconomic policies for solving major problems like poverty and unemployment

DSC 2.2.
Title of the paper: Karnataka Economy
Course Outcomes: By the end of the course the student will be able to
CO1: Understand the nature of economic growth and problems of Karnataka state
CO2: Explain the process of structural growth in Karnataka economy
CO3: Evaluate the policies and programmes undertaken by the Govt. of Karnataka for bringing about socio-economic development

OEC 2
Title of the paper: Contemporary Indian Economy
Course Outcomes: By the end of the course the student will be able to
CO1: Understand the current problems of Indian Economy
CO2: Identify the factors contributing to the recent growth of the Indian economy
CO3: Evaluate impact of LPG policies on economic growth in India
CO4: Analyze the sector specific policies adopted for achieving the aspirational goals
CO5: Review various economic policies adopted

OEC 2
Title of the paper: Sustainable Development
Course Outcomes: By the end of the course the student will be able to
CO1: Understand the basic concept of Sustainable Development (SD), the environmental, social and economic dimensions
CO2: Know the history of the SD idea.
CO3: Be able to discuss the conflicts which are involved in the SD concept on the national as well as on the global scale.
CO4: Be able to discuss the (dis-)advantages of instruments for SD
CO5: Evaluate the sustainable development goals and their attainments

DSC 3.1.
Title of the paper: Microeconomics
Course Outcomes: By the end of the course the student will be able to
CO1. Understand introductory economic concepts.
CO2. Recognize basic supply and demand analysis.

CO3. Recognize the structure and the role of costs in the economy.
CO4. Describe, using graphs, the various market models: perfect competition, monopoly, monopolistic competition, and oligopoly.
CO5. Explain how equilibrium is achieved in the various market models.
CO6. Identify problem areas in the economy, and possible solutions, using the analytical tools developed in the course.

DSC 3.2.
Title of the paper: Mathematics for Economics
Course Outcomes: By the end of the course the student will be able to
CO1. Perform basic operations in Sets and functions and Matrix algebra.
CO2. Calculate limits, derivatives of Economic functions and identify the nature of the relationship.
CO3. Calculate the maxima and minima of function

DSC 3.3.
Title of the paper: Agriculture Economics
Course Outcomes: By the end of the course the student will be able to
CO1. Acquire knowledge of the role of agriculture in economic development
CO2. Acquire the theoretical and application knowledge of agricultural growth and development
CO3. To enable the students to understand the Strategy of Agricultural Development in India,
CO4. To make the students aware of institutional and non-institutional sources of agricultural Finance

OEC 3
Title of the paper: Rural Economics
Course Outcomes: By the end of the course the student will be able to
CO1. To Understand the basics of rural development,
CO2. To study the characteristics, problems, and programmes of rural redevelopment
CO3. To study the trends and patterns of economic activities in rural areas
CO4. To study the role of infrastructural facilities and governance in rural development
CO5. To enable the students to know about the significance of rural enterprises and agricultural allied activities.

OEC 3
Title of the paper: Economics of Insurance
Course Outcomes: By the end of the course the student will be able to
CO1. Gain knowledge relating to the importance of insurance in the life of human beings.
C02. Acquaint with the conceptual framework of Insurance
C03. Understand the Fundamentals of Life and Health Insurance, functions of Life and Health Insurance
C04. Gain Knowledge relating to Insurance Documentation and Insurance legislation

DSC 4.1.
Title of the paper: Statistics for Economics
Course Outcomes: By the end of the course the student will be able to
CO1. Understand the nature of Data and their presentation
CO2. Calculate Descriptive statistics like measures of central tendency and dispersion
CO3. Apply statistical techniques like correlation and regression in Economic analysis

DSC 4.2.

Title of the paper: Monetary Economics

Course Outcomes: By the end of the course the student will be able to

CO1: Acquire knowledge of the supply and demand of Money

CO2: Understand and interest in determination theories.

CO3: Appreciate the Implications for Monetary Management

CO4: Understand the relationship between inflation and unemployment

CO5: Acquire knowledge of the working of business cycles

OEC 4

Title of the paper: Karnataka Economy

Course Outcomes: By the end of the course the student will be able to

CO1. Understand the nature of economic growth and problems of Karnataka state.

CO2. Explain the process of structural growth in Karnataka's Economy

CO3. Evaluate the policies and programmes undertaken by the Govt. of Karnataka for bringing about socio-economic development

OEC 4

Title of the paper: Entrepreneurial Economics

Course Outcomes: By the end of the course the student will be able to

CO1. Start own business as Entrepreneur

CO2. Enabling the students to find career opportunities in business.

CO3. To enable the students to gain knowledge and skills needed to run a business successfully.

DEPARTMENT OF POLITICAL SCIENCE

DSC 1.
Title of the paper: Basic Concept in political science
Course Outcomes: By the end of the course the student will be able to
CO1: Develop an understanding about the nature and philosophy of Political Science and its interface with society Enable the students to develop qualities of responsible and active citizens in a democracy.

DSC 2.
Title of the paper: Political theory
Course Outcomes: By the end of the course the student will be able to
CO1: This course aims to introduce certain key aspects of conceptual analysis in political theory and the skills required to engage in debates surrounding the application of the concepts.

OEC 1
Title of the paper: Human Rights
Course Outcomes: By the end of the course the student will be able to
CO1: This course aims to introduce the students to basic concepts and practices of Human Rights and the global and local domain This course also exposes them to certain recent issues confronting the Human Rights debates.

DSC 3.
Title of the paper: Western Political Thought
Course Outcomes: By the end of the course the student will be able to
CO1: The Syllabus is designed to understand Political Philosophy, traditions that evolved in Europe from Ancient to the beginning of modem era, to examine the contributions of
the Greek, Medieval and early Modern Thinker's Philosophical thought.

DSC 4.
Title of the paper: Indian National Movement and Constitution Development
Course Outcomes: By the end of the course the student will be able to
CO1: To familiarize the students with the ideas of Nationalism and contemplate on how colonial rule was overthrown by the Indian Nationalists.
CO2: To acquaint the students with the problems of Independent India.
CO3: To enable the students to understand the role of India in World affairs and the contributions of great men towards freedom.

OEC 2

Title of the paper: Indian Polity issues

Course Outcomes: By the end of the course the student will be able to

CO1: The course will explain the functioning of the Indian government and the performance of both the union and the state governments. It discusses the philosophy of our constitution and the commitment of the Indian state to its citizenry. It will help the students to develop interest in politics and grasp the dynamics/nuances of the politics, dynamics of leadership and the role of socio-economic, religious and lingual issues.

DSC 5.

Title of the paper: Indian Government and Politics

Course Outcomes: By the end of the course the student will be able to

CO1: The Syllabus is designed to understand Political Philosophy, traditions that evolved in Europe from Ancient to the beginning of modem era, to examine the contributions of the Greek, Medieval and early Modern Thinker's Philosophical thought.

DSC 6.

Title of the paper: Parliamentary Procedures in India

Course Outcomes: By the end of the course the student will be able to

CO1: The course attempts to make the students familiar with legislative practices in India with an orientation to equip them with the adequate skills of participation in deliberative processes and democratic decision making. This aims at providing the basic understanding of the constitutional provisions relating to parliamentary procedures and the accessories of the same. This will help the students to understand the working of democracy through an institutional mechanism.

OEC 3

Title of the paper: Gender and Politics

Course Outcomes: By the end of the course the student will be able to

CO1: The course provides an overview of political participation of women in general and specifically in India. It enables students to understand the issues related to women leadership, participation and governance and how they have progressively become integrated into political science to inform and shape contemporary social sciences. It helps in sensitizing the patriarchal society to improve the relationship between men and women removing the obstacles of exploitation, violation of her rights, bringing into focus the need for the education and empowerment.

DSC 7.

Title of the paper: Ancient Indian Political Ideas and Institutions

Course Outcomes: By the end of the course the student will be able to

CO1: The paper aims at developing an understanding of the Social and political philosophy of ancient India to assess the modern notions about socio-political arrangements. Further it helps to analyse the process of decolonizing Indian minds related to India's glorious past. The objective thus being to throw light on the indigenous political theories and the irrelevance to changing times

DSC 8.

Title of the paper: Modern Political Analysis

Course Outcomes: By the end of the course the student will be able to

CO1: The objective is to equip students to develop insights into political institutional functioning keeping in insight both the normative and empirical ways of understanding. This paper also throws light on value laden functioning and value neutral aspects of systems output that will help students to understand and evaluate Governments. It aims at scientifically assessing the functioning of the government as result oriented institutions.

OEC 4

Title of the paper: Good Governance in India

Course Outcomes: By the end of the course the student will be able to

CO1: The course directed to familiarize the student to understand the elements of Good Governance which has the effect on day today life. The purpose is to show to them that states are changing their approach to Administration giving importance to stake holders. Some of the programs mentioned in the syllabi exemplifies the same. The aim is to help students to link the theory in the class room with realities in the outside world.

DEPARTMENT OF JOURNALISM

DSC 1.
Title of the paper: Introduction to Journalism Concepts and Practices
Course Outcomes: By the end of the course the student will be able to
CO1: To introduce concepts of mass communication in general and journalism in particular
CO2: To impart fundamentals of journalism, evolutionary process, basic concepts, practices and recent trends
CO3: To expose students to different facets of journalism
CO4: To Pain students to develop inquisitive and analytical skills to be successful in media

DSC 2.
Title of the paper: Computer Applications for Media
Course Outcomes By the end of the course the student will be able to
CO1: To introduce students to the basics of computer
CO2: To familiarize the students to the applications of computers in print and electronic journalism
CO3: To facilitate the students to learn the practical applications of computers at different lets in media
CO4: To expose the students to the world of internet and its extensive use for interactivity
CO5: To familiarize the students with web based broadcasting

OEC 3
Title of the paper: Writing for Media
Course Outcomes: By the end of the course the student will be able to
CO1: To make them familiar with writing for media and develop interest in writing
CO2: Introduce the students to cultivating of sources.
CO3: Equip the students with new trends in media writing.

DSC 4.
Title of the paper: News Reporting and Analysis
Course Outcomes: By the end of the course the student will be able to
CO1: Organize and articulate news stories. Understand the concepts, structure, and types of news.
CO2: Formulate skills for news selection, process, prioritize and finally, design the end product, identify the basic ethical issues confronting editors and how they can practice fair play.

OEC 5.

Title of the paper: News Processing and Editing

Course Outcomes: By the end of the course the student will be able to

CO1: Understand the role of editors. Edit copy using correct grammar and right usage of words.

CO2: Be able to write clear and accurate headlines, decks, and captions.

CO3: Be able to design basic news pages. Understand the ethical issues confronting editors.

DSC 6.

Title of the paper: Translation Media

Course Outcomes: By the end of the course the student will be able to

CO1:Translate the given stories keeping in mind the requirements of the client

CO2: Understand the difference between translations for different media and practice it

CO3: Gain a mastery over the techniques of translation.

DEPARTMENT OF PSYCHOLOGY

DSC 1
Title of the paper: PAPER I: Foundations of Psychology- I
Course Outcomes : Students will be able to:
CO1: Understand the genesis of Psychology and its importance.
CO2: Gain basic knowledge about Psychology.
CO3: Understand the fundamental mental processes which are base for behaviour.
CO4: Understand the Applications of Psychology in various fields.

DSC 2
Title of the paper: PAPER – II: Foundation of Behavior
Course Outcomes: Students will be able to:
CO1: Evaluate and understand the different human emotions
CO2: Critically evaluate and identify determinants of motivation
CO3: Compare and contrast different theories of intelligence
CO4: Differentiate the human personalities

DSC 3
Title of the paper: Paper – III: Child Development
Course Outcomes: Students will be able to:
CO1: Understand the Physical, Cognitive and Language development
CO2: Know about the role Emotional and Moral development
CO3: Understand the genetic and chromosomal abnormalities
CO4: Understand the different disorders faced by children in their growth period

DSC 4
Title of the paper: PAPER – IV: Developmental Psychology
Course Outcomes: Students will be able to:
CO1: To understand and analyze the Physical, Cognitive and Psychosocial development.
CO2: To know about the vocational adjustment.
CO3: To understand the aging, the ageing process and facing the future.

DSC 5
Title of the paper: PAPER V: Psychological Disorders

Course Outcomes: Students will be able to:
CO1: Differentiate between 'normal' and 'abnormal' behaviour.
CO2: To understand main classificatory systems of psychological disorders.
CO3: Be aware of the different theoretical perspectives in understanding psychological disorders
CO4: Understand signs and symptoms of different psychological disorders
CO5: Provide an insight into criteria's for diagnosing of abnormal behaviour of varying severities.
CO6: Make the symptom picture more realistic and clearer by introducing case studies of various disorders.

DSC 6
Title of the paper: PAPER VI: Counselling psychology
Course Outcomes: Students will be able to:
CO1: Develop an understanding of basic concepts, processes, and techniques of Counselling.
CO2: Explore the different theories of Counselling Psychology.
CO3: Acquire sufficient knowledge about the assumptions and issues in the area of Counselling.

DSC 7
Title of the paper: PAPER VII: Organizational psychology
Course Outcomes: Students will be able to:
CO1: Provide insights into the historical development & key concepts of functioning of organizations
CO2: Understand the role of human factor in the context of organizations & work Behaviour & Management.
CO3: Understand the role of psychology in managing key areas of work like Recruitment, Training & Development
CO4: Understand the meaning and theoretical foundations of I/O Psychology
CO5: Develop an understanding of how the various theories and methods of I/O Psychology apply to the real work settings.

DSC 8
Title of the paper: PAPER VIII: Health psychology
Course Outcomes: Students will be able to:
CO1: Deal with the health and well-being of individuals and the ways to sustain them.
CO2: Understand the relationship between psychological factors and physical health and learn how to enhance well-being.
CO3: Make awareness about of the stress and coping behaviour of individuals in various life situations.

DEPARTMENT OF CHEMISTRY

DSC 1.1
Title of the paper dsc-1: Analytical/inorganic and organic chemistry
Course Outcomes: Students will be able to:
On completion of the course the student will learn and be able to explain:
CO1: The concepts of chemical analysis, accuracy, precision and statistical data treatment
CO2: Prepare the solutions after calculating the required quantity of salts in preparing the reagents/solutions and dilution of stock solution.
CO3: Quantum numbers and their necessity in explaining the atomic structure • Shapes of different atomic orbitals
CO4: Historical development of periodic table • Periodic properties viz. atomic radii, ionization energy, electronegativity etc.
CO5: The Concept of aromaticity, resonance, hyper conjugation, etc. Understand the preparation of alkanes, alkenes and alkynes, their reactions, etc.
CO6: Understand the mechanism of nucleophilic, electrophilic reactions
CO7: Able to draw the energy profile diagrams
CO8: Able to explain the factors affecting the orientation during aromatic substitution reactions.

DSC 1.1(PRACTICALS)
Title of the paper: part- A Analytical Chemistry
Course Outcomes: Students will be able to:
CO1: The students will be able to learn how to handle the glassware, prepare and dilute solutions and perform the experiments with prepared reagents • The students will be able to determine the analyze through volumetric and gravimetric analysis and understand the chemistry involved in each method of analysis.
CO2: The students will be able to deduce the conversion factor based on stoichiometry and in turn use this value for calculation

DSC-1.2
Title of the paper: PART- B Organic Chemistry
Course Outcomes: Students will be able to:
CO1: Students gain the basic knowledge as how to select a solvent for crystallization of organic compounds and get trained as how to purify a compound.
CO2: Students would understand the mechanism behind the reaction and role of catalysts in enhancing

reaction rate and yield.
CO3: Students would learn the importance of green methods over conventional methods.
CO4: The students would be exposed to the safety measures to be taken to conduct reactions in the laboratory and also learn how to manage by products and disposal of waste.

OE-1
Title of the paper: Chemistry in daily life
Course specific outcome: After studying this paper, the student would be able to:
CO1: Describe the composition of the milk and dairy products.
CO2: Detect/determine the amount of caffeine, chicory in coffee and chloral hydrate in toddy.
CO3: Explain the preservatives used in food products and their effects and possible adulterants.
CO4: Acquire detailed information about the colorants used in food products.
CO5: Differentiate various vitamins, their sources and deficiencies.
CO6: Examine purity of the oils.
CO7: Explain how electrical energy is stored in batteries.
CO8: Classify commonly used polymers in our daily lives.

DSC-2.1
Title of the paper: Analytical/physical and organic chemistry.
Course Outcomes (COs): At the end of the course the student should be able to:
CO1: Explain the principles and concepts related to titrimetric analysis with reference to acid-base, precipitation and complex metric titrations.
CO2: Handling of toxic chemicals, concentrated acids and organic solvents and practice safety procedures.
CO3: Write the mechanisms of SN1 and SN2 reactions taking suitable examples.
CO4: Illustrate types of aromatic electrophilic and nucleophilic substitution reactions with examples.
CO5: Give a comprehensive description of the gaseous state in terms of molecular velocity, their distribution based on Maxwell-Boltzmann law, types of molecular velocities, molecular collision parameters, critical phenomena and liquefaction of gases.
CO6: Explain important properties of liquid state such as viscosity, surface tension, refraction and preacher by defining them and elaborating on their experimental determination.
CO7: Learn methods of determining molecular weights of solutes by measuring colligative properties and the concept of distribution law along with its applications.
CO8: Describe the crystalline state in detail using the terms unit cell, Bravias lattices, Miller indices, Crystal systems, symmetry elements and lattice planes
CO9: The concept of volumetric and gravimetric analysis and deducing the conversion factor for determination.
CO10: Handling of toxic chemicals, concentrated acids and organic solvents and practice safety procedures.
CO11: The concepts of organic reactions and techniques of writing the movement of electrons, bond breaking, bond forming.
CO12: Various theories of gases and their significance.
CO13: The concept of surface tension, viscosity, refraction and its significance.
CO14: Different types of liquid crystals and their applications.

CO15: The concept of unit cell, symmetry elements, Nernst distribution law.

DSC 2.2

Title of the paper: PART-A (Inorganic chemistry)

Course Outcomes: Students will be able to:

CO1: To prepare standard solutions.
CO2: Techniques like precipitation, filtration, drying and ignition.
CO3: Various titrimetric techniques and gravimetric methods.
CO4: Calculation on basis of mole concept and stoichiometry.

DSC 2.3

Title of the paper: PART-B (Physical Chemistry)

Course Outcomes: Students will be able to:

CO1: Determine the density of liquids
CO2: Understand how viscosity and surface tension of liquids vary with concentrations
CO3: Determine the percentage composition of liquid mixtures using Abbe's Refractometer.
CO4: Explain the concept of distribution coefficient, and dissociation in a layer.
CO5: Describe the conditions required for liquefaction of gases
CO6: Understand cooling effect of gas on adiabatic expansion
CO7: Explain properties of liquids in terms of intermolecular attraction

OE-2

Title of the paper: Molecules of life

Course Outcomes:Students will be able to:

CO1: After studying this paper, the student would be able to:
CO2: Acquire knowledge about different types of sugars and their chemical structures
CO3: Identify different types of amino acids and determine the structure of peptides.
CO4: Explain the actions of enzymes in our body and interpret enzyme inhibition.
CO5: Depict the importance of lipids in the metabolism.
CO6: Differentiate RNA and DNA and their replication.
CO7: Explain production of energy in our body.

DSC-3.1

Title of the paper: Chemistry: Analytical and Organic Chemistry-II

Course Outcomes:Students will be able to:

After the completion of this course, the student would be able to;
CO1: Understand the importance of fundamental law and validation parameters in chemical analysis
CO2: Know how different analyses in different matrices (water and real samples) can be determined by spectrophotometric, cephalometric and turbid metric methods.
CO3: Understand the requirement for chemical analysis by paper, thin layer and column chromatography.
CO4: Apply solvent extraction method for quantitative determination of metal ions in different samples
CO5: Utilize the ion-exchange chromatography for domestic and industrial applications
CO6: Explain mechanism for a given reaction.
CO7: Predict the probable mechanism for a reaction. Explain the importance of reactive intermediates role

and techniques of generating such intermediates
CO8: Explain the importance of Stereochemistry in predicting the structure and property of organic molecules.
CO9: Predict the configuration of an organic molecule and able to designate it.
CO10: Identify the chiral molecules and predict its actual configuration

DSC-3.2
Title of the paper: part- A (Analytical Chemistry)
Course Outcomes:Students will be able to:
CO1: After the completion of this course, the student would be able to
CO2: Understand the importance of instrumental methods for quantitative applications
CO3: Apply colorimetric methods for accurate determination of metal ions and anions in water or real samples

DSC-3.3
Title of the paper: PART-B (Organic Chemistry)
Course Outcomes:Students will be able to:
CO1: After the completion of this course, the student would be able to
CO2: Understand how functional groups in a compound is responsible for its characteristic property
CO3: Learn the importance of qualitative tests in identifying functional groups.
CO4: Learn how to prepare a derivative for particular functional groups and how to purify it

OE-03: Open Elective-3:
Title of the paper: Atomic structure, bonding and concepts in organic chemistry
Course Outcome: On completion of the course the student will learn and be able to
CO1: Understand/explain the concept of atomic structure, significance of quantum numbers, filling ofλ electrons of atoms/ions in various orbitals as per rules
the trends in periodic properties
CO2: The structures of ionic solids, applications of B-H cycle, solubility of compoundsλ and consequences of polarization of ions
CO3: The shapes of molecules/ions based on VSEPR theory
CO4: The construction of MO energy level diagrams and prediction of properties ofλ molecules/ions like bond order, bond energies, bond lengths and magnetic properties.
CO5: The formation of sigma and pi bonds and the bond strengthλ the classification of organic reactions
CO6: Nomenclature preparation, and reactions of alkanes, alkenes, alkynes and
stability of alicyclic compounds.

DSC- 4.1
Title of the paper: Inorganic and physical chemistry-II
Course Code: After the completion of this course, the student would be able to
CO1: Predict the nature of the bond formed between different elements
CO2: Identify the possible type of arrangements of ions in ionic compounds
CO3: Write Born - Haber cycle for different ionic compounds

CO4: Relate different energy parameters like, lattice energy, entropy, enthalpy and solvation energy in the dissolution of ionic solids
CO5: Explain covalent nature in ionic compounds
CO6: Write the M.O. energy diagrams for simple molecules
CO7: Differentiate bonding in metals from their compounds
CO8: Learn important laws of thermodynamics and their applications to various thermodynamic systems
CO9: Understand adsorption processes and their mechanisms and the function and purpose of a catalyst
CO10: Apply adsorption as a versatile method for waste water purification.
CO11: Understand the concept of rate of a chemical reaction, integrated rate equations, energy of activation and determination of order of a reaction based on experimental data
CO12: Know different types of electrolytes, usefulness of conductance and ionic mobility measurements
CO13: Determine the transport numbers

DSC-4.2
Title of the paper: Part A- Inorganic Chemistry Practical's
Course outcomes: At the end of the course student would be able to
CO1: Understand the chemical reactions involved in the detection of cations and anions.
CO2: Explain basic principles involved in classification of ions into groups in semi-micro qualitative analysis of salt mixture
CO3: Carryout the separation of cations into groups and understand the concept of common ion effect.
CO4: Understand the choice of group reagents used in the analysis.
CO5: Analyze a simple inorganic salt mixture containing two anions and cations

Part B- Physical Chemistry Practical's
CO1: Use instruments like conductivity meter to obtain various physicochemical parameters.
CO2: Apply the theory about chemical kinetics and determine the velocity constants of various reactions.
CO3: Learn about the reaction mechanisms.
CO4: Interpret the behavior of interfaces, the phenomena of physisorption and chemisorption's and their applications in chemical and industrial processes.
CO5: Learn to fit experimental data with theoretical models and interpret the data

OE-04:
Title of The Paper: Electrochemistry, Corrosion and Metallurgy
Course Outcomes: Upon completion of the course students will be able to
CO1: Understand the concept of conductance in electrolytic solutions, electrolysis and redox reactions involved in electrode reactions.
CO2: Learn the different types of electrochemical cells, their symbolical representation and application of electrochemical series.
CO3: Apply conduct metric, potentiometric and pH titrations
CO4: Know the principle, construction and working of batteries
CO5: Understand different types of corrosion and its prevention by different methods
CO6: Learn the methods of extraction of metals from their ores and purification

DEPARTMENT OF PHYSICS

DSC-1
Title of the paper: Mechanics & Properties of Matter
Course Outcomes: Upon completion of the course students will be able to
CO1: Fixing units, tabulation of observations, analysis of data (graphical/analytical).
CO2: Accuracy of measurement and sources of errors, importance of significant figures.
CO3: Knowledge of how g can be determined experimentally and derive satisfaction.
CO4: Understanding the difference between simple and torsional pendulum and their use in the determination of various physical parameters.
CO5: Knowledge of how various elastic moduli can be determined.
CO 6: Measuring surface tension and viscosity and appreciate the methods adopted.
CO7: Hands on experience of different equipment's.

DSC-2
Title of the paper: Electricity and Magnetism
Course Outcomes: Upon completion of the course students will be able to
CO1: Demonstrate Gauss law, Coulomb's law for the electric field, and apply it to systems of point charges as well as line, surface, and volume distributions of charges.
CO2: Explain and differentiate the vector (electric fields, Coulomb's law) and scalar (electric potential, electric potential energy) formalisms of electrostatics.
CO3: Apply Gauss's law of electrostatics to solve a variety of problems.
CO4: Describe the magnetic field produced by magnetic dipoles and electric currents.
CO5: Explain Faraday-Lenz and Maxwell laws to articulate the relationship between electric and magnetic fields.
CO6: Describe how magnetism is produced and list examples where its effects are observed.
CO7: Apply Kirchhoff's rules to analyze AC circuits consisting of parallel and/or series combinations of voltage sources and resistors and to describe the graphical relationship of resistance, capacitor and inductor.
CO8: Apply various network theorems such as Superposition, Thevenin, Norton, Reciprocity,• Maximum Power Transfer, etc. and their applications in electronics, electrical circuit analysis, and electrical machines.

DSC-3
Title of the paper: Wave Motion and Optics
Course Outcomes: Upon completion of the course students will be able to
CO1: Identify different types of waves by looking into their characteristics.

CO2: Formulate a wave equation and obtain the expression for different parameters associated with waves.
CO3: Explain and give a mathematical treatment of the superposition of waves under different conditions, such as, when they overlap linearly and perpendicularly with equal or different frequencies and equal or different phases.
CO4: Describe the formation of standing waves and how the energy is transferred along the standing wave in different applications, and mathematically model in the case of stretched string and vibration of a rod.
CO5: Give an analytical treatment of resonance in the case of open and closed pipes in general and Helmholtz resonators in particular.
CO6: Describe the different parameters that affect the acoustics in a building, measure it and control it.
CO7: Give the different models of light propagation and phenomenon associated and measure the parameters like the wavelength of light using experiments like Michelson interferometer, interference and thin films.
CO8: Explain diffraction due to different objects like singles slit, two slits, diffraction of grating, oblique incidence, circular aperture and give the theory and experimental setup for the same.
CO9: Explain the polarization of light and obtain how the polarization occurs due to quarter wave plates, half wave plates, and through theoretical activity of a medium.

DSC-4

Title of the paper : Thermal Physics & Electronics

Course Outcomes: Upon completion of the course students will be able to

CO1: Apply the laws of thermodynamics and analyse the thermal system.
CO2: Apply the laws of kinetic theory and radiation laws to the ideal and practical thermodynamics systems through derived thermodynamic relations.
CO3: Use the concepts of semiconductors to describe different Semiconductor devices such as diode transistors, BJT, FET etc. and explain their functioning.
CO4: Explain the functioning of OP-AMPS and use them as the building blocks of logic gates.
CO5: Give the use of logic gates using different theorems of Boolean algebra followed by logic circuits.

DEPARTMENT OF MATHEMATICS

DSCT 1.1
Title of the paper: Algebra - I and Calculus – I
Course Outcomes: Upon completion of the course students will be able to
CO1: Learn to rank of a matrix.
CO2: Solve the system of homogeneous and non-homogeneous linear of m equations in' n' variables by using concept of rank of matrix, finding Eigen values and Eigen vectors
CO3: Students will be familiar with the techniques of find nth derivatives of.
CO4:Identify and apply the intermediate value theorems and Hospital's rule.

DSC 1.1
Title of the paper:: Practical's on Algebra - I and Calculus – I
Course Outcomes: Upon completion of the course students will be able to
CO1: Learn Free and Open Source Software (FOSS) tools for computer programming Solve problem on algebra and calculus theory studied in MATDSCT 1.1 by using FOSS
CO2: Solve problem on algebra and calculus theory studied in MATDSCT 1.1 by using FOSS software's
CO3: Acquire knowledge of applications of algebra and calculus through FOSS Practical / Lab Work to be performed in Computer Lab

OET 1.1
Title of the paper:: Mathematics – I
Course Outcomes: This course will enable the students to gain hands-on experience of
CO1: Learn to solve system of linear equations.
CO2: Solve the system of homogeneous and non-homogeneous m linear equations by using the concept of rank of matrix, finding Eigen values and Eigen vectors.
CO3: Students will be familiar with the techniques of differentiation of function with real variables.
CO4: Identify and apply the intermediate value theorems and Hospital's rule.
CO5: Learn to evaluate integrals, find arc -lengths, areas and volume.

DSC 2.1
Title of the paper: Algebra - II and Calculus – II
Course Outcomes: This course will enable the students to gain hands-on experience of

CO1: Recognize the mathematical objects called Groups.
CO2: Link the fundamental concepts of groups and symmetries of geometrical objects.
CO3: Explain the significance of the notions of cosets, normal subgroups and factor groups.
CO4: Understand the concept of differentiation and fundamental theorems in differentiation.
CO5: Find the extreme values of functions of two variables.

DSCP 2.1
Title of the paper: On Algebra -II and Calculus – II
Course Outcomes: This course will enable the students to gain hands-on experience of
CO1: Learn Free and Open Source Software (FOSS) tools for computer programming
CO2: Solve problems on algebra and calculus by using FOSS.
CO3: Acquire knowledge of applications of algebra and calculus through FOSS Practical/Lab Work to be performed in Computer Lab.

OE- 2.1
Title of the paper:: Mathematics –II
Course Outcomes: This course will enable the students to gain hands-on experience of
CO1: learn how to find the roots of equations. relation between roots and coefficients.
CO2: learn Descartes' rule of signs to find roots.
CO3: Understand the concept of differentiation.
CO4: Find the extreme values of functions of two variables.
CO5:To understand the concepts of multiple integrals and their applications.

DSC- 3.1
Title of the paper: Ordinary Differential Equations and Real Analysis – I
Course Outcomes: This course will enable the students to gain hands-on experience of
CO1: Solve first-order non-linear differential equations and linear differential equations.
CO2: To model problems in nature using Ordinary Differential Equations.
CO3: Formulate differential equations for various mathematical models.
CO4: Apply these techniques to solve and analyze various mathematical models.
CO5: Understand the fundamental properties of the real numbers that lead to define sequence and series, the formal development of real analysis.
CO6: Learn the concept of Convergence and Divergence of a sequence.
CO7: Able to handle and understand limits and their use in sequences, series, differentiation, and integration.
CO8: Apply the ratio, root, alternating series, and limit comparison tests for convergence and absolute convergence of an infinite series.

DSC 3.1
Title of the paper: Practical's on Ordinary Differential Equations and Real Analysis – I
Course Outcomes: This course will enable the students to gain hands-on experience of
CO1: Free and Open Source software (FOSS) tools or computer programming.
CO2: Solving exact differential equations • Plotting orthogonal trajectories
CO3: Finding complementary function and particular integral of linear and homogeneous differential equations.

CO4: Acquire knowledge of applications of real analysis and differential equations.
CO5: Verification of convergence/divergence of different types of series.

DSC4.1
Title of the paper: Partial Differential Equations and Integral Transforms
Course Outcomes: This course will enable the students to gain hands-on experience of
CO1: Formulate, classify and transform partial differential equations into canonical form.
CO2: Solve the partial differential equations of the first order and second order
CO3: Solve linear and non-linear partial differential equations using various methods; and apply these methods to solving some physical problems.
CO4: Able to take more courses on wave equation, heat equation and Laplace equation.
CO5: Solve PDE by Laplace transforms.

DSC 4.1
Title of the paper: Practical's on Partial Differential Equations and Integral Transforms
Course Outcomes: This course will enable the students to gain hands-on experience of
CO1: Learn Free and Open Source Software (FOSS) tools or computer programming.
CO2: Solve problems on Partial Differential Equations and Integral Forms
CO3: To find Laplace transform of various functions
CO4: To find the Fourier Transform of periodic functions
CO5: To solve differential equations by using Integral transforms.

DSC: 5.1
Title of the paper: Paper BSc 5th semester :12525
Course Outcomes: This course will enable the students to gain hands-on experience of
CO1: Recognize the mathematical objects called groups
CO2: Link the fundamental concepts of groups and symmetric groups.
CO3: Explain the significance of the notions of costs, normal subgroups, factor
CO4: Groups, Order of an element and cyclic groups,
CO5: Analyze consequences of Lagrange's theorem.
CO6: Understand some properties of Rings, fields and integral domains
CO7: Learn Free and Open Source Software (FOSS) tools for computer programming
CO8: Solve problem on algebra by using FOSS software's.
CO9: Acquire knowledge of applications of algebra through FOSS

DSC: 6
Title of the paper: Paper-VI: 12526
Course Outcomes: This course will enable the students to gain hands-on experience of
CO1: Learn the concept of vector functions and vector fields.
CO2: Apply the concept of Gradient, divergence and curl of vector function fields
CO3: Realize importance of Green, Gauss and Stokes' theorems in other branches of mathematics.
CO4: Learn Free and Open Source Software (FOSS) tools for computer programming
CO5: Solve problem on vector calculus by using FOSS software's.

CO6: Acquire knowledge of applications of vector calculus through FOSS.

DSC 6.1

Title of the paper: BSc 6th semester Paper VII: 11625

Course Outcomes: This course will enable the students to gain hands-on experience of

CO1: Understand the concepts of vector spaces, subspaces, bases, dimension and their properties.

CO2: Relate matrices and linear transformations, compute Eigen values and Eigen vectors of linear transformations.

CO3: Learn properties of inner product spaces and determine orthogonality in inner product spaces.

CO4: Learn the concept of basis, sub basis, dimension of vector functions and fields.

CO5: Explain Rank nullity theorem

CO6: Obtain numerical solutions of algebraic and transcendental equations find numerical solutions of system of linear equations and check the accuracy of the solutions.

CO7: Obtain integration by numerical methods.

CO8: Learn about various interpolating and extrapolating methods.

DSC : 6.2

Title of the paper: BSc 6th semester Paper VIII: 11626

Course Outcomes: This course will enable the students to gain hands-on experience of

CO1: Solve initial and boundary value problems in differential equations using numerical methods.

CO2: Visualize complex numbers as points of ℝ□ and stereographic projection of complex plane on the Riemann sphere.

CO3: Understand the significance of differentiability and analyticity of complex functions leading to the Cauchy-Riemann equations.

CO4: Learn the role of Cauchy-Goursat theorem and Cauchy integral formula in evaluation of contour integrals.

CO5: Apply Liouville's theorem in fundamental theorem of algebra.

CO6: Learn the concept of bilinear transformation, conformal mappings, rotational mapping, Translation, magnification, inversion.

DSC : 6.3

Title of the paper: BSc 6th semester Paper VIII (Practical)

Course Outcomes: This course will enable the students to gain hands-on experience of

CO1: Learn Free and Open Source Software (FOSS) tools for computer programming

CO2: Solve problem on linear algebra by using FOSS software's.

CO3: Acquire knowledge of applications of linear algebra through FOSS

CO4: Solve problem on numerical methods by using FOSS software's.

CO5: Acquire knowledge of applications of numerical methods through FOSS

CO6: Solve problem on complex analysis by using FOSS software's.

CO7: Acquire knowledge of applications of complex analysis through FOSS

DEPARTMENT OF BOTANY

DSC 1.
Title of the paper: Microbial Diversity and Technology
Course Outcomes: By the end of the course the student will be able to
CO1: Understand the fascinating diversity, evolution, and significance of microorganisms.
CO2: Comprehend the systematic position, structure, physiology and life cycles of microbes and their impact on humans and environment.
CO3: Gain laboratory skills such as microscopy, microbial cultures, staining, identification, preservation of microbes for their applications in research and industry.

DSC 2.
Title of the paper: Diversity of Non- Flowering Plants
Course Outcomes: By the end of the course the student will be able to
CO1: Understand the diversity and affinities among Algae, Bryophytes, Pteridophytes and Gymnosperms.
CO2: Understand the morphology, anatomy, reproduction and life cycle across Algae, Bryophytes, Pteridophytes and Gymnosperms, and their ecological and evolutionary significance.
CO3: Obtain laboratory skills/explore non-flowering plants for their commercial applications.

DSC 3.
Title of the paper: Plant Anatomy and Developmental Biology
Course Outcomes: By the end of the course the student will be able to
CO1: Observation of variations that exist in internal structure of various parts of a plant and
as well as among different plant groups in support for the evolutionary concept
CO2: Skill development for the proper description of internal structure using botanical terms, their identification and further classification
CO3: Understanding the basic concepts Plant-morphogenesis, embryology, and organ development

DSC 4.
Title of the paper: Ecology &Conservation Biology
Course Outcomes: By the end of the course the student will be able to
CO1: Understanding the fundamental concepts in Ecology. environmental science and
Phytogeography

CO2: Concept development in conservation, global ecological crisis, sustainable development and pros and cons of human intervention.
CO3: Enable the student to appreciate bio diversity and the importance of various conservation strategies, laws and regulatory authorities and global issues related to climate change and sustainable development.

DSC5
Title of the paper: Plant Taxonomy &Resource Botany
Course Outcomes: By the end of the course the student will be able to
CO1: Ability to identify, classify and describe the plants in scientific terms. Identification of plants using dichotomous keys.
CO2: Recognition, processing and utilization of economically important plants
CO3: Skill development in processing of biomass and plant products as source of food.healthcare, energy and natural products.

DSC 6.
Title of the paper: Cell Biology & Genetics
Course Outcomes: By the end of the course the student will be able to
CO1: Identify the basic principles and current trends in classical genetics and Cell biology
CO2: Recognize the historical process of the evolution of molecular genetics from classical genetics
CO3: Develop theoretical background on molecular genetics to provide a strong support for the student for future research and employability.

DSC 7.
Title of the paper: Plant Physiology & Biochemistry
Course Outcomes: By the end of the course the student will be able to
CO1: Preliminary understanding of the basic functions and intermediary metabolism in a plant body.
CO2: Awareness on the interdisciplinary nature of botany, chemistry and physics by studying the principles of plant life, growth and reproduction
CO3: Recognizing the wonderful mechanism of transport and the Interrelationships existing between metabolic pathways thereby gaining and idea about the importance of plants in the dynamicity of nature.

DSC 8.
Title of the paper: Plant Biotechnology
Course Outcomes: By the end of the course the student will be able to
CO1: Leaning of knowledge & skill in plant tissue culture, plant molecular biology and transgenic
CO2: Application of plant biotechnology in plant genomics, phylogenetic studies and metabolic engineering
CO3: Understanding of new molecular techniques in cell and metabolic manıpulations

DEPARTMENT OF B.SC – COMPUTER SCIENCE

DSC 1.1
Title of the paper: Problem Solving Techniques
Course Outcomes: By the end of the course the student will be able to
CO1: Understand the fundamental concepts of computers, algorithms, flowcharts and problem-solving techniques.
CO2: Apply the basic knowledge of mathematical factoring methods to model an algorithm, flowchart for a given problem
CO3: Apply merging, sorting, searching and text processing techniques to develop algorithms.
CO4: Analyze the given problem, use appropriate array technique and write an effective report.

DSC 1.2
Title of the paper: Problem Solving Using C Hll
Course Outcomes: By the end of the course the student will be able to
CO1: Illustrate and explain the basic computer concepts and programming principles of C language.
CO2: Develop C programs to solve simple mathematical and decision-making problems.
CO3: Develop C programs to solve simple engineering problems using looping constructs.
CO4: Develop C programs to demonstrate the applications of derived data types such as arrays, pointers, strings and functions.

DSC 1.3
Title of the paper: Digital Fluency
Course Outcomes: By the end of the course the student will be able to
CO1: Learner demonstrates proficiency using digital tools.
CO2: Learner leverages technological concepts and methods within the context of learning experiences.
CO3: Learner uses digital media and environments to communicate effectively.
CO4: Learner uses digital media and environments to acquire knowledge or skill.
CO5: Learner uses digital tools to demonstrate learning or create original work. Learner practices safe, professional, legal and ethical behavior across multiple platforms.
DSC 2.1
Title of the paper: Data Structures
Course Outcomes: By the end of the course the student will be able to
CO1: Understanding of fundamental Data Structures including linked-lists, trees, binary search trees, AVL trees, stacks, queues, priority queues, and hash-tables.

CO2: Understanding of fundamental abstract data types which can include: Maps, Sets and Vectors.
CO3: Ability to program data structures and use them in implementations of abstract data types.
CO4: Ability to devise novel solutions to small scale programming challenges involving data structures and recursion.
CO5: Understanding of basic algorithmic complexity.
CO6: Ability to estimate the algorithmic complexity of simple, non-recursive programs
CO7: Ability to perform simple inductive proofs and proofs by contradiction and reason about program correctness and invariants.
CO8: Ability to sensibly select appropriate data structures and algorithms for problems and to justify that choice.

DSC 2.2
Title of the paper: Data Structures Lab
Course Outcomes: By the end of the course the student will be able to
CO1: Understand the concept of data structures and apply algorithm for solving problems like Sorting, searching, insertion and deletion of data.
CO2: Understand linear data structures for processing of ordered or unordered data.
CO3: Explore various operations on dynamic data structures like single linked list, circular linked list and doubly linked list.
CO4: Explore the concept of nonlinear data structures such as trees and graphs.
CO5: Understand the binary search trees, hash function, and concepts of collision and its resolution methods

DSC 3.1
Title of the paper: Object Oriented Programming Using Java
Course Outcomes: By the end of the course the student will be able to
CO1: knowledge of the structure and model of the Java programming language, (knowledge)
CO2: use the Java programming language for various programming technologies (understanding)
CO3: develop software in the Java programming language, (application)
CO4: Evaluate user requirements for software functionality required to decide whether the Java programming language can meet user requirements (analysis)
CO5: Propose the use of certain technologies by implementing them in the Java programming language to solve the given problem (synthesis)
CO6: Choose an engineering approach to solving problems, starting from the acquired knowledge of programming and knowledge of operating systems (evaluation)

DSC 3.2
Title of the paper: Java Programming Using Lab
Course Outcomes: By the end of the course the student will be able to
CO1: Use an integrated development environment to write, compile, run, and test simple object-oriented Java programs.
CO2: Read and make elementary modifications to Java programs that solve real-world problems.
CO3: Validate input in a Java program.
CO4: Identify and fix defects and common security issues in code.
CO5: Document a Java program using Javadoc.
CO6: Use a version control system to track source code in a project.

DSC 3.3

Title of the paper: Artificial Intelligence

Course Outcomes: By the end of the course the student will be able to

CO1: AppraisethetheoryofArtificialintelligenceandlistthesignificanceofAI.

CO2: Discuss the various components that are involved in solving an AI problem.

CO3: Illustrate the working of AI Algorithms in the given contrast.

CO4: Analyze the various knowledge representation schemes, Reasoning and Learning Techniques of AI.

CO5: ApplytheAIconceptstobuildanexpertsystemtosolvethereal-worldproblems.

DSC 4.1

Title of the paper: Operating Systems

Course Outcomes: By the end of the course the student will be able to

CO1: Analyze basic concepts of operating system and their structures.

CO2: Analyze various issues related to inter process communication like process scheduling, resource management and deadlocks.

CO3: Interpret the issues and challenges of memory management.

CO4: Synthesize the concepts of I/O management, file system implementation and problems related to security and protection

DSC 4.2

Title of the paper: Unix Lab

Course Outcomes: By the end of the course the student will be able to

CO1. You will be able to run various UNIX commands on a standard UNIX/LINUX Operating system

CO2. You will be able to run C / C++ programs on UNIX.

CO3. You will be able to do shell programming on UNIX OS.

CO4. You will be able to understand and handle UNIX system calls.

DSC 5.1

Title of the paper: Visual Programming

Course Outcomes: By the end of the course the student will be able to

CO1: Demonstrate fundamental skills in utilizing the tools of a visual environment such as command, menus and toolbars.

CO2: Implement SDI and MDI applications using forms, dialogs, and other types of GUI components.

CO3: Understand the connectivity between VB with MS-ACCESS, ORACLE and SQL and SQL database

CO4: Implement the methods and techniques to develop projects.

DSC 5.1

Title of the paper: Visual Programming Lab

Course Outcomes: By the end of the course the student will be able to

CO1: Design, create, build, and debug Visual Basicapplications.Explore Visual Basic's Integrated Development Environment (IDE).

CO2: Implement syntax rules in Visual Basicprograms.

CO3: Write Visual Basic programs using object-oriented programming techniques including

classes, objects, methods, instance variables, composition, and inheritance, and Polymorphism.
CO4: Write Windows applications using forms, controls, and events.

DSC 6.1

Title of the paper: Computer Networks

Course Outcomes: By the end of the course the student will be able to

CO1: Explain basic concepts, OSI reference model, services and role of each layer of OSI model and TCP/IP, networks devices and transmission media, Analog and digital data transmission
CO2: Apply channel allocation, framing, error and flow control techniques.
CO3: Describe the functions of Network Layer i.e., Logical addressing, subnetting & Routing Mechanism.
CO4: Explain the different Transport Layer function i.e. Port addressing, Connection Management, Error control and Flow control mechanism.
CO5: Explain the functions offered by session and presentation layer and their Implementation.
CO6: Explain the different protocols used at application layer i.e. HTTP, SNMP, SMTP, FTP, TELNET and VPN.

DSC 6.2

Title of the paper: Web Programming

Course Outcomes: By the end of the course the student will be able to

CO1: Demonstrate and understand the basic concepts of web programming
CO2: Write well-structured, easily maintained, standards-compliant, web pages using HTML and CSS code.
CO3: Use JavaScript to add dynamic content to pages that meet specific needs and interests.
CO4: Use JavaScript libraries jQuery and AngularJS to create dynamic pages.
CO5: Apply techniques of form validation using Java Script.
CO6: Describe important concepts related to client-side Web Security.

DSC 6.3

Title of the paper: Web Programming Lab

Course Outcomes: By the end of the course the student will be able to

CO1: Analyze a web page and identify its elements and attributes.
CO2: Create web pages using XHTML and Cascading Style Sheets.
CO3: Build dynamic web pages using JavaScript (Client-side programming).
CO4: Create XML documents and Schemas.

DSC 6.4

Title of the paper: Computer Application And Information Technology

CO1: Understanding the concept of input and output devices of Computers
CO2:Learn the functional units and classify types of computers, how they process information and how individual computers interact with other computing systems and devices.
CO3:Understand an operating system and its working, and solve common problems related to operating systems
CO4: Learn basic word processing, Spreadsheet and Presentation Graphics Software skills.
CO5: Study to use the Internet safely, legally, and responsibly

DEPARTMENT OF BIOTECHNOLOGY

Title of the paper: BTT 101 – Cell Biology, Genetics and Biochemistry
Course Outcomes: Upon completion of the course students will be able to

CO 1: Understand basics of genetics & classical genetics and restate the various types of gene interactions and genetic recombination

CO 2: Familiarize with the structural and functional aspects of cell and its different organelles and understand the cyclic events of cell division, cell signalling, cell death and cellular aging

CO 3: Appreciate the structure and importance of various Biomolecules involved in sustenance and perpetuation of living organisms.

CO 4: Explain classification, properties, characterization and mechanism of enzymes

Title of the Practical paper: BTP 101 – Cell Biology, Genetics and Biochemistry
Course Outcomes: Upon completion of the course students will be able to

CO 1: Demonstrate the use of compound microscope and colorimeter.

CO 2: Adopt staining techniques to observe mitosis and meiosis.

CO 3: Execute colorimetric estimations of reducing sugars, amino acids and proteins

CO 4: Study and analysis of Human Karyotype- Normal and Abnormal

Title of the paper: BTT 201 – Microbiology

CO 1: Explain the fundamentals of microscopy, staining and sterilization used in microbiology.

CO.2: Appraise the essential concepts of microbial nutrition and growth.

CO 3: Summarize the structure and life cycle of a virus.

CO 4: Describe the ultrastructure of bacteria.

CO.5: Illustrate the characteristics, classification and reproduction of fungi and algae.

Title of the Practical paper: BTP 201 – Microbiology

CO .1: Demonstrate safety measures, instrumentation and sterilization methods in a microbiology laboratory.

CO .2: Formulate media for the isolation, culture and enumeration of microorganisms.

CO .3: Perform fundamental staining techniques and biochemical tests for the identification of bacteria and fungi.

CO.4: Execute biochemical tests to study microbial metabolism

Title of the paper: BTT 301 – Molecular Biology and Biophysics

CO.1 Explain the chemical and molecular processes that occur in and between the cells.

CO.2 Summarize the events and mechanisms of Transcription and Translation

CO.3 Understand how gene expression is regulated

CO.4 Describe principles, methods and applications of Spectroscopy, Chromatography and Centrifugation

Title of the Practical paper: BTP 302 – Molecular Biology and Biophysics

CO.1 Perform colorimetric estimations of DNA and RNA

CO.2 Separation of biomolecules using paper and column Chromatography6

CO.3 Execute extraction and estimation of proteins from different sources

CO.4 Demonstrate proficiency in understanding the concept of recombination in bacteria

Title of the paper: BTT 401 – Genetic Engineering

CO.1 Explain the basic principles and, the tools and techniques of Genetic engineering

CO.2 Understand the mechanism of creation of recombinant DNA
CO.3 Describe the process of Screening and selection of recombinant
CO.4 Illustrate the applications of genetic engineering in various fields.

Title of the Practical paper: BTP 401 – Genetic Engineering

CO.1 Demonstrate the use of various instruments and apparatus

CO.2 Execute isolation and quantification of DNA from different sources

CO.3 Master the technique of vertical and horizontal electrophoresis

CO.4 Study bacterial transformation and the methods used to test efficiency of transformed cells

Title of the paper: BTT 501 – Environmental Biotechnology and Immunotechnology

CO .1 Understand Renewable, Non-Renewable resources of energy, Conventional fuels and Modern fuels
CO .2 Describe the role of micro organisms in nitrogen fixation
CO .3 Understand the use of basic microbiological, molecular and analytical methods, which are extensively used in bioremediation and waste water treatment
CO .4 Describe the cells and organs of the immune system
CO .5 Identify the properties and functions of complement systems
CO .6 Learn about vaccines, immunization and its importance

Title of the Practical paper: BTP 501 – Environmental Biotechnology and Immunotechnology

CO .1 Perform estimation of BOD and Total Hardness of Water
CO.2 Execute temporary preparations of VAM and Rhizobium to formulate biofertilizers
CO.3 Demonstrate bacterial examination of water by MPN method
CO.4 Perform Ag-Ab reactions viz.. Blood grouping, VDRL, Widal Test etc.
CO.5 Execute separation of immunoglobulins from blood

Title of the paper: BTT 601 – Plant and Animal Biotechnology

CO.1 Study basic concept and techniques of plant tissue and animal cell culture
CO.2 Explain propagation techniques for elite species and in vitro production of secondary metabolite
CO.3 Understand plant transformation technique
CO.4 Describe different types of Animal cell culture media and explantation techniques
CO.5 Appraise the applications of protoplast culture and edible vaccinbes
CO.6 Appraise the applications of stem cell culture and transgenic animals

Title of the Practical paper: BTP 601 – Plant and Animal Biotechnology

CO.1 Execute preparation and sterilization of plant tissue culture media

CO.2 Perform surface sterilization and inoculation of explants for Callus, Leaf disc and Meristem Culture

CO.3 Demonstrate isolation of protoplast and assess their viability through Dye Exclusion Method

CO.4 Learn preparation of Hank's Balanced Salt Solution

CO.5 Master isolation of liver parenchyma cells and PMN Leucocytes

Title of the paper: BTT 701 - Industrial Biotechnology

CO.1 Illustrate the various aspects of Biotechnological applications in Fermentation Industries.

CO.2 Describe the principles underlying design of Fermenters, Fermentation Process and downstream processing and its applications.

CO.4 Integrate scientific and technological knowledge on the use of bioprocesses for industrial products

CO.5 Apply the practical skills for entrepreneurial development.

Title of the Practical paper: BTP 701 - Industrial Biotechnology

CO.1. Perform culture of Spirullina, Agaricus, Yeast and Aspergillus

CO.2. Execute citric acid, lactic acid, and lactose and alcohol estimation.

CO.3. Demonstrate immobilization of yeast cells using gel entrapment.

CO.4. Execute wine preparation

Title of the paper: BTT 801 - Bioinformatics, Bio entrepreneurship and bioresearch

CO.1 Introduction to bioinformatics and its role in biotechnology

CO.2 Learn different biological databases present in bioinformatics and understand how to generate data, tools for generation of data, classify data, manipulate data and retrieve data

CO.3 Appraise the need and scope of Intellectual property rights

CO.4 Know about trademarks, industrial designs, and copyright and filing patents, process, and infringement

CO.5 Summarize necessity of Bioethics, different paradigms of Bioethics – National & International and Ethical issues against the molecular technologies.

CO.6 Identify importance of entrepreneurship and establishing and financing the enterprise, marketing management

CO.7 Understand importance of Research Methodology in life sciences and identification of research problem identification and formulation

CO.8 Learn writing research hypothesis

Title of the Practical paper: BTP 801 Project Work

CO.1 Effectively engage students and provide a practical application for what they're learning

CO.2 Provide opportunities for students to collaborate or drive their own learning

CO.3 teach skills such as problem solving, and help to develop additional skills integral to their future, such as critical thinking and time management

CO.4 Execute handling problems in an effective way

KLE Society's
S. NIJALINGAPPA COLLEGE
II-Block, Rajajinagar, Bengaluru-10
Re-accredited by NAAC at A+ grade with 3.53 CGPA
College with UGC-STRIDE Component – I
Phone: 080-23526055, 080-23325020, Fax 080-23320902
Website: www.klesnc.org E-mail: info@klesnc.org kleaccts@yahoo.com

DEPARTMENT OF ZOOLOGY

DSC 1

Title of the paper: Cytology, Genetics and Infectious diseases

Course Outcomes (COs): At the end of the course the student should be able to:

CO 1 : The structure and function of the cell and cell organelles.

CO 2. The basic principle of life, how a cell divides leading to the growth of an

CO 3. The principles of inheritance, Mendel 's laws and the deviations.

CO 4. Detect chromosomal aberrations in humans and study of pedigree

DSC 2

Title of the paper: Biochemistry and physiology

Course Outcomes (COs): At the end of the course the student should be able to

CO 1: To develop a deep understanding of structure of biomolecules like proteins, lipids and carbohydrates.

CO 2 To understand the thermodynamics of enzyme catalysed reactions.

CO 3: Mechanisms of energy production at cellular and molecular levels.

CO 4: To comprehend the regulatory mechanisms for maintenance of function in the body

DSC 3

Title of the paper: Molecular biology, Bioinstrumentation and Techniques in Biology

Course Outcomes (COs): At the end of the course the student should be able to

CO 1: Molecular Biology will provide a fantastic opportunity to develop professional skill related to the field of molecular biology.

CO 2: The course will mainly focus on the study of principal molecular events of cell incorporating DNA Replication, Transcription and Translation in prokaryotic as well as eukaryotic organisms.

CO 3: Acquiring knowledge on instrumentation and techniques in biology.

CO 4. They can perform techniques involved in molecular biology and diagnosis of diseases.

DSC 4

Title of the paper: Gene technology, Immunology and computational Biology

Course Outcomes (COs): At the end of the course the student should be able to

CO 1: Acquaint knowledge on versatile tools and techniques employed in genetic engineering and recombinant DNA technology

CO 2: An understanding on application of genetic engineering techniques in basic and applied experimental biology

CO 3: To acquire a fundamental working knowledge of the basic principles of immunology.

CO 4: Calculate the mean, median, mode and standard deviation (Measurement of pre and post clitellar lengths (with suitable examples).

DSC 5

Title of the paper: Non – Chordate and Economic Zoology

Course Outcomes (COs): At the end of the course the student should be able to

CO 1: Group animals on the basis of their morphological characteristics/structures.

CO 2: Demonstrate comprehensive identification abilities of Non-Chordate diversity

CO 3: Explain structural and functional diversity of Non-Chordates

CO 4: Develop the knowledge of economic animals.

DSC 6

Title of the paper: Non – Chordates and Comparative anatomy

Course Outcomes (COs): At the end of the course the student should be able to

CO 1: Demonstrate comprehensive identification abilities of chordate diversity

CO 2: Explain structural and functional diversity of chordate diversity

CO 3: Understand evolutionary relationship amongst chordates

CO 4:. Realize the integumentary system of chordates

DSC 7

Title of the paper: Evolutionary & Developmental Biology

Course Outcomes (COs): At the end of the course the student should be able to

CO 1: Understand that by biological evolution we mean that many of the organisms that inhabit the earth today are different from those that inhabited it in the past.

CO 2: Understand that natural selection is one of several processes that can bring about evolution, although it can also promote stability rather than change.
CO 3: Understand how the single cell formed at fertilization forms an embryo and then a full adult organism.
CO 4: Understand a variety of interacting processes, which generate an organism¡¦s heterogeneous shapes, size, and structural features.

DSC 8

Title of the paper: Environmental Biology, Wildlife Management &Conservations

Course Outcomes (COs): At the end of the course the student should be able to

CO 1: Develop an understanding of how animals interact with each other and their natural environment.
CO 2: Develop the ability to use the fundamental principles of wildlife ecology to solve local, regional and national conservation and management issues.
CO 3: Develop the ability to work collaborative team-based projects.
CO 4:Gain an appreciation for the modern scope of scientific inquiry in the field of wildlife conservation management.

KLE Society's

S. NIJALINGAPPA COLLEGE

II-Block, Rajajinagar, Bengaluru-10

Re-accredited by NAAC at A+ grade with 3.53 CGPA

College with UGC-STRIDE Component – I

Phone: 080-23526055, 080-23325020, Fax 080-23320902

Website: www.klesnc.org E-mail: info@klesnc.org kleaccts@yahoo.com

DEPARTMENT OF FAD

DSC 1.1

Title of the paper: Textile Science

Course Outcomes : At the end of the course the student should be able to

CO 1: Understand the classification, characteristics and use of textile fibres
CO 2: Analyse the basic components of fibres and their relationship to performance.
CO 3: Gain knowledge of fibres, yarns, methods of fabric construction.
CO 4: Understand the performance and suitability of fabric for apparels.
CO 5: Identify and differentiate fabric structures and types.
CO 6: Design and develop woven fabrics.

DSC 1.2

Title of the paper: Textile Science(Practical)

Course Outcomes : At the end of the course the student should be able to

CO 1: Identify fibres, sources, and their properties.
CO 2: Gain knowledge of yarn types and their properties
CO 3: Demonstrate knowledge of textiles and application of skills in the product development.
CO 4: Analyse compatibility of fabric to meet performance criteria of textile

DSC 1.3

Title of the paper: Fundamentals of Fashion Design (Theory):

Course Outcomes : At the end of the course the student should be able to

CO 1: Understand Basic principles and techniques of fashion design.
CO 2: Learn all the fashion terminologies.
CO 3: Understand the principles of colour theory and their application.
CO 4: Develop a skill for drawing basic croqui and basic sketching

DSC 1.4

Title of the paper: Fundamentals of Fashion Design (Theory):

Course Outcomes : At the end of the course the student should be able to

CO 1: Learn basics of sketching with different colour schemes and modes.
CO 2: Practice dimensional sketching and colouring.
CO 3: Understand colour patterns and combination.

DSC 1.5

Title of the paper: Basics of Pattern Making and Garment Construction (Practical)

Course Outcomes: At the end of the course the student should be able to

CO 1: Classify sewing machines and understand their functioning
CO 2: Understand and learn pattern making techniques
CO 3: Learn basic pattern making terminologies.
CO 4: Construct basic pattern sets.

DSC 1.6

Title of the paper: Textiles and costumes of India

Course Outcomes: At the end of the course the student should be able to

CO 1: gain knowledge in historical textiles and design from the historical time till date.
CO 2: Understand about traditional woven textiles of different states of India.
CO 3: Learn about the traditional costumes of different states of India.

DSC 2.1

Title of the paper: Dyeing and Printing in Textiles (Theory)

Course Outcomes : At the end of the course the student should be able to

CO 1: Learn and practice the dyeing of textiles made by natural and synthetic fibres.
CO 2: Adapt the process parameters and use of dyeing machines for dyeing of textile materials.
CO 3: Select the dyes and recipes for preparation of printing paste for printing of textile materials.
CO 4: Apply various finishing treatment process and treat the fabric with different finishing agents.

DSC 2.2

Title of the paper: Dyeing and Printing in Textiles (Practical)

Course Outcomes: At the end of the course the student should be able to

CO 1: Gain practical knowledge on dyeing methods.
CO 2: Learn various methods of textile printing.
CO 3: Identify and treat common fabric stains

DSC 2.3

Title of the paper: Fashion Design & Illustration (Theory)

Course Outcomes : At the end of the course the student should be able to

CO 1: Develop a skill for drawing basic croqui with facial details.
CO 2: Create stylized croqui for fashion illustrations.
CO 3: Understand the design process of fashion forecasting and fashion research.
CO 4: Learn sketching technique of flats and specs.
CO 5: Understand the fashion clothing categories.

DSC 2.4

Title of the paper: Fashion Design & Illustration (Practical)

Course Outcomes : At the end of the course the student should be able to

CO 1: Understand the use of textures on various fabrics.
CO 2: Sketch human figures and understand shapes and features.
CO 3: Develop folio with design concepts inspired by designers

DSC 2.5

Title of the paper: Garment Detailing-I (Practicals)

Course Outcomes : At the end of the course the student should be able to

CO 1: Apply knowledge about industrial method of pattern making, grading and marker plan.
CO 2: Understand about garment sizes and categories.

CO 3: Handle special fabrics for garment construction.
CO 4: Learn minor and major garment construction techniques.

DSC 2.6

Title of the paper: Clothing care and maintenance

Course Outcomes : At the end of the course the student should be able to

CO 1: Understand washing methods for different types of clothing and storage.
CO 2: Differentiate between soaps and detergents.
CO 3: Gain knowledge about stain removal and care of expensive clothes.

DSC 3.1

Title of the paper: Fashion Art and Design (theory)

Course Outcomes : At the end of the course the student should be able to

CO 1: Understand the role of fashion illustration in fashion design.
CO 2: Analyse various fashion silhouettes and apply design concepts in fashion design.
CO 3: Identify various design elements to incorporate details like collars, necklines, sleeves, cuffs.
CO 4: Develop fashion figures with silhouettes and apply rendering techniques.

DSC 3.2

Title of the paper: Fashion art and design (practical)

Course Outcomes : At the end of the course the student should be able to

CO 1: Understand the concepts and usage of fashion research, forecasting and trend analysis in designing.
CO 2: Incorporate designing skills using high end rendering techniques.

DSC 3.3

Title of the paper: Garment detailing (theory)

Course Outcomes : At the end of the course the student should be able to

CO 1: Gain knowledge on industrial method of pattern making grading and marker plan.
CO 2: Understand garment sizes and categories.
CO 3: Understand fittings and pattern alteration techniques.
CO 4: Handling special fabrics for garment construction.

DSC 3.4

Title of the paper: Garment detailing II (practical)

Course Outcomes : At the end of the course the student should be able to

CO 1: Understand pattern layout, fabric estimation and garment Construction.

CO 2: Design and construct garment for men, women, and sport categories.
CO 3: Identify and select the suitable garment accessories and trims for the designed garments.

DSC 3.5

Title of the paper: Apparel computer aided design (practical)

Course Outcomes : At the end of the course the student should be able to

CO 1: Develop digital design Skills in Fashion Design.
CO 2: Understanding design Software to develop patterns.
CO 3: Create design by using different designing tools.
CO 4: Develop patterns for various garments with PDS.GDS

DSC 3.6

Title of the paper: Fashion make-over (theory)

Course Outcomes : At the end of the course the student should be able to

CO 1: Groom and style for any occasion.
CO 2: Acquire knowledge about various garments suitable for different occasions.
CO 3: Demonstrate knowledge and skills of makeover through reflective experiential learning.
CO 4: Bring about a change in personality through make over.

DSC 4.1

Title of the paper: Indian textiles and costumes (theory)

Course Outcomes : At the end of the course the student should be able to

CO 1: Understand history of textiles and its influence with reference to fashion clothing.
CO 2: Understand and use symbolic motifs and colour in designing traditional textiles.
CO 3: Acquaint with sketching skills of costumes for different regions of India.
CO 4: Understand the importance of Indian Costumes and use them in designing fashion designer wear.

DSC 4.2

Title of the paper: Indian textiles and costumes (practical)

Course Outcomes : At the end of the course the student should be able to

CO 1: Understand about evolution of Indian costumes since ancient times.
CO 2: Acquire knowledge of textiles and costumes and implement the techniques.
CO 3: Acquire skills in identifying traditional fabrics for designing.
CO 4: Ability to sketch and incorporate ancient designs.

DSC 4.3

Title of the paper: Textile and apparel testing (theory):

Course Outcomes : At the end of the course the student should be able to

CO 1: Understand the procedure to be followed in Textile Testing.

CO 2: Analyse the various tests for fibre, yarn, fabric, and garments.
CO 3: Understand the working principles of textile testing equipment's.

DSC 4.4

Title of the paper: Textile and apparel testing (practical)

Course Outcomes : At the end of the course the student should be able to

CO 1: Handle the textile testing equipment with ease.
CO 2: Understand the procedure to be followed to test fabrics and trims.

DSC 4.5

Title of the paper: Apparel production (practical)

Course Outcomes : At the end of the course the student should be able to

CO 1: Develop patterns as per Industrial Standards.
CO 2: Use skills in designing and garment construction of Men's and Women's garments
CO 3: Develop and understand Tech pack and Spec sheet
CO 4: Work confidently in production line of an apparel industry.

DSC 4.5

Title of the paper: Textile arts and crafts of India (theory)

Course Outcomes : At the end of the course the student should be able to

CO 1: Gain in-depth knowledge about Textile Art and Craft of India.
CO 2: Develop understanding of various Indian art and crafts.
CO 3: Understand the materials and process of developing arts and crafts in India.
CO 4: Appreciate the art and craft of India.

DSC 5.1

Title of the paper: Apparel Quality Management (Theory)

Course Outcomes: At the end of the course the student should be able to

CO 1: Understand the importance of quality management in apparel industry.
CO 2: Develop knowledge of quality control techniques and their applications.
CO 3: Learn about industry standards and regulations related to apparel quality.
CO 4: Understand the importance of environmental management system.

DSC 5.2

Title of the paper: Fashion Draping (Practical)

Course Outcomes: At the end of the course the student should be able to

CO 1: Understand the relationship between the body, fabric, and form in draping
CO 2: Understand grainlines, darts, tucks, and pleats in draping.

CO 3: Develop design ideas and concepts through draping exploration.
CO 4: Create unique and artistic garments by applying advanced draping techniques.

DSC 5.3

Title of the paper: Export Trade & Documentation (Theory)

Course Outcomes: At the end of the course the student should be able to

CO 1: Understand the legal and practical aspects of export documentation and trade.
CO 2: Develop the knowledge and skills to prepare and manage export documents.
CO 3: Analyze the risks and challenges associated with export trade and develop strategies to mitigate them
CO 4:. Understand the key components of international trade agreements and trade financing

DSC 5.4

Title of the paper: Fashion Accessories (Practical)

Course Outcomes: At the end of the course the student should be able to

CO 1: Develop an understanding of the historical and cultural significance of fashion accessories.
CO 2: Explore the various types of fashion accessories and their design principles.
CO 3: Examine the relationship between fashion accessories and overall fashion trends.
CO 4: Gain practical knowledge of the production and manufacturing processes offashion accessories.

DSC 5.5

Title of the paper: World Textiles and Costumes (Theory)

Course Outcomes: At the end of the course the student should be able to

CO 1: Develop a comprehensive understanding of the history and cultural significance of world textiles and costumes.
CO 2: Analyze the materials, techniques, and processes involved in textile production and costume design.
CO 3: Examine the social, economic, and political factors that influence textile and costume traditions.
CO 4: Explore the relationship between textiles, costumes, and identity, including gender, ethnicity, and social status.

DSC 5.6 A

Title of the paper: Clothing Culture and Communication

Course Outcomes: At the end of the course the student should be able to

CO 1: Analyze and interpret the meanings of clothing and fashion in different cultural contexts.
CO 2: Critically evaluate the role of clothing in the construction of identity and power dynamics
CO 3: Understand the impact of globalization on clothing and fashion industries and the cultures they represent.
CO 4: Communicate effectively about clothing and fashion in written and oral formats.
CO 5: Develop an appreciation for diverse cultural practices and values related to clothing and fashion.

DSC 5.6 B

Title of the paper: Logistics and Supply Chain Management in Apparel Industry (Theory)

Course Outcomes: At the end of the course the student should be able to

CO 1: Understand the role and importance of logistics in supply chain management.
CO 2: Identify and analyze the key components of logistics operations.
CO 3: Evaluate and select appropriate transportation modes and carriers.
CO 4: Design and optimize warehouse layout and operations.

DSC 5.6 C

Title of the paper: Forecasting and Trend Analysis (Theory)

Course Outcomes: At the end of the course the student should be able to

CO 1: Develop an understanding of forecasting and trend analysis.
CO 2: Create trend presentations and reports to communicate insights effectively.
CO 3: Use different techniques and tools in forecasting trend analysis.
CO 4: Understand the role of color forecasting, fabric selection, and textile innovation in trend forecasting

DSC 5.6 D

Title of the paper: Surface Design Techniques (Theory + Practical)

Course Outcomes: At the end of the course the student should be able to

CO 1: Understand a variety of surface design techniques and their applications.
CO 2: Develop practical skills in executing different surface design techniques.
CO 3: Encourage creativity and experimentation in the design process.
CO 4: Explore the historical and cultural contexts of surface design techniques

DSC 5.6 D

Title of the paper: Intimate Wear Designing (Theory + Practical)

Course Outcomes: At the end of the course the student should be able to

CO 1: Understand the fabrics, trims, and materials used in intimate wear, as well as the appropriate techniques for sewing and assembling lingerie garments.
CO 2: Learn about current trends, consumer preferences, and market demands in the intimate wear industry. Identify and analyze target markets, allowing them to create designs that cater to specific customer needs and desires.

DSC 6.1

Title of the paper: Fashion Marketing & Merchandising (Theory)

Course Outcomes: At the end of the course the student should be able to

CO 1: Understand the principles of fashion marketing.
CO 2: Analyze market segmentation and targeting strategies for fashion products.

CO 3: Develop a brand identity and marketing strategy for a fashion product.
CO 4: Evaluate the effectiveness of different marketing channels, such as social media, advertising, and public relations.

DSC 6.2

Title of the paper: Digital Fashion Studio (Practical)

Course Outcomes: At the end of the course the student should be able to

CO 1: Understand digital tools and technologies used in the fashion industry.
CO 2: Develop skills in digital sketching and illustration techniques.
CO 3: Create virtual fashion presentations and portfolio materials.
CO 4: Use 3D modelling and virtual prototyping for fashion.

DSC 6.3

Title of the paper: Fashion Styling (Theory)

Course Outcomes: At the end of the course the student should be able to

CO 1: Understand the principles of fashion styling and their ethical applications.
CO 2: Analyze fashion trends and apply them to create new looks.
CO 3: Develop a personal style and creative vision as a stylist.
CO 4: Understand the role of styling in editorial shoots, advertising campaigns, and runway shows.

DSC 6.3

Title of the paper: Fashion Portfolio and Design Collection (Practical)

Course Outcomes: At the end of the course the student should be able to

CO 1: Understand the importance and significance of portfolio.
CO 2: Adapt their artistic abilities to support future design careers.
CO 3: Develop confidence to contribute to the world of Fashion.

DSC 6.4

Title of the paper: Visual Merchandising (Theory)

Course Outcomes: At the end of the course the student should be able to

CO 1: Understand the fundamentals of visual merchandising and its impact on retail environments.
CO 2: Use various tools and techniques to enhance product presentation.
CO 3: Apply principles of visual merchandising to influence customer purchasing decisions.
CO 4: Design and execute effective visual merchandising displays

DSC 6.5 A

Title of the paper: Digital Fashion Marketing (Theory)

Course Outcomes: At the end of the course the student should be able to

CO 1: Understand the fundamentals of digital marketing and its relevance to fashion industry.

CO 2: Develop comprehensive digital marketing strategies for fashion brands.
CO 3: Utilize social media platforms effectively to build brand awareness and engage target audiences.
CO 4: Create compelling visual content for fashion marketing campaigns.

DSC 6.5 B

Title of the paper: Home Textiles (Theory)

Course Outcomes: At the end of the course the student should be able to

CO 1: Understand the role and importance of home textiles.
CO 2: Select appropriate fabrics for home textile products.
CO 3: Develop Creative Home Textiles for Interiors.
CO 4: Design home textile products to meet consumer demands.

DSC 6.5 C

Title of the paper: Business Ethics and Corporate Social Responsibility (Theory)

Course Outcomes: At the end of the course the student should be able to

CO 1: Understand the role of ethics and social responsibility in the business world.
Identify the principles of ethical decision-making and stakeholder theory.
CO 2: Analyze the impact of social responsibility and sustainability on business practices.
Apply best practices in business ethics and corporate social responsibility to real- world scenarios.

DSC 6.5 C

Title of the paper: Indian Textiles Art and Craft (Theory + Practical)

Course Outcomes: At the end of the course the student should be able to

CO 1: Gain a deep understanding of the rich history, cultural significance of Indian Textile Art and Craft.
CO 2: Understand the various techniques used in Indian textile art and craft.
CO 3: Learn about the importance of preserving traditional Indian textile art and craft.
CO 4: Promote sustainable and ethical practices in Indian textile art and craft.

DSC 6.5 D

Title of the paper: Leather Apparel and Accessories (Theory + Practical)

Course Outcomes: At the end of the course the student should be able to

CO 1: Understand the characteristics and properties of leather as a material for apparel and accessories.
CO 2: Explore various techniques and processes involved in working with leather.
CO 3: Develop design concepts and create original designs for leather apparel and accessories.
CO 4: Learn about sustainability practices in the leather industry and apply them to design and production processes.

Internship

Course Outcomes: At the end of the course the student should be able to

CO 1: Understand the working structure of the industry/ company / Craft Cluster.
CO 2: Analyze the methods adopted in the industry/ Craft Cluster.
CO 3: Correlate to the theoretical knowledge gained in the classroom.
CO 4: Discover the nuances of the workplace and appreciate it.

KLE Society's

S. NIJALINGAPPA COLLEGE

II-Block, Rajajinagar, Bengaluru-10
Re-accredited by NAAC at A+ grade with 3.53 CGPA
College with UGC-STRIDE Component – I
Phone: 080-23526055, 080-23325020, Fax 080-23320902
Website: www.klesnc.org E-mail: info@klesnc.org kleaccts@yahoo.com

DEPARTMENT OF COMMERCE

DSC. 1.1
Title of The Paper: Financial Accounting
Course Outcomes: On successful completion of the course, the students will be able to
CO1: Understand the theoretical framework of accounting as well as accounting standards.
CO2: Demonstrate the ability to prepare financial statement of manufacturing and nonmanufacturing entities of sole proprietors.
CO3: Work out the accounting treatments for consignment transactions &events in the books of consignor and consignee.
CO4: Understand the accounting treatment for royalty transactions & articulate the Royalty agreements.
CO5: Demonstratevariousaccountingtreatmentsfordependentandindependent branches

DSC 1.2
Title of The Paper: Management Principles and Applications

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

CO1: Bring out the relevance of F W Taylor's view on management in today's knowledge era.

CO2: Designstrategicplansforvariousorganizationsfortheattainmentoforganizational goals.

CO3: Differentiate between the different types of organizational structures and authority and identify the best one for an MNC.

CO4: Compare the different types of leadership styles.

CO5: Identify a few control techniques for better productivity of an organisation.

DSC 1.3

Title of The Paper: Principles of Marketing

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

CO1: Understand the basic concepts of marketing and asses the marketing environment.

CO2: Discover the new product development & identify the factor affecting the price of a Product in the present context.

CO3: Judge the impact of promotional techniques on the customers & importance of channels of distribution.

CO4: Outline the recent developments in the field of marketing.

CO5: Analyze the consumer behavior in the present scenario and marketing segmentation.

DSC 1.5

Title of the paper: Accounting for everyone

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

CO1: Analyze various terms used in accounting.

CO2: Understand the procedure for recording the transaction.

CO3: Learn posting the journal entry to ledger

CO4: Prepare ledger accounts and cash books.

CO5: Demonstrate the ability to prepare final accounts

OE: 1.5b.

Title of the paper: Personal finance and planning

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

CO1: Explain the meaning and appreciate their level of Financial Planning

CO2: Comprehend the concept of Investment Planning and its methods

CO3: Examine the scope and ways of Personal Tax Planning.

CO4: Analyze Insurance Planning and its relevance

CO5: Developing insight into retirement planning and its relevance.

DSC :2.1

Title of the paper: Advanced financial accounting

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

CO1: Understand & compute the amount of claims for loss of stock & loss of Profit.

CO2: Learn various methods of accounting for hire-purchase transactions.

CO3: Deal with the inter-departmental transfers and their accounting treatment.

CO4: Prepare financial statements from incomplete records.
CO5: Outline the emerging trends in the field of accounting

DSC: 2.2

Title of the paper: Business Mathematics

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

CO1: The application of equations to solve business problems.
CO2: The Application AP and GP in solving business problems.
CO3: The calculation of simple, compound interest and discounting of Bills of Exchange.
CO4: The use of matrices in business.
CO5: The Application of ratios and proportions to business.

DSC: 2.3

Title of the paper: Corporate administration

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

CO1: Understand the framework of Companies Act of 2013 and different kind of companies.
CO2: Identify the stages and documents involved in the formation of companies in India.
CO3: Analyze the role, responsibilities and functions of Key-management
CO4: Personnel in Corporate Administration.
CO5: Examine the procedure involved in the corporate meeting and there of company secretary in the meeting.

DSC: 2.4

Title of the paper: Law and practice of banking

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

CO1: Summarize the relationship between Banker & customer and different types of functions of banker.
CO2: Analyze the role, functions and duties of paying and collecting banker.
CO3: Make use of the procedure involved in opening and operating different accounts.
CO4: Examine the different types of negotiable instrument & their relevance in the present context.
CO5: Estimate possible developments in the banking sector in the upcoming days.

OE: 2.5

Title of the paper: Investing in stock markets

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

CO1: Explain the basics of investing in the stock-market.
CO2: Differentiate between Primary and secondary Market.
CO3: Understand different methods of issue of shares.
CO4: Understand the different methods of pricing the issue of shares.
CO5: Understand Demat A/C and Depository Participants managing Demat A/c.

OE - 2.5 b

Title of the paper: Innovation Management

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

CO1: Understand the different types and patterns of innovation.

CO2: List out the sources of innovation and ideas generation.
CO3: Comprehend the Innovation-related strategic decisions within organizations.
CO4: Learn the concept to of product and process innovation
CO5: Understand the legal aspects of innovation management

DSC: 3.1

Title of the paper: Corporate Accounting

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

CO1: Understand the treatment of underwriting of corporate securities.
CO2: Comprehend the computation of profit prior to incorporation.
CO3: Know the valuation of Goodwill.
CO4: Know the valuation of corporate securities.
CO5: Prepare the financial statement so of companies as per the Companies Act 2013

DSC 3.2

Title of the paper: Business Statistics

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

CO1: Understand statistical data and descriptive statistics for business data analysis.
CO1: Comprehend the measures of Central Tendency, Dispersion and Skewness.
CO1: Validate the application of Correlation Analysis in business decisions.
CO1: Apply the Regression Analysis Technique for business decisions

DSC: 3.3

Title of the paper: Cost Accounting

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

CO1: Demonstrate an understanding of the concept so costing and cost accounting.
CO2: Classify, allocate apportion overheads and calculate over head absorption rates.
CO3: Demonstrate the ability to calculate labor cost
CO4: Demonstrate the ability to prepare a cost sheet.
CO5: Prepare material related documents, understand the management of stores and issue procedures.

OE

Title of the paper: Advertising Skills

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

CO1: Familiarize with advertising concepts.
CO2: Able to identify effective media choice for advertising.
CO3: Develop ads for different media.
CO4: Measure the advertising effectiveness.
CO5: Analyze the role of advertising agency.

OE: 3.5b

Title of the paper: Entrepreneurship skills

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

CO1: Discover their strengths and weaknesses in developing the entrepreneurial mind-set.

CO2: Familiarize themselves with the mechanism of setting up, monitoring and maintaining an enterprise.

CO3: Understand the various procedures for setting up the start ups in India.

CO4: Understand the role of Government in supporting entrepreneurship

DSC 4.1

Title of the paper: Advanced Corporate Accounting

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

CO1: Know the procedure of redemption of Preference Shares and Debentures.

CO2: Comprehend the different methods of Amalgamation and Acquisition of Companies

CO3: Understand the process of internal reconstruction.

CO4: Prepare the liquidators Final statement of accounts.

CO5: Understand the process of Liquidation of Companies in India.

DSC :4.2

Title of the paper: Costing Methods and Techniques

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

CO1: Understand the various method so costing applicable to different industries.

CO2: Determine the cost under different methods of costing.

CO3: Analyze the processes involved in standard costing and variance analysis.

CO4: Apply the knowledge gained for decision-making

DSC: 4.3

Title of the paper: Business regulatory framework

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

CO1: Comprehend the laws relating to Contracts and its application in business activities.

CO2: Comprehend the rules for Sale of Goods and rights and duties of a buyer and a seller.

CO3: Understand the importance of Negotiable Instrument Act and its provisions relating to Cheque and other Negotiable Instruments.

CO4: Understand the significance of Consumer Protection Act and its features

CO5: Understand the need for Environment Protection.

OE: 4.5a

Title of the paper: Banking Operations

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

CO1: Understand the concept of banks and banking and its operations

CO2: Comprehend the procedures and risks involved in different types of accounts

CO3: Utilize the knowledge for bank operations

CO4: Comprehend the recent banking practices

OE: 4.5b

Title of the paper: Principles of event management

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

CO1: Understand the significance of various events

CO2: Demonstrate the ability to organize the event.

CO3: Demonstrate the ability to conduct the event.

CO4: Prepare the budget required for conducting an event.

DSC: 5.1

Title of the paper: Income Tax - I

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

CO.1 To expose the students to the various provision of Income Tax Act relating to computation of Income of individual assesses.

CO.2: To familiarize and update the students with the provision of Income Tax Act.

CO.3:Understand the rules and provisions of income tax under two heads of income and computation of income tax for individuals

DSC: 5.2

Title of the paper: Auditing and Corporate Governance

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

CO 1 To provide working knowledge of the framework of auditing system in India, and enable the students to acquire an understanding of the tools, techniques and procedure of audit.

CO 2: Described about the concept, types and methods of auditing.

CO3: To acquired knowledge about vouching, verification of assets and liabilities, audit documentation and audit evidence.

DSC: 5.3

Title of the paper: Auditing and Corporate Governance

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

CO 1 To make the §tudents familiar with the advanced aspects of accounting along with their practical application.

CO 2 Students appraise about the application of accounting knowledge in preparation of financial statements of various sectors.

CO 3 Students impart the knowledge about accounting treatment of functional aspects of service sector undertaking.

DSC: 5.4

Title of the paper: Methods Of Costing

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

CO.1 To familiarize the students on different methods of costing

CO.2 Students understand How to partially implemented cost accounting methods in different industry vertical.

DSC: 5.5

Title of the paper: Advanced Financial Management

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

CO.1 Provide an in-depth view of the process in financial management of the firm.

CO.2 Improving the students about the time value of money concepts and the role of a financial manager in the current competitive business scenario.

CO.3 To integrate the concept and apply the financial concepts to calculate ratios and do the financing decisions.

CO.4 To provide knowledge on valuation of business enterprises,

CO.5 To make students understand the various models of value-based management and give insight on various forms of corporate restructuring.

DSC: 5.6

Title of the paper: Financial Services

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

CO 1: To orient the learner about the various areas of financial services and their operational modalities.

CO 2: The learner should understand the basic concepts of financial service.

DSC: 6.1

Title of the paper: Income Tax — II

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

CO 1: To make the students understand the computation of Taxable Income and Tax Liability of individuals assesses.

CO 2: To acquaint the students with basic principles underlying the relevant provisions of income tax laws in force for the relevant previous year.

CO 3: To provide an insight into procedural aspects for assessment of tax liability

DSC: 6.2

Title of the paper: Indian Accounting Standards And IfRS

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

CO.1 To orient the students about the background and provisions of accounting standards which govern and guide the accounting process and preparation of financial statements

CO.2 Understanding the concepts and convergence of Indian accounting standards and international financial reporting standards.

CO.3 Students will Acquire the knowledge of developments in accounting,

DSC: 6.3

Title of the paper: Management Accounting

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

CO.1 To enable the students to understand the analysis and interpretation of financial statements with a view to prepare management reports for decision-making.
CO.2 To enhance the abilities of learners to develop the concept of management accounting and its significance in the business, and to analyze the financial statements.
CO.3 To enable the learners to understand, develop and apply the techniques of management accounting in the financial decision making in the business corporate.

DSC: 6.4

Title of the paper: Accounting For Government And Local Bodies

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

CO 1 To inculcate writing and auditing of government accounting and books.
CO 2 The course will prepare the participants for the challenges and opportunities in the field of government accounting and local bodies.
CO 3 The course covers important aspects of government accounting at central, state and local bodies.
CO 4 This course intends to equip the participants with an understanding of the economic policies of the government, budgets, fiscal tools, government grants.

DSC: 6.5

Title of the paper: International Finance

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

CO 1: To orient the students on global business environment and international markets, to make students understand the various risks an enterprise is exposed to on account of international transactions and to provide knowledge and skills for hedging foreign currency risks.
CO 2: Business is operating in an increasingly interconnected global environment. Most business today is either directly or indirectly exposed to international competition. Managing such businesses requires understanding of currency risks and global financial environment.
CO 3: The objective of this course is to provide students with an in depth knowledge of these issues. The currency derivatives and hedging issues with

DSC: 6.6

Title of the paper: Security Analysis & Portfolio Management

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

CO 1 At the end of these course students should be able to provide a theoretical and practical background in the field of investment.
CO 2 Designing and managing the bond as well as equity portfolios the real word. Valuing equity and debt instruments. Measuring the portfolio performances.
CO 3 To provide knowledge and skill in identifying various investment alternatives and choosing the suitable alternatives and to orient the students on the procedures and formalities involved in investing

KLE Society's
S. NIJALINGAPPA COLLEGE
II-Block, Rajajinagar, Bengaluru-10
Re-accredited by NAAC at A+ grade with 3.53 CGPA
College with UGC-STRIDE Component – I
Phone: 080-23526055, 080-23325020, Fax 080-23320902
Website: www.klesnc.org E-mail: info@klesnc.org kleaccts@yahoo.com

DEPARTMENT OF BBA - AVIATION

DSC :1.1

Title of the paper: Management Principle and Practice

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

CO 1: The ability to understand concepts of business management, principles and function of management.
CO2: The ability to explain the process of planning and decision making.
CO 3: The ability to create organization structures based on authority, task and responsibilities.
CO 4: The ability to explain the principles of direction, importance of communication, barrier of communication, motivation theories and leadership styles.
CO 5: The ability to understand the requirement of good control system and control techniques

DSC 1.2

Title of the paper: Fundamental of Accounting

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

CO 1: Understand the framework of accounting as well accounting standards.
CO2: The Ability to pass journal entries and prepare ledger accounts
CO 3:The ability to prepare various subsidiary books
CO 4:The ability to prepare trial balance and final accounts of proprietary concern.
CO 5: Construct final accounts through application of accounting software tally

DSC 1.3

Title of the paper: Introduction to Aviation Industry

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

CO 1: To understand about the basic airline, General Abbreviations, City Names, Codes, Airport Names
CO2: To Analyse the Airport Layout, Structure and different areas of airport.
CO 3:To understand Airline Regulatory Bodies, roles and responsibilities of various regulatory authorities.
CO 4: Able to understand Aircraft Types/ Understanding the security, navigation and traffic control
CO 5: To Analyse about the Airside Safety, Security and Airline Crew Training of the airline

DSC 1.4

Title of the paper: Digital Fluency

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

CO 1: Ability to understand different operating system
CO2: Understanding the networking and identification of nodes
CO 3:Describing the Database management

DSC 1.5 a

Title of the paper: Business Organization

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

CO 1:understanding of the nature, objectives and social responsibilities of business
CO2: An ability to describe the different forms of organisations
CO 3:An understanding of the basic concepts of management
CO 4: An understanding of functions of management.
CO 5: An understanding of different types of business combinations

DSC 1.5 b

Title of the paper: **Inflight Services**

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

CO 1: An understanding of the types of restaurants and its knowledge
CO2: Ability to examine Waiter Skills through interpersonal skills
CO 3:Ability to analyze various hotel beverages
CO 4: Ability to analyze various sales& leadership skills in flight services..
CO 5: An understanding of Food Crisis Management.

DSC 2.1

Title of the paper: **Financial Accounting**

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

CO 1: Ability to understand the conversion of single entry into double entry.
CO 2: The ability to prepare final accounts of partnership firms.
CO 3: The ability to understand the process of public issue of shares and accounting for the same
CO 4: The ability to prepare final accounts of joint stock companies.
CO 5: The ability to prepare and evaluate vertical and horizontal analysis of financial statements

DSC 2.2

Title of the paper: **Human Resource Management**

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

CO 1: Ability to describe the role and responsibility of Human resources management functions on business.
CO 2: Ability to describe HRP, Recruitment and Selection process
CO 3: Ability to describe to induction, training, and compensation aspects.
CO 4: Ability to explain performance appraisal and its process.
CO 5: Ability to demonstrate Employee Engagement and Psychological Contract.

DSC 2.3

Title of the paper: **Aviation Safety & Security Management**

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

CO 1: To enable the students to learn about the importance of Safety and Security in Air Transportation,
CO 2: The study of which is of vital importance to Aviation Students, where they will be learning about the techniques and methodologies used in protecting passengers, crew, baggage, cargo, mail, ground personnel, aircraft and property of Airports.
CO 3: Able to understand the causes of Terrorism, Hijacking, countering both Terrorism and Hijacking methods.
CO 4: Analyze the importance of Safety Assessment Program and Transportation security administration
CO 5: Students are able to understand the Ground Operations and their policies.

DSC 2.4

Title of the paper: **Environmental Studies**

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

CO 1: Familiarity with sustainability and sustainable development
CO 2: Knowledge about Eco-system

DSC 2.5 a

Title of the paper: Introduction to Aeronautics

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

CO 1: Ability to understand the Design Method, History of the Aeronautics.
CO 2: To Analyse the Airport Atmospheres , Density , Pressure and Temperature Altitude for Aeronautics
CO 3: To understand the concept of Aircraft Lift, Drag and whole Aircraft Lifts.
CO 4: Ability to understand the stability of the aircraft in air and how does it control
CO 5: To Analyse the sizing of the aircraft, aircraft Weight and Balance and Cost involved

DSC 2.5 b

Title of the paper: Introduction to Aeronautics

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

CO 1: Ability to examine the difference between People Management with Human resource Management
CO 2: Ability to explain the need for and importance of People Management.
CO 3: Ability to explain role of manager in different stages of performance management process
CO 4: Ability to list modern methods of performance and task assessment.
CO 5: Ability to analyse the factors influencing the work life balance of an working individual

DSC 3.1

Title of the paper: Service Marketing for aviation

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

CO 1: Understanding the principles of services marketing, outlined in service marketing components and classification.
CO 2: Enabling the importance of service marketing system buyer behavior and market segmentation
CO 3: Analyzing sectoral perspective to enhancing different service sector marketing knowledge.
CO 4: Understanding the Aviation services to frame the marketing strategies.

DSC 3.2

Title of the paper: Basics Of Passenger & Ramp Handling

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

CO 1: To Understanding about the computer reservation system and departure
CO 2: To Understanding the importance of passenger baggage and check in procedure
CO 3: To Understanding the concept of RAMP functions
CO 4: To understand the Airside Safety, Security RAMP operations.

DSC 3.3

Title of the paper: Soft Skills For Aviation

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

CO 1: To increase learner's computer knowledge and unique soft skills so as to develop attributes that enhance an individual's interactions, earning power and job performance.
CO 2: To inculcate potential skills in the learners to prepare them to deal with the external world in a collaborative manner, communicate effectively, take initiative, solve problems, and demonstrate a positive work ethic so as to hold a good impression and positive impact.

DSC 3.4

Title of the paper: Financial Education and Investment Awareness

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

CO 1: To provide the foundation for financial decision making
CO 2: Create awareness about various saving and investment alternatives available for a common man
CO 3: Understanding the overview of stock market and stock selection
CO 4: Learning about mutual funds and criteria for selection

DSC 3.5 a

Title of the paper: Airport Operations

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

CO 1: An understanding of the evolution of airports.
CO 2: Ability to examine operations at airports.
CO 3: Understand Planning of airports.
CO 4: Analyse the management of airports.
CO 5: An understanding of ATC functions.

DSC 3.5 b

Title of the paper: Aviation Safety And Security

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

CO 1: To Analyse the various safety aspects at airport
CO 2: To understand the concept of security management.

CO 3: To understand the threats involved in aviation
CO 4: To enhance decision making skills in combating Terrorism and Hijacking

DSC 4.1

Title of the paper: Production And Operations Management

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

CO 1: To analyze the basics of production management and the responsible factors.
CO 2: To apply the various types of production processes, the essentialities of a product such as its selection, various procedures, and its stocking
CO 3: To facilitate the various activities relating to scheduling and measuring of production take place and how control can be obtained on both product and quality.

DSC 4.2

Title of the paper: Aviation Law And Aircraft Rules And Regulations

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

CO 1: To enable the Students to learn the legal background of Aviation.
CO 2: To study all the Rules and Regulations connected with Air Transportation
CO 3: To understand International Regulations as well as all the relevant State Acts passed in this respect

DSC 4.3

Title of the paper: Event Management

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

CO 1: Understand the process of organizing an event.
CO 2: Understand the importance of a checklist in organizing an event.
CO 3: Familiarize with organizing corporate events
CO 4: Obtain a sense of responsibility for the multidisciplinary nature of event management.
CO 5: Learn to promote the events. To evaluate working capital effectiveness in an organization.

DSC 4.4

Title of the paper: Artificial Intelligence

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

CO 1: Appraise the theory of Artificial intelligence and list the significance of AI.
CO 2: Discuss visual components that are involved in solving an AI problem
CO 3: Illustrate the working of AI Algorithms in the given contrast
CO 4: Analyse the various knowledge representation scheme, Reasoning and Learning techniques of AI
CO 5: Apply the AI concepts to build an expert system to solve the real-world problem

DSC 4.5 a

Title of the paper: Air Fares And Ticketing

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

CO 1: Ability to understand the basics of Air Fares and Ticketing
CO 2: Determine fare for airline ticket familiar with frontier formalities in air travel industry and facilities available in airport .
CO 3: Understand the regulatory requirements of Ticketing.

DSC 4.5 b

Title of the paper: Aviation Safety And Security

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

CO 1: To Analyse the various safety aspects at airport
CO 2: To understand the concept of security management.
CO 3: To understand the threats involved in aviation
CO 4: To enhance decision making skills in combating Terrorism and Hijacking

DSC 5.1

Title of the paper: Logistics & Air Cargo Management

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

CO 1: Understand the basic concept of logistics activities
CO 2: Learn the key factors which are responsible for logistics
CO 3: Evaluate the key issues in supply chain management
CO 4: Gain the insights on air cargo operations in airline industry
CO 5: Explain the emerging trends in cargo operations

DSC 5.2

Title of the paper: Income Tax – 1

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

CO 1: Comprehend the procedure for computation of Total Income and tax liability of an individual.
CO 2: Understand the provisions for determining the residential status of an Individual.
CO 3: Comprehend the meaning of Salary, Perquisites, and Profit in lieu of salary, allowances and various retirement benefits.
CO 4: Compute the income house property for different categories of house property.
CO 5: Comprehend TDS & advances tax Ruling and identify the various deductions under section 80.

DSC 5.3

Title of the paper: Passenger Service Management

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

CO 1: Acquire knowledge importance of customer handling at airport
CO 2: Understand the concepts of check-in and boarding procedures
CO 3: Describe the importance of air travel documents for an international passenger acceptance
CO 4: Classify the types of dangerous goods for air travel
CO 5: Study the importance of grooming and soft skills for an airline employee.

DSC 5.4

Title of the paper: Customer Relationship Management in Aviation Industry

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

CO 1: Understand the principles and strategies for effectively managing customer interactions
CO 2: Learn about the new trends in customer service and also to know the advantages of two way communication
CO 3: Describe the importance of customer contact techniques and cross-cultural importance
CO 4: To acquire knowledge on dealing with various customer complaints
CO 5: Manage stress and pressure at the work place.

DSC 5.5

Title of the paper: Entrepreneurship Development

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

CO 1: Understanding of Consumer Behavior towards products, brands, and services.
CO 2: Establish the relevance of consumer behavior theories and concepts to marketing Decisions.
CO 3: Implement appropriate combinations of theories and concepts.
CO 4: Understanding of market research process
CO 5: Understanding of Data Analysis and reporting in market research

DSC 5.6 a

Title of the paper: Information Technology for Business

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

CO 1: Understand the fundamentals of information technology
CO 2: Understand usage of information technology in business.
CO 3: Learn core concepts of computing and modern systems
CO 4: Applications of Excel and SQL.
CO 5: Awareness about latest information.

DSC 5.6 a

Title of the paper: Information Technology for Business

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

CO 1: Digital Marketing
CO 2:Gain knowledge on Digital Marketing, Email marketing and Content marketing.
CO 3:Understand Search Engine Optimization tools and techniques
CO 4: Gain skills on creation of Google AdWords & Google AdSense
CO 5: Gain knowledge on Social Media Marketing and Web Analytics.
CO 6: Gain knowledge on YouTube Advertising & Conversions

DSC 6.1

Title of the paper: Crew Resource Management

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

CO 1: Understand the basic concept of crew resource management
CO 2: Evaluate the objectives of CRM training.
CO 3: Get the overview of human error during flight operations and its managerial skills
CO 4: Gain skills on creation of Google AdWords & Google AdSense
CO 5: Describe the duties and responsibilities of cockpit and cabin crew
CO 6: Learn the various skills required for a safe flight operation.

DSC 6.2
Title of the paper: Income Tax -II

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

CO 1: Understand the procedure for computation of income from business and other Profession
CO 2: Ability to compute capital gains.
CO 3: Compute the income from other sources
CO 4: Demonstrate the computation of total income of an Individual
CO 5: Comprehend the assessment procedure and to know the power of income tax authorities.

DSC 6.3

Title of the paper: International Business

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

CO 1: Understand the concept of International Business.
CO 2: Differentiate the Internal and External International Business Environment..
CO 3: Understand the difference between MNC and TNC
CO 4: Understand the role of International Organisations in International Business
CO 5: Understand International Operations Management

DSC 6.4

Title of the paper: Airport Infrastructure & Operations

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

CO 1: Understand and explain the types of airports and its various components
CO 2: Know the functions of various airport organizations and associations.
CO 3: Study the importance of different airport surveys done before the airport construction
CO 4: Gain knowledge about the airport facilities and components of airside and landside
CO 5: Analyze the various communication systems used for the safe operation of flights

DSC 6.5

Title of the paper: Quality Management

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

CO 1: Understand the importance of quality in organisations
CO 2: Comprehend the different quality management systems and tools.
CO 3: Understand the importance of quality control in supply chains
CO 4: Evaluate the vendor quality and supplier certifications
CO 5: Have an overall understanding of the quality movement

DSC 6.6 a

Title of the paper: Goods and Services Tax

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

CO 1: Comprehend the concepts of Goods and Services tax.
CO 2: Understand the fundamentals of GST.
CO 3: Analyse the GST Procedures in the Business.
CO 4: Know the GST Assessment and its computation..

DSC 6.6 a

Title of the paper: Enterprise Resource Planning

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

CO 1: Understand the business process of an enterprise to grasp the activities of ERP project management cycle to understand the emerging trends in ERP developments.
CO 2: Integrateandautomatethebusinessprocessesandsharesinformationenterprise-wide.
CO 3: Explore the significance of ERP to provide a solution for better project management.
CO 4: Enable the students to understand the various process involved in implementing ERP in a variety of business environment
CO 5: Understand the issues involved in design and implementation of ERP systems.

DEPARTMENT OF BBA- REGULAR

DSC 1.1.
Title of the paper: Management Principles & Practice
Course Outcomes: By the end of the course the student will be able to
CO1: The ability to understand concepts of business management, principles and function of management.
CO2: The ability to explain the process of planning and decision making.
CO3: The ability to create organization structures based on authority, task and responsibilities.
CO4: The ability to explain the principles of direction, importance of communication, barrier of communication, motivation theories and leadership styles.
CO5: The ability to understand the requirement of good control system and control techniques.

DSC 1.2.
Title of the paper: Fundamentals of Accounting
Course Outcomes: By the end of the course the student will be able to
CO1: Understand the framework of accounting as well accounting standards.
CO2: The Ability to pass journal entries and prepare ledger accounts

CO3: The Ability to prepare various subsidiary books
CO4: The Ability to prepare trial balance and final accounts of proprietary concern.
CO5: Construct final accounts through application of accounting software tally.

DSC 1.3.
Title of the paper: Marketing Management
Course Outcomes: By the end of the course the student will be able to
CO1: Understand the concepts and functions of marketing.
CO2: Analyse marketing environment impacting the business.
CO3: Segment the market and understand the consumer behaviour
CO4: Describe the 4 p's of marketing and also strategize marketing mix
CO5: Describe 7 p's of service marketing mix.

OEC 1.5(a)
Title of the paper: Business Organization & Environment
Course Outcomes: By the end of the course the student will be able to
CO1: An understanding of the nature, objectives and social responsibilities of business
CO2: An ability to describe the different forms of organisations
CO3: An understanding of the basic concepts of management
CO4: An understanding of functions of management
CO5: An understanding of different types of business combinations

OEC 1.5(b)
Title of the paper: Office Organization and Management
Course Outcomes: By the end of the course the student will be able to
CO1: An understanding of basic knowledge of office organisation and management
CO2: Demonstrate skills in effective office organisation
CO3: Ability to maintain office records
CO4: Ability to maintain digital record.
CO5: Understanding of different types of organisation structures and responsibilities as future office managers.

DSC 2.1
Title of the paper: Financial Accounting
Course Outcomes: By the end of the course the student will be able to
CO1: Ability to understand the conversion of single entry into double entry.
CO2: The ability to prepare final accounts of partnership firms
CO3: The ability to understand the process of public issue of shares and accounting for the same
CO4: The ability to prepare final accounts of joint stock companies.
CO5: The ability to prepare and evaluate vertical and horizontal analysis of financial statements.

DSC 2.2
Title of the paper: Human Resource Management
Course Outcomes: By the end of the course the student will be able to
CO1: Ability to describe the role and responsibility of Human resources management functions on business
CO2: Ability to describe HRP, Recruitment and Selection process

CO3: Ability to describe to induction, training, and compensation aspects
CO4: Ability to explain performance appraisal and its process.
CO5: Ability to demonstrate Employee Engagement and Psychological Contract.

DSC 2.3
Title of the paper: Business Environment
Course Outcomes: By the end of the course the student will be able to
CO1: An Understanding of components of business environment.
CO2: Ability to analyse the environmental factors influencing business organisation.
CO3: Ability to demonstrate Competitive structure analysis for select industry.
CO4: Ability to explain the impact of fiscal policy and monetary policy on business.
CO5: Ability to analyse the impact of economic environmental factors on business.

OEC 2.5(a)
Title of the paper: People Management
Course Outcomes: By the end of the course the student will be able to
CO1: Ability to examine the difference between People Management with Human Resource Management
CO2. Ability to explain the need for and importance of People Management.
CO3. Ability to explain role of manager in different stages of performance management process
CO4. Ability to list modern methods of performance and task assessment.
CO5. Ability to analyse the factors influencing the work life balance of an working individual.

DSC 3.1
Title of the paper: Cost Accounting
Course Outcomes: By the end of the course the student will be able to
CO1: Demonstrate an understanding of the concepts of costing and cost accounting.
CO2: Classify, allocate apportion overheads and calculate overhead absorption rates.
CO3: Demonstrate the ability to calculate labour cost
CO4: Demonstrate the ability to prepare a cost sheet.
CO5: Prepare material related documents, understand the management of stores and issue procedures.

DSC 3.2
Title of the paper: Organizational Behaviour
Course Outcomes: By the end of the course the student will be able to
CO1: Demonstrate an understanding of the role of OB in business organization.
CO2: Demonstrate an ability to understand individual and group behavior in an organization.
CO3: Be able to explain the effectiveness of organizational change and development of organisation.
CO4: Demonstrate an understanding of the process of organizational development and OD Interventions.

DSC 3.3
Title of the paper: Statistics for Business Decisions
Course Outcomes: By the end of the course the student will be able to
CO1: To understand the basic concepts in statistics.
CO2: To classify and construct statistical tables.
CO3: To understand and construct various measures of central tendency, dispersion and skewness.

CO4: To apply correlation and regression for data analysis

OEC 3.5(a)
Title of the paper: Social Media Marketing
Course Outcomes: By the end of the course the student will be able to
CO1: Understand social media marketing goals for successful online campaigns.
CO2: Analyze the effective social media marketing strategies for various types of industries and businesses.
CO3: Design social media content and create strategies to optimize the content's reach to the target audience.
CO4: Appraise the reach and track progress in achieving social media objectives with a variety of measurement tools and metrics.
CO5: Design a suitable social media campaign for the business goals.

OEC 3.5(b)
Title of the paper: Business Correspondence
Course Outcomes: By the end of the course the student will be able to
CO1: Identify the importance of Business correspondence
CO2: Know the rights, duties and responsibilities of Directors.
CO3: Analyse the legal & regulatory framework of corporate governance.
CO4: Outline the importance and role of board committee.
CO5: Understand the major expert committees' Reports on corporate governance.

DSC 4.1
Title of the paper: Management Accounting
Course Outcomes: By the end of the course the student will be able to
CO1: Explain the application of management accounting and various tool used
CO2: Make inter – firm and inter- period comparison of financial statements
CO3: Analyse financial statements using various ratios for business decisions.
CO4: Prepare fund flow and cash flow statements
CO5: Prepare different types of budgets for the business.

DSC 4.2
Title of the paper: Business Analytics
Course Outcomes: By the end of the course the student will be able to
CO1: Understand types of analytics and data models
CO2: Understand the role of data indecision making, sources and types of Data.
CO3: Ability to analyse data using different data analytic tools and draw inferences.
CO4: Understand applied statistics for business problems.
CO5: Demonstrate visualization of data.

DSC 4.3
Title of the paper: Financial Management
Course Outcomes: By the end of the course the student will be able to
CO1: To identify the goals of financial management.
CO2: To apply the concepts of time value of money for financial decision making.

CO3: To evaluate projects using capital budgeting techniques
CO4: To design optimum capital structure using EBIT and EPS analysis.
CO5: To evaluate working capital effectiveness in an organization.

OEC 4.5(a)
Title of the paper: Business Leadership Skills
Course Outcomes: By the end of the course the student will be able to
CO1: Understand the significance of leadership skills for effective people management.
CO2: Increase the comprehension of leadership through various leadership theories.
CO3: Analyse different leadership styles, types, patterns and functions.
CO4: Demonstrate an understanding of various leadership approaches for effective management of people.
CO5: Demonstrate an awareness of ethical leadership.

OEC 4.5(b)
Title of the paper: Tourism Management
Course Outcomes: By the end of the course the student will be able to
CO1: Interpret and evaluate tourism as a phenomenon and as a business system.
CO2: Explain the diverse nature of tourism, including culture and place, global/local perspectives, and experience design and provision.
CO3: Understand the tourist resources and evaluate their potential.
CO4: Promote Entrepreneurial activity in Tourism

DSC 5.1
Title of the paper: Entrepreneurial Management
Course Outcomes: By the end of the course the student will be able to
CO 1: Students will learn about the theories behind the Foundation of Entrepreneurship Development.
CO2: With particular reference to the SME sector, learners will examine management functions in a company and entrepreneurial abilities.
CO 3; Students will get an understanding of the several phases that go into launching a business
CO 4: Investigate marketing strategies and contemporary entrepreneurship trends

DSC 5.2
Title of the paper: Computer Applications in Business
Course Outcomes: By the end of the course the student will be able to
CO1: Utilize a variety of modern, common Office Productivity software programs to perform tasks efficiently.
CO 2: Examine, choose, and employ office productivity software that is suitable for the circumstances.
CO 3: Utilize fundamental concepts of adult education and evaluation while creating, developing, and presenting content generated by office productivity tools.
CO 4: Perform a wide range of sophisticated operating system, word processing, and spreadsheet operations.

DSC 5.3
Title of the paper: Investment Management
Course Outcomes: By the end of the course the student will be able to
CO 1: Give a summary of the institutional information related to the trading process and financial markets.

CO 2: Enumerate historical developments and trends in trading procedures and financial instruments.
CO 3: A detailed explanation of how investment management uses finance theory.
CO 4: offer a framework for gauging the effectiveness of fund management

DSC 5.5
Title of the paper: Management Accounting
Course Outcomes: By the end of the course the student will be able to
CO 1: Explain the application of management accounting and various tool used
CO 2: Make inter – firm and inter- period comparison of financial statements
CO 3: Analyze financial statements using various ratios for business decisions.
CO 4; Prepare fund flow and cash flow statements
CO 5: Prepare different types of budgets for the business.

DSC 5.6
Title of the paper: Financial Markets & Services
Course Outcomes: By the end of the course the student will be able to
CO 1: Understand the Overview of Indian financial system.
CO 2: Understand the different types of financial institutions and their role.
CO 3: Understand concept of financial services, types and functions.
CO 4: Understand the different types of financial Instruments and its features.
CO 5: Understand the different types of financial market and its role

DSC 6.1
Title of the paper: International Business
Course Outcomes: By the end of the course the student will be able to
CO 1: Global Perspective of Business Graduates will demonstrate an understanding of the "global perspective" of business, including the influence of macro-factors on business such as the political, economic, socio-cultural, and legal environment.
CO 2: Global Perspective and Intercultural Competency provides developed "global perspective" including intercultural knowledge, attitudes and skills.
CO 3. demonstrate an understanding of international dimensions of business functions, including business law and ethics, economics, finance, marketing and management

DSC 6.2
Title of the paper: E-Business
Course Outcomes: By the end of the course the student will be able to
CO 1: Understand the scope of e-business and e-commerce and their different elements In business success.
CO 2: How to use digital platforms and related technology for offering better service to customers.
CO 3: The course is expected to impart the skills to apply e-business
CO 4: Strategies for better customer satisfaction and loyalty

DSC 6.3
Title of the paper: Income Tax
Course Outcomes: By the end of the course the student will be able to

CO 1: To learn concepts under Income Tax Act, 1961 and to update with latest development in taxation
CO 2: Acquire knowledge about the computation of income tax under various heads, submission of income tax return, Advance tax, TDS, Tax collection Authorities,
CO 3: Competent enough to take employment in tax planner and to calculate taxable income of the firm, Cooperative societies.

DSC 6.4
Title of the paper: Income Tax
Course Outcomes: By the end of the course the student will be able to
CO 1: To expose students to various perspectives and concepts in the field of Strategic Management
CO 2: The course would enable the students to understand the principles of strategy formulation, implementation and control in organizations.
CO 3: To help students develop skills for applying these concepts to the solution of business problems
CO 4: To help students master the analytical tools of strategic management.

DSC 6.5
Title of the paper: Income Tax
Course Outcomes: By the end of the course the student will be able to
CO 1: Understanding international integration of finance and analyzing various theories of International trade.
CO 2: Learning basic theorems of Exchange rate determination.
CO 3: Identifying various financial instruments and Strategies used in forex market.
CO 4: Applying knowledge of hedging strategies to identify, evaluate and manage foreign exchange risk exposures faced by forex market participants.
CO 5: Learning international investment and working capital Management system.

DSC 6.5
Title of the paper: Income Tax
Course Outcomes: By the end of the course the student will be able to
CO 1: Understand the role and importance of Indian Stock Market Operations.
CO 2: Apply and analyze the Concepts relevant to Indian Stock markets.
CO 3: Understand and analyze the mechanism and regulation of financial instruments and determine how the value of stocks, bonds, and securities.
CO 4: Evaluate empirical evidence of the market performance and accordingly the role of regulatory authorities to develop the financial market.

DEPARTMENT OF TRAVEL AND TOURISM MANAGEMENT (BTTM)

DSC 1.1
Title of the paper: Tourism Concepts and Linkages
Course Outcomes: By the end of the course the student will be able to
CO1: clear concept and ideas about fundamentals of tourism
CO2: know various allied concepts and allied activities of Tourism.
CO3: Familiar about the basic fundamental knowledge of the terms, concepts and system of tourism.
CO4: form the base to move forward to interact with the advanced knowledge pertaining to tourism.

DSC 1.2
Title of the paper: Geography of Tourism in India
Course Outcomes: By the end of the course the student will be able to
CO1: provide the concept and types of geography related to tourism in India.
CO2: gain an insight into the geographical framework of various aspects of tourism in general
CO3: develop skills to analyse the basic methodology and trends of the discipline of geography.
CO4: Equip with skills related to geography of tourism in India.

DSC 1.3
Title of the paper: Hospitality Management
Course Outcomes: By the end of the course the student will be able to
CO1: to provide the meaning and concept of Hospitality and its Industry
CO2: To equip with the major sections/units of the Hospitality Industry/ Hotel Industry
CO3: to provide to the hospitality industry a steady stream of competent young men and women with the necessary knowledge, skills, values and attitudes to occupy key managerial positions

DSC 2.1
Title of the paper: Tourism Products and Resources
Course Outcomes: By the end of the course the student will be able to
CO1: To highlight the major concepts of Tourism related to the activities concerned
CO2: To equip with special concepts and emerging trends of the Tourism Products
CO3: Educating students about the concept of tourism product.
CO4: To understand the nature of different tourism products.

DSC 2.2

Title of the paper: Geography of World Tourism

Course Outcomes: By the end of the course the student will be able to

CO1: To provide the concept and types of Geography related to tourism across the globe

CO2: To equip with skills related to Geography of Tourism in World

CO3: To study about the role and importance of geography in tourism development.

CO4: To understand about the different aspects of geography

DSC 2.3

Title of the paper: India's Culinary Heritage

Course Outcomes: By the end of the course the student will be able to

CO1: To create awareness about the concept of culinary, food and its relation to tourism

CO2: To analyse the role of food in promoting tourism.

CO3: understand the history and methods of cooking

CO4: To know the history and origin of regional cuisines of India

DSC 3.1

Title of the paper: Corporate Accounting

Course Outcomes: By the end of the course the student will be able to

CO1: To understand the treatment of underwriting of corporate Securities.

CO2: To comprehend the computation of profit prior to incorporation.

CO3: To know the valuation of Goodwill.

CO4: To know the valuation corporate Securities.

CO5: To prepare the financial statements of companies as per the Companies Act 2013.

DSC 3.2

Title of the paper: Principles and Concepts of Hospitality Management

Course Outcomes: By the end of the course the student will be able to

CO1: To provide knowledge, skills, values and attitude to occupy key operational positions.

CO2: To equip student for hospitality industry

CO3: To provide the basic concept of hotel functions and operational procedures.

DSC 3.3

Title of the paper: Tour operations management

Course Outcomes: By the end of the course the student will be able to

CO1: To provide the concept of Tour Packaging and Tour Operations.

CO2: To equip with Itinerary development and knowledge about various International and National Tourism Organization

CO3: To educate on Inbound Tourism and generating foreign currency to support nation's economy.

DSC 3.4

Title of the paper: Financial Education and Investment Awareness

Course Outcomes: By the end of the course the student will be able to

CO1: Provide the foundations for financial decision making

CO2: List out various saving and investment alternatives available for a common man

CO3: Give a detailed overview of stock markets and stock selection

CO4: Orient the learners about mutual funds and the criteria for selection

DSC 3.4

Title of the paper: Constitution of India

Course Outcomes: By the end of the course the student will be able to

CO1: To realize the significance of constitution of India to students from all walks of life and help them to understand the basic concepts of Indian constitution.

CO2: To identify the importance of fundamental rights as well as fundamental duties.

CO3: To understand the functioning of Union, State and Local Governments in Indian federal system.

DSC 4.1

Title of the paper: Advance Corporate Accounting

Course Outcomes: By the end of the course the student will be able to

CO1: To know the procedure of redemption of Preference Shares and Debentures.

CO2: To comprehend the different methods of Amalgamation and Acquisition of Companies

CO3: To understand the process of Internal reconstruction.

CO4: To prepare the liquidators Final statement of accounts.

CO5: To understand the process of Liquidation of Companies in India

DSC 4.2

Title of the paper: Tourism Policy, Planning and Development

Course Outcomes: By the end of the course the student will be able to

CO1: To acquire an in-dept. understanding of concepts, theories, philosophies, principles, strategies and approaches of tourism policy, planning and development

CO2: To identify principles, processes and techniques for preparing local, regional and national tourism plans

CO3: To identify and evaluate the critical social, cultural, political, environmental and economic impacts of tourism policy, planning and development

CO4: To understand the impact of community participation in tourism planning

CO5: To establish policy and implementation of policy through planning processes

DSC 4.3

Title of the paper: Information Technology and Communication for Tourism

Course Outcomes: By the end of the course the student will be able to

CO1: To understand the importance of technology in the field of tourism.

CO2: To know the different software used in the tourism and allied industries.

CO3: To provide the unique awareness of usage of computers and its roles in the different operational aspects

DSC 5.1

Title of the paper: Income Tax – I

Course Outcomes: By the end of the course the student will be able to

CO1: To get introduced to the concept Income Tax.
CO2: To learn about those incomes that are exempted.
CO3: To understand Residential Status of an individual for IT purpose.
CO4: To learn treatment of Income from Salary
CO5: To learn treatment of Income from House Property.

DSC 5.2

Title of the paper: Auditing and Corporate Governance

Course Outcomes: By the end of the course the student will be able to

CO1: To familiarize with nature, objective and scope of audit.
CO2: Understanding audit- strategy, planning and programme.
CO3: Learning about audit documentation and audit evidence.
CO4: Understanding the Company Audit.
CO5: A brief knowledge of Audit Report.

DSC 5.3

Title of the paper: Entrepreneurship Development in Tourism

Course Outcomes: By the end of the course the student will be able to

CO1: To understand Entrepreneurship in context to Tourism.
CO2: A brief learning of Small Scale Enterprises.
CO3: Learning about role of Entrepreneurship in Tourism
CO4: Understanding the role of Financial Planning in Tourism
CO5: To familiarize with forms of business ownership in Tourism Industry.

DSC 5.4

Title of the paper: Event Management and Mice Tourism

Course Outcomes: By the end of the course the student will be able to

CO1: Learning about different events and role of tourism.
C02: Familiarizing with MICE
C03: Practical view of events
C04: Understanding processes involved while conducting an event.
C05: Other major tourism concepts.

DSC 5.5

Title of the paper: Airline and Airport Operations

Course Outcomes: By the end of the course the student will be able to

CO1: Getting an overview of Airline Industry.
C02: About standard envelopes for traffic documents.
C03: Familiarizing Facilitation, Security, and Contingency planning in Airlines
C04: Conceptual view Baggage Handling
C05: Analysis of Cargo trends and forecasts.

DSC 5.6

Title of the paper: Travel Consultant and Travel Formalities

Course Outcomes: By the end of the course the student will be able to

CO1: Introductory view of Travel Agency and Rules followed.
C02: Discovering Package tours.
C03: Deep idea of Package tours.
C04: Learning about Free Individual and Independent travelers.
C05: Learning about travel formalities and Documentation.

DSC 5.7

Title of the paper: Cultural Diversity & Society

Course Outcomes: By the end of the course the student will be able to

CO1: Understanding the diversity of Indian society.
C02: Learning about social structure of society.
C03: To understand contemporary challenges of Indian Society.

DSC 6.1

Title of the paper: Income Tax - II

Course Outcomes: By the end of the course the student will be able to

CO1: Learning the treatment of profit/gains from Business/Profession.
CO2: All about Capital Gains and exemptions on CG
C03: Learning about Income from Other Sources.
C04: Understanding about set-off & c/f of losses and deductions from GTI
C05: Familiarizing with Assessment of Individuals.

DSC 6.2

Title of the paper: Indian Accounting Standards and IFRS

Course Outcomes: By the end of the course the student will be able to

CO1: Detailed conceptual knowledge of Accounting Standards.
CO2: Learning about preparation of financial statements as per IND AS
CO3: Treatment of items in financial statements.
CO4: Treatment of items that do not appear in financial statements.
CO5: Learning about consolidated FS for decision making.

DSC 6.3

Title of the paper: Tourism Business Planning & Development

Course Outcomes: By the end of the course the student will be able to

CO1: Introduction to tourism business and its concepts.
CO2: Familiarizing with tourism clusters and destinations.
CO3: Familiarizing with Ministry of Tourism
CO4: Overview of Karnataka Tourism Department.
CO5: Analyzing new trends in tourism business.

DSC 6.4

Title of the paper: Sustainable Tourism Management

Course Outcomes: By the end of the course the student will be able to

CO1: Understanding the ways for sustainability of tourism.
CO2: Discovering the role of different agencies in Sustainable Tourism.
CO3: Getting to know about difference between Sustainable & Responsible Tourism.
CO4: Familiarizing with the infrastructure and instruments for more sustainable tourism.
CO5: Standardization and Certification required for Tourism Sustainability.

DSC 6.5

Title of the paper: Front Office Management

Course Outcomes: By the end of the course the student will be able to

CO1: Familiarizing with Lodging Industry.
CO2: Organization of Lodging Properties.
CO3: Knowing about basic front office operations.
CO4: Learning about registration processes involved in Room bookings.
CO5: Knowing about ongoing responsibilities in Front Office Management.

DSC 6.6

Title of the paper: Cruise Operations & Management

Course Outcomes: By the end of the course the student will be able to

CO1: Introduction to Cruise Industry and Cruise Line
CO2: Knowing about details of Cruise operations.
CO3: Familiarizing with Departments in CRUISE LINE.
CO4: Getting to know about safety, security, & management of operations
CO5: Knowing about various distribution channels in cruise lines.

DSC 6.7

Title of the paper: Creativity & Innovation

Course Outcomes: By the end of the course the student will be able to

CO1: Understanding the diversity of Creativity.
CO2: Managing of Innovation.
CO3: Discovering creativity and various forms of arts.

DEPARTMENT OF COMPUTER APPLICATION

DSC 1.1
Title of the course: Discrete Structure

Course Outcomes: By the end of the course the student will be able to
CO1: Evaluate Group, Ring and Fields and 2D Geometry
CO2: Familiarity with Determinant and Matrices.
CO3: Formulate Limit, Continuity and Differentiability.
CO4: Demonstrate a working knowledge Definite and Indefinite Integrals.

DSC 1.2
Title of the course: Problem solving Techniques

Course Outcomes: By the end of the course the student will be able to
CO1: Design, develop and test windows based and web based programs.
CO2: Problem Identification and emphasize algorithmic thinking.
CO3: Helps to explore various problem-solving strategies.
CO4: Covers essential data structures and algorithms used in problem-solving.
CO5: Learn techniques for identifying and fixing errors in software programs.

DSC 1.3
Title of the course: Data Structures

Course Outcomes: By the end of the course the student will be able to
CO1: Understanding Fundamental Data Structures
CO2: Learn how to analyze the efficiency and performance of different data structures.
CO3: Develop skills in algorithmic problem-solving using data structures.
CO4: Gain hands-on experience in implementing data structures using programming languages.
CO5: Understand the practical applications of data structures in various domains.

DSC 2.1
Title of the course: Computer Architecture

Course Outcomes: By the end of the course the student will be able to
CO1: Gain knowledge about the essential components of a computer system.
CO2: Knowledge of Instruction Set Architecture (ISA).

CO3: Understanding of Memory Systems.
CO4: CPU Design and Functionality.
CO5: Knowledge of Input/output Systems.
CO6: Performance Evaluation and Optimization.

DSC 2.2
Title of the course: Object Oriented Programming using Java

Course Outcomes: By the end of the course the student will be able to
CO1: Understanding OOP Concepts and Implementation of OOP Principles
CO2: Proficiency in Java Programming
CO3: Object-Oriented Design and Analysis
CO4: Application Development
CO5: Learn about modular code organization.

DSC 2.3
Title of the course: Database Management System

Course Outcomes: By the end of the course the student will be able to
CO1: Understanding of Database Concepts
CO2: Proficiency in Database Design
CO3: Competence in SQL
CO4: Database Implementation and Administration
CO5: Query Optimization
CO6: Understanding of Advanced Database Topics:

DSC 3.1
Title of the course: Operating Systems

Course Outcomes: By the end of the course the student will be able to
CO1: Fundamental concepts and components of operating systems
CO2: Understanding of Process Management
CO3: Familiarity with Memory Management
CO4: Proficiency in File System Management
CO5: Awareness of Device and Input/output Management
CO6: Practical Implementation Skills

DSC 3.2
Title of the course: Computer Networks

Course Outcomes: By the end of the course the student will be able to
CO1: To explain how communication works in computer networks and to understand the basic terminology of computer networks.
CO2: To explain the role of protocols in networking and to analyse the services and features of the various layers in the protocol stack.

CO3: To understand design issues in Network Security and to understand security threats, security services and mechanisms to counter.

DSC 4

Title of the course: Software Engineering

Course Outcomes: By the end of the course the student will be able to

CO1: Select and implement different software development process models.
CO2: Extract and analyse software requirements specifications for different projects.
CO3: Develop some basic level of software architecture/design.
CO4: Apply standard coding practices.
CO5: Define the basic concepts and importance of Software project management concepts like cost estimation, scheduling and reviewing the progress.
CO6: Identify and implement the software metrics.
CO7: Apply different testing and debugging techniques and analyzing their effectiveness.

Department of Hotel Management

DSC 1.1

Title of the course: F & B Production – I
Course Outcomes: By the end of the course the student will be able to

CO1 It explains the Origin and Evolution of Modern Cookery
CO2 To identify various tools used for cooking
CO3 To be able to elaborate on the role and importance of various cooking ingredients
CO4 To be able to analyze the basic food nutrients and its role
CO5 To assess the importance of kitchen safety measures
CO6 To elucidate the importance of waste management in kitchen

DSC 1.2

Title of the course: F & B Service – I
Course Outcomes: By the end of the course the student will be able to

CO1 To understand the importance of the Food & Beverage Service department
CO2 Describe a structure of the Food and Beverage Service sequence
CO3 Understand the scope of F & B and its role in Hotel Industry
CO4 It explains the various F & B Outlets in a hotel
CO5 Discuss the F & B Industry and its components
CO6 It explains the Role of F & B Service department

DSC 1.3

Title of the course: Front office - I
Course Outcomes: By the end of the course the student will be able to

CO1 It explains the meaning and evolution of Hospitality and Tourism Industry
CO2 Compare the various types of Hotels, Guest rooms and Tariff plans
CO3 Describe the various functional areas of the Front office department
CO4 Highlight the importance of intra & inter departmental coordination
CO5 Identify various Guest services challenges faced by Front office personnel

DSC 1.5

Title of the course: Housekeeping - I
Course Outcomes: By the end of the course the student will be able to

CO1 It explains the meaning and definition of Housekeeping department in hotel
CO2 Study the various roles and responsibility of housekeeping department, the various types of Guest rooms and their layouts and sub sections of the department
CO3 Describe the various responsibilities the control desk has in the department
CO4 Highlight the importance of intra & inter departmental coordination
CO5 Discuss the various eco friendly practices fowled in the housekeeping department and eco hotel certification

DSC 2.1

Title of the course: F & B Production – II
Course Outcomes: By the end of the course the student will be able to

CO1 It explains the aims and objectives of cooking
CO2 Various styles of cookery
CO3 Elaborate on the basics of preparation of various soups, sauces and stocks
CO4 It explains the food preservation and its methods
CO5 Knowledge of different types of Cheese all around the world and its manufacturing process.

DSC 2.2

Title of the course: F & B Service – II
Course Outcomes: By the end of the course the student will be able to

CO1 Output of different types of service happening in the various Hospitality Industries.
CO2 To know about framing of menu in different types of cuisine and Compiling different types of menu which based on sequence and service
CO3 Knowledge of different types of Breakfast dishes served to the customer in the hotel industry
CO4 Different types of Non alcoholic beverage in the hotel Industry and the Professional way of serving it.

DSC 2.3

Title of the course: Hygiene and food safety
Course Outcomes: By the end of the course the student will be able to

CO1 Explain the basic concepts of Hygiene
CO2 Identify major Hygiene and Sanitation related issues
CO3 Elaborate on the basics of Food Safety
CO4 Design strategies to prevent Food Spoilage

DSC 2.4

Title of the course: Travel and Tourism Management
Course Outcomes: By the end of the course the student will be able to

CO1 Explain the basic concepts of Travel
CO2 Identify major travel destinations worldwide
CO3 Elaborate on the basics of itinerary planning
CO4 Explain the concept of Tour packages
CO5 To understand various tourism products

DSC 3.1

Title of the course: F & B Production – III
Course Outcomes: By the end of the course the student will be able to

CO1 Elaborate on the essentials of menu planning
CO2 Explain the basic concepts of Bakery & Confectionery
CO3 To know the importance of food standards
CO4 Elucidate the fundamentals of International Cuisines

DSC 3.2

Title of the course: F & B Production – III
Course Outcomes: By the end of the course the student will be able to

CO1 To learn the basic of alcoholic beverages and different types of alcohol used for different purpose.
CO2 Preparation of alcoholic beverages in different method and classified based on strength, flavor and regions.
CO3 To know the importance of wine , process making and plantation of grape plant in various region and to know the basic rules of pairing the wine
CO4 Introduction of beer ingredients used and production of beer

DSC 3.3

Title of the course: Front Office - II
Course Outcomes: By the end of the course the student will be able to

CO1 To be able to explain the basic process of reservation and its various sources
CO2 It explains the significance of front desk operations
CO3 To understand the various operational processes telephone department in hotel
CO4 To know the role of Front office cash during the process of guest cycle
CO5 To know the cash handling in front office

DSC 3.4

Title of the course: Housekeeping - II
Course Outcomes: By the end of the course the student will be able to

CO1 Explain the basic concepts of design & Elaborate on the principles and elements of design
CO2 Design layouts of Rooms, Restaurants, Lobby and other guest areas of a hotel
CO3 Illustrate on color wheels and color combinations
CO4 Explain various types of lighting
CO5 Elucidate on different types of walls, furnishes and furniture

DSC 4.1

Title of the course: F & B Production – IV
Course Outcomes: By the end of the course the student will be able to

CO1 Explain the basics of various international cuisines
CO2 Elucidate the basics of Food Production Management
CO3 To know about Ladar kitchen process
CO4 To understand the importance of planning diet – balanced diet
CO5 To know about various garnishes and accompaniments for popular dishes

DSC 4.2

Title of the course: F & B Service – IV
Course Outcomes: By the end of the course the student will be able to

CO1 Introduction of alcoholic beverage with the strength of alcohol percentage of liquor and liqueur and different types of distillation process of manufacturing spirits
CO2 Definition of BAR and different types of bars in operation
CO3 To know about license and rules and regulation of serving liquor to the guest.
CO4 Introduction of Cigar and Cigarette , to know of manufacturing the cigar and cigarette.

DSC 4.3

Title of the course: Front Office - III
Course Outcomes: By the end of the course the student will be able to

CO1 To be able to explain the reservation management and forecasting of occupancy
CO2 It explains the significance role of reception in Front office
CO3 To understand the various operational processes in lobby and desk
CO4 To understand the various operational processes in check out process.
CO5 To know the role of computers in Front office operations

DSC 4.4

Title of the course: Housekeeping - III
Course Outcomes: By the end of the course the student will be able to

CO1 Explain the basic aspects of linen and laundry operations
CO2 Elaborate on the concept of TQM in hotels
CO3 Elaborate on the safety and security systems of a hotel
CO4 Evaluate the OSHA Guidelines for Workplace Safety
CO5 Elucidate on Laundry Department, Laundry Equipment's and Laundry Agents

DSC 6.1

Title of the course: F & B Service Management
Course Outcomes: By the end of the course the student will be able to

CO1 Knowledge of preparing different types of beverage list and calculation of beverage stock
CO2 Knowledge of Menu engineering and Analysis of different types of food performance in the operations
CO3 Knowledge of designing and layout of each F & B outlets in the hotel industry
CO4 To know about the calculation or preparing a budget in all the F & B outlets.
CO5 Introduce new concept or innovation idea to be implemented in hospitality industry

DSC 6.2

Title of the course: Management principles and practices
Course Outcomes: By the end of the course the student will be able to

CO1 To familiarize the students with the concepts of management and administration
CO2 To able to understand the principles decision making skills
CO3 To know the organizing delegation of authority and responsibilities.
CO4 To facilitate the hospitality students to know the modern trends in management

DSC 6.3

Title of the course: Computers in Hospitality Services - I
Course Outcomes: By the end of the course the student will be able to

CO1 To bring awareness to students that Hotel Property Management Software
CO2 To know about Selection and implementation of computers in hospitality industry
CO3 To know about the consistent and compatible with various interfaces there by optimizing guest delight
CO4 To understand the various hardware components enhancing operations in industry
CO5 To understand the analyzing management information system

DSC 6.4

Title of the course: Marketing of Hospitality Services
Course Outcomes: By the end of the course the student will be able to

CO1 To familiarize student with basic concepts of marketing and its 7 P's.
CO2 To facilitate the hospitality students to better understand the market and its prevailing environment
CO3 To understand the various promotional tools and steps to conduct market research
CO4 Conduct Marketing Research and Forecasting Demand.
CO5 Identify Marketing Segment and Targets

DSC 7.1

Title of the course: F & B Production Management
Course Outcomes: By the end of the course the student will be able to

CO1 Explain the fundamental concepts Kitchen Management
CO2 Elaborate the fundamental concepts of Purchasing
CO3 To understand the storage of various food material.
CO4 Knowledge of Menu engineering and Analysis of different types of food performance in the operations
CO5 To understand the Principles of large scale commercial cooking

DSC 7.2

Title of the course: Accommodations Management
Course Outcomes: By the end of the course the student will be able to

CO1 Elaborate the fundamental concepts of yield management and forecasting
CO2 Apply the principles of ergonomics in hotel operations
CO3 Elucidate on the facilities and design of Front office and Housekeeping in hotel
CO4 To understand the Housekeeping budgeting and operational process

DSC 7.3

Title of the course: Computers in Hospitality Services – II
Course Outcomes: By the end of the course the student will be able to

CO1 Demonstrate the basic computer application skills necessary for hotels
CO2 To bring awareness to students that Hotel Point of Sale Software
CO3 To know about Selection of POS Hardware and software
CO4 To know about the consistent and compatible with various interfaces there by optimizing guest delight
CO5 To understand the working process of Point of Sale.

DSC 7.4

Title of the course: Hospitality Law

Course Outcomes: By the end of the course the student will be able to

CO1 To bring awareness to students about the laws governing the hotel and tourism industry.

CO2 It highlights the hotel-guest relations, contractual relationships, licensing, employer-employee relationship, sanitation, hygiene, bar and liquor, and prevention of food and beverage adulteration.

CO3 The primary objective of this course is to familiarize the student with basic concepts of Hospitality Law.

CO4 The course provides the student with a comprehensive outline of the legal obligations, responsibility and rights of the industry.

DSC 7.5

Title of the course: Allied Hospitality Services

Course Outcomes: By the end of the course the student will be able to

CO1 To understand retail management in industry

CO2 To be able understand the process of facilities management

CO3 To incorporate the students with knowledge of event management

CO4 Explain the basic concepts of MICE

CO5 To be able to understand the various alternative lodging industry.

DSC 7.5

Title of the course: Financial Management in Hotels

Course Outcomes: By the end of the course the student will be able to

CO1 Review and evaluate the various financial applications utilized within the hospitality industry.

CO2 Prepare, plan, execute and evaluate financial statements for a hospitality department.

CO3 Demonstrate understanding of revenue and expense accounting through analysis of balance sheets.

CO4 Identify the financial organizational structure and its role in the planning of hotel business.

DEPARTMENT OF PG STUDIES IN COMMERCE

Title of the Paper: M. Com 1.1 - Global Business Environment
Course Outcome
CO1: The students will be able to learn nature, scope and structure of global business environment
CO2: To expose students to global business & economic environment
CO3: Analyse the influence of various environmental factors on global business operations
CO4: To enable students to understand multi-national corporations
CO5: show familiarity social responsibilities and ethics

Title of the Paper: M. Com 1.2 - Monetary System
Course Outcome
CO1: To familiarize the students with the invention of money,
CO2: To familiarize the student's monetary standards and theories of money
CO3: The contents will expose students to the depth of the domestic and international monetary system and practices in general
CO4: To enable knowing international monetary and financial systems
CO5: familiarity with BOP and BOT

Title of the Paper: M. Com 1.3 - Principles of Business Decision
Course Outcome
CO1: To familiarise students with key macro-economic variables and their behaviour, and enable them to critically evaluate different economies
CO2: the students will be able to learn macroeconomics, fiscal policy
CO3: familiarize students with various production function and economic value analysis
CO4: To enable students to integrate pricing analysis into business decisions
CO5: the students will be able to learn demand analysis

Title of the Paper: M. Com 1.4 - Technology in Business
Course Outcome
CO1: familiarize student with E-commerce business models
CO2: the students will be able to understand, Security Threats & Protections as well as application of Technology in every corner of the business in the world
CO3: expose students to various laws relating to information technology
CO4: To familiarize students to IT ACT of 2000
CO5: the students will be able to learn electronic data interchange

Title of the Paper: M. Com 1.5- Advanced Financial Management & Practices

Course Outcome

CO1: To impart the knowledge in finance and familiarize with various capital structure theories

CO2: to understand the advanced tools and techniques used in evaluating projects for financial decisions. The theories on financial management concepts will help the students to attain a greater anatomy on effective financial decision making in business

CO3: To enable the students to do risk analysis in capital budgeting

CO4: To enable students learn corporate restructuring

CO5: to enable students to learn various dividend policy and to attain a greater anatomy on effective working capital decision in business

Title of the Paper: M. Com 1.6- Knowledge Management & Innovation

Course Outcome

CO1: the students will be able to understand the core concepts of knowledge management and application of knowledge management in various multi-disciplinary areas

CO2: demonstrate learning theories, learning organization and future of knowledge management

CO3: To enable the students to do analysis of social networking

CO4: To enable the students to the knowledge management architecture implementation strategies

CO5: the students will be able to understand about the mystique of learning organization

Title of the Paper: M. Com 1.7- Business Models for Start-ups

Course Outcome

CO1: To expose students about the startups and their stories

CO2: To expose students to various government initiatives towards startup development

CO3:to enable the students about preparing the business plan for startups

CO4: the students will understand the current business models and ways to establish startups in India

CO5: demonstrate business models and risks in various business models.

Title of the Paper: M. Com 2.1- Contemporary Indian Banking

Course Outcome

CO1: To expose the students to Indian Banking System along with the latest reforms in Banking

CO2: To enable the students to understand prudential norms and new technologies in Banking

CO3:to enable the students about how the non-performing assets maintained

CO4: to provide knowledge about the Basel norms I II III

CO5: familiarize the students about the assets and liability management of banks

Title of the Paper: M. Com 2.2- Risk Management & Derivatives

Course Outcome

CO1: To provide basic knowledge of risk, type of risks and tools of risk management

CO2: familiarize students with concepts of credit risk management

CO3:to enable the students to analyze the market risk and operations risk

CO4: understand the role of derivatives as financial instruments to mitigate the risks in business

CO5: To impart knowledge of basics of derivatives, futures options & swaps

Title of the Paper: M. Com 2.3- Advanced Research Methodology

Course Outcome

CO1: understand the selection of socio-economic problem to find a solution through review of literature, data collection and analysis, reporting the same for the benefit of society at large

CO2: an opportunity to do a research/consultancy project in future.

CO3: student will learn about various scale of measurement and data processing

CO4: to understand about different sampling methods and to build the different thpes of hypothesis

CO5: familiarize students with concepts, tools and techniques of the methodology of research

Title of the Paper: M. Com 2.4- Digital Marketing

Course Outcome

CO1: the students will gain industry background knowledge to knowledgeably navigate internet marketing topics including online advertising, search, social media and online privacy

CO2: To impart knowledge of digital marketing, its environment

CO3: student will know about the research and development in digital marketing

CO4: to understand about customer acquisition and retention and preparing the reports

CO5: familiarize students with concepts of emerging issues of digital marketing

Title of the Paper: M. Com 2.5- Venture Creation & Development

Course Outcome

CO1: the students will gain industry background knowledge to knowledgeably navigate internet marketing topics including online advertising, search, social media and online privacy

CO2: impart knowledge of entrepreneurship development and leadership

CO3: expose students to new venture planning

CO4: To expose students to new venture financing

CO5: To expose students about the issues for ventures.

Title of the Paper: M. Com 2.6- Indian Ethos and Leadership

Course Outcome

CO1: the students will be able to learn Indian ethos

CO2: impart knowledge of entrepreneurship development and leadership

CO3: the students will be able to learn values along with its relevance on leadership to take managerial decision making in the organization

CO4: To expose student's skills for leadership development and stress management

CO5: impart knowledge about stress management

Title of the Paper: M. Com 2.7- Financial Modelling for Business

Course Outcome

CO1: understand the items in balance sheet of a company and forecast the future for better decision making.

CO2: To impart knowledge on basics of financial modeling and how to build financial models

CO3: To enable students learn the use of excel for financial modeling with different types of models

CO4: To make students analyze the need for incubation support to startups and creation of startup financial models

CO5: To enable students to solve various case studies

Title of the Paper: M. Com 3.1- Intellectual Property rights

Course Outcome

CO1: understand the fundamental aspect of Intellectual Property rights

CO2: To impart knowledge on registration and various laws of IPR

CO3: to familiarize practice and procedure of the intellectual property protected through patents, trademarks, copyrights, designs and geographical indications.

CO4: To make students analyze the precise nature of the rights which a person can acquire in respect of a TM- The mode of acquisition of such rights models

CO5: to familiarize about the contributions to the economics of geographical indications (GIs) through the development of a general analysis

Title of the Paper: M. Com 3.2- Trade Logistics and supply chain management

Course Outcome

CO1: understand the concepts of logistics

CO2: To impart knowledge about supply chain management in different kinds of industries

CO3: to familiarize the growth of Logistic and supply chain management in national and international scenarios

CO4: To understand warehousing, packaging, and material handling, and distribution centers

CO5: understand the concepts of supply chain logistics administration

Title of the Paper: M. Com 3.3- Business Reporting and Practices

Course Outcome

CO1: the students will be able to understand the reporting aspects of different elements of business reporting

CO2: To impart knowledge about the presentation and disclosure of various accounting standards

CO3: to familiarize ***financial reporting for financial institutions***

CO4: To understand recent trends in financial reporting

CO5: To impart knowledge about developments in financial reporting

Title of the Paper: M. Com 3.4- Strategic cost management I

Course Outcome

CO1: the students will be able to understand the internal environment of business and enable them to formulate strategies relating to cost.

CO2: To impart knowledge about traditional and modern methods of the ABC system

CO3: to familiarize ***life cycle costing and project life cycle costing***

CO4: To understand the methodology and implementation of JIT

CO5: To impart knowledge about the integration of strategic cost and performance evaluation

Title of the Paper: M. Com 3.5- corporate tax planning

Course Outcome

CO1: To impart knowledge about the computation of taxable income and tax liability of companies

CO2: to familiarize with various tax planning

CO3: To understand various tax planning and financial management decisions of a company

CO4: To acquire the knowledge of applying tax planning decision

CO5: To impart knowledge about tax payments

Title of the Paper: M. Com 4.1 – Analytics in Commerce & Business
Course Outcome
CO1: To understand the importance of analytics in business application
CO2: to familiarize with the potential application of analytics in the finance department
CO3: To acquire knowledge of the potential application of analytics in the marketing department
CO4: To acquire the knowledge of applications of the relevance of HR analytics in business
CO5: To impart knowledge about CMR analytics in business

Title of the Paper: M. Com 4.2– Forensic Accounting and Auditing
Course Outcome
CO1: To understand the concept of Forensic Accounting
CO2: to familiarize with the various techniques in fraud detection
CO3: To acquire knowledge about the best practices of risk assessment
CO4: To understand the concept of Forensic Audit
CO5: To impart knowledge about tools for handling Forensic Audit

Title of the Paper: M. Com 4.3– International Accounting
Course Outcome
CO1: To understand the concept of international accounting and the different users of IAF
CO2: to familiarize with the structure of IFRS
CO3: To acquire knowledge about the issues in international accounting
CO4: To impart knowledge about the international financial statement analysis
CO5: To impart knowledge about other countries' financial reporting

Title of the Paper: M. Com 4.4– Strategic Cost management-II
Course Outcome
CO1: To understand the various pricing strategies and implementation in the decision-making process
CO2: to familiarize with the structure of IFRS
CO3: To acquire knowledge about the issues in international accounting
CO4: To impart knowledge about the international financial statement analysis
CO5: To impart knowledge about other countries' financial reporting

Title of the Paper: M. Com 4.5– Goods and Service Tax
Course Outcome
CO1: To understand the GST law in the country
CO2: to familiarize with the levy of GST
CO3: To acquire knowledge about the input tax credit
CO4: To impart knowledge about the accounts, returns, and payments under GST and the implications of TDS
CO5: To impart knowledge about refund and assessment under GST.

DEPARTMENT OF MTTM

Title of the paper: Tourism Industry: Principles policies Practices
Course Outcomes:
CO 1: Define and explain key concepts and issues concerning tourism planning, tourism public policy and tourism management
CO 2: Critically evaluate several important tourism planning approaches and models
CO 3: Identify key stakeholders involved in tourism planning and policy-making
CO 4: Understand and assess government and industry roles and responsibilities in tourism planning and policy-making.
CO 5: Understand the developing and monitoring tourism master plan

Title of the paper: Geography of Tourism
Course Outcomes:
CO 1: Find the basic of global continents
CO 2: Understand the global land mass for tourism development
CO 3: Identify the various tourism attractions across the globe
CO 4: Distinguish the difference between various natural and man-made attractions
CO 5: Evaluate tourism growth and development of the world
CO 6: Imagine outcome of the tourism industry for global development

Title of the paper: Indian Cultural Heritage
Course Outcomes:
CO1: Describe Indian culture, civilization and its features.
CO2: Demonstrate stone age, Indian races and their contribution in pre-historic culture.
CO3: Explain historical development of Indian culture.
CO4: Explain the significance, conditions and development of Vedic culture.
CO5: Analyze the advent of Islam and European culture.

Title of the paper: Ethical Business and Legal Environment of Tourism
Course Outcomes:
CO1: Relate the various Laws and regulations relevant for the tourism industry.
CO2: Discuss the importance of consumer rights and issues related to them in the tourism industry.
CO3: Illustrate the principles of Negotiable Instruments in the tourism sector.
CO 4: Recognize the roles of tourism and hospitality activities regulating bodies (ministries - chambers - associations - organizations)

CO 5: Interpret ethics in tourism and hospitality

Title of the paper: Travel Trade Management
Course Outcomes:
CO 1: To understand the significance and procedure of Travel trade
CO 2: Demonstrate and understanding and importance of the travel and tourism industry
C0 3: Articulate a clear and well-structured understanding of travel agency
CO 4: Demonstrate the skills necessary to identify sales and marketing strategies for travel agencies

Title of the paper: Managing Behavioral Processes in the Organizations
Course Outcomes:
CO 1: To learn with the concept of organization behavior.
CO 2: To understand the role of organizational behavior and its challenges & opportunities of organizational behavior in tourism industry.
CO3: To study about the organizational Development and Change.
CO 4: To learn about perception and Managerial implications of perception.
CO 5: To familiarize basic management concepts and behavioral processes in management.
CO6: To understand the role of management in decision making process.

Title of the paper: Communication Skills
Course Outcomes:
CO1: To enable students to have analytical, critical and communicative mind.
CO2: To analyze the listening comprehension.
CO3: To learn about speaking skill through group Discussion and evaluation, Mock interview.
CO4: To identify the principles of communicative writing

Title of the paper: Accounting for Tourism
Course Outcomes:
CO 1: Explain and use accounting information in business decision-making contexts
CO 2: Critically analyses financial reports and financial information to advice upon and improve business practices.
CO 3: Apply the major types of financial statement analysis to plan and control business activities
CO 4: Use the major techniques of financial and management accounting to make informed business decisions
CO 5: Evaluate contemporary management accounting systems and apply these systems to improve management decision-making.

Title of the paper: Destination Marketing
Course Outcomes:
CO 1: To understand marketing principles with special emphasis on Tourism and Travel industry
CO 2: To focus on marketing tourist destination and familiarize with the contemporary marketing practices
CO 3: Examine and discuss the key concepts and principles of marketing as applied to destinations and the tourism experience
CO 4: Demonstrate an evaluative understanding of current issues associated with destination marketing
CO 5: Engage in tourism and marketing research and inquiry to inform strategic decision making and problem solving

Title of the paper: E Tourism

Course Outcomes:

CO1: To learn how the advances in information technology in tourism business.
CO2: To analyze the relationship between information technology and the Tourism Industry Components.
CO3: To study about technology used in tourism and marketing.
CO4: To learn about electronic Commerce and E- Business in tourism.
CO5: To give an in-depth of role of media in tourism industry.

Title of the paper: Sustainable Tourism

Course Outcomes:

CO1: To study about the concept of ecology and other concepts in environment.
CO2: To learn about ecotourism and ecotourism principles.
CO3: To know about the principles of sustainability, tools of sustainability.
CO4: To learn about responsible Tourism, Community based and Pro-poor tourism including community participation, eco-friendly Practices and Energy Waste Management
CO5: To learn about Natural Hazards and Disasters and the Causes and results of hazards and disasters. • To learn about how to manage disasters in destinations.

Title of the paper: Methodology of Research

Course Outcomes:

CO1: To learn about the role of tourism Research and to know the various research methods for tourism.
CO2: To familiarize with the qualities of a good research & researcher
CO3: To learn the terms and concepts data collection, types of data, methods and tools for data collection.
CO4: Understanding the use of qualitative and quantitative Research in Tourism.
CO5: Understanding the techniques of analyzing Data, Report writing.

Title of the paper: Tourism Analysis for Policy Decision Making

Course Outcomes:

CO 1: To understand and enable students on what basis policy are made
CO 2: To equip the students to make informed policy decisions in the real life situation once they enter the corporate or public sector
CO 3: Define and explain key concepts and issues concerning tourism planning, tourism public policy and tourism management.
CO 4: Critically evaluate several important tourism planning approaches and models.
CO 5: Understand and assess government and industry roles and responsibilities in tourism planning and policy-making.

Title of the paper: Personality Development

Course Outcomes:

CO 1: To acquire in-depth knowledge about the business communication and personality development
CO 2: To become familiar with techniques and approaches for a successful communication
CO 3: To have a real life situation which the student has to face
CO 4: Demonstrate knowledge of personal beliefs and values and a commitment to continuing personal reflection and reassessment.

DEPARTMENT OF PHYSICS

Title of the paper: PHY 101 Mathematical Physics I
Course Outcomes

CO 1: Understanding Mathematical Methods: Students should acquire a deep understanding of the mathematical tools and methods used in physics, such as differential equations, complex analysis, linear algebra, vector calculus, Fourier analysis, and more.

CO 2: Ability to Apply Mathematical Techniques in Physics: Students should be able to apply various mathematical concepts to solve physical problems. This might involve solving differential equations to describe physical systems or using linear algebra in quantum mechanics.

CO 3: Mastering Advanced Mathematical Tools: Proficiency in advanced mathematical tools used in physics, such as partial differential equations, tensor analysis, group theory, functional analysis, and variational calculus. Students should become comfortable using these tools in the context of physical theories and models.

CO 4: Modeling Physical Systems: The ability to create mathematical models for physical systems. Students should learn how to translate physical problems into mathematical formulations and analyze and solve these models to describe real-world phenomena.

CO 5: Critical Thinking and Problem-Solving Skills: Develop critical thinking skills necessary to analyze complex physical problems and use mathematical tools to solve them. Students should be able to evaluate different approaches and choose the most appropriate mathematical techniques to solve problems.

CO 6: Understanding Theoretical Physics: Gain a deep understanding of fundamental theories in physics (such as quantum mechanics, general relativity, statistical mechanics, etc.) from a mathematical perspective. This involves interpreting these theories mathematically and understanding the implications and applications of these models.

Title of the paper: PHY 102 Classical Mechanics

Course Outcomes

CO 1 Understanding Newton's Laws: Students will gain a comprehensive understanding of Newton's laws of motion and their application in describing the dynamics of particles and systems.

CO 2 Kinematics and Dynamics: Proficiency in analyzing the motion of objects, including the study of kinematics (the description of motion without regard to its causes) and dynamics (the study of the forces causing the motion).

CO3: Conservation Laws: Mastery of concepts related to conservation laws, such as conservation of energy, momentum, and angular momentum, and their application in solving problems in classical mechanics.

CO4: Newtonian Mechanics: Proficiency in solving problems using Newton's laws, and understanding how these laws apply to a wide range of physical systems.

CO5: Lagrangian and Hamiltonian Mechanics: Understanding the principles of Lagrangian and Hamiltonian formalisms, which provide alternative and often more powerful ways to analyze and solve problems in mechanics. Students should be able to use these methods to solve problems and describe systems in generalized coordinates.

CO6: Rigid Body Dynamics: Understanding the dynamics of rigid bodies in motion, including rotation, angular momentum, moments of inertia, and torque.

CO 7: Oscillations and Waves: Understanding simple harmonic motion, damped oscillations, coupled oscillations, and wave phenomena.

CO 8: Problem-Solving Skills: Developing problem-solving skills by applying theoretical principles to solve a variety of problems, including both simple and complex scenarios.

CO 9: Critical Thinking and Analytical Skills: Enhancing critical thinking by interpreting and analyzing physical situations and selecting appropriate mathematical methods to solve problems in classical mechanics.

Title of the paper: PHY 103 Classical Electrodynamics

Course Outcomes

CO 1: Maxwell's Equations: Understanding and applying Maxwell's equations, which form the foundation of classical electromagnetism, describing the relationships between electric and magnetic fields, electric charges, and currents.

CO 2: Electrostatics and Magnetostatics: Mastery of the principles governing static electric and magnetic fields, including understanding Coulomb's law, Gauss's law, Ampère's law, and the behavior of charges and currents in static situations.

CO 3: Electrodynamics and Time-Varying Fields: Understanding how electric and magnetic fields change over time, leading to the development of electromagnetic waves and their propagation, and the principles of electromagnetic induction.

CO 4: Electromagnetic Waves: Understanding the nature and properties of electromagnetic waves, including the relationship between electric and magnetic fields in propagating waves, and the speed of light as an electromagnetic wave.

CO 5 Electromagnetic Radiation: Understanding how accelerating charges emit electromagnetic radiation, and the consequences of this phenomenon, including radiation patterns, antennas, and the behavior of light.

CO 6: Covariant Formulation: Introduction to the covariant formulation of electrodynamics, which involves using the language of special relativity to describe electromagnetic phenomena.

CO 7: Boundary Value Problems: Solving boundary value problems related to electrostatics and magnetostatics using techniques like the method of images, separation of variables, and solving Laplace's and Poisson's equations in various geometries.

Title of the paper: PHY 104 Electronics Circuits and Devices

Course Outcomes

CPO 1 Basic Instrumentation Skills: Proficiency in using electronic lab equipment such as oscilloscopes, multimeters, signal generators, power supplies, and other essential tools commonly used in electronics laboratories.

CPO 2 Circuit Design and Analysis: Understanding the design, analysis, and troubleshooting of electronic circuits, including amplifiers, filters, oscillators, and digital logic circuits. Students should be able to apply basic circuit laws and principles to design and analyze circuits.

CPO 3 Breadboarding and Prototyping: Acquiring skills in constructing circuits on a breadboard and creating functional prototypes using discrete electronic components like resistors, capacitors, inductors, transistors, operational amplifiers, etc.

CPO 4 Soldering Techniques: Learning proper soldering techniques and skills for assembling and soldering components onto printed circuit boards (PCBs) to create permanent circuit assemblies.

CPO 5 Measurements and Data Interpretation: Conducting measurements of voltage, current, resistance, frequency, and other relevant parameters in electronic circuits. Understanding how to in Experimental Skills:

Title of the paper: PHY 105 General Physics Lab

Course Outcomes

CPO 1: To Develop proficiency in using laboratory instruments and apparatus.Gain hands-on experience in conducting physics experiments.

CPO 1: Learn to collect, process, and analyze experimental data.Apply statistical methods and graphical representations.

CPO 2: Understand the principles of common physics laboratory instruments, Explore calibration procedures and troubleshoot equipment.

CPO 3: Experimentally verify fundamental laws and principles in physics.Investigate the limitations and applicability of theoretical concepts.

CPO 4: Effectively communicate experimental procedures, results, and conclusions in formal reports.

Title of the paper: PHY 106 Electronics Lab

Course Outcomes

CPO 1: To Acquire proficiency in using electronic components, measuring instruments, and circuitry.

CPO 2: To Learn to design and analyze electronic circuits for various applications. Develop skills in using simulation tools for circuit design verification.

CPO 3: Understand the principles behind electronic measurement instruments.

CPO 4: Learn to use oscilloscopes, multimeters, and other tools for accurate measurements.

Digital Electronics Proficiency:

CPO 5: Explore the design and implementation of digital circuits and systems.

Gain hands-on experience with logic gates, flip-flops, and microcontrollers.

Title of the paper : PHY 108 Techniques of Biophysics

Course Outcomes

CO 1A course in Biophysics covers the interdisciplinary field that combines principles from physics with biology, aiming to understand biological phenomena using quantitative and analytical methods. The outcomes of such a course typically include:

CO 2Understanding Biological Systems from a Physical Perspective: Developing an understanding of the fundamental principles of physics and how they apply to biological systems. This involves concepts from thermodynamics, statistical mechanics, mechanics, electromagnetism, and optics as applied to biological systems.

CO 3Quantitative Analysis of Biological Processes: Learning how to use mathematical and computational tools to analyze and model biological systems. This includes differential equations, probability theory, statistical methods, and computational modeling.

CO 4Molecular Biophysics: Understanding the physical principles behind the structure and function of biological molecules, such as proteins, DNA, and RNA. This involves topics like molecular interactions, protein folding, and DNA replication.

CO 5Membrane Biophysics: Exploring the physical properties and dynamics of cell membranes, including membrane structure, transport mechanisms, and membrane dynamics.

CO 6Biophysical Techniques: Acquiring practical skills in using biophysical experimental techniques, such as spectroscopy, microscopy, X-ray crystallography, NMR (nuclear magnetic resonance), AFM (atomic force microscopy), and other methods used to study biological systems.

CO 7Communication and Collaboration: Enhancing communication skills to effectively communicate biophysical concepts and findings, as well as fostering collaboration in interdisciplinary research.

Title of the paper: PHY 201 Mathematical Physics II

Course Outcomes

CO 1: Mathematical Physics II" is an advanced course that typically builds upon the foundations established in Mathematical Physics I. It delves deeper into the application of mathematical methods to various advanced topics in physics. The specific content and outcomes of Mathematical Physics II may vary based on the institution and instructor, but it often covers more advanced mathematical concepts applied to sophisticated physical theories. Here are some potential topics and outcomes:

CO 2: Advanced Mathematical Methods: Expanding on the mathematical techniques introduced in Mathematical Physics I, this course may cover more advanced methods. These might include complex analysis, group theory, functional analysis, differential geometry, variational principles, and more.

CO 3: Quantum Mechanics: Deeper exploration of quantum mechanics using advanced mathematical tools. This may include topics such as angular momentum, perturbation theory, scattering theory, and the mathematical foundations of quantum information theory.

CO 4: Statistical Mechanics: Advanced statistical methods, partition functions, phase transitions, and the mathematical underpinnings of complex systems and critical phenomena.

CO 5: Mathematical Aspects of Particle Physics: Introduction to the mathematical concepts used in particle physics, such as group theory applied to symmetries, representations, and the Standard Model.

CO 5: Applications and Problem Solving: Solving advanced problems in physics using the mathematical tools introduced in the course. Emphasis on critical thinking, problem-solving, and real-world applications of the mathematical methods in physics.

CO 7Advanced Mathematical Modeling: Learning to create and analyze complex mathematical models for physical systems, including developing computational techniques to simulate and solve intricate problems.

Title of the Paper: PHY 202 Quantum Mechanics I

Course Outcomes

CO 1: Quantum Mechanics I" is an introductory course in the fundamental principles and mathematical formalism of quantum mechanics. It lays the groundwork for understanding the behavior of particles at the quantum level and the mathematical description of their properties. The course typically covers various key concepts and outcomes:

CO 2: Introduction to Quantum Theory: Understanding the motivation behind quantum theory, its historical development, and the need for a quantum description of physical phenomena.

CO 3: Wave-particle duality: Exploring the wave-like and particle-like properties of matter, including the concept of wave functions and the probabilistic nature of quantum mechanics.

CO 4: Mathematical Foundations: Learning the mathematical formalism of quantum mechanics, including complex numbers, linear algebra, vector spaces, and operators. This involves understanding Dirac notation and solving Schrödinger's equation.

CO 5: Postulates of Quantum Mechanics: Studying the foundational principles of quantum mechanics, such as the superposition principle, measurement, uncertainty principle, and the role of observables and operators.

CO 6: Quantum States and Observables: Understanding the concept of quantum states and observables, their properties, and how they're related to experimental outcomes.

CO 7: One-Dimensional Potential Wells: Solving Schrödinger's equation for simple potentials, such as particle in a box, harmonic oscillator, and the potential step.

Title of the Paper: PHY 203 STATISTICAL MECHANICS

Course Outcomes

CO 1 Thermodynamics Laws Derivation: Statistical mechanics provides a microscopic basis for the laws of thermodynamics. It helps in deriving macroscopic thermodynamic properties from the statistical behavior of atoms and molecules.

Co 2: Microscopic Understanding of Thermodynamic Properties: It explains how macroscopic properties such as temperature, pressure, volume, and entropy emerge from the statistical behavior of individual particles.

CO 3: Entropy and Disorder: Statistical mechanics provides a statistical interpretation of entropy as a measure of disorder, or the number of ways particles can be arranged in a system.

CO 4: Equilibrium and Probability Distributions: It offers insights into how systems move toward equilibrium, where the probability distributions of particles' states reach a stable configuration.

CO 5: Phase Transitions: Statistical mechanics explains phase transitions (such as solid-liquid-gas transitions) in terms of the behavior of particles at the microscopic level. It predicts critical points and phase diagrams.

Title of the Paper: PHY 204 Atomic, Molecular Physics

Course Outcomes

CO 1: Understanding Atomic Structure: Atomic physics has provided a detailed understanding of the structure of the atom, including the arrangement of electrons within the atom and their energy levels.

CO 2: Spectroscopy and Spectral Lines: Spectroscopic techniques developed in atomic physics have enabled the study of spectral lines emitted or absorbed by atoms and molecules, providing valuable information about their composition, energy levels, and interactions.

CO 3: Quantum Mechanics Validation: The behavior of atoms and molecules validates the principles of quantum mechanics. The quantization of energy levels, wave-particle duality, and the probabilistic nature of quantum states have been extensively validated through atomic and molecular physics experiments.

CO 4: Laser Technology: Research in atomic and molecular physics has contributed to the development of laser technology. Understanding atomic transitions and interactions has been instrumental in creating different types of lasers used in various fields.

CO 5: Cold Atom Physics: The study of ultra-cold atoms has led to the development of technologies like Bose-Einstein condensates, enabling researchers to explore fundamental aspects of quantum physics and quantum information science.

CO 6: Understanding Fundamental Forces: Atomic and molecular physics experiments contribute to our understanding of fundamental forces and interactions, such as the electromagnetic force responsible for atomic interactions.

Title of the paper: PHY 205 Optics Lab

Course Outcomes

CO 1: Development of Optical Instruments: Optics labs contribute to the creation and improvement of optical instruments, such as microscopes, telescopes, cameras, spectrometers, and lasers. These instruments are used in various fields for research, medical diagnostics, industry, and everyday applications.

CO 2: Characterization of Light: Optics labs enable the detailed characterization of light, including its properties such as wavelength, polarization, intensity, and coherence. Understanding these properties is essential in various applications.

CO 3: Understanding Light-Matter Interactions: Through experiments in optics labs, scientists gain insights into how light interacts with various materials, leading to advancements in fields like spectroscopy, photonics, and material science.

CO 4: Quantum Optics: Optics labs play a significant role in quantum optics experiments, exploring the quantum nature of light and its interaction with matter. This field is crucial for developing quantum technologies.

CO 5: Optical Fiber Technology: Research in optics labs has been essential for the development of optical fiber technology, which is the backbone of modern telecommunication systems, enabling high-speed data transmission.

Tite of the Paper: PHY 206 Computational Lab

Course Outcomes

CO 1: Modeling Complex Systems: These labs facilitate the modeling of complex systems that might be challenging or impossible to study experimentally. They simulate systems with multiple interacting components, aiding in the understanding of emergent behaviors.

CO 2: Predictive Simulations: Computational labs allow scientists to predict the behavior of systems under different conditions, helping to understand and foresee how systems might react to changes or interventions.

CO 3: Drug Discovery and Design: Computational chemistry and biology labs assist in simulating molecular interactions, contributing to drug discovery by predicting the behavior of various compounds and their interactions with biological targets.

CO 4: Material Science and Design: Computational simulations help in the design and analysis of new materials, predicting their properties and behaviors, leading to the development of novel materials for specific applications.

CO 5: Climate Modeling and Prediction: Computational labs in atmospheric sciences use models to simulate and predict climate patterns, weather, and environmental changes, aiding in understanding long-term climate trends and assessing the impacts of human activities.

Title of the Paper: PHY 208 Experimental Technique

Course Outcomes

CO 1Discovery of New Phenomena: Experimental techniques often lead to the discovery of new natural phenomena, providing insights into previously unknown aspects of the world around us. These discoveries can significantly advance scientific understanding within specific fields.

CO 2: Advancements in Medicine and Biotechnology: Experimentation in biology, biochemistry, and medicine leads to the development of new drugs, medical procedures, and biotechnological applications. Experimental techniques in genetics, for instance, have led to breakthroughs in gene therapy and genetic engineering.

CO 3: Materials Science Innovations: Experimental methods in materials science aid in the discovery and development of new materials with unique properties. These materials find applications in various fields, such as electronics, construction, energy, and healthcare.

CO 4: Improved Diagnostic Tools: Experimental techniques in medical imaging, such as MRI (magnetic resonance imaging), CT (computed tomography), and PET (positron emission tomography), lead to the development of more precise and effective diagnostic tools.

CO 5:Technological Innovations: Experimentation is at the core of technological advancements. It helps refine existing technologies and develop new ones across diverse fields, from information technology to telecommunications and manufacturing.

Title of the Paper: PHY 301 Quantum Mechanics II

Course Outcomes

CO 1: Particle Behavior and Dual Nature: Quantum mechanics provides an understanding of the wave-particle duality of matter and energy. It explains that particles, like electrons and photons, can exhibit both wave-like and particle-like behavior.

CO 2: Quantum Entanglement: This phenomenon, where the quantum states of two or more particles are interconnected, has led to the exploration of quantum information and quantum computing. Quantum entanglement has implications for secure communication and the development of quantum algorithms.

CO 3: Quantum Superposition: Quantum mechanics allows for the concept of superposition, where a particle can exist in multiple states simultaneously. This forms the basis for quantum computing and quantum interference experiments.

CO 4: Quantum Tunneling: Quantum mechanics explains how particles can pass through energy barriers that would be impossible according to classical mechanics. This phenomenon is essential in various technological applications, including tunnel diodes, scanning tunneling microscopy, and quantum mechanical systems.

CO 5: Quantum Mechanics in Chemistry: It forms the basis of understanding chemical bonding, molecular structures, and reactions. Quantum mechanics helps in predicting and explaining the behavior of atoms and molecules, influencing drug discovery, material science, and catalysis.

Title of the Paper: **PHY 302 Computational Physics**

Course Outcomes

CO 1 Understanding Complex Systems: Computational simulations help in understanding complex physical systems that cannot be easily studied analytically. This includes modeling chaotic systems, many-body interactions, and non-linear phenomena.

CO 2 Quantum Mechanics Simulations: Computational physics plays a crucial role in simulating quantum mechanical systems, aiding in understanding the behavior of quantum particles and their interactions. These simulations contribute to research in quantum computing and materials science.

CO 3 Astrophysical Simulations: Numerical modeling and simulations in computational physics allow the study of astrophysical phenomena, such as the formation of galaxies, stars, black holes, and the evolution of the universe, contributing to our understanding of cosmology and astronomy.

CO 4Condensed Matter Physics: Simulations in this area aid in understanding the behavior of materials at the atomic and molecular scale. It helps predict material properties, phase transitions, and the behavior of systems like superconductors or magnets.

CO 5Particle Physics Simulations: Computational physics contributes to simulating high-energy particle interactions, aiding in the study of fundamental particles and the properties of matter at the smallest scales.

Title of the Paper: PHY 303 Nuclear and Particle Physics

Course Outcomes

CO 1 Standard Model of Particle Physics: Discoveries in this field have contributed to the development of the Standard Model, which explains the fundamental particles and the forces that govern them. This model includes quarks, leptons, gauge bosons, and the Higgs boson.

CO 2 Particle Discoveries: Experimental work in particle accelerators and detectors has led to the discovery of new particles, such as quarks, neutrinos, and other exotic particles. These discoveries expand our understanding of the building blocks of matter.

CO 3 Quantum Chromodynamics (QCD): QCD, the theory describing the strong force between quarks and gluons, is a fundamental part of nuclear and particle physics. It explains the behavior of particles such as protons and neutrons.

CO 4 Nuclear Reactions and Nuclear Energy: Studies in nuclear physics have led to a deeper understanding of nuclear reactions, fission, and fusion. This knowledge underpins nuclear energy production, nuclear medicine, and advances in nuclear technologies.

CO 5 Astrophysical Implications: Nuclear and particle physics help in understanding astrophysical processes, such as nuclear reactions in stars, the formation of elements, and phenomena like supernovae and neutron stars.

Title of the Paper: PHY 304 Condensed Matter Physics

CO 1: Semiconductor Electronics: Understanding condensed matter physics has driven the development of semiconductor technology, integral to the creation of transistors, integrated circuits, and electronic devices, leading to the advancement of modern computing and electronics.

CO 2: Superconductivity and Superfluidity: Insights into condensed matter physics have led to the discovery and understanding of superconductors and superfluids, which exhibit zero resistance to electrical current flow and zero viscosity in fluids, respectively.

CO 3: Magnetic Materials and Data Storage: The study of condensed matter physics has provided a foundation for understanding magnetic materials and their applications in data storage devices, such as hard drives and magnetic tapes.

CO 4: Topological Phases and Materials: Discoveries in condensed matter physics have led to the identification and exploration of topological phases and materials, with potential applications in robust information storage and quantum computing.

CO 5: Nanotechnology and Materials Engineering: Condensed matter physics underlies the field of nanotechnology, allowing the manipulation and design of materials at the nanoscale for applications in medicine, materials science, and electronics.

Title of the Paper: PHY 305c Physics at the Nano Scale

Course Outcomes

CO 1: Nanotechnology Developments: Understanding physics at the nanoscale has driven the field of nanotechnology, enabling the design and fabrication of nanoscale structures and devices with various applications.

CO 2: Novel Materials and Properties: Exploring physics at this scale has led to the discovery and engineering of novel materials exhibiting unique properties, such as quantum dots, nanotubes, and graphene, with applications in electronics, medicine, and energy.

CO 3: Miniaturization in Electronics: The study of nanoscale physics has facilitated the miniaturization of electronic components, enhancing the performance of devices and enabling advancements in computing power and storage capacity.

CO 4: applications in drug delivery, medical imaging, and diagnostic tools. Nanoparticles, for example, can be tailored to target specific cells for therapeutic purposes.

CO 5: Nanofabrication Techniques: Understanding physics at the nanoscale has led to the development of nanofabrication techniques, such as lithography and self-assembly, crucial for building nanoscale devices and structures.

Title of the Paper: PHY 306 General Nuclear Physics Lab

Course Outcomes

CO 1: Nuclear Power Generation: Nuclear physics has enabled the development of nuclear power plants, which generate electricity through controlled nuclear reactions, providing a significant portion of global energy.

CO 2: Nuclear Fission and Fusion: Understanding nuclear physics has led to advancements in nuclear fission and fusion research, contributing to both energy production and furthering our understanding of fundamental nuclear processes.

CO 3:Nuclear Medicine: Nuclear physics underpins various medical imaging techniques, including PET scans, SPECT imaging, and nuclear medicine therapies. These technologies aid in diagnosis, treatment, and research in medicine.

CO 4: Isotope Applications: Nuclear physics is instrumental in using isotopes for various applications, such as in radiocarbon dating, tracing biological processes, and industrial applications like food irradiation and sterilization.

CO 5: Fundamental Particle Interactions: The study of nuclear physics provides insights into fundamental particle interactions, the strong and weak forces, and the behavior of particles inside atomic nuclei, contributing to our understanding of the universe's building blocks.

Title of the paper: PHY 307 General Condensed Mattter Physics Lab

Course Outcomes

CO 1: Discovery and Characterization of New Materials: Condensed Matter Physics labs contribute to the discovery and characterization of novel materials with unique properties. This includes superconductors, topological insulators, graphene, and other two-dimensional materials.

CO 2: Understanding Material Properties: Experimental work in these labs aids in understanding the physical, electrical, magnetic, and thermal properties of materials at the atomic and molecular levels. This knowledge helps in predicting and designing materials with specific characteristics.

CO 3: Development of Advanced Measurement Techniques: Condensed Matter Physics labs contribute to the development of advanced experimental techniques for analyzing materials, such as scanning probe microscopy, X-ray diffraction, and spectroscopy methods.

CO 4: Application in Technology and Industry: Insights gained from these labs lead to the development of new technologies and applications in various industries. For instance, developments in semiconductor technology, magnetic materials for data storage, and advances in materials for energy applications.

CO 5: Quantum Materials and Phenomena: Research in these labs leads to the exploration of quantum phenomena in materials, like quantum entanglement, superconductivity, and quantum phase transitions, potentially leading to advancements in quantum computing and information processing.

Title of the Paper: PHY 401 Astrophysics and Cosmology

Course Outcomes

CO 1: Cosmic Evolution: Research in astrophysics and cosmology has led to a better understanding of the universe's evolution, from the Big Bang to the formation of galaxies, stars, and planetary systems.

CO 2: Discovery of Exoplanets: Advances in astrophysics have resulted in the discovery of thousands of exoplanets, planets orbiting stars outside our solar system. This discovery has expanded our understanding of planetary systems and the potential for extraterrestrial life.

CO 3: Dark Matter and Dark Energy: Studies in cosmology have led to the understanding and discovery of dark matter and dark energy, two mysterious components that shape the large-scale structure of the universe. Their nature is still a subject of ongoing research.

CO 4: Cosmic Microwave Background (CMB): The observation and study of the CMB, a remnant radiation from the early universe, provide crucial insights into the universe's early conditions, supporting the Big Bang theory.

CO 5: Gravitational Waves: Recent breakthroughs in astrophysics, particularly the detection of gravitational waves, confirm Einstein's general theory of relativity and open new avenues for observing the universe through entirely different means.

Title of the Paper: PHY 402 Methods of Data Analysis

Course Outcomes

CO 1: Decision-Making Support: Effective data analysis provides critical insights for informed decision-making in various domains, aiding businesses, governments, and researchers in making better-informed choices.

CO 2: Predictive Modeling and Forecasting: Data analysis methods enable the development of predictive models and forecasting tools, allowing the anticipation of future trends and behaviors based on historical data.

CO 3: Recognition and Classification: Data analysis techniques aid in recognizing patterns within datasets, enabling the categorization and classification of information, essential in fields like image recognition, natural language processing, and financial market analysis.

CO 4: Data Visualization: Visualization tools resulting from data analysis methods help in representing complex information in graphical or visual formats, aiding in easier comprehension and communication of findings.

CO 5: Statistical Inference: Statistical methods allow for the analysis of data to infer conclusions, make predictions, and test hypotheses, ensuring the reliability of findings in various scientific and research studies.

Title of the Paper: PHY 403 b Condensed Matter Physics -I

Course Outcomes

CO 1: Materials Science and Engineering: Condensed matter physics has led to the development of new materials with tailored properties, including superconductors, semiconductors, and materials used in electronics, which are essential for technological advancements.

CO 2: Nanotechnology: Insights from condensed matter physics have driven nanotechnology, enabling the manipulation and design of materials at the nanoscale for applications in electronics, medicine, and materials science.

CO 3Superconductivity and Superfluidity: Understanding the behavior of materials at low temperatures has led to the discovery and understanding of superconductors and superfluids, with implications for technologies like magnetic resonance imaging (MRI) and energy storage.

CO 4Magnetic Materials and Data Storage: Condensed matter physics has contributed to the development of magnetic materials used in data storage devices, including hard drives, and magnetic resonance imaging (MRI) technology for medical diagnostics.

CO 5Quantum Materials: Research in condensed matter physics has led to the identification and exploration of quantum materials with unique electronic and magnetic properties, potentially leading to applications in quantum computing and energy technologies.

Title of the Paper: **PHY 404 b Condensed Matter Physics -2**

Course Outcomes

CO 1: Optoelectronics and Photonics: Advances in condensed matter physics have contributed to the development of materials for optoelectronic devices like LEDs, lasers, and photovoltaic cells, with applications in telecommunications and energy generation.

CO 2: Theoretical Model Validation: Experimental work in condensed matter physics verifies and validates theoretical models, improving our understanding of the behavior of materials and validating predictions.

CO 3: Phase Transitions: Condensed matter physics explores phase transitions in materials, contributing to the development of new materials with controlled properties and applications in various industries.

CO 4 Advancements in Biophysics: Understanding the behavior of biological molecules and their interactions at the molecular level is an important outcome, with applications in biotechnology and medical research.

CO 5: Environmental and Energy Solutions: Research in condensed matter physics has applications in developing materials for energy generation, storage, and environmental solutions.

Title of the Paper: PHY 407 Project Work

Course Outcomes

CO 1: New Discoveries or Findings: Some projects might lead to novel discoveries, insights, or findings in a particular area of physics. These discoveries might contribute to the advancement of knowledge in the field.

CO 2: Publication in Journals: Successful postgraduate projects can result in research papers or articles being published in scientific journals, allowing the wider scientific community to benefit from the research outcomes.

CO 3: Development of New Experimental Techniques: Project work might involve developing new experimental methods, instrumentation, or computational techniques that can be valuable for future research.

CO 4: Advancements in Technology: Projects may contribute to the development of new technologies or applications, particularly in areas like materials science, computational physics, or applied physics.

CO 5: Further Education or Research Opportunities: Postgraduate projects can serve as a platform for further education or research, leading to pursuing a Ph.D. in physics or related fields, furthering the research in a particular area.

Title of the Paper: PHY 405 Astrophysics and Cosmology Lab

Course Outcomes

CO 1: To Demonstrate adept use of telescopes and detectors for celestial observations.

CO 2: Employ specialized software for accurate analysis of astronomical data.

CO 3: Extract meaningful insights about celestial objects through data interpretation.

CO 4: Understand the principles behind astrophysical instrument design and operation.

CO 5: Independently plan, execute, and analyze astrophysical observations for a research project.

Title of the Paper: PHY 406 b Condensed Matter Physics Lab

Course Outcomes

CO 1: Master the use of experimental tools in condensed matter physics research.

Acquire hands-on skills in sample preparation and characterization.

Material Properties Exploration:

CO 2: To Investigate fundamental properties, including electrical, magnetic, and thermal behaviors.

CO 3: To Learn and apply advanced techniques such as spectroscopy, diffraction, and microscopy.

CO 4: Explore experiments focused on emerging materials like superconductors and nanomaterials.

CO 5: Conduct independent research projects with a focus on experimental design and data collection.

DEPARTMENT OF MATHEMATICS

SEMESTER -I

M101T: Algebra-I

CO1: Learn to define Groups and Rings

CO2: Solve the Theorems on Groups and find the difference between Groups and Rings

CO3: Solve the problems and Theorems on Rings

CO4: Student will familiar with the Techniques of permutations.

M102T: Real Analysis

CO1: Learn to define Convergent and divergent sequences

CO2: Solve the Problems on convergent and divergent problems

CO3: Solve the Theorems on Riemann stelije's problems

CO4: Student will familiar with the difference of Convergent and divergent.

M103T: Topology-I

CO1: Learn to topological spaces

CO2: Acquire the knowledge on Metric space and difference of Metric and topological spaces

CO3: Solve theorems on Fixed point theorem

CO4: And applications regarding topology in daily life

M104T: Ordinary Differential Equation

CO1: Learn to define the differential equations

CO2: Acquire the knowledge on partial and Ordinary differential equations

CO3: Solve the problems on Homogeneous and Non homogeneous equations

CO4: And applications regarding calculus in daily life

M105T: Discrete Mathematics

CO1: Learn to define the Graph theory

CO2: Acquire the knowledge on discrete Mathematics and solve the different Theorems on it

CO3: Solve different problems on recurrence relations

CO4: And applications regarding discrete mathematics in daily life.

M106P: Maxima Practical based on M105T

CPO1: Learn the Maxima Programming Language

CPO2: Learn the different programs to solve on Maxima

CPO3: Acquire the knowledge regrading programming to solve by Maxima.

CPO4: Gain the knowledge how to apply Maxima in other programming language.

M107SC: Mathematical Analysis

CO1:Learn to define Mathematical Analysis

CO2: Acquire the knowledge mathematical knowledge on Analysis

CO3: Solve different problems and applications regarding mathematical Analysis in daily life

Title of the paper: 101 Inorganic Chemistry

Course Outcomes: At the end of the course the student should be able to:

- Sound knowledge about the fundamentals and applications of chemical and scientific theories
- Predict the shapes of molecules, illustrating the bonding models and applying them to simple molecules
- The students will Have a clear understanding of the fundamental aspects of Ionic bond, covalent bond, periodic properties formation of ionic solids lattice energy, Born-Haber cycle and their lattice structure.
- Structural analysis of molecules by understanding concept of hybridization and bonding theories such as VSEPR theory, Molecular orbital theory. Fluxionality in molecules and drawbacks of theories.
- Illustrate the structures, reactivities and chemistry of non-transition elements
- Understand the detail chemistry of s- and p- block elements w.r.t. their compounds, reactions and applications.
- learn the advance chemistry of boranes, fullerenes, zeolites.

Title of the paper: 101 Organic Chemistry

Course Outcomes: At the end of the course the student should be able to:

- To understand structure of molecules in terms of atoms and electrons that binds them together and to know the concept of aromaticity, and the classification of organic compounds into aromatic, non aromatic and anti aromatic compounds.
- To find out how molecules react with each other and to determine the reaction mechanism.
- To understand the 3 dimensional shape of molecules, to identify their symmetry elements, and assigning the different configurations to organic molecules.
- How to findout what nature does and how the structures of biologically active molecules are related to what they do and also to know the structure of important vitamins.

Title of the paper: 101 Physical Chemistry

Course Outcomes: At the end of the course the student should be able to:

To understand the matter in sub-atomic level. Quantum chemical aspects of multi- electronic systems, solving with graphical plots

- To study postulates of Quantum mechanics, Linear and Hermitian operators, Turnover rule, Commutation of operators and Uncertainty principle. Some exactly soluble problems
- Need of Quantum chemistry for the study of matter in sub-atomic level, Quantum mechanical operators, Schrodinger wave equation and its application to hydrogen & hydrogen like atoms.
- Variation and Approximate methods for the study of multi-electronic systems, study of Slater orbitals and valance theory to multi-electronic system

Title of the paper: 101 Analytical Chemistry

Course Outcomes: At the end of the course the student should be able to:

- To Understand the scope and importance of analytical chemistry in various scientific and industrial applications.
- Demonstrate a comprehensive understanding of various analytical techniques used in chemical analysis, including spectroscopy, chromatography, electrochemical methods, and titrimetry.
- Gain proficiency in using analytical instruments and equipment commonly employed in chemical analysis, such as spectrophotometers, chromatographs, mass spectrometers, and potentiostats.
- Learn effective sampling techniques and methods for sample preparation, including extraction, digestion, and dilution, to ensure accurate and representative results. Develop the ability to perform quantitative analysis, including calibration methods, standard addition techniques, and the application of mathematical models to obtain accurate concentrations.
- Calibrate analytical instruments, understand the importance of calibration curves, and troubleshoot instrument-related issues.

Title of the paper: 101 Mathematics for Chemistry

Course Outcomes: At the end of the course the student should be able to:

To understand the application of vectors in finding out dipole moment, molecular rotation of molecules.

- To understand the application of matrices in concept of symmetry, estimation of normal modes and use of matrices in quantum mechanics.
- To understand what is differentiation, methods of differentiation and the application of differential calculus in finding out slop of tangent, to find out maxima and minima.
- To understand what is integration, standard integrals, integration of addition and subtraction of functions, integration by substitution, integration by parts.

- To understand elementary differential equation and probability.

Title of the paper: 201 Inorganic Chemistry

Course Outcomes: At the end of the course the student should be able to:

- Metal-ligand equilibria in solution refer to the dynamic processes involving the formation, dissociation, and rearrangement of complexes formed between metal ions and ligands. These equilibria are crucial in understanding the behavior of metal ions in aqueous solutions and have significant implications in fields such as coordination chemistry, bioinorganic chemistry, and environmental science. Here are some key aspects and concepts related to metal-ligand equilibria in solution
- Metal-ligand bonding refers to the interaction between a metal atom or ion and one or more ligands, which are molecules or ions that can donate electron pairs to the metal. This interaction leads to the formation of coordination complexes, where the metal is typically surrounded by a specific number of coordinated ligands

- The electronic spectra of coordination compounds provide valuable information about the electronic transitions that occur within the metal-ligand complex. These spectra arise due to the absorption of light energy by the complex, leading to the promotion of electrons from lower energy orbitals to higher energy orbitals
- The magnetic properties of coordination compounds are influenced by the presence of unpaired electrons on the metal center. The magnetic behavior can be categorized into two main types: paramagnetism and diamagnetism

Title of the paper: 202 Organic Chemistry

Course Outcomes: At the end of the course the student should be able to:

- To understand the allylic system with orbital chart, to know the mechanism of nucleophillic substitution at carbon centre and at aliphatic trigonal center, substitution at vinyl carbon.
- To study different types of mechanisms involved in elimination reactions
- To undersatand some named rearrangement reaction involving carbon-carbon and carbon-nitrogen rearrangement.
- Classification and nomenclature of amino acids and synthesis of peptides using different techniques.

Title of the paper: 203 Physical Chemistry

Course Outcomes: At the end of the course the student should be able to:

- Thermodynamics II typically builds upon the foundational concepts introduced in Thermodynamics I and delves into more advanced topics. The specific content covered can vary depending on the curriculum of the course and the educational institution. Basic principles of statistical thermodynamics, including partition functions, probability distributions, and the connection between macroscopic properties and molecular behavior.
- Introduction to the canonical ensemble and the concept of temperature in statistical thermodynamics. Understanding and analyzing different thermodynamic processes, such as isothermal, adiabatic, isobaric, and isochoric processes.
- Electrochemistry I is an introductory course that explores the principles and applications of electrochemistry, which is the study of the interconversion of electrical energy and chemical reactions. This course covers fundamental concepts, key theoretical frameworks, and practical applications related to electrochemical systems.Understanding and balancing redox reactions, including half-reactions and electron transfer processes. Electrochemical cells, which involve the conversion of chemical energy to electrical energy (galvanic cells) or vice versa (electrolytic cells).
- electrochemistry II is an advanced course that delves deeper into the theoretical and practical aspects of electrochemical systems. Building on the foundations established in Electrochemistry I, this course typically covers more complex topics, explores advanced techniques. Further exploration of the thermodynamics governing electrochemicalcells, including the Gibbs free energy, Helmholtz free energy, and the connection between thermodynamics and electrode potentials.

Title of the paper: 204 Molecular Spectroscopy

Course Outcomes: At the end of the course the student should be able to:

- The students will conceptualize, symmetry elements, operations, and groups by representing them in matrices
- Employ the basic principles of Electronic Spectroscopy & Molecular Spectroscopy
- Employ the basic principles of Infrared spectroscopy and basic principles of Raman spectroscopy
- Able to visualize molecule in 3-D, understand the concept of symmetry elements and symmetry operations.
- know the point groups of molecules and understand symmetry considerations for optical activity and dipole moment.
- Understand the group multiplication table, character table and representations of group.

Title of the paper: 205 Green Syntheses

Course Outcomes: At the end of the course the student should be able to:

- To understand instrumentation of ultrasound and microwaves, and use of ultrasound and microwaves in organic synthesis.

- To understand properties of polymer support and advantages of polymer supported reagents and its applications.
- To know about synthetic applications of crown ethers and face transfer catalysis
- To understand studies on the mechanistis aspects and use of some named reaction in organic synthesis.

Title of the paper: 301 Inorganic reaction mechanism & bioinorganic chemistry

Course Outcomes: At the end of the course the student should be able to:

- Demonstrate a comprehensive understanding of the fundamental principles underlying inorganic reaction mechanisms
- Identify and classify different types of inorganic reactions, such as redox reactions, acid-base reactions, and coordination reactions.
- Apply mechanistic analysis to inorganic reactions, including the identification of reaction intermediates and the determination of reaction pathways.
- Analyze the factors affecting ligand substitution reactions and electron transfer processes in transition metal complexes.
- Metal ion transport across cell membranes is a crucial process for maintaining cellular homeostasis and performing various physiological functions. Different mechanisms are involved in the transport of metal ions across cell membranes, and they can be broadly categorized into active transport and passive transport.

Title of the paper: 302 Advanced analytical techniques

Course Outcomes: At the end of the course the student should be able to:

- Absorption spectroscopy is a powerful analytical technique used to study the absorption of light by matter, particularly in the context of chemical analysis and identification of substances
- Absorption spectroscopy involves measuring the amount of light absorbed by a substance as a function of wavelength. This measurement is often represented as a spectrum, where the absorption intensity is plotted against the wavelength or frequency of the incident light.
- Atomic emission spectroscopy (AES) is a technique used for qualitative and quantitative analysis of elements based on the measurement of the intensity of emitted light by excited atoms. This method is particularly useful for identifying and quantifying trace elements in a sample. Here's an overview of atomic emission spectroscopy
- electroanalytical techniques involve the use of electrochemical methods to analyze and characterize substances.

- Thermal methods of analysis involve the study of changes in a material's properties as a function of temperature. These methods provide valuable information about the thermal behavior, composition, and structure of substances

Title of the paper: 303 Organic Spectroscopy

Course Outcomes: At the end of the course the student should be able to:

- The students will understand the theory of magnetic resonance Magnetic shielding–chemical shift coupling constant- splitting patterns, Proton decoupling- Broad band decoupling- Off resonance decoupling, Fourier transform NMR – time domain and frequency domain. Studies of nuclei other than protons ^{13}C, ^{19}F, ^{31}P
- The students will conceptualize, the Principle, instrumentation, different methods of ionization of Mass spectroscopy. General rules for fragmentation patron hydrogen transfer rearrangement and McLafferty rearrangement. Structural information from fragmentation patterns.
- Encompass achieved advanced knowledge about the interactions of electromagnetic radiation and matter and their applications in organic spectroscopy to elucidate the structure of the organic compounds.
- Students will be able to understand how to interpret nuclear magnetic resonance spectrum
- Students will be able to understand how to solve problems based on H^1 and C^{13} NMR.

Title of the paper: 401 Solid state chemistry

Course Outcomes: At the end of the course the student should be able to:

The electronic structure is crucial for explaining the physical and chemical properties of solids. The description of electronic structure in solids involves concepts from quantum mechanics and solid-state physics.

- The heat capacity of a material is the amount of heat energy required to raise the temperature of the material by one degree Celsius or one Kelvin. For solids, the heat capacity can be divided into two main types: the molar heat capacity and the specific heat capacity.
- Geometric crystallography is a branch of crystallography that focuses on the study of the geometric arrangement of atoms within crystals. Crystallography, in general, is the science that deals with the study of crystals, their structure, and their properties. Geometric crystallography delves into the spatial relationships between atoms and how these arrangements influence the overall structure of a crystal.
- Experimental methods of crystallography are essential for determining the atomic and molecular structure of crystals. These methods provide valuable information about the arrangement of atoms in a crystal lattice, including positions, bond lengths, and angles. Here are some key experimental techniques in crystallography.

Title of the paper: 402 Organometallic chemistry and catalysis

Course Outcomes: At the end of the course the student should be able to:

- Organotransition metal complexes are compounds that contain metal atoms bonded to organic ligands. These complexes play a significant role in organometallic chemistry and have various applications in catalysis, materials science, and medicinal chemistry. The term "transition metal" refers to elements found in the d-block of the periodic table, and these metals form stable coordination compounds with organic ligands.
- Fluxional behavior in organometallic complexes refers to the ability of certain molecules to undergo rapid, reversible rearrangements of their molecular structure. These dynamic processes are often associated with ligands or groups moving around the metal center, and they can occur at relatively low energy barriers. Fluxional behavior is a key aspect of the reactivity and properties of organometallic compounds.
- Homogeneous catalysis refers to a catalytic process in which the catalyst and the reactants exist in the same phase, typically as a solution. In homogeneous catalysis, the catalyst is usually a soluble species, often a transition metal complex, and it interacts directly with the reactants during the course of the reaction. This type of catalysis is widely used in both academic research and industrial applications.
- Heterogeneous catalysis involving coordination compounds typically refers to catalytic processes where the catalyst is present in a different phase from the reactants. In most cases, the catalyst is immobilized on a solid support, and the reactions occur at the interface between the solid catalyst and the reacting gas or liquid. Heterogeneous catalysis has extensive applications in industry, and coordination compounds play a significant role in various catalytic processes.

Title of the paper: 403 Chemistry of materials

Course Outcomes: At the end of the course the student should be able to:

- Preparative techniques in nanotechnology involve methods to synthesize and produce nanomaterials with specific properties, sizes, and structures. These techniques are crucial for the fabrication of nanoparticles, nanocomposites, and nanostructures, and they play a significant role in various fields such as medicine, electronics, energy, and materials science.
- Intercalation compounds play a vital role in the design of materials with tailored properties for various applications, including energy storage, catalysis, electronics, and sensing. The ability to selectively insert guest species into the interlayer spaces of inorganic materials provides a versatile approach to tune and optimize their functionalities.

- Amorphous materials lack a regular, long-range order in their atomic or molecular arrangement, unlike crystalline materials that have a well-defined and repeating structure. In amorphous materials, the arrangement of atoms is more random. Amorphous materials can be solids, liquids, or gases.
- Liquid crystals are a state of matter that exhibits properties of both liquids and crystalline solids. They have characteristics of liquids, such as flow, but also possess some degree of order seen in crystals. Liquid crystals are often sensitive to changes in temperature, pressure, or electric fields

Title of the paper: 404 Inorganic Spectroscopy

Course Outcomes: At the end of the course the student should be able to:

- Recognize spectroscopy in microwave, Rotational spectra of rigid diatomic molecules, selection rules, interaction of spectral lines
- Study of Vibrating diatomic molecule, energy levels of a diatomic molecule, simple harmonic and anharmonic oscillator, Scattering of light and Raman Spectrum. rotational and vibrational Raman Spectra
- Make Students aware of the fine structure of ESR absorption, Hyperfine structure, Double resonance in ESR, Techniques of ESR spectroscopy
- Understand Principles and Applications of Mossbauer spectroscopy
- Students will be able to understand how to solve problems based on H^1 Rh, Pt, B and P^3

MSC COMPUTER SCIENCE

TITLE OF THE PAPER: 70801 – COMPUTER ARCHITECTURE

Course Outcomes: At the end of the course the student should be able to:

CO1: Understand the basics of instructions sets and their impact on processor design

CO2: Demonstrate an understanding of the design of the functional units of a digital computer system.

CO3: Evaluate cost performance and design trade-offs in designing and constructing a computer processor including memory.

CO4: Design a pipeline for consistent execution of Synthesize instructions with minimum hazards

CO5: Manipulate representations of numbers stored in digital computers.

TITLE OF THE PAPER: 70802 - OPERATING SYSTEMS

Course Outcomes: At the end of the course the student should be able to:

CO1: Analyze basic concepts of operating system and their structures.

CO2: Analyze various issues related to inter process communication like process scheduling, resource management and deadlocks.

CO3: Interpret the issues and challenges of memory management.

CO4: Synthesize the concepts of I/O management, file system implementation and problems related to security and protection

TITLE OF THE PAPER: 70803 - PROBLEM SOLVING TECHNIQUES

Course Outcomes: At the end of the course the student should be able to:

CO1: Understand the fundamental concepts of computers, algorithms, flowcharts and problem-solving techniques.

CO2: Apply the basic knowledge of mathematical factoring methods to model an algorithm, flowchart for a given problem

CO3: Apply merging, sorting, searching and text processing techniques to develop algorithms.

CO4: Analyze the given problem, use appropriate array technique and write an effective report

TITLLE: 70806P - PROSBLEM SOLVING TECHNIQUES LAB

Course Outcomes: At the end of the course the student should be able to:

CO1: Demonstrate the basic concepts of python programming with the help of data types,

operators and expressions, console input/output

CO2: Make use of control statements for altering the sequential execution of programs in solving problems.

CO3: Demonstrate operations on built-in container data types (list, tuple, set, dictionary) and strings.

CO4: Make use of operations and applications on strings with the help of built in functions Apply

CO5: Solve the problems by using modular programming concepts through functions.

CO6: Identify object-oriented programming constructs for developing large, modular and reusable real-time programs.

TITLE OF THE PAPER: 70804 – DATA STRUCTURES

Course Outcomes: At the end of the course the student should be able to:

CO1: Understanding of fundamental Data Structures including linked-lists, trees, binary search trees, AVL trees, stacks, queues, priority queues, and hash-tables.

CO2: Understanding of fundamental abstract data types which can include: Maps, Sets and Vectors.

CO3: Ability to program data structures and use them in implementations of abstract data types.

CO4: Ability to devise novel solutions to small scale programming challenges involving data structures and recursion.

CO5: Understanding of basic algorithmic complexity.

CO6: Ability to estimate the algorithmic complexity of simple, non-recursive programs

CO7: Ability to perform simple inductive proofs and proofs by contradiction and reason about program correctness and invariants.

CO8: Ability to sensibly select appropriate data structures and algorithms for problems and to justify that choice.

TITLE OF THE PAPER: 70807P – DATA STRUCTURES LAB

Course Outcomes: At the end of the course the student should be able to:

CO1: Understand the concept of data structures and apply algorithm for solving problems like Sorting, searching, insertion and deletion of data.

CO2: Understand linear data structures for processing of ordered or unordered data.

CO3: Explore various operations on dynamic data structures like single linked list, circular linked list and doubly linked list.

CO4: Explore the concept of nonlinear data structures such as trees and graphs.

CO5: Understand the binary search trees, hash function, and concepts of collision and its resolution methods

TITLE OF THE PAPER: 70805– QUANTITATIVE, TEACHING AND RESEARCH APTITUDE

Course Outcomes: At the end of the course the student should be able to:

CO1: Use their logical thinking and analytical abilities to solve Quantitative aptitude questions from company specific and other competitive tests.

CO2: Solve questions related to Time and distance and time and work etc. from company specific and other competitive tests.

CO3: Understand and solve puzzle related questions from specific and other competitive tests.

TITLE OF THE PAPER: 72801 - COMPUTER NETWORKING

Course Outcomes: At the end of the course the student should be able to:

CO1: Explain basic concepts, OSI reference model, services and role of each layer of OSI model and TCP/IP, networks devices and transmission media, Analog and digital data transmission

CO2: Apply channel allocation, framing, error and flow control techniques.

CO3: Describe the functions of Network Layer i.e., Logical addressing, subnetting & Routing Mechanism.

CO4: Explain the different Transport Layer function i.e. Port addressing, Connection Management, Error control and Flow control mechanism.

CO5: Explain the functions offered by session and presentation layer and their Implementation.

CO6: Explain the different protocols used at application layer i.e. HTTP, SNMP, SMTP, FTP, TELNET and VPN.

TITLE OF THE PAPER: 72802- ARTIFICIAL INTELLIGENCE

Course Outcomes: At the end of the course the student should be able to:

CO1: Appraise the theory of Artificial intelligence and list the significance of AI.

CO2: Discuss the various components that are involved in solving an AI problem.

CO3: Illustrate the working of AI Algorithms in the given contrast.

CO4: Analyze the various knowledge representation schemes, Reasoning and Learning techniques of AI.

CO5: Apply the AI concepts to build an expert system to solve the real-world problems.

TITLE OF THE PAPER: 72803- OBJECT ORIENTED PROGRAMMING USING JAVA

Course Outcomes: At the end of the course the student should be able to:

CO1: knowledge of the structure and model of the Java programming language, (knowledge)

CO2: use the Java programming language for various programming technologies (understanding)

CO3: develop software in the Java programming language, (application)

CO4: Evaluate user requirements for software functionality required to decide whether the Java programming language can meet user requirements (analysis)

CO5: Propose the use of certain technologies by implementing them in the Java programming language to solve the given problem (synthesis)

CO6: Choose an engineering approach to solving problems, starting from the acquired knowledge of programming and knowledge of operating systems. (evaluation)

TITLE OF THE PAPER: 72806P- JAVA LAB

Course Outcomes: At the end of the course the student should be able to:

CO1: Use an integrated development environment to write, compile, run, and test simple object-oriented Java programs.

CO2: Read and make elementary modifications to Java programs that solve real-world problems.

CO3: Validate input in a Java program.

CO4: Identify and fix defects and common security issues in code.

CO5: Document a Java program using Javadoc.

CO6: Use a version control system to track source code in a project.

TITLE OF THE PAPER: 72804 - DATABASE MANAGEMENT SYSTEM

Course Outcomes: At the end of the course the student should be able to:

CO1: Understand the basic principles of database management systems.

CO2: Draw Entity-Relationship diagrams to represent simple database application scenarios
CO3: write SQL queries for a given context in relational database.

CO4: Discuss normalization techniques with simple examples.

CO5: Describe transaction processing and concurrency control concepts.

TITLE OF THE PAPER: 72807P - DATABASE MANAGEMENT SYSTEM LAB

Course Outcomes: At the end of the course the student should be able to:

CO1: Students get practical knowledge on designing and creating relational database systems.

CO2: Understand various advanced queries execution such as relational constraints, joins, set operations, aggregate functions, trigger, views and embedded SQL.

CO3: Use of various software to design and build ER Diagrams, UML, Flow chart for related database systems.

CO4: Students will be able to design and implement database applications on their ow

TITLE OF THE PAPER: 72805 - SOFTSKILLS AND PERSONALITY DEVELOPMENT

Course Outcomes: At the end of the course the student should be able to:

CO1: Effectively communicate through verbal/oral communication and improve the listening skills

CO2: Write precise briefs or reports and technical documents.

CO3: Actively participate in group discussion / meetings / interviews and prepare & deliver presentations.

CO4: Become more effective individual through goal/target setting, self-motivation and

practicing creative thinking.

CO5: Function effectively in multi-disciplinary and heterogeneous teams through the knowledge of team work, Inter-personal relationships, conflict management and leadership quality.

DEPARTMENT OF MCA

DSC 1.1

Title of the paper: The Art of programming

Course Outcomes: At the end of the course the student should be able to:

CO1: Algorithmic Problem-Solving: Develop skills in designing and implementing algorithms to solve complex problems efficiently.

CO2: Code Optimization: Learn techniques for writing efficient and optimized code to enhance program performance.

CO3: Software Design Principles: Understand and apply principles of software design, including modularization and code reusability.

CO4: Debugging and Troubleshooting: Acquire skills in debugging code and troubleshooting common programming issues.

CO5: Critical Thinking in Programming: Develop critical thinking skills to analyze problems and devise effective programming solutions.

DSC 1.2

Title of the paper: DISCRETE MATHEMATICS

Course Outcomes: At the end of the course the student should be able to:

CO1: Evaluate Group, Ring and Fields and 2D Geometry.

CO2: Familiarity with Determinant and Matrices.

CO3: Formulate Limit, Continuity and Differentiability.

CO4: Demonstrate a working knowledge Definite and Indefinite Integrals

DSC 1.3

Title of the paper: COMPUTER ORGANISATION AND ARCHITECTURE

Course Outcomes: At the end of the course the student should be able to:

CO1:1 Familiarizes the students with basics of computer hardware and how software interacts with computer hardware.

CO2: Introduces how computers represent and manipulate data, computer arithmetic and conversion between different number systems.

CO3: Introduces how Boolean algebra is related to designing computer logic, through simple combinational and sequential logic circuits.

CO4: Introduces basics of Instruction Set Architecture (ISA).

CO5: Familiarize students with a simple computer with hardware design including data format, instruction format, instruction set, addressing modes, bus structure, input/output, memory, Arithmetic/Logic unit, control unit, and data, instruction and address flow.

CO6: Design combinational and sequential logic circuits, flip-flops, counters, shift registers, adders, subtract or, multiplexer, demultiplexer, Arithmetic/Logic unit

DSC 1.4

Title of the paper: Theory of Computation

Course Outcomes: At the end of the course the student should be able to:

CO1: 1Formal Language Understanding: Develop an understanding of formal languages, grammar,

CO2: Computational Models: Study and analyze different computational models, such as Turing machines and finite automata, to comprehend their theoretical foundations.

CO3: Algorithmic Complexity: Gain knowledge about the complexity of algorithms and computational problems, including time and space complexity.

CO4: Decidability and Undesirability: Explore concepts related to decidability and undesirability in the context of computational problems.

CO5: Language Recognition: Understand the principles of language recognition and the hierarchy of formal languages.

CO6: Computability: Study the limits of computation, including the Church-Turing thesis, and explore what can and cannot be computed algorithmically.

DSC 1.5

Title of the paper: Object Oriented Programming

Course Outcomes: At the end of the course the student should be able to:

CO1: Understanding OOP Concepts: Develop a solid understanding of fundamental OOP principles such as encapsulation, inheritance, and polymorphism.

CO2: Proficiency in a Programming Language: Attain proficiency in at least one object-oriented programming language, like Java, C++, or Python.

CO3: Class and Object Design: Learn how to design classes and objects effectively, considering attributes, methods, and relationships.

CO4: Code Reusability: Understand and implement code reusability through concepts like inheritance and composition.

CO5: Encapsulation: Learn to encapsulate data and behavior within classes, promoting information hiding and modular code.

CO6: Polymorphism: Grasp the concept of polymorphism and its practical applications through method overriding and interfaces.

DSC 1.6

Title of the paper: DATA STRUCTURE

Course Outcomes: At the end of the course the student should be able to:

CO1: Analyze data structure impact on algorithms, program design and program performance.

CO2: Understand the concepts of binary search trees, heaps, and disjoint sets.

CO3: Explain & describe the applications of static and dynamic trees.

CO4: Design, implement, and use advanced ADTs.

DSC 1.7

Title of the paper: DATA STRUCTURE LAB

Course Outcomes: At the end of the course the student should be able to:

CO1: Implementation Skills: Develop practical skills in implementing various data structures such as arrays, linked lists, stacks, queues, trees, and graphs.

CO2: Algorithmic Understanding: Apply algorithms to solve real-world problems using different data structures.

CO3: Efficiency Analysis: Analyze and compare the time and space complexities of different data structures and algorithms.

CO4: Problem-Solving: Apply data structures to solve problems efficiently, demonstrating the ability to choose appropriate structures for specific tasks.

CO5: Memory Management: Gain insight into memory management and resource utilization while working with data structures.

DSC 1.8

Title of the paper: Object Oriented Programming Lab

Course Outcomes: At the end of the course the student should be able to:

CO1: Programming Proficiency: Demonstrate proficiency in coding using object-oriented programming languages like Java, C++, or Python.

CO2: Class and Object Implementation: Implement classes and objects effectively, incorporating attributes, methods, and relationships.

CO3: Inheritance and Polymorphism: Apply inheritance and polymorphism concepts to design and implement flexible and extensible code.

CO4: Code Reusability: Showcase the ability to reuse code through inheritance, composition, and other OOP techniques.

CO5: Exception Handling: Implement robust error handling and exception mechanisms within an object-oriented framework.

DSC 2.1

Title of the paper: Operating System

Course Outcomes: At the end of the course the student should be able to:

CO1: Analyze the concepts of processes in operating system and illustration of the scheduling of processor for a given problem instance.

CO2: Identify the dead lock situation and provide appropriate solution so that protection and security of the operating system is also maintained.

CO3: Analyze memory management techniques, concepts of virtual memory and disk scheduling.

CO4: Understand the implementation of file systems and directories along with the interfacing of IO devices with the operating system.

DSC 2.2

Title of the paper: Database Management System

Course Outcomes: At the end of the course the student should be able to:

CO1: 1 Introduces the role of a database management system, basic database concepts, including the structure and operation of the relational data model.

CO2: Introduces how to apply logical database design principles, including E-R/EE-R diagrams, conversion of ER diagrams to relations.

CO3: Familiarize students with the concepts of integrity constraints, relational algebra, relational domain & tuple calculus, data normalization.

CO4: Construct simple and moderately advanced database queries using Structured Query Language (SQL).

CO5: Familiarize students with the concept of a database transaction including concurrency control, backup and recovery, and data object locking.

CO6: Design and implementation of a small database project using Oracle.

DSC2.3

Title of the paper: Computer Networks

Course Outcomes: At the end of the course the student should be able to:

CO1: To explain how communication works in computer networks and to understand the basic terminology of computer networks.

CO1: To explain the role of protocols in networking and to analyze the services and features of the various layers in the protocol stack.

CO1: To understand design issues in Network Security and to understand security threats, security services and mechanisms to counter.

DSC 2.4

Title of the paper: Software Engineering

Course Outcomes: At the end of the course the student should be able to:

CO1: Describe software engineering layered technology and process framework.

CO2: Introduces theories, models, and techniques that provide a basis for the software development life cycle.

CO3: Introduces software testing approaches including verification and validation, static analysis, reviews, inspections, and audits.

CO4: Understanding of the role of project management including planning, scheduling, risk management, etc.

CO5: Work as an individual and/or in a team to develop and deliver quality software.

DSC 2.5

Title of the paper: Design and Analysis of Algorithm

CO1: Understand that various problem-solving categories exist such as; iterative technique, divide and conquer, dynamic programming, greedy algorithms.

CO2: Analyze the strengths and weaknesses of an algorithm theoretically as well as practically.

CO3: Identify and apply an appropriate technique to design an efficient algorithm for simple problems.

CO4: Demonstrate correctness and efficiency of the algorithm.

CO5: Summarize various searching and sorting algorithms. Compare numerous solutions for a problem and realize a solution may be efficient or inefficient depending on the application at hand.

DSC 2.6

Title of the paper: Artificial Intelligence

Course Outcomes: At the end of the course the student should be able to:

CO1: Understanding of the concept of AI

CO2: Identifying the application areas of artificial intelligence in real life. Apply AI techniques to real-world problems to develop intelligent systems.

CO3**:** understand the different artificial intelligence concepts in multidisciplinary domains considering social needs.

DSC 2.7

Title of the paper: Database Management System Lab

Course Outcomes: At the end of the course the student should be able to:

CO1: Relational Database Design: Design efficient and normalized databases.

CO2: SQL Querying Skills: Proficiency in writing complex SQL queries.

CO3: Database Implementation: Implement databases using a specific DBMS.

CO4: Transaction Management: Understand and apply transaction management concepts.

CO5: Database Connectivity: Integrate databases with applications using programming languages.

CO6: Query Optimization: Optimize database queries for performance.

CO7: Security Measures: Implement user authentication, authorization, and encryption.

CO8: Backup and Recovery: Execute strategies for database backup and recovery.

DSC 2.8

Title of the paper: Unix Lab

Course Outcomes: At the end of the course the student should be able to:

CO1: Command-Line Proficiency: Develop proficiency in using Unix/Linux command-line utilities for file manipulation, navigation, and system tasks.

CO2: Shell Scripting: Learn and apply shell scripting to automate repetitive tasks and enhance system management.

CO3: File System Navigation: Navigate and manipulate the Unix file system efficiently.

CO4: User and Group Management: Understand and practice user and group management commands for access control.

CO5: Process Control: Master process control commands to manage and monitor running processes.

CO6: Networking Commands: Utilize Unix commands for networking tasks, such as connectivity testing and diagnostics.

DSC 3.1

Title of the paper: Big Data and Analytics

Course Outcomes: At the end of the course the student should be able to:

CO1: Apply computing theory, languages, and algorithms, as well as mathematical and statistical models, and the principles of optimization to appropriately formulate and use data analyses

CO2: Present an overview of data science and applications.

CO3: Formulate and use appropriate models of data analysis to solve hidden solutions to business-related challenges.

DSC 3.2

Title of the paper: Cryptography and Network Security

Course Outcomes: At the end of the course the student should be able to:

CO1: Encryption: Implement secure data encryption algorithms.

CO2: Key Management: Manage cryptographic keys for secure communication.

CO3: Digital Signatures: Apply digital signatures for data integrity.

CO4: Secure Communication Protocols: Implement protocols for secure data transmission.

CO5: Vulnerability Analysis: Identify and address network vulnerabilities.

CO6: Intrusion Detection: Implement tools for detecting and preventing network intrusions.

CO7: Security Policies: Develop and enforce network security policies.

CO8: Authentication Systems: Implement secure user authentication mechanisms.

DSC 3.3

Title of the paper: Management Perspective

Course Outcomes: At the end of the course the student should be able to:

CO1: Security Strategy: Develop strategies for information confidentiality and integrity.

CO2: Risk Assessment: Identify and manage security threats and vulnerabilities.

CO3: Compliance Management: Ensure adherence to security standards and regulations.

CO4: Incident Response Planning: Mitigate the impact of security breaches through effective plans.

CO5: Resource Allocation: Allocate resources efficiently for robust security measures.

CO6: Policy Implementation: Enforce security policies within the organization.

CO7: Security Awareness Programs: Educate employees on network security best practices.

CO8: Vendor Evaluation: Select secure technologies and vendors aligned with organizational goals.

CO9: Budgeting for Security: Integrate security considerations into budget planning.

CO10: Performance Monitoring: Monitor and evaluate the effectiveness of security measures.

DSC 3.4

Title of the paper: Mini Project

Course Outcomes: At the end of the course the student should be able to:

CO1: Technical Proficiency: - Demonstrate proficiency in applying programming languages and development tools relevant to the project.

CO2: Problem-Solving Skills: - Exhibit problem-solving abilities by identifying, analyzing, and resolving challenges encountered during project development.

CO3: System Design and Implementation: - Apply principles of system design to plan and implement the proposed solution effectively.

CO4: Project Management: - Manage project timelines, tasks, and resources efficiently to ensure timely completion.

CO5: Documentation Skills: - Create comprehensive documentation, including project specifications, design documents, and user manuals.

CO6: Testing and Quality Assurance: - Develop and execute a testing strategy to ensure the functionality, security, and performance of the project.

CO7: Team Collaboration: - Collaborate effectively within a team environment, demonstrating communication and teamwork skills.

CO8: Presentation Skills: - Present the project to peers, faculty, or external stakeholders effectively, articulating the objectives, methodologies, and outcomes.

DSC 3.5

Title of the paper: Quantitative, Teaching And Research Aptitude

Course Outcomes: At the end of the course the student should be able to:

CO1: Mastery of Quantitative Methods: Develop a strong understanding of various quantitative research methods and statistical techniques.

CO2: Effective Teaching Skills: Acquire the ability to teach quantitative concepts and methodologies to others in a clear and comprehensible manner.

CO3: Research Proficiency: Gain the skills needed to conduct independent quantitative research and contribute to the academic field.

CO4: Critical Thinking: Develop critical thinking skills to evaluate and interpret quantitative data and research findings.

CO5: Application of Quantitative Tools: Apply quantitative tools and software effectively for data analysis and interpretation.

CO6: Communication Skills: Enhance communication skills, both in presenting quantitative information and in writing research reports.

CO7: Ethical Considerations: Understand and adhere to ethical standards in quantitative research and teaching practices.

DSC 3.6

Title of the paper: Research Methodology

Course Outcomes: At the end of the course the student should be able to:

CO1: Foundation: Understand key research concepts and their significance.

CO2: Design Skills: Formulate research questions and design studies.

CO3: Literature Review: Conduct comprehensive literature reviews.

CO4: Ethical Practices: Adhere to ethical principles in research.

CO5: Data Collection: Apply various data collection methods.

CO6: Sampling Techniques: Use appropriate sampling methods.

CO7: Data Analysis: Analyze data using qualitative and quantitative methods.

CO8: Research Instruments: Develop and validate research instruments.

CO9: Critical Thinking: Evaluate and interpret research findings critical

CO10: Proposal Writing: Write clear and concise research proposals.

CO11: Presentation Skills: Present research findings effectively.

CO12: Research Tools: Use tools for data analysis and literature review.

DSC 3.7

Title of the paper: Web Programming

Course Outcomes: At the end of the course the student should be able to:

CO1: HTML/CSS Mastery: - Proficiency in creating structured and styled web pages using HTML and CSS.

CO2: JavaScript Fundamentals: - Understanding fundamental JavaScript concepts for dynamic web page behavior.

CO3: Responsive Design: - Ability to design responsive and mobile-friendly web interfaces.

CO4: Server-Side Scripting - Introduction to server-side scripting languages like PHP or Node.js.

CO5: Database Integration: - Integration of databases, using languages like SQL for data storage and retrieval.

CO6: Frameworks and Libraries: - Familiarity with popular web development frameworks and libraries.

CO7: Web Security Basics: - Awareness of basic web security practices to protect against common vulnerabilities.

DSC 4.1

Title of the paper : Major Project

Course Outcomes: At the end of the course the student should be able to:

CO1: Technical Proficiency: - Demonstrate proficiency in applying using programming languages like python, and development tools relevant to the project.

CO2: System Design and Implementation: - Apply principles of system design to plan and implement the proposed solution effectively using scripting and designing languages.

CO3: Project Management: - Manage project timelines, tasks, and resources efficiently to ensure timely completion.

CO4: Documentation Skills: - Create comprehensive documentation, including project specifications, design documents, and user manuals.

CO5: Testing and Quality Assurance: - Develop and execute a testing strategy to ensure the performance of the project.

CO6: Team Collaboration: - Collaborate effectively within a team environment, demonstrating communication and teamwork skills.

CO7: Presentation Skills: - Present the project to faculty, or external stakeholders effectively, articulating the objectives, methodologies, and outcomes of the project.

POST GRADUATE STUDIES

Program specific outcomes of PG courses

Faculty of Commerce

PSO 1: Demonstrate understanding of the Basic concepts and theoretical knowledge used in the different commerce and business related areas.

PSO 2: To enhance the exposure of students towards skill based learning to assure employability.

PSO 3 : Apply different tools and techniques in solving problems related to Business.

PSO 4 : Apply statistical tools and techniques for Research, Problem solving and Decision making

Faculty of Science

PSO 1: Understand the core fundamentals and theories of basic sciences with more focus and maturity.

PSO 2: Learn to carry out experiments in basic as well as certain advanced areas of physics

PSO 3: Apply the knowledge to develop the sustainable and eco-friendly know-how in Industrial Chemistry

PSO 4: Students will exhibit the ability to solve problems, including applications outside of mathematics.

Faculty of Computer Science

PSO1: Apply the theoretical and practical knowledge of computer science in formulating and developing solutions to the real world problems.

PSO 2: The students can plan and incorporate various system based components to provide user interactive solutions for various challenges

PSO 3: Develop techniques to develop ability for lifelong learning.

PSO 4: Expertise of computing, and to prepare themselves for a sustained professional growth