

CRITERIA-1

# **CURRICULAR ASPECTS**

(1.1.1.POS, PSOs,COs)

(A.Y: 2021-22)

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## 1.FACULTY OF ARTS

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- 6.1 LLB
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## INFORMATION FOR SUBMITTING AQAR FOR THE YEAR (2021-2022)

### PROGRAMME : M.A. URDU

#### 1. PROGRAMME OUTCOMES :

- After the completion of the MA Urdu programme, students will be able to imbibe the proper knowledge of the literary and linguistic aspects of Urdu, He will also be able to get employment opportunities as Urdu Officers in various government departments and public sector. Post Graduate students with proper communications skills of the language having a sound literary approach will be able to be associated with media houses – both print and electronic and film industries also

#### 2. PROGRAMME SPECIFIC OUTCOMES

- Programme specific outcome for each course is given based on the distinctive features of the M.A. in Urdu programme.

#### 3. COURSE OUTCOMES:

- At the completion of this course, the students will be able to understand and appreciate the poetry and prose in the context of early Urdu literary traditions.

#### SEMESTER I:

PAPER 1.1 : Tariq-E-Adab Urdu (Beginning to 1857)

PAPER 1.2 : Daastan

PAPER 1.3 : Urdu Ghazal

PAPER 1.4 : Telangana Ka Shair-Wo-Adab

PAPER 1.5 : Optional-I :- Qususi Mutaliya “Nazeer Akber Aabad”

## **LEARNING OUTCOMES**

PAPER 1.1: At the completion of this course, the students will be able to have an in – depth knowledge of the Tariq-E-Adab Urdu (Beginning to 1857) and Deccani, Bahmani, Adil Shahi, Qutub Shahi and Mogul periods along with north poetry, trend of Urdu literature after 1857.

PAPER 1.2: At the completion of this course, the students will be able to have an in – depth knowledge of the history and development of Urdu Daastan and short story.

PAPER 1.3: At the end of this course the students will be able to have in dept knowledge and able to appreciate the urdu gazal.

PAPER 1.4: At the completion of this course, the students will be able to have an in dept knowledge of Telangana ka shair wo adab.

PAPER 1.5: To enable the students and appreciate of the works of Nazeer Akbarabadi and his time, it will also include of socio-cultural, political background of Nazeer Akbarabadi and his time.

### **SEMESTER II:**

## **LEARNING OUTCOMES**

Paper2:1: At the completion of this course, the students will be able to have an in –depth knowledge of the Tariq-E-Adab Urdu from 1857 to till date. and also understand the Aligarh Movement, beginning of Urdu Nazm, Progressive Movement and Jadidiyat. Poetry,

Paper 2:2 At the completion of this course the students will be able to have in dept knowledge of the history and major text of Urdu Masnavi, Qasida and Marsiya.

Paper 2:3 The Student will be able to appreciate and understand the linguistic and aesthetic socio-cultural aspects of the Deccani Literature.

Paper 2:4 At the completion of this course, the students will be able to have an in–depth knowledge of the Women’s literature and Writing, History and background

of feminism, from 20<sup>th</sup> century. The student also understand and in dept knowledge of women's writers like Praveen Shakir, Syeda Jafar, Quratul Ain Haider.

Paper 2:5 To enable the students to critical understanding and appreciation of the work of Iqbal, his times. It will also include the study of Socio-Cultural, Historical, Political background of Allama Iqbal and his times.

### **SEMESTER III:**

PAPER 3.1 : Tanqeed-wo-Tahqeeq

PAPER 3.2 : Urdu Novel

PAPER 3.3 : Mass Media & Computer-1

PAPER 3.4 : Lisaniyat

PAPER 3.5 : Optional-I:- Qususi Mutaliya " Sir Syed Ahmed Khan"

### **LEARNING OUTCOMES**

Paper 3:1 The students will be able to have a broad overview of the development of critical theories and their impact on literature.

Paper 3:2 At the completion of the course the student will be able to have an in-depth knowledge of the history and development of Urdu Novel.

Paper 3:3 At the end of the course student will be able to understand the techniques of the creative expression Print & Electronic Media and also Computer Operating system, and also Practice of Urdu Desk Top Publishing.

Paper 3:4 at the completion of this course the students will be able to have in-depth knowledge of the history of linguistics and history of beginning of indo Aryan language.

Paper 3:5 To enable the students to critical understanding and appreciations of the works of Sir Syed Ahmed Khan and his times. It will also include the study of Socio-Cultural, Historical Political background of Sir Syed and his times.

#### **SEMESTER IV:**

PAPER 4.1 : Muqtasar Afsana

PAPER 4.2 : Jadeed Nazm

PAPER 4.3 : Mass Media Aur Sahafat-II

PAPER 4.4 : Gair Afsanivi Adab

PAPER 4.5 : Optional-I:- Qususi Mutaliya “Premchand”

### **LEARNING OUTCOMES**

PAPER 4.1: At the completion of the course the students will be able to have an in dept knowledge of the history and development of Muqtasar Afsana.

PAPER 4.2 : At the end of this course the students will be able to have a detailed knowledge and would be able to appreciate the major trends of urdu Nazm.

PAPER 4.3 : At the end of the course the students will be able to understand the technique of the creative expressions in Mass Media.

PAPER 4.4 : At the end of the course the students will be able to have an in dept knowledge of the history and development of Gair Afsanvi Adab.

PAPER 4.5 : To enable the students to critical understanding and appreciations of the works of Prem Chand and his times it will also include the study Socio-Cultural, Historical, Political background of Prem Chand and his times.

INFORMATION FOR SUBMITTING AQAR FOR THE YEAR (2021-2022)

PROGRAMME : MA HINDI

1. PROGRAMME OUTCOMES

(In a para or few bullet points)

प्रस्तावना : एम ए हिंदी स्नातकोत्तर स्तर का पाठ्यक्रम है जिसका मुख्य उद्देश्य विद्यार्थी के विवेक को विस्तार करते हुए गहन अध्ययन तथा शोध करने की क्षमता को विकसित करना है। व्यक्तित्व निर्माण और आत्मविश्वास को दृढ़ बनाना है। नीचे दिए विषयों के पाठ्यक्रम के अध्ययन से विद्यार्थी सैद्धान्तिक व व्यावहारिक रूप से मज़बूत बनते हैं।

2. PROGRAMME SPECIFIC OUTCOMES

(In a para or few bullet points)

परिणाम: पाठ्यक्रम का उद्देश्य विश्वविद्यालय स्तर पर हिंदी शिक्षण के लिए प्रभावि शिक्षक तैयार होंगे, राष्ट्रीय एवं अंतरराष्ट्रीय स्तर हिंदी का वर्चस्व स्थापित होगा, रोजगार के अवसर मिलेंगे।

3. COURSE OUTCOMES

SEMESTER I:

PAPER 1.1 : Hindi sahitya ka itihaas 1

हिंदी साहित्य लेखन के आरंभिक दौर में लिखे साहित्य के वैविध्यता से परिचय होगा।

PAPER 1.2 : Madhyayugeen kavya

कबीरदास, सूरदास, तुलसीदास, जायसी, रहीम आदि के काव्य कुशलता, से विद्यार्थी में कला के प्रति रूचि बढ़ती है।

PAPER 1.3 : Aadunik Hindi Gadya Sahitya

गद्यात्मक विधाओं में नाटक, कहानी, उपन्यास, संस्मरण, जीवनी, आत्मकथा, यात्रा साहित्य आदि के अध्ययन से साहित्य के प्रति नवीन दृष्टि की संभावना है।

PAPER 1.4 : Bhartiya Sahitya: भारतीय भाषाओं के साहित्य से परिचय कराना है।

PAPER 1.5 : Anuwad Siddhant Evam Prayog

अनुवाद का क्षेत्र विस्तृत है, विश्व के स्तर पर अनुवाद का महत्व स्थापित हो चुका है। अनुवादकों की माँग बढ़ रही है।

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## SEMESTER IV:

PAPER 4.1 : Tulnatmak Sahitya

आधुनिक विषय की माँग, दो भाषाओं के साहित्य से परिचय होता है ।

PAPER 4.2 : Hindi Computer shikshan

संगणक की महत्वपूर्ण जानकारी प्राप्त होती है ।

PAPER 4.3 : Pashchatya Kavyashastra Evam Hindi Alochana

पाश्चात्य साहित्य के सिद्धांत नव साहित्य लेखन में सहायक हैं

PAPER : 4.4 : Hindi Gadya sahitya me Stree Lekhan

स्त्री लेखन मानवमूल्यों को स्थापित करने में सक्षम है ।

PAPER 4.5 : Hindi Patrakarita

पत्रकार के दायित्व से अवगत कराने में यह विषय अति महत्वपूर्ण है ।

## 2. FACULTY OF SOCIAL SCIENCES

## INFORMATION FOR SUBMITTING AQAR FOR THE YEAR (2021-2022)

### PROGRAMME : M.A. APPLIED ECONOMICS

#### 4. PROGRAMME OUTCOMES

- The prime objective of this programme is to equip the students with knowledge in economics field both in terms of academics, skill development and industry.
- To prepare students for facing further challenges of higher education for entry into top notch institutions at national and global level.
- To motivate students to utilize their knowledge/skills for making them successful entrepreneurs as globally and locally. The research methods of economics are useful to make policies. The field of has become a buzz in the area of industry, agriculture, service sector and in the International wide economic reforms.

#### 5. PROGRAMME SPECIFIC OUTCOMES

- Students pursuing masters in Economics have several opportunities to join into several industries (research and development, quality assurance and production), teaching, research and entrepreneurship.

#### 6. COURSE OUTCOMES

##### SEMESTER I:

##### PAPER 1.1 : Micro Economics – I

- it allows students to operationalize these theories and inferences so that they can be tested empirically using quantitative data and, if validated, used to produce quantitative predictions about economic matters for the benefit of businesses, investors, and policymakers.
- understand the idea of differentiation from first principles, differentiate power functions ,find stationary points of some functions, determine the nature of some stationary points using either the first or second derivative tests, understand and work with derivatives as rates of change in mathematical models.

##### PAPER 1.2 : Mathematical Economics – I

- This unit analyses about the Nature and scope of Economics. This concept is useful to understand the origin of the subject of micro economics.
- This unit analyses about indifference curves. This concept is useful to understand about alternative commodity production importance.

##### PAPER 1.3 : Fundamentals of Information Technology-I

- Students may understand the basics and importance of Information Technology in day to day life.
- The study of this unit makes the student to know how M.S.Word works and useful in day to day life and its use in research and economic analysis.

## **SEMESTER II:**

### **PAPER 2.1 : Micro Economics – II**

- The maxima and minima refer to extreme values of a function, that is, the maximum and minimum values that the function attains. Maximum means upper bound or largest possible quantity. The absolute maximum of a function is the largest number contained in the range of the function.
- A function of a discrete random variable that gives the probability that the outcome associated with that variable will occur. A Taylor series is a clever way to approximate any function as a polynomial with an infinite number of terms. Each term of the Taylor polynomial comes from the function's derivatives at a single point.

### **PAPER 2.2 : Mathematical Economics – II**

- A perfectly competitive firm is known as a price taker because the pressure of competing firms forces them to accept the prevailing equilibrium price in the market. If a firm in a perfectly competitive market raises the price of its product by so much as a penny, it will lose all of its sales to competitors.
- While a monopolistic competitive firm can make a profit in the short-run, the effect of its monopoly-like pricing will cause a decrease in demand in the long-run. This increases the need for firms to differentiate their products, leading to an increase in average total cost.

### **PAPER 2.3 : Fundamentals of Information Technology-II**

- Making your presentation more interesting through the use of multimedia can help to improve the audience's focus. PowerPoint allows you to use images, audio and video to have a greater visual impact. These visual and audio cues may also help a presenter be more improvisational and interactive with the audience.
- E-Commerce also leads to significant transaction cost reduction for consumers. E-commerce has emerged as one of the fast-growing trade channels available for the cross-border trade of goods and services. It provides a wider reach and reception across the global market, with minimum investments.

## **SEMESTER III:**

### **PAPER 3.1 : Macro Economics - I**

- Students to be learned National income concepts and measurements of National income and its importance.
- Students will get better understanding of Keynesian employment theory its macro economic concepts.

### **PAPER 3.2 : FINANCIAL ECONOMICS -I**

- Students will be getting Awareness on Financial Systems.
- Students to be learned Functions of Central bank and Different Financial Institutions role in the management of money

### **PAPER 3.3 : STATISTICS-I**

- Students will be getting Awareness on Descriptive methods of Statistics and Diagrammatic Analysis of the collected data to begin the research Students to be understood.
- Students will get the awareness on the methods of Statistics like central tendency, Measures of Dispersions and Probability & Distribution for the application of the research.

## **SEMESTER IV:**

### **PAPER 4.1 : Macro Economics - II**

- Students will be learned of Banking system and types of money & Differential approaches of the economists.
- Students will be getting Awareness on Trade cycles and Inflation.

### **PAPER 4.2 : FINANCIAL ECONOMICS - II**

- Students will be getting Awareness on Capital Market and Financial Markets
- Students will be getting Awareness of Stock Markets and Foreign Exchange Rates.

### **PAPER 4.3 : STATISTICS-II**

- Students will be getting Awareness on Correlation and Regression Analysis for the application of research in Economics.
- Students will be learned about testing of hypothesis and Different types of tests of hypothesis.

## **SEMESTER V:**

### **PAPER 5.1 : CLASSICAL POLITICAL ECONOMY**

- The study of this unit makes the student to know how dialectical historical materialism leads to capitalism and various theories stated by Schumpeter and others.
- Detailed knowledge of traditional Marxist and Neo Marxist approaches and command and market economy can be learned by the students.

### **PAPER 5.2 : INTRODUCTION TO PUBLIC FINANCE**

- Students may understand the basics and importance of public finance and economic significance of public finance.

- The study of this unit makes the student well aware of structure and classification government budget.

### **PAPER 5.3 : ENVIRONMENTAL ECONOMICS-I**

- Students may understand the scope, function and relationship between environment and economic system.
- This unit gives clear knowledge about common property resources and environmental quality.

### **PAPER 5.4 : INDIAN ECONOMY-I**

- Students may understand the features of Indian economy during British rule and reason for wealth drain during colonial rule.
- The study of this unit makes the student to know about the Indian industrial sector and various industrial policies.

### **PAPER 5.5: STTISTICS – III**

- Students get comprehensive knowledge of Time Series its uses in various fields.
- The study of this unit makes the student to know the concept of ANOVA and its use in research and economic analysis.

## **SEMESTER VI:**

### **PAPER 6.1 : MODERN AND INDIAN POLITICAL ECONOMY**

- Students get idea about theories of development including latest economic reforms from this unit.
- The study of this unit makes the student to know the economic philosophy of Phule, Ambedkar during modern India.

### **PAPER 6.2 : FINANCIAL INSTITUTIONS AND MARKETS**

- Students get clear idea about Indian financial system and financial markets from this unit.
- This unit gives clear knowledge about the structure and functions of Central Bank in developing countries and reforms of Indian Financial Sector.

### **PAPER 6.3 : ENVIRONMENTAL ECONOMICS-II**

- Students learn global warming concept, causes and its impact on environment from this unit.
- Students get subject knowledge of how to minimise the risk of pollution and study the role of government in environmental protection.

### **PAPER 6.4 : INDIAN ECONOMY-II**

- The study of this unit is most useful to know about Indian Planning System, Planning Strategies and New Economic Reforms.
- Study of this unit helps the pupil to know the impact of various current economic, non-economic and environmental aspects and problems of regional imbalances in India.

### **PAPER 6.5 : STTISTICS – IV**

- Students learn about Linear programming and Operation Research and its various methods from this unit.
- Study of this unit helps the pupil to know about Game theory and its characters and various methods from this unit.

## **SEMESTER VII:**

### **PAPER 7.1 : MICRO ECONOMIC ANALYSIS – I**

- Know how to determine the revealed preference analysis, Hicks' revision of demand theory.
- Know the meaning of monopoly.
- Determination of wage when firm is monopsonist in the factor market and monopolist in the product market.
- Know the concept of monopolistic and monopsonistic exploitation.

### **PAPER 7.2 : MICRO ECONOMIC ANALYSIS – I**

- Describe the purpose of National Income Accounting analyse the components of the Circular Flow Diagram and use it to explain how a single purchase can influence all the Macro flows in the country.
- To understand the money supply measures. To know the determinates of demand for money
- To analyse the money multiplier and budget deficits

### **PAPER 7.3 : QUANTITATIVE METHODS – I**

- To study the Multivariable functions. To analyse the rules of partial differentiation and interpretation and to understand the importance of maxima and minima in single and multivariable functions.
- To understand the Karl Pearson and Spearman's rank coefficient of correlation,
- To know the estimation of regression coefficients. To clearly understand OLS and it will know the understanding in statistics.

### **PAPER 7.4 : PUBLIC ECONOMICS – I**

- To know the public policy and public goods.
- To better understanding the stabilisation policy and to removing distributional inequalities and regional Imbalances.

### **PAPER 7.5 : INTERNATIONAL TRADE AND FINANCE –I**

- Understand the main models of international trade at the level of systematic analysis and be able to differentiate between them in terms of assumptions and economic consequences.
- To know the Differentiate between balance of trade and balance of payments.
- To understand the differentiate between trade deficits and trade surpluses.
- To know the importance of Policies for achieving internal and external equilibrium

## **SEMESTER VIII:**

### **PAPER 8.1 : MICRO ECONOMIC ANALYSIS – II**

- To know the Firms' optimal pricing, performance, and other policy variables are determined using a methodology that differs from conventional theory, in which pricing decisions are based on marginalistic principles.
- Know about the Pareto optimum conditions; Social welfare functions Understand Arrow's Impossibility Theorem

### **PAPER 8.2 : MICRO ECONOMIC ANALYSIS – II**

- To know the understand of the Neo-classical and Keynesian views on interest; The IS-LM model.
- To learn the monetary and fiscal policies; IS-LM model in open economy, and to learn difference between the IS-LM model.
- To know the Rational expectations Theory. To learn the difference between Macro Stabilization policies and Financial Sector Reforms in India

### **PAPER 8.3 : QUANTITATIVE METHODS – II**

- To know the understanding of optimization, Lagrangian function, simple economic applications
- To learn and derive the linear Programming, formulation of linear programming problem
- To know the meaning of probability and to learn the laws of addition and multiplication, discrete random variable to understand the Normal distribution its concept and properties.

### **PAPER 8.4 : PUBLIC ECONOMICS – II**

- To understand the Fiscal Policy and Monetary Policy – Mobilization on Financial and to know the Anti-inflationary Fiscal Policy
- To examine the Indian Tax system – trends in major taxes in India, to know the how the tax functions in state and central.
- To clearly understand the Fiscal sector reforms in India: Reports on Finance commissions in India

### **PAPER 8.5: INTERNATIONAL TRADE AND FINANCE –II**

- To clearly understand international trade, theories of regional blocks like SAARC/SAPTA and ASEAN regions
- Learn the new insights from Asian region. Regionalism (EU, NAFTA); Multilateralism and WTO.
- To know the Problems of India's international debt; to learn the MNCs in India and import and export policies.



## **SEMESTER IX:**

### **PAPER 9.1 : ECONOMETRICS – I**

- Students will be get Awareness on Nature, meaning definition and scope of econometrics, regression model, reasons for inclusion of error term, assumptions of error term, principle of least square, Gauss- Markov Theorem.
- Students will be learned the Regression models with dummy variables, uses of dummy variable, stability of regression model, logit model – concept and estimation.

### **PAPER 9.2 : ECONOMICS OF GROWTH AND DEVELOPMENT – I**

- Students to be learned Classical theories of growth- Adam Smith, Ricardo and Malthus – Marx’s theory of Economic Development - Schumpeter’s theory of Economic Development.
- students will be learned The theory of Big Push – Critical Minimum Effort and Low level Equilibrium Trap, Lewis model of Economic Growth.

### **PAPER 9.3 : INDIAN ECONOMIC POLICY**

- Students to be learned The Trends in National Income, Growth & Structure; Physical Quality Life Index (PQLI), Human Development Index (HDI): GEM Nature and Magnitude of Workforce and Unemployment, Poverty and Inequality.
- Students to be understood the Planning in India – Objectives and Strategy of Planning, Achievements and Failures of Plans. Over – View of Indian Economy, Regional Planning in India; Role of Public Sector in Resource Mobilisation.

### **PAPER 9.4 : AGRICULTURAL ECONOMICS**

- Students to be learned The Agricultural production Resource use and efficiency; Production function Farm size and productivity relationship laws of returns Supply response of individual crops, Technical change, labour absorption in Agriculture.
- students will be learned theRecent trends in agricultural growth in India. Role of Public investment and capital formation in Indian agriculture; Strategy of agricultural development; Sustainable agriculture and Food Security.

### **PAPER 9.5(A): ECONOMICS OF SOCIAL SECTOR**

- Students to be learned Cost of Education Expenditure on Education,Problems in the Measurement of Costs and Benefits. Cost-Benefit Analysis in Education.
- students will be learned theDefinition and scope of Economics of Health; Comparison of Education and Health; Health as human capital; Determinants of Health- Poverty.

### **PAPER 9.5(B): ECONOMICS OF ENVIRONMENT**

- Students will be getting Awareness on Definition of Environmental Economics, Relationship between Economics and Environment – Flow Chart etc.
- students will be learned the Environmental Costs and Benefits: Under and Non-user Benefits. Direct and Indirect Valuation Methods: Contingent Valuation Method and

## **SEMESTER X:**

### **PAPER 10.1 : ECONOMETRICS – II**

- Students will be get Awareness on Simultaneous Equation Bias and Inconsistency of Ordinary Least Squares estimators Identification problem, Methods of estimating simultaneous equation system Indirect least squares and Two-stage least squares.
- students will be learned the Engel Function – Estimation of Engel elasticities, Consumption function – Estimation of MPC, Demand function for goods – Estimation of own-price, cross-price and income elasticities.

### **PAPER 10.2 : ECONOMICS OF GROWTH AND DEVELOPMENT – I**

- Students to be learned The role of International Trade in Economic Development. Globalization process. Static and Dynamic gains from trade – Export led growth, Growth led export, Dual gap analysis – WTO and Developing Countries.
- students will be learned the Types of Planning - Indicative, Macro and Micro level planning – Shadow pricing – Input - Output analysis – Indian plan models – P.C. Mahalanobis, Raj-Sen and Chakravarty Models.

### **PAPER 10.3 : INDUSTRIAL ECONOMICS**

- Students to be learned The Concepts & Organization of a firm. Market Structure; Sellers Concentration; Product Differentiation; Entry Conditions; Economics of Scale; Profitability & Innovation. Growth of the firm – Size and Growth Productivity and Efficiency.
- Students will be learned the Industrial Finance: Owned, External and other Components of Funds; Role, Nature, Volume and types of Institutional Finance – State Level Financial Institutions and Commercial Banks. Financial Statement – Balance Sheet Analysis.

### **PAPER 10.4 : Research Methodology**

- Students to be understood the Sampling Need for sampling, stratified sampling, multi-stage sampling, systematic sampling, cluster sampling, size of sampling, uses of sampling, sampling and non-sampling errors.
- Students will be learned the Interpretation and Reporting Writing, Meaning of interpretation techniques-precautions in Research Report

## **INFORMATION FOR SUBMITTING AQAR FOR THE YEAR (2021-2022)**

### **PROGRAMME : M.A ( Public Administration )**

#### **1. PROGRAMME OUTCOMES**

Public Administration is the study of how government works and how it can work better. The post-graduate Public Administration program provides a wide range of theoretical and application-oriented inputs on various aspects of managing public policy and public-systems. The program is a unique integration of concepts, tools, and techniques with stress on public policy formulation, analysis, and implementation, including the design and execution of delivery systems. Its thrust is on interdisciplinary approaches in learning, strategic thinking, global orientation, sensitivity, and innovation. The program aims to train present and future leaders, functionaries and activists in government and non-government agencies and civil society members to initiate, guide and influence public policy formulation and implementation. The interdisciplinary program develops a comprehensive understanding of governance, public policy and public administration issues from multiple perspectives and disciplines.

#### **PROGRAMME SPECIFIC OUTCOMES**

Students will gain conceptual and theoretical understanding of Development Administration including the traditional administration. And also the interaction among bureaucracy and public, politicians and other experts.

- To introduce courses and the syllabi as per the latest developments in the subject aimed at balancing the theoretical and practical aspects of the discipline
- To promote research in the field of Public Administration and Governance that can guide policy makers for effective planning;
- To train the students for the civil service examinations at National and State levels;
- To motivate students and practitioners for research to explore and gain insights into administrative processes;
- To act as a platform for providing skilled human resources for governance, policy-making, and administration.

## 2. COURSE OUTCOMES

### SEMESTER I: Syllabus

PAPER -I : 101- Administrative Theory-I

PAPER-II : 102: Management (Science & Techniques)

PAPER- III : 103: Comparative and Development Administration

PAPER -IV : 104: Indian Administrative system-I

PAPER -V : 105: Management of Public Enterprises

#### **Out comes:**

##### Paper-I:

- Demonstrate the ability to Acquire in-depth understanding of Public Administration in both as a theoretical discipline and a profession.
- Explain the basic context, historical and philosophical development of Public Administration as an academic discipline

##### Paper-II:

- Discuss the classical, behavioral and bureaucratic approaches to understand the dynamics of Public Administration
- Apply various Principles of Public Administration to enhance the efficiency of an organization.

##### Paper-III:

- Analyse the emerging concepts in theory and practice of Public Administration.
- Compare and adopt various administrative theories for development.

##### Paper-IV:

After completion of this course successfully, the students will be able to.....

- Describe the historical evolution and growth of Indian Polity and Administration.
- Explain the constitutional framework and its impact on Indian Administration.
- Discuss the significance of Parliamentary Systems and role of Union Executive in Indian Administration.

- Explain the contribution of various Institutions which are crucial in providing Citizen-State interface in India

Paper-V:

- State intervention in business activity leads to establishment of public Enterprise.
- Public Enterprises are wholly or partially owned by the central or state or jointly by the state and central Governments.

SEMESTER-II

PAPER -I : 201- Administrative Theory-II

PAPER-II : 202: Local Government

PAPER- III : 203: Personnel administration

PAPER -IV : 204: Indian Administrative system-II

PAPER -V : 205: Public Administration & Public Policy

**Out comes:**

Paper-I

- After completion of this course successfully, the students will be able to
- Explain the importance of Theory and various Principles proposed by Classical Administrative Thinkers.
- Explain various theoretical interpretations of Administrative Theory in providing solutions in day-to-day administrative issues.
- Classify various Principles/Strategies proposed by Classical Administrative Thinkers in improving the productivity of organisations.
- Recent developments in Public administration is Public management. Efficiency, Effectiveness and Economy Decentralization are the .features of Public Management.

Paper-II

After completion of this course successfully, the students will be able to Explain

- Local government is a generic term for the lowest tiers of public administration with in a particular sovereign state
- De-centralization refers to the transfer of authority form a central government to a sub-national entity... These are many ways in which a government develop power

to the sub-national thus de-centralization can be political, administrative, fiscal/economic etc.

- Overall the responsibility of local governments continue to increase, its face many issues due to dramatic economic changes and federal funding reductions legal framework lack of adequate tools community engagement, health disparities, child abuse and neglect etc.

### Paper-III

After completion of this course successfully, the students will be able to Explain

- Personnel administration is an important aspect of public administration in the modern state, it is the sovereign factor in public administration this is another term for a human resources job. Duties of a Personnel administrator include hiring and training employees carrying out evaluations and handling employees grievances.
- The conditions of service of the government servants includes pay, allowances periodical increment, leave, promotion, tenure/terminate of service, transfer, deputation, various types of rights, holydays, hours of work and retirement benefits like pension, provident fund, gratuity and so on.
- That trend of artificial intelligence, diversity, gig economy, cloud-based human resources tech and productivity skills will drive the HRM. To formulate implement corporate strategies and improve employees knowledge and skills.

### Paper-IV

After completion of this course successfully, the students will be able to Explain

- Central state relations article 245-255 deal with legislative relations governor nominal executive authority council of minister govt passing of money bills and powers C.M real executive authority.
- Civil services all India services I.A.S I.P.S inter linkages classification of state service bases of rank Generalist and specialist recruitment conducts examination for appointments.
- Dist administration dist collector magistrate responsible law and order mandal level M.R.O magistrate village level V.R.O

### Paper-V

After completion of this course successfully, the students will be able to Explain

- Explain Meaning, nature, scope of Public Policy
- What government does, what government going to do towards public these are policies. Education policy, Agriculture policy etc.
- Discuss Role of Executive in public policy making
- Explain Objectives and Goals of Public Policy
- Discuss Policy Making Characteristics

- Discuss Citizens Participation in Policy Implementation

### SEMESTER III:

PAPER -I : 301: RURAL DEVELOPMENT AND PANCHAYAT RAJ

PAPER -II : 302: Financial Administration

PAPER -III : 303: Governance

PAPER - IV : 304: Human Development and Governance

PAPER - V : 305: Globalization, Public Administration& Governance

### Out comes:

#### Paper-I

After completion of this course successfully, the students will be able to Explain.

- Democracy development and decentralisation local self governance local level rural development third world primary sector growth rural policies and strategies in India mainly focuses on poverty opportunities self employment
- Land reforms land ownership property rural unrest caste class gender education people change of society social security administration the internal revenue service bureaucracy.

#### Paper-II

- Sources of public revenue tax and non tax revenue excise duty vat deficit financing public investment public debt management order achieve it risk.
- Central state relations finance grant –in- Aid distribution including water wealth in general finance commission as a quasi judicial body.
- Preparation budget every annum in all field example : education and agriculture

#### Paper-III

- Course Learning Outcomes After completion of this course successfully, the students will be able to.....
- Explain the terms/concepts such as Governance, Government, Governmentality and the significance of Governance.
- Explain various Theories of Governance to improve efficiency of Public Sector Organisations.
- Discuss the role of politics, politicians, civil society and citizen engagement in democratic Governance.

- Analyse the concepts of Governance in relation to their implementation and identify the gaps of Governance in Practice

#### Paper-IV

- The UNDP it's defined H.D as the process of enlarging people's choices allowing them to lead a long and healthy life to be educated to enjoy a decent standard life as well as political freedom, guaranteed human rights and various ingredients of self respect.
- The World bank built on this definition outlining that it refers to the wide array of nongovernmental and not-for-profit organizations that have a presence in public life expressing that interests and values of their members or others based on ethical, cultural, political, scientific, religious/philanthropic considerations.
- Protective discrimination is the policy of granting special privileges to the downtrodden and the under privileged sections of society most commonly women these are affirmative action programs most visible in both the United States and India where there has been a history of racial and caste.

#### Paper-V

After completion of this course successfully, the students will be able to Explain.

- Explain concept and Nature of globalization
- Describe globalization and social Economics and Political Context
- Explain globalization- Indian Perspective
- Discuss LPG and Bureaucracy
- Explain Impact of Globalization on Public Administration in India

#### SEMESTER IV:

PAPER -I : 401: Public Administration and ICT

PAPER -II : 402: E- Governance

PAPER-III : 403: Urban Governance

PAPER-IV : 404: Research Methods

PAPER-V : 405: Indian Constitution & Administration

#### **Out comes:**

#### Paper-I



- Present age is known as the age of ‘science and technology’ we are in the midst of a digital revolution. Actually ICT transmit information and knowledge to individual to widest their choice for economic and social empowerment. ICT’S refers to system for “producing, storing, sending and retrieving detailed files, these files can contain text sounds and images etc.
- IT refers to development of public services development of social welfare, development health and information management its works on request response model, this is application of IT to transfer the efficiency effectiveness transparency and accountability by exchanging of information.
- This process model suggests that when social and economic development activities are able to benefit from IT implementation the IT affects our better access to information and expertise including global markets.

#### Paper-II

- After completion of this course successfully, the students will be able to...
- Application of ICT in public service delivery is e governance
- Understand the development of e-Governance in India in phased manner and theoretical application in governance.
- Analyzing and evaluating flagship policies of e-Governance in India
- Develop scientific temperament to case studies in context to various e- Governance policies of states.
- Understand and synchronize the long term changes and contribution of e- Governance in India

#### Paper-III

- Reforms in urban governance 74<sup>th</sup> C.A.A june 1993 made decentralised self governance to local people.
- emerging unrest and crises riots tension in urban life, urban governance tackle all the issues.

#### Paper-IV

Upon completion of the course, the students will be able to

- Explain Meaning, Method of Research Methodology
- Discuss concept of variables and hypotheses, their nature, importance and types

- Discuss sample and describe the steps involved in the process of sampling
- Explain different tools of data collection
- To develop an understanding of various research designs and techniques.
- To identify various sources of information for literature review and data collection
- writing report for Public Administration project

#### Paper-V

After completion of this course successfully, the students will be able to know

- Salient features preamble justice social economic and political fundamental rights article 12-35 six category directive principle 13 article 36-51 fundamental duties 51(a) emergency provision national emergency 352 state emergency 356 financial emergency 360 .
- Financial relations between union and state divided into three lists union list state list and concurrent list U.P.S.C 315 election commission article 324 permanent body finance commission as a quasi judicial body 73<sup>rd</sup> and 74<sup>th</sup> passed by parliament 1992
- Reservation for SC,ST and OBC articles 16,66,75,25,84 and 89<sup>th</sup> amendment 2003 women commission 1992,NHRC 1993 established.

### 3. FACULTY OF COMMERCE

Code No.	Name of the Paper	No. of instruction Hours per week			Exam Duration (hours)		Max. Marks (20 IA +80 U.E)
		Prac.	Th.	Total	Prac	Th.	
<b>SEMESTER – I</b>							
ECOM 101	Organisational Theory and Behaviour	-	5	5	-	3	100
ECOM 102	Financial Management	-	5	5	-	3	100
ECOM 103	Marketing Management	-	5	5	-	3	100
ECOM 104	Fundamental of Information Technology	4	3	5	2	3	100
ECOM 105	Computer Programming with 'C'	4	3	5	2	3	100
	Seminars	-	-	2	-	-	-
	Total Work-load and Marks	-	-	27	-	-	500
<b>SEMESTER – II</b>							
ECOM 201	Managerial Economics	-	5	5	-	3	100
ECOM 202	Human Resource Management	-	5	5	-	3	100
ECOM 203	International Business	-	5	5	-	3	100
ECOM 204	Web Technologies	4	3	5	2	3	100
ECOM 205	Database Management System	4	3	5	2	3	100
	Seminars	-	-	2	-	-	-
	Total Worl-load and Marks	-	-	27	-	-	500
<b>SEMESTER – III</b>							
ECOM 301	Quantitative Methods in Research	-	5	5	-	3	100
ECOM 302	E-Commerce & E-Banking	4	3	5	2	3	100
ECOM 303	Java Programming	4	3	5	2	3	100
<b>Elective – I : Finance</b>							
ECOM 304 F1	Financial Markets and Services	-	-	5	-	3	100
ECOM 305 F2	Securities Analysis and Portfolio Management	-	-	5	-	3	100
<b>Elective – II : Accounting</b>							
ECOM 304 A1	Accounting For Management	-	-	5	-	3	100
ECOM 305 A2	Accounting for Service Organisations	-	-	5	-	3	100
<b>Elective – III : Marketing</b>							
ECOM 304 M1	Service Marketing	-	-	5	-	3	100
ECOM 305 M2	Consumer Behaviour	-	-	5	-	3	100
	Seminars	-	-	2	-	-	-
	Total Work –load and Marks	-	-	37	-	-	500
<b>SEMESTER – IV</b>							
ECOM 401	Business Communication & Soft Sills	4	3	5	2	3	100
ECOM 402	Strategic Management	-	5	5	-	3	100
ECOM 403	Enterprise Resource Planning	4	3	5	2	3	100
<b>Elective – I : Finance</b>							
ECOM 404 F1	International Financial Management	-	5	5	-	3	100
ECOM 405 F2	Corporate Tax Planning and Management	-	5	5	-	3	100
<b>Elective – II : Accounting</b>							
ECOM 404 A1	Advanced Corporate Accounting	-	5	5	-	3	100

## **INFORMATION FOR SUBMITTING AQAR FOR THE YEAR (2021-2022)**

### **PROGRAMME :M.Com (E-Commerce)**

#### **I. PROGRAMME OBJECTIVE:**

The prime objective of this programme is to equip the students with knowledge in all core commerce subjects and provide practical knowledge and application of E-Commerce, E-Business and other related computer languages as well as the tools of Trade, Business and Industry. The Course is a conglomeration of 60% core Commerce subjects and 40% E-Commerce based subjects.

#### **II. PROGRAMME OUTCOMES:**

After completing this course there is a wide scope as far as employability in the Government Sector and as well as in the private sector. This course will be helpful to prepare a candidate to take up managerial and technical roles in various organizations. With skyscraping opportunities with this course will get good response from commerce students. Due to the excellent exposure in various administrations, management and technological aspects related subjects provided in this course.

#### **III. PROGRAMME SPECIFIC OUTCOMES:**

- Able to Develop an ability to apply knowledge acquired in problem solving
- Ability to work in teams with enhanced interpersonal skills and communication.
- The students can work in different domains like Accounting, Taxation, HRM, Banking and Administration, E-Commerce, ERP consultant, Web Designer, Fraud Analyst.
- Ability to start their own business, E-Commerce Store.
- Ability to work in MNCs as well as pvt, and public companies.
- To develop team work, leadership and managerial and administrative skills.
- Students can go further for professional courses like CA/ CS/CMA/CFA

#### **IV. COURSE OUTCOMES**

##### **SEMESTER I:**

##### **PAPER 1.1: ORGANIZATIONAL THEORY AND BEHAVIOUR**

**Course outcomes:** After Completing this course students will be able to understand a) Concept of organization, Type of organizations, goals of the organization b) Organizational Structure and Design, c) Organizing and controlling d) Individual and group Behaviour e) Leadership and Motivation.

#### **PAPER 1.2: FINANCIAL MANAGEMENT**

**Course Outcomes:** After completing this course students will be able to understand a) Goals of financial function b) Investment criteria and decision process c) capital structure and Dividend Decisions d) Estimate working capital requirements.

#### **PAPER 1.3: MARKETING MANAGEMENT**

**Course Outcomes :** After completing this course students will be able to understand a) concepts of marketing management b) Target Marketing and Segmentation and Consumer Behavior c)Product & Price Management d) Channel Management e) Promotion Management f) to communicate the decisions towards business development with superior customer value.

#### **PAPER 1.4: FUNDAMENTALS OF INFORMATION TECHNOLOGY**

**Course Outcomes:** After completing this course a) Student will become familiar in Basics of Computers, System Software and Application Software b) prepare the documents using word, prepare the statements by using excel and prepare the slide shows by using power point c) student can able to understand the system development life cycle d) Capacity to work on Internet & World Wide Web and make effective usage of the internet for academics.

#### **PAPER 1.5: COMPUTER PROGRAMMING WITH 'C'**

**Course Outcomes:** After Completing this course student will be able to a) Understand a problem and build an algorithm/flowchart to solve it b). Define variables and construct expressions using C language c). Construct C programs using various conditional statements and loops to develop Business Applications d). Develop efficient, modular programs using functions e). Utilize arrays, structures and unions for storing and manipulating data.

#### **SEMESTER II:**

##### **PAPER :2.1MANAGERIAL ECONOMICS**

**Course Outcomes:** After the completion of the course, students will be able to – a). Understand the roles of managers in firms. b). Understand the internal and external decisions to be made by managers. c). Analyze the demand and supply conditions and assess the position of a company. d). Analyze the concepts of Production and Cost Functions e) Aware the concept of Market Structure and Pricing Practices f). Analyze real-world business problems with a systematic theoretical framework. g). Make optimal business decisions by integrating the concepts of economics.

##### **PAPER :2.2 HUMAN RESOURCE MANAGEMENT**

**Course Outcomes:** After completing this course Students will be able to understand a) Basic HR concepts b) process of recruitment and selection, c) Learning and development d) Performance Management and Compensation e) Employee retention strategies f) importance of employee welfare and grievances h) Knowledge Management.

### PAPER :2.3 INTERNATIONAL BUSINESS

**Course Outcomes:** After Completing this course Students will be able to understand a) Importance of International Business b) International Trade theories c) International Economic environment d) Strategic and operational issues of IB.

### PAPER :2.4 WEB TECHNOLOGIES

**Course Outcomes:** After completing this course a student can a) gain knowledge developing simple web pages by using HTML b) client side scripting, validation of forms have understanding of server side scripting with Java script c) understand what is XML and how to parse and use XML d) get the practical knowledge on SVG, Math ML, CSS and XSLT e) understand the Application of Web Technologies to Ecommerce and client server architectures.

### PAPER :2.5 DATA BASE MANAGEMENT SYSTEM

**Course Outcomes:** After completing this course a student can a) Demonstrate the basic elements of a relational database management system b) Get the ability to identify the data models for relevant problems. C) Get the ability to design entity relationship and convert entity relationship. d) Apply normalization for the development of application software's. e) Get the ability to formulate queries using SQL DML/DDDL/DCL commands. f) Get the ability to programming with PL/SQL.

### SEMESTER III:

#### PAPER:3.1 QUANTITATIVE TECHNIQUES FOR MANAGERIAL DECISIONS

**Course Outcomes:** After completing this course Students will be able to understand a) Meaning and Classification of Quantitative Techniques Role of Quantitative Techniques in Management decision b) Concept of Sampling: Types of Samples, Hypothesis testing c) Advanced Quantitative Techniques d) Decision Theory and game theory. These concepts help the student in taking decisions for business. e) Practical knowledge on SPSS.

#### PAPER :3.2 E-COMMERCE AND E-BANKING

**Course Outcomes:** After completing this course a student can a) understand the basic concepts of E-Commerce and E-Business b) get the awareness on EDI and its applications in Business c) understand the concept of Cryptography d) know the importance of Authentication & Firewalls e) get the indepth knowledge and practical oriented knowledge on Electronic Payment Systems.

#### PAPER :3.3 JAVA PROGRAMMING

**Course Outcomes:** After completing this course a student can a) Understand the OOP concepts and basics of java programming. b) get the skills to apply OOP and Java programming in problem solving. c) Should have the ability to extend his/her knowledge of Java d) Ability to access data from a DB with Java programs e) Use of GUI components.

#### PAPER :3.4 (F1) FINANCIAL MARKETS & SERVICES

**Course Outcomes:** After Completing this course students will be able to understand a) Introduction to Indian Financial system b) Banking and Non-Banking Institutions c) Financial and Securities markets d) Fund and Fee based services.

### **PAPER :3.5 (F2) SECURITIES ANALYSIS AND PORTFOLIO MANAGEMENT**

**Course Outcomes:** After completing this course students will be able to understand a) Indian Investment Environment b) Portfolio Analysis c) Bond valuation and management d) Valuation of Equity Shares and Preference Shares e) Performance evaluation of Portfolios. f) Portfolio Theory g) Portfolio Evaluation

#### **PAPER: 3.4 (A1) :ACCOUNTING FOR MANAGEMENT**

**Course Outcomes:** After completing this course a student can a) understand the Accounting Theories b) Accounting Standards and Standards setting bodies in U.K., U.S.A. and India c) EVA , BSA and Responsibility Centers d) Strategic Cost and Management System e) Corporate Reporting.

### **PAPER: 3.5 (A2) :ACCOUNTING FOR SERVICE ORGANIZATIONS**

**Course Outcomes:** After completing this course a student can a) understand the accounting for professional persons and organizations b) prepare the accounts of professional persons and organizations c) get the indepth knowledge on government accounting d) Prepare of final accounts farms e) get the knowledge on double account system f) prepare Accounts of Electricity Companies

#### **PAPER: 3.4 (M1) : SERVICE MARKETING**

**Course Outcomes:** After completing this course the student should be able to: a) Develop an understanding about the various concepts and importance of Services Marketing. b) Enhance knowledge about emerging issues and trends in the service sector. c) Learn to implement service strategies to meet new challenges

### **PAPER: 3.5 (M2) : CONSUMER BEHAVIOUR**

**Course Outcomes:** After completing this course the student should be able to: a) Explain the background and concepts vital for understanding Consumer Behaviour. b) Identify the role of variables that determines Consumer Behaviour in Social & cultural domain. c) Identifying the psychological and behavioural practices adopted by organizations to enhance the Consumer Behaviour

### **SEMESTER IV:**

#### **PAPER 4.1: BUSINESS COMMUNICATION AND SOFT SKILLS**

**Course outcomes:** After completing this course sstudents will be able to understand a) the importance of Communication in Business b) to develop writing skills and presentation c) writing business proposals and letters d) application of business communication in the self development process.

#### **PAPER 4.2: STRATEGIC MANAGEMENT**

**Course Outcomes:** After completing this course students will be able to understand a) Strategic management concepts b) Tools and Techniques for Strategic analysis c) Strategies for competing in globalised markets d) Strategy Evaluation and Control.

### **PAPER 4.3: ENTERPRISE RESOURCE PLANNING**

**Course Outcomes:** After Completing this course a student can  
a. understand different Types of ERP  
b. attain good knowledge of ERP Modules and ERP Implementation and maintenance.



- c. Get the practical knowledge on General Ledger, Accounts Payables, Accounts Receivables, Asset Accounting and Elementary Aspects by using Oracle Apps
- d. Get the practical knowledge in keeping business accounts by using Tally
- e. Get the knowledge on ERP Systems Auditing.

#### PAPER 4.4 (F1): INTERNATIONAL FINANCIAL MANAGEMENT

**Course Outcomes:** After completing this course a)The student will have an understanding of the International Financial Environment. b) The student will learn about the foreign exchange market, participants and transactions and how to determine the foreign exchange rates in long and short run. c) The student will be able to use derivatives in foreign exchange risk management. d) The student will be able to evaluate the Firm's Exposure to risk in International environment and various theories associated with it.

#### PAPER 4.5 (F2): CORPORATE TAX PLANNING AND MANAGEMENT

**Course Outcomes:** After completing this course, the students are able to:

- a) Understand the basics of corporate taxation and Exempted incomes and Tax free incomes with special reference to corporate sector.
- b). Calculate taxable income of a corporate assesses
- c). Understand deductions and calculation of tax liability of companies
- d). Know the Assessment of other Taxes like Security Transaction Tax – Tonnage Tax – Banking Cash Transaction Tax – Fringe Benefit Tax.
- e) Get the knowledge on Tax Planning and Management with reference to Financial Management Decisions

#### PAPER: 4.4 (A1) :ADVANCED CORPORATE ACCOUNTING

**Course Outcomes:** After completion of the course, student will be able to: a) Prepare of Consolidated balance sheet and profit and loss account according to AS-21; b. Prepare Investment Accounts according to AS-13 c) acquire the knowledge on lease conditions and prepare Lease Accounts and d) get the knowledge on Accounting for Packages and Containers. e) . Convert the trial balance of foreign branches and prepare the of final accounts as per provisions of Indian accounting standard

#### PAPER: 4.5 (A2) :ADVANCED COST ACCOUNTING AND CONROL

**Course Outcomes:** After completing this course student can able to: a) get the significance of ABC and preparation of accounts b) know that preparation of various service organizations accounts c) know the uniform costing And preparation of IFC accounts d) calculate the transfer pricing accounts e) get the calculations of various techniques of cost control

#### PAPER: 4.4 (M1) : MARKETING 1. SUPPLY CHAIN MANAGEMENT

**Course Outcomes:** Students will be able to understand a) growing importance of Supply Chain

Management b) SCM Costs and Performance c) Benchmarking in SCM d) Sourcing and transportation e) Global aspects in SCM

#### 11.PAPER: 4.5 (M2) : CUSTOMER RELATIONSHIP MANAGEMENT

**Course Outcomes:** Students will be able to understand a) need of CRM b) building customer relations

c) CRM process d) CRM structures e) Planning and Implementation of CRM.

## 4. FACULTY OF MANAGEMENT



**TELANGANA UNIVERSITY**  
**DICHPALLY, NIZAMABAD – 503 322**  
**DEPARTMENT OF BUSINESS MANAGEMENT**  
**OUTCOME, STRUCTURE & OBJECTIVES -**  
**MASTER OF BUSINESS ADMINISTRATION (5 YEARS INTEGRATED)**

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**COURSE OUTCOME**

The Telangana University MBA program objective is to educate and prepare a diverse group of students with the knowledge, analytical ability and Management Perspective with skills needed to provide leadership to organizations in competing world. Students acquire a comprehensive foundation in the fundamentals of Business and the analytical tools for Intelligent Decision Making and also drive the rural youth towards entrepreneurship.

**COURSE STRUCTURE**

**1<sup>st</sup> Semester:**

<b>Subject Code</b>	<b>Subject Title</b>	<b>Nature of the Course</b>	<b>No. of teaching Hours per week</b>	<b>Max. Marks (IA + UE)</b>	<b>No. of Credits</b>
1.1	English Part-I		4	30+70	4
1.2	Second Language Part-I		4	30+70	4
1.3	Introduction to Information Technology	<b>Ability Enhancement – Compulsory</b>	4	30+50	3
	1.3.1 Introduction to Information Technology Lab		2	20	1
1.4	Financial Accounting-I	<b>Core Discipline</b>	4	30+70	4
1.5	Principles of Management	<b>Core Discipline</b>	4	30+70	4
1.6	Business Ethics and Corporate Governance	<b>Elective Course – Generic /Interdisciplinary</b>	4	30+70	4
1.7*	Environmental Studies	<b>Skill Enhancement Course</b>	2	10+40	2
	Total		28	650	26

**2<sup>nd</sup> Semester:**

<b>Subject Code</b>	<b>Subject Title</b>	<b>Nature of the Course</b>	<b>No. of teaching Hours per week</b>	<b>Max. Marks (IA + UE)</b>	<b>No. of Credits</b>
2.1	English Part- II		4	30+70	4
2.2	Second Language Part-II		4	30+70	4
2.3	Business Communication and Soft skills	<b>Ability Enhancement – Compulsory</b>	4	30+50	3
	2.3.1 Soft skills (Lab)		2	20	1
2.4	Financial Accounting-II	<b>Core Discipline</b>	4	30+70	4
2.5	Business Environment	<b>Core Discipline</b>	4	30+70	4
2.6	Organisational Behaviour	<b>Elective Course – Generic/Interdisciplinary</b>	4	30+70	4
2.7*	Gender Sensitization	<b>Skill Enhancement Course</b>	2	10+40	2
	Total		28	650	26

**3<sup>rd</sup> Semester:**

<b>Subject Code</b>	<b>Subject Title</b>	<b>Nature of the Course</b>	<b>No. of teaching Hours per week</b>	<b>Max. Marks (IA + UE)</b>	<b>No. of Credits</b>
3.1	English Part–III		4	30+70	4
3.2	Second Language Part-III		4	30+70	4
3.3	E-Commerce Application	<b>Ability Enhancement – Compulsory</b>	4	30+50	3
	3.3.1 E-Commerce		2	20	1

	Application Lab				
3.4	Basics of Marketing	<b>Core Discipline</b>	4	30+70	4
3.5	Business Statistics	<b>Core Discipline</b>	4	30+70	4
3.6	Basics of Entrepreneurship Development	<b>Elective Course – Generic /Interdisciplinary</b>	4	30+70	4
3.7*	Personality Development and Communication Skills	<b>Skill Enhancement Course</b>	2	10+40	2
	Total		28	650	26

#### 4<sup>th</sup>Semester:

Subject Code	Subject Title	Nature of the Course	No. of teaching Hours per week	Max. Marks (IA + UE)	No. of Credits
4.1	English Part-IV		4	30+70	4
4.2	Second Language part-IV		4	30+70	4
4.3	Management Information System	<b>Ability Enhancement – Compulsory</b>	4	30+50	3
	4.3.1 MIS LAB		2	20	1
4.4	Fundamentals of Financial Management	<b>Core Discipline</b>	4	30+70	4
4.5	Banking and Insurance	<b>Core Discipline</b>	4	30+70	4
4.6	Basics of Production and Operation Management	<b>Elective Course – Generic /Interdisciplinary</b>	4	30+70	4
4.7*	Event Management	<b>Skill Enhancement Course</b>	2	10+40	2
	Total		28	650	26

**5<sup>th</sup> Semester:**

<b>Subject Code</b>	<b>Subject Title</b>	<b>Nature of the Course</b>	<b>No. of teaching Hours per week</b>	<b>Max. Marks (IA + UE)</b>	<b>No. of Credits</b>
5.1	Fundamentals of Technology Management	<b>Ability Enhancement – Compulsory</b>	4	30+70	4
5.2	Human Resource Management	<b>Core Discipline</b>	4	30+70	4
5.3	Elements of project Management	<b>Core Discipline</b>	4	30+70	4
5.4	Research Methods for Managers	<b>Core Discipline</b>	4	30+70	4
5.5	Elective -I Financial Institutions & Markets(F) Marketing of Services (M) .Change Management(HR)	<b>Discipline Specific Elective</b>	4	30+70	4
5.6	Elective -II Investment Management(F) CRM & Retail Management(M) Industrial Relations(HR)	<b>Discipline Specific Elective</b>	4	30+70	4
5.7	Healthcare Management	<b>Skill Enhancement Course</b>	2	10+40	2
5.8	Introduction to GST	<b>Generic Elective</b>	<b>2</b>	<b>10+40</b>	<b>2</b>
	<b>Total</b>		<b>28</b>	<b>700</b>	<b>28</b>

**6<sup>th</sup>Semester:**

<b>Subject Code</b>	<b>Subject Title</b>	<b>Nature of the Course</b>	<b>No. of teaching Hours per week</b>	<b>Max. Marks (IA + UE)</b>	<b>No. of Credits</b>
6.1	Project Work	<b>Ability Enhancement – Compulsory</b>	4	50+50	4
6.2	Total Quality Management	<b>Core Discipline</b>	4	30+70	4
6.3	Basics of Strategic Management	<b>Core Discipline</b>	4	30+70	4
6.4	Element of Direct Taxes	<b>Core Discipline</b>	4	30+70	4
6.5	Elective- III Fundamentals of financial Analytics(F) Consumer Behaviour(M) Performance Management (HR)	<b>Discipline Specific Elective</b>	4	30+70	4
6.6	Elective- IV Business Taxation (F) Advertising & Sales Promotion(M) Talent Management(HR)	<b>Discipline Specific Elective</b>	4	30+70	4
6.7	Tourism and Hospitality Management	<b>Skill Enhancement Course</b>	2	10+40	2
6.8	Basics of Start-Ups	<b>Generic Elective</b>	<b>2</b>	<b>10+40</b>	<b>2</b>
	Total		28	700	28

**7<sup>st</sup> Semester:**

<b>Subject Code</b>	<b>Subject Title</b>	<b>Nature of the Course</b>	<b>No. of Teaching Hours per week</b>	<b>Max. Marks (IA + UE)</b>	<b>No. of Credits</b>
7.1	Management Theory & Practice(MTP)	<b>Core Discipline</b>	04	30+70=100	04
7.2	Managerial Economics (ME)	<b>Core Discipline</b>	04	30+70=100	04
7.3	Accounting for Managers (AM)	<b>Core Discipline</b>	05	30+70=100	05
7.4	Business Communication (BC) (3+2)	<b>Skill Enhancement course</b>	03	30+50=80	05
	7.4.1.Soft skills (Lab)		02	20	-
7.5	Statistics for Management(ST.M)	<b>Ability Enhancement-Compulsory</b>	05	30+70=100	05
7.6	<b>Open Elective:</b>	<b>Open Elective</b>			
	1. T.Q.M		04	30+70=100	04
	2. W.T.O & I P R		04	30+70=100	04
	3. Cross Culture Management (CCM )		04	30+70=100	04
	4. Fundamentals of Business Analytics (FBA)		04	30+70=100	04
	Total		<b>27</b>	<b>600</b>	<b>27</b>





**8<sup>th</sup>Semester:**

<b>Subject Code</b>	<b>Subject Title</b>	<b>Nature of the Course</b>	<b>No. of Teaching Hours per week</b>	<b>Max. Marks (IA + UE)</b>	<b>No. of Credits</b>
8.1	Contemporary Marketing Management (CMM)	<b>Core Discipline</b>	04	30+70=100	04
8.2	Contemporary Human Resource Management (CHRM)	<b>Core Discipline</b>	04	30+70=100	04
8.3	Managerial Finance(MF)	<b>Core Discipline</b>	05	30+70=100	05
8.4	Business Research Methods (BRM)	<b>Ability Enhancement-Compulsory</b>	04	30+70=100	04
8.5	Information Technology For Managers (3+2)	<b>Skill Enhancement course</b>	03	30+50=80	05
	8.5.1. IT For Managers LAB		02	20=20	-
8.6	<b>Open Elective:</b> 1. Project Management (PM)	<b>Open Elective</b>	05	30+70=100	05
	2. M.S. M. E		05	30+70=100	04
	3. Advanced Excel (AE) a) Advanced Excel Lab		03 02	30+50=80 20=20	05
	4. Corporate Social & Environmental Responsibility (CSER)		05	30+70=100	05
<b>Total</b>			<b>27</b>	<b>600</b>	<b>27</b>

**9<sup>th</sup>Semester:**

<b>Subject Code</b>	<b>Subject Title</b>	<b>Nature of the Course</b>	<b>No. of Teaching Hours per week</b>	<b>Max. Marks (IA + UE)</b>	<b>No. of Credits</b>
9.1	Production & Operations Management (POM)	<b>Core Discipline</b>	05	30+70=100	05
9.2	Organizational Behaviour Theory & Practice (OBTP)	<b>Core Discipline</b>	04	30+70=100	04
9.3	Operations Research for Managers (ORM)	<b>Ability Enhancement - Compulsory</b>	05	30+70=100	05
9.4	Strategic Management (SM)	<b>Core Discipline</b>	04	30+70=100	04
9.5.1	<b><u>Electives</u></b> <b><u>Finance</u></b> a) Security Analyses And Portfolio Management (SAPM)	<b>Electives</b>	05	30+70=100	05
	b) Management Of Financial Services (MFS)		04	30+70=100	04
9.5.2	<b><u>Marketing</u></b> a) Product & Brand Management (PBM)		05	30+70=100	05
	b) Consumers Behavior (CB)		04	30+70=100	04
9.5.3	<b><u>Human Resource Management</u></b> a) Organizational Development & Change Management (ODCM)		05	30+70=100	05

	b)Recruitment & Selection (RS)		04	30+70=100	04
9.5.4	<b><u>Information Technology</u></b> a) Concept of ERP (Enterprise Resource Planning)		04	30+70=100	04
	b) Management Information system (3+2)		03	30+50=80	05
	9.5.4 (b1) MIS Lab		02	20	-
<b>Total</b>			<b>27</b>	<b>600</b>	<b>27</b>

### 10<sup>th</sup> Semester:

Subject Code	Subject Title	Nature of the Course	No. of Teaching Hours per week	Max. Marks (IA + UE)	No. of Credits
10.1	International Business (IB)	<b>Core Discipline</b>	04	30+70=100	04
10.2	Practical Entrepreneurship (ED)	<b>Core Discipline</b>	04	30+70=100	04
10.3	Cost and Management Accounting (CMA)	<b>Core Discipline</b>	05	30+70=100	05
10.4	Project Work (PW)	<b>Core Discipline</b>	05	50+50=100	05
10.5.1	<b><u>Electives Finance</u></b> a)Financial Derivatives (FD) b) Risk Management (RI. M)	<b>Electives</b>	05	30+70=100	05
			04	30+70=100	04
10.5.2	<b><u>Marketing</u></b> a) Services Marketing (SRV. M) b)Retailing Management (RT.M)		05	30+70=100	05
			04	30+70=100	04
10.5.3	<b><u>Human Resource Management</u></b> a) Performance Management (PM) b)Training & Development (TD)		05	30+70=100	05
			04	30+70=100	04
10.5.4	<b><u>Information Technology</u></b> a) E-Commerce b) E – Accounting(3+2)		04	30+70=100	04
			03	30+50=80	05
	10.5.4 (b1) E – Accounting Lab		02	20=20	-

<b>Total</b>		<b>27</b>	<b>600</b>	<b>27</b>
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## **COURSE OBJECTIVE**

### **1<sup>st</sup> Semester:**

#### **1.1: English Part-I**

#### **1.2: Second Language Part-I**

#### **1.3: Introduction to Information Technology**

Upon successful completion of

1. Unit-I-The students will be able to identify the parts of computer system.
2. Unit-II-T the students will learn about Text formatting tools, Macro and Mail merge in MS-Word.
3. Unit-III-The students will understand about Spreadsheet Features, Cell addressing, Auto fill, Charts and Formulas in MS-Excel.
4. Unit-IV-The students will learn to create Slideshow with different effects in MS-PowerPoint.
5. Unit-V-The students will be able to create Tables, query, Reports and Forms in MS-Access.

#### **1.3.1: IIT Lab**

Upon completion of IIT lab the students will learn about

1. Internal and External Commands of MS-DOS.
2. Text formatting tools, Macro and Mail merge in MS-Word.
3. Working with Spread sheets, Creating Charts and applying Functions.
4. Creating a PPT and applying animations.
5. Creating Database, queries, reports and Forms using MS-Access.
6. Surfing for required website and downloading files from websites.

### **1.4: Financial Accounting-I**

UNIT–I-This chapter helps in learning the basic concepts of accounting discipline in the students.

UNIT–II-This chapter helps in learning and understanding the uses of accounting information to the different parties

UNIT–III-This chapter helps students to learn the process of preparing and arriving at the profit or loss made by the company. It helps to understand the financial position of the concerned company.

UNIT–IV-This chapter helps students to learn the uses and methods of depreciation. It helps students to understand the impact of depreciation on the business income.

UNIT–V-This chapter teaches students to understand the financial statements with different perspectives. It helps students to analyze and understand the relationship between different Items of financial statements. On learning this chapter, the student will be able to write about the performance of the concerned company's financial statement accurately.

### **1.5: Principles of Management**

UNIT-I-To enable the students to understand the fundamental principles of management and it explain the concepts of management and its managerial perspective, Nature of Management, Nature and Importance, Functions of management, Roles of Manager. They will gain knowledge of Evolution of Management Thoughts.

UNIT-II-To understand management and various approaches like Planning, Nature and Importance, planning types, steps and limitations. To map complex managerial aspects arising

due to ground realities of an organization Decision making and Types, Process of rational decision making to resolve those issues in organization Techniques of decision making

UNIT-III-To enable students to apply the practices of management in Organizing, They learn organization Concept, Nature, Process, Purpose and Significance Authority and Responsibility. It will equip students to map complex managerial aspects learning about Delegation of Authority, Centralization and Decentralization, Departmentalisation, bases of Departmentalisation.

UNIT-IV-To understand in organization Staffing, Directing, and importance of Recruitment and Selection, training and development. They understand Motivation styles, Leadership and styles, organization in communication process.

UNIT-V-To learn Concept of Controlling, Effective of Controlling, Types of Control, Techniques, traditional and modern Coordination.

### **1.6.: Business Ethics and Corporate Governance**

UNIT-I- To understanding Business Ethics, Principles of Modern Ethics Programme in Business, Benefits of Business Ethics

UNIT-II-To learn Concept of Social Responsibility of Business, Responsibility to Shareholders- Responsibility to Employees, Consumers and Community.

UNIT-III- To learn theories underlying Corporate Governance Mechanism, Anglo-American Model, German Model, Japanese Model - Indian Model , Role of Board of Directors, Auditors and Government.

UNIT- IV-The understand Concept of Human Values, Self-Introspection - Self Esteem. The Indian Ethos, Value Systems and Managerial Excellence through Values.

UNIT-V-To learn Integrating Business Ethics, Business Values, Holistic approach for Managers, Role of Government in Enforcing Ethical Behaviour, Business Law and Ethical Behaviour.

### **1.7: Environmental Studies**

Unit-I-To learn of Environmental Studies Ecosystem, Biodiversity and Natural Resources, Biotic components Producers, Consumers, Decomposers, food chains, Food webs, ecological Pyramids, Renewable and non-renewable resources,

Unit-II- Creating environmental consciousness among students Environmental, Pollution, Global Issues and Legislation

## **2<sup>nd</sup> Semester:**

### **2.1: English Part- II**

### **2.2: Second Language Part-II**

### **2.3: Business Communication and Soft skills**

The first unit introduces the concepts of communication. This unit is intended to help the students understand the techniques of effective communication.

The aim of the second unit is to help the students of business management develop their oral and written communication skills. This unit throws light on the concepts of body language and paralanguage in order to enable the students understand the significance of non verbal communication in business.

The third unit is purely practical in nature and helps the students hone their skills in the areas such as business letter writing, case analysis and report writing.

The employment related communication and the modalities of the business meetings are stressed upon in the fourth unit to facilitate the students learn the nuances of conducting meetings in the corporate world.

The fifth unit is aimed at helping the students develop their personality traits and presentation skills which are mandatory for a business manager in the competitive world.

### **2.3.1 Soft skills (Lab)**

Students will be able to know about Business letter & Business Proposal and acquire the soft skills through participating in Group Discussion, Mock interview and JAM session.

## **2.4: Financial Accounting-II**

Unit-I-Studying this chapter helps students in understanding the relationship between different items of financial statements. It helps in analyzing the profitability, Liquidity, turnover and solvency position of by studying the financial statements.

Unit –II-Studying this chapter helps to learn and understand the changes in items of financial position between two different Balance sheet dates showing clearly the different sources and applications of funds. It helps students to understand specific utilization of funds.

Unit III-This chapter helps students to learn the current information on cash inflow and outflow of any accounting period by way of operating activities, investing activities and financing activities.

Unit –IV-This chapter helps students in learning the accounting procedure for Issue of shares and its different cases of a limited company in a detailed manner.

Unit –V-This chapter helps students to learn and understand the preparation of final account of a company in a prescribed proforma.

## **2.5: Business Environment**



UNIT -I- To learn Business Environment and Environment Elements

UNIT -II- To understand Elements and system of Economic Environment- New Industrial Policy, Impact of Liberalization, Privatization and Globalization on Indian Business.

UNIT-III-To understand Political Institutions of Legislature, Executive, Judiciary. The knowledge about The Constitution of India and the Fundamental Rights

UNIT –VI- To understand Socio-Cultural Environment and Social Responsibility of Business

UNIT –V- To learn Technological Environment, Technology Policy of India, Institutions and Other Facilities for Promotion of Science and Technology in India.

## **2.6: Organisational Behaviour**

The first unit helps the student to gain basic knowledge about Organizational Behaviour, and its concepts, features of Organization Behaviour.

The second unit studies about Individual Behaviour in organization & personality, it also discuss about the personality traits, perception, factors affecting perception. Learning in organization and social learning.

The main objective of the third unit is Group Dynamics. It discuss about the concept of group dynamics, features of group behaviour, types of group behaviour & stages of group development.

The fourth unit discuss about the Motivation and Leadership in organization. It studies about Theories of motivation like Maslow's Hertzberg, Mc Greger, X and Y theory. It also discuss about the leadership theories and types like Trait theory, Michigan studies, & leadership styles.

The objective of fifth unit is to study about the Organizational Conflict. It discuss about the types of conflicts in organization, conflict resolution process, resistance to change & management of change in organization.

## **2.7: Gender Sensitization**

Unit-I- To learn about Gender, Gender Spectrum of Biological, Sociological, Psychological Conditioning and Gender Based division of Labour.

Unit-II- To understand Gender Contemporary Perspectives like Gender Justice and Human Rights, Constitutional and Perspectives and Media and Gender issues.

## **3<sup>rd</sup>Semester:**

### **3.1: English Part-III**

### **3.2: Second Language Part-III**

### **3.3: E-Commerce Application**

Upon successful completion of

1. Unit-I-The students will learn about E-Commerce and Internet fundamentals.
2. Unit-II-The students will understand about Electronic Market and models of E-Market.
3. Unit-III-The students will learn about EDI and Electronic Payment system types.
4. Unit-IV-The students will be able to create Web pages using HTML.
5. Unit-V-The students will learn to create Web pages with Lists, Frames and Hyper links using HTML.

### **3.3.1 E-Commerce Application Lab**

Upon completion of E-Commerce Application lab the students will learn to

1. Create WebPages with Tables, Lists, Forms, Frames, and Hyperlinks using HTML.

### **3.4: Basics of Marketing**

Unit-1- Helps to understand the concept of Marketing, Types of Markets, and role of Marketing in Business.

Unit-2- Enhances the student knowledge on process of Marketing, Micro and Macro Environmental factors of Marketing affecting the Business Organizations.

Unit-3- Imparts the student knowledge on Market segmentation, Bases used for Market segmentation, Target Marketing and the strategies for Product positioning.

Unit-4- Student gains the knowledge on consumer Behaviour, Factors influencing Consumer Behaviour and Consumer Decision Making Process.

Unit-5- Able to understand the student on Demand measurement and methods of sales forecasting.

### **3.5: Business Statistics**

UNIT-I-To enable students to understand and acquire knowledge and skills in statistics for solving business problems, Introduction to Statistics, Scope and Limitations of Statistics, Role of Statistics in Managerial Decisions, Types and sources of Data-Classification of data, presentation of data, graphic and tabulation, Frequency distribution.

UNIT-II-To understand the measurement systems, variability, control processes for summarizing data. Measures of Central Tendency, Mean, Mode, Median, Geometric and Harmonic Mean, Measures of Dispersion, Range, Quartile Deviation, Mean Deviation, Standard Deviation, Co-efficient of Variation- Skewness, Bowley and Karl Pearson's methods.

UNIT- III-To familiarize the students with the basic concepts of Theory of Probability, Classical Approach, Relative Frequency Approach, Subjective Approach, Probability Theorems, Addition, Multiplication and Conditional Probabilities, Bayes' Theorem-Theoretical Distributions, Normal, Binomial and Poisson Distribution.

UNIT-IV-Student will be able and learn to make data-driven decisions of Sampling, Methods of Sampling, Testing of Hypothesis, Type-I and Type - II errors, Parametric and Non-parametric tests.

UNIT-V-To learn Correlation, Regression and Time series Analysis, Correlation: Karl Pearson's and Spearman's methods, Regression Analysis, Index Numbers, Time Series: Time Series and its Components- Models of Time Series- Measurement of Trend, Moving Averages, Least Squares Method .

### **3.6: Basics of Entrepreneurship Development**

From first unit students will be enriched with the concept of entrepreneurship, characteristics of entrepreneurship, how the functioning and what are barriers of it.

In second, students will get the knowledge of entrepreneurship theories to tackle the entrepreneurial issues.

From third unit, the students will learn the how to make marketing plans, industry analysis, how to do market research and preparation of marketing plans.

From fourth unit the students will get the knowledge of how to conduct entrepreneurship development programmes, what are the objectives and training methods.

The unit five will helps to the students to identify the financing institutions like, SIDBI, NABARD and NSIC for entrepreneurs.

### **3.7: Personality Development and Communication Skills**

In unit one, students will be enriched the basic knowledge of English like, tenses, communication skills, interpersonal skills, speaking skills and writing skills.

From unit second, students will acquire the knowledge of soft skills for personality development like, body language, time management, emotional intelligence and problem solving skills.

## **4<sup>th</sup>Semester:**

### **4.1: English Part-IV**

### **4.2: Second Language part-IV**

### **4.3: Management Information System**

To equip the students about Information system, framework of IS and the concept of system in unit one. The need, purpose and objectives of MIS and the use of Information as an instrument for organization will be covered in unit two. Students will enhance and learn the application of

software's in business scenario of real time experiences such as sales and distribution, material management ,financial controlling in unit three. System development life cycle and the different software's packages used by the clients in real time business scenario would be the outcome of unit four. Security issues in software, risks and threats and to protect Information system gives the practical knowledge transfer from unit five.

#### **4.3.1: MIS LAB**

Students can learn creation of Company, Preparation of balance sheet, and preparation of budget, payroll setup, employees Database and Salary administration

#### **4.4: Fundamentals of Financial Management**

To provide the nature and basic knowledge of Financial Management, principles and objectives, Profit Maximization and Time value of Money in unit one. The fundamentals of capital budgeting, selection of projects and NPV method are covered in unit two. Unit three makes the student to learn financial planning and capital structure theories. Students learn about the dividend theories after completion of fourth unit. Unit five will emphasize the students to know about working capital requirements in the form of theory only.

#### **4.5: Banking and Insurance**

Students will understand the financial services which is the backbone of any organization and also the structure of financial system in unit one. Unit two makes the students to learn about the banking institutions, functions of RBI, difference between public and private banks. To equip the students about the concept of evolution of banking and operational policies in banking in unit three. Unit four acknowledges about the insurance, principles and types of insurance and the challenges faced by the sectors. Students will also learn about the different insurance companies, structure of the investment pattern and the role of IRDA will be the outcome of unit five.

#### **4.6: Basics of Production and Operation Management**

To understand the concept of production and operation management and the objectives at firm level in unit one. Unit two elucidates to students about production planning and control, nature and the factors affecting the productions similarly the advantages and disadvantages in the production management. Plant location, layout and types of layout and the factors influenced in plant layout are learned after completion of unit three. Unit four covers about the work

measurement study and the techniques of work measurement. Project management and types of projects, feasibility study of projects and the detailed project report are learned by students after completion of unit five.

#### **4.7: Event Management**

To understand the importance of event management , roles of event managers , strength and weakness of the event management and the types of events which are comprehended in emerging trends of event management are learned after completion of unit one. Unit two makes the students to learn the involvement in need and wants of the event and the agreements with the clients based on the event whichever is committed with the service providers.

### **5<sup>th</sup> Semester:**

#### **5.1: Fundamentals of Technology Management**

To equip the students with introduction, definition and scope of Technology management at firm level and national level in unit one. Second unit will enhance about the technology planning and strategy, forecasting of technology and exploitation of technology. Life cycle of technology and the concept, basic benefits of management at firm level are incorporated for students to learn in unit three. Unit four gives an opportunity to students about innovation in technology management and transfer of technology, domestic and international level at incubation centers. Role of government in science and technology, policy making and reforms in policy making for India are learned after completion of unit five.

#### **5.2: Human Resource Management**

To understand the various facets of Human resource management in unit one. Unit two makes the students to learn about human resource planning, job analysis and job description and current trends in recruitment at basic level. Selections, interviews, orientation of new employees and providing the training are learned after the completion of unit three. Needs and importance of performance appraisal and importance of grievance mechanism are comprehended in unit four. Students come to know the challenges in HRM, types of stress causes and consequences of work stress, retention of employees, the problems and solutions are the outcome of unit five.

#### **5.3: Elements of project Management**

The concept of project, need and importance of project management and project life cycle will be well understood by the students in unit one. Project identification, project formulation and project planning process will be learned by the outcome of unit two. From unit three the students gain about the network techniques , PERT and CPM, probability of completing the project and

the schedule. After completion of unit four the students will be clear about project implementation, evaluation process and project termination. To enable the students about project financing, project appraisal process, technically, economically, social industrial projects are the outcome of unit five.

#### **5.4: RESEARCH METHODS FOR MANAGERS**

Students will be enriched about Research, meaning of research, scope and types of research after completion of unit one. Students are instructed to be attentive in identifying the research problems faced in the society and a theoretical framework and measurement techniques of scaling are covered in unit two. After completion of unit three, students will learn about Hypothesis, sampling design and types of sample design and data collection which is a life line of research. Unit four will give immense knowledge about construction of a questionnaire for research. Pilot study, tabulation of data and analysis, tests of significance. Unit five gives knowledge about report writing, types of reports, appendix and bibliography which are basically called as life line for any research.

#### **5.5: Elective –I**

##### **Financial Institutions & Markets (F)**

Unit one is briefed to students about Indian financial system, the functions and role of RBI and also explained about SEBI. Students learn about banking institutions, the concept and evolution of public and private sector banks and the functions, activities in the institutions are the outcome of unit two. Growth of mutual funds, insurance companies and the role of IRDA are the outcome of third unit. Unit four gives the knowledge about primary securities market, treasury bill market, and about merchant banking. However secondary securities market like listing, trading and settlements problems and prospects of Indian secondary market are the outcome of unit five.

##### **Marketing of Services (M)**

Students will learn the basic importance of service, definition, nature and scope of service sector in unit one. Unit two is briefed about classification of services, marketing mix, and segmentation, measuring the service quality is one of the top priorities for any services which is being covered in unit three. Positioning of services, pricing of services, methods and service marketing communication is well explained to students in unit four. However services marketing, at health, tourism, education, and entertainment sectors are the outcome of unit five.

##### **Change Management (HR)**

Students will learn about the introductory part of change management, an overview and need for change in unit one. Unit two will make to learn about the types of changes happen in the organization, such as incremental change, radical change, directive change and change levels. Change management and models, sources of changes- planning and implementing change are covered in unit four. The outcome of fifth unit is change leading to organizational development.

## **5.6: Elective -II**

### **Investment Management (F)**

Students will be enriched about investment, objectives and characteristics, types of investors and process in unit one. Securities market like primary and secondary market, functioning of stock exchange and types of stock market will be clear from the concept of security markets from unit two. Unit three will make students to understand about analysis part like fundamental and technical analysis, economic, industry, company analysis. Measurement of risk and return systematic and unsystematic risk, calculation of risk and returns by solving problems will be the outcome of unit four. Portfolio evaluation, Jensen's shape and Treynor's model are being explained in unit five.

### **CRM & Retail Management (M)**

To acquaint the student about retail, meaning and functions of a retailer, evolution of retail in India and types of retailing are shared in unit one. Unit two is briefed about evolution of retail formats. The concept of life cycle in retail, retailing and customers, demographic data, life style changes and behaviour of a customer are explained in unit three. Meaning, need and benefits of CRM are covered in fourth unit. CRM applications at consumers end and business markets, features and benefits are the outcome of unit five.

### **Industrial Relations (HR)**

Students will acquire the basic knowledge of Industrial relations. Meaning and the characteristics, factors affecting IR in unit one. Unit two will give the knowledge about principles of sound IR, importance, objectives and scope of IR. Three factors of IR and functions of IR are discussed in unit three. IR policies, impact of trade union in IR are covered under unit four. Disputes- causes in Industrial dispute settlement are the outcome of unit five.

## **5.7: Healthcare Management**

Skill enhancement paper will give exposure to students regarding concepts of health and disease, disease control and levels of prevention are covered in unit one. Unit two will bring out the students about the development of Hospital, classification and hospital administration.

## **5.8: Introduction to GST**

Students will be very clear about the overview of GST, implementation, liability of Tax player and GST-network after completion of unit one. Unit two will give a brief note of Levy of GST-composition scheme at basic level.

## **6<sup>th</sup>Semester:**

### **6.1: Project Work**

Students should undertake the project internship during the summer vacation for six weeks of duration intervening between second and third year of BBA. The project work usually consists of selecting a topic/problem/theme in any area of management. The project work is to be undertaken under the supervisor of the faculty member.

### **6.2: Total Quality Management**

To acquire the basic knowledge about principles and practices of TQM from unit one. Unit two will have a brief discussion with students regarding principles and practices of TQM. Tools and techniques of ISO registration which is very important to students to learn about the quality work and the ISO series standards are discussed in detail unit three. Tools and techniques used in TQM are briefed to students in unit four. Management tools, tree diagram and other statistical process will be the outcome of unit five.

### **6.3: Basics of Strategic Management**

Students will have a basic knowledge of an business entities, what is vision, mission, objective from unit one. Unit two gives the insights of analysis of competitors, advantages and about core competencies. Basic knowledge of types of strategies and strategic alliance will be ruled out from unit three. Types of strategies to be followed at different types of industries are cleared to students from unit four. Familiarity about strategy implementation and formulation are the outcome of unit five.

### **6.4: Element of Direct Taxes**

Students will be enhanced by the basic knowledge about Direct taxes, features, concepts ,PAN and income tax rates in India from unit one. Unit two will share about the income from salary, allowances, savings and provident funds, computation of salary. Income from house property, deemed ownership and computation of house property are the outcome of unit three. Income from other sources, interest on securities is the outcome of unit four and five.

### **6.5: Elective- III**

#### **Fundamentals of financial Analytics (F)**

To provide the students with concept of financial analytics, definition and scope in unit one. Unit two will brief the students at fundamental level about financial time series and their characteristics. Unit three throws the insight of the capital asset pricing model. High frequency data analysis and market microstructure are the outcome of unit four. Modelling, credit risk and interest rate swaps are explained in unit five.

#### **Consumer Behaviour (M)**

Students will learn an overview of consumer behaviour and models from unit one. Unit two briefs about the environmental influences on consumer behaviour. Third unit will enhance students about the consumer buying behaviour and life styles of consumer. Strategic marketing



applications and segmentation strategies, NPD, Positioning strategies are clear in unit four. Global consumer behaviour and online buying behaviour are the outcome of unit five.

### **Performance Management (HR)**

Students will acquire the basic knowledge of measuring performance and principle of measure after completion of unit one. Unit two gives conceptual approach to performance management. Roles of personality factors in job performance are covered in unit three. Developing and designing performance management systems are discussed in unit four. HR decisions and performance improvements are the final outcome of unit five

### **6.6: Elective- IV**

#### **Business Taxation (F)**

Students will acquire the basics of Indian tax system and the concepts from unit one. Structure and scope of Indian Income tax Act are learned from unit two. Unit three makes very clear to students about heads of income. Corporate taxation are the outcome of unit four and five.

#### **Advertising & Sales Promotion (M)**

From unit one students will learn the importance of advertising and objectives of advertising. Different advertising agencies features and functions will make the students to learn from unit two. Unit three makes students to understand the outcome of advertising layout functions and types. Sales promotion and methods are the insights of unit four. Sales force management is the outcome of unit five for students.

#### **Talent Management (HR)**

Unit one will help the students to understand about talent management, introduction and the objectives. Talent acquisition, recruitment process will make students to learn in HR. Unit three makes students clear about employee engagement. E-recruitment and other sources. Emerging trends in HR are the outcome of unit five.

### **6.7: Tourism and Hospitality Management**

Students will have knowledge about Tourism Industry scope and importance, travel and transport, itinerary planning and development from unit one. Unit two will make students clear about the definition and scope of hotel industry, principles and concepts of hotel and its objectives.

### **6.8: Basics of Start-Ups**

Generic elective paper is a student driven paper where the students to get encouraged in to know about basic start ups, business incubation and the policy of Indian government on start ups. Start

up funding and MSME Act are the outcome of unit two in detail and as well as classification of MSME.

## **7<sup>th</sup> Semester:**

### **7.1: Management Theory & Practice (MTP)**

The aim of the first unit is to help the students to gain the basic knowledge of management, levels of management, managers, professional managers and their skills.

The second unit helps the students to analyses planning, planning steps, short & long range planning. It also helps for making strategies decisions & various decision making techniques.

The objective of third unit is to help students to understand organization & its structure and design. It also gives knowledge in delegation of authority and decentralization. It analysis impact of technologies on organizational design.

The fourth unit discuss about the overview of controlling, directing & staffing and their process was discussed.

The fifth unit discuss about comparative management style and approaches like, American Management practices, Japanese Management Practices, characteristics of effective & leadership and benchmarking.

### **7.2: Managerial Economics (M E)**

Students will be enriched about concepts of managerial economics like Opportunity Cost, Marginalism and Time value of money after completion of Unit one. What do consumers need and how much quantity will be clear from the concepts of demand and demand forecasting from Unit two. After completion of unit three students will be enriched with concepts of how much to produce and how much does it cost from the theory of production and cost analysis. How price is determined in different markets i.e Perfect competitive market, Monopoly and Monopolistic Competition will be the outcome of unit four. Unit five gives knowledge about Game Theory and its concepts to students.

### **7.3: Accounting for Managers (A M)**

Unit -I-This chapter helps in learning the basic concepts of accounting discipline in the students.

Unit –II-This chapter helps students to learn and understand the preparation of final account of a company in a prescribed proforma and according to the companies act.

Unit –III-Studying this chapter helps to learn and understand the changes in items of financial position between two different Balance sheet dates showing clearly the different sources and applications of funds. it helps students to understand specific utilization of funds.

Unit –IV-Studying this chapter helps to learn and understand the changes in items of financial position between two different Balance sheet dates showing clearly the different sources and applications of funds. it helps students to understand specific utilization of funds.

Unit –V-This chapter helps students to learn the current information on cash inflow and outflow of any accounting period by way of operating activities, investing activities and financing activities.

#### **7.4: Business Communications (B C)**

The first unit introduces the concepts of communication. This unit is intended to help the students understand the techniques of effective communication.

The aim of the second unit is to help the students of business management develop their oral and written communication skills. This unit throws light on the concepts of body language and paralanguage in order to enable the students understand the significance of non verbal communication in business.

The third unit is purely practical in nature and helps the students hone their skills in the areas such as business letter writing, case analysis and report writing.

The employment related communication and the modalities of the business meetings are stressed upon in the fourth unit to facilitate the students learn the nuances of conducting meetings in the corporate world.

The fifth unit is aimed at helping the students develop their personality traits and presentation skills which are mandatory for a business manager in the competitive world.

##### **7.4.1 Soft skills (Lab)**

Students will be able to know about Business letter & Business Proposal and acquire the soft skills through participating in Group Discussion, Mock interview and JAM session.

#### **7.5: Statistics for Management (ST. M)**

Unit-I- To learn the features, function and applications to practice the measures of central tendency.

Unit-II- To understand the testing of Hypothesis and sampling theory in detail.

Unit-III-To learn and practice the large sample tests and small sample tests.

Unit-IV- To learn and practice non-parametric tests.

Unit-V- To Understand the Business forecasting techniques namely correlation, Regression and Time series analysis.

### **7.6.1-Total Quality Management**

Unit-1: Helps the student to know about the, how do the quality of a product or service imparts Today's Business Organisations.

Unit-2: Provides the knowledge about Business Process Re-engineering, Quality Gurus, Supplier rating and also about Bench marking.

Unit-3: Enable the student about the Quality standards and IT relationship with Quality standards.

Unit-4: knowledge the student to understand tools and techniques of TQM and Quality Function Deployment.

Unit-5: Equip the student about Management tools of TQM like Forced field Analysis, SPC, Orthogonal Design and Process Decision Program Chart.

### **7.6.2: W.T.O & I P R**

Unit-1- Helps to understand the student about GATT, WTO, Uruguay Round, TRIPS &TRIMS.

Unit-2- Enhances the student knowledge about WIPO, Bern convention, Budapest treatyadrid, Hange agreement and UPOV.

Unit-3- Imparts the knowledge how does the patentable & Non patentable Inventions, commercial exploitations are important to the product survival.

Unit-4- Student gains the knowledge regarding the Design of the product, Geographical indication, Registration and also about the restrictions of IPR.

Unit-5- Able to understand the student about Trademarks, copy rights, and Infringement.

### **7.6.3: Cross Culture Management (CCM)**

Unit-1- Introduces the student the impact of culture for a Business context, Cross Culture Business Management and also highlight the cultural background of Business stakeholders.

Unit-2 -Understand the student the role of culture in Global Business Scenario and also the strategies for Indian MNC's and Foreign MNC's.

Unit-3- Student get the knowledge about the Cross culture, Negotiations and Decision Making in the aspect of Multicultural context.

Unit-4- Student understands Global Human Resource Management in terms of staffing, Training, Motivating and leading.

Unit-5-Student inculcates & interprets the knowledge about the corporate culture and also how to design a strategy for a cultural change building and successful Implementation of culture change phase.

#### **7.6.4: Fundamentals of Business Analytics (FBA)**

Unit-1-Student understands the Data Analytics, Decision Models, Data warehousing and also the Importance of Master Data Management.

Unit-2-Student knows How to make Decision, the process, and the types of Decision-making.

Unit-3-Student get the knowledge on Descriptive Statistics and it's applications.

Unit-4-Student gains the knowledge about cluster analysis, Multidimensional scaling and factor Analysis.

Unit-5-Student gets the knowledge about Project Management, Controlling techniques like PERTs and CPM.

### **8<sup>th</sup> Semester:**

#### **8.1: Contemporary Marketing Management (CMM)**

The first unit introduces the basic concepts of marketing to the students in order to familiarize the students with the marketing environment. This unit focuses on the basic elements of business such as needs and wants of the customers.

The 2nd unit is aimed at helping the students understand the concepts like marketing segmentation, Targeting and positioning. The students are able to fragment the market for various products and services, on their own to formulate marketing strategies related to Segmentation, Targeting and Positioning.

The core decision areas involved in the product such as product Life Cycle, Product line, pricing and product mix are discussed at length in the third unit. At the end of this unit the students will be able to design a strategic marketing Plan for products and services.

The fourth unit throws light on distribution channel and marketing communication. All the elements of communication mix are taught here in order to prepare the students to work effectively in advertising agencies and marketing consultancy firms.

The marketing research is included in the fifth unit gives a detailed note on marketing research taken up by the business organizations. The entire research process covered here helps the students to become researchers in the field of marketing.

## **8.2: Contemporary Human Resource Management (CHRM)**

The main objective of first unit is to help student in basic concepts of Introduction to HRM. It also describes the history of HRM, functions of HRM, emerging role of HRM and challenges of HR Professionals.

The second unit studies about the human resource planning, forecasted demand/supply. It also discuss about the job analysis & job design, its concepts, process and methods of job analysis, job description, job specification.

The third unit study's about the Human Resource Management and it gives an overview of recruitment, selection, interviews and placement. It also discuss about employee welfare measures, employee career management.

The objective of forth unit is to describe the employee Grievance and Grievance Handling process. It discusses about the disciplinary action, quality of work life, employee absenteeism, & trade unions.

The fifth unit study's about Stress, causes of stress. It mainly helps students to understand stress management techniques, talent management

## **8.3: Managerial Finance (MF)**

Unit-I- To Understand the overview of FM, Ethical and social responsibility and the role of Finance manager along with the concept time value of money.

Unit-II- To learn & practice the capital budgeting process and techniques and cost of capital

Unit-III- To learn capital structure theories, financial leverage and determine optimal capital structure.

Unit-IV- To Understand the Dividend decisions types and theories of dividend

Unit-V- To learn working capital management , policies including cash, receivables, Inventory, credit along with capital financing.

## **8.4: Business Research Methods (BRM)**

The concept of Research and its process as well as meaning of scientific research will be known to the students from unit one. Students will gain knowledge about the concepts of Hypothesis, measurement and scaling techniques from unit two. From Unit three students gain the knowledge about sampling, data collection and processing of data. After completion of unit four, statistical tools for data analysis will be clear for students. To enable the students to know about the report writing and its lay out in business and management research is the objective of designing unit five.

## **8.5: Information Technology for Managers**

Upon completion of

1. Unit-I -The students will be able to identify the types of software.
2. Unit-II-The students will learn about Network and Database.
3. Unit-III -The students will learn about Security management tools and Staffing in IT Organization.
4. Unit-IV-The students will understand about basics of MS-Word, MS-Excel and MS Power Point.
5. Unit-V-The students will be able to learn about basics of Internet and Internet Surfing.

### **8.5.1: IT for Managers LAB**

Upon completion of ITM lab the students learn about

1. Internal and External Commands of MS-DOS.
2. Text formatting tools, Macro and Mail merge in MS-Word.
3. Working with Spread sheets, Creating Charts and applying Functions.
4. Creating a PPT and applying animations.
5. Surfing for required website and downloading files from websites.

### **8.6.1: Project Management (PM)**

Unit-1: Enable the student to understand the significance, need and future trends in Project Management.

Unit-2: Provides the knowledge about Project Planning and approaches to Project Planning.

Unit-3: learn the student about Project execution, Project Control and Project Monitoring.

Unit-4: It enables the student about Project Teams Cross functional Cooperation.

Unit-5: Equip the student about performance of a Project and also the Project termination and the types of Project termination.

### **8.6.2: M.S. M. E**

Unit-1- Student understand the importance of SSI towards the contribution of National incomes and also policy environment for Small scale Sector.

Unit-2-helps the student to understand the policy support mechanism for MSME's

Unit-3- Able the student to know about policy priority credit, Policy of technology up gradation in SSI and also the equity issues by small enterprises through OCTEI.

Unit-4-The student understand the Taxation benefits to SSI, Tax Holiday, Expenditure on scientific Research, Tax concession to SSI in Rural & Back ward Areas and also the expenditure on acquisition of patents &copy rights.

Unit-5- The student able to know the govt policy on handling sickness, in small Industries, causes and consequences of sickness, measure to prevent sickness in small units export promotion and Organisational support for export promotion.

### **8.6.3: Advanced Excel (AE) (3+2)**

Upon completion of

1. Unit-I students will learn about cell addressing, Auto fill, Editing, Copying and Moving Cells.
2. Unit-II students will learn about creating Tables and Data filtering tools.
3. Unit-III students will understand about Paste special function and data grouping.
4. Unit-IV students will learn different types of function of MS-Excel.
5. Unit-V students will understand pivot tables and pivot charts.

### **8.6.3a) Advanced Excel Lab**

Upon completion of ADVANCED EXCEL lab the students learn about

1. Data filtering tools and creation of Charts.
2. Data validation and data analyzing tools.
3. Creation of formulas to calculate sum, average etc.
4. Creation of Pivot tables.
5. Creating Macros and Merging workbooks.

### **8.6.4: Corporate Social & Environmental Responsibility (CSER)**



Unit-1-Student understand about social issues concept and also on various social issues like Corporate Environment ,Agitation in youth, corruption, Black money, Terrorism, Sexual Harassment at work place, and social cost Development

Unit-2-Helps the student to gain the knowledge on Business Ethics, Moral standards, Professional Ethics, Ethics in Financing, Marketing, Human Resource Management, Information Technology and in production.

Unit-3-Student able to understand ethical Decision Making importance, Ethical dilemmas and also the qualities of CEO in Business Ethics.

Unit-4- The student can cope up about CDR, Relationship between CSR & Corporate Responsibility and Corporate Governance, CSR Models, drivers of CSR and also the major codes on CSR.

Unit-5- The student analyses what is Environment Responsibility, Environment Technology, Green Marketing and also the Ecological implications of technology.

## **9<sup>th</sup> Semester:**

### **9.1: Production &Operations Management (POM)**

Unit-1: Analyses the student about nature, scope and importance of Operations Management and also about the factors affecting plant location, lay out and types of layouts

Unit-2: Enable the student about Project Planning, Project control and Maintenance Management.

Unit-3: Understand the student regarding Quality control, Control Charts, Acceptance Sampling, and O.C curve.

Unit-4: Explain the student about the importance of Work study, Method study and Time study.

Unit-5: It forecast the student about Material Management, Inventory Management and Inventory control.

### **9.2: Organizational Behaviour Theory & Practice (OBTP)**

The first unit helps students to gain basic knowledge of organization behaviour and its concepts, theoretical approaches, cognitive approaches, behavioural approach, social learning approaches; it gives a brief about international Organizational behaviour and Managing Global workforce.

The second unit helps the students to understand the individual in the organization, personality, perception and also factors influencing perception. It also helps to understand motivation theories.

The third unit discuss about the groups in organization and its types & stages. It also gives knowledge about teams, conflicts and grievance handling process.

The object of forth unit is to help student to know about group dynamics, decision making. It also discusses about the leadership theories and organizational culture.

The fifth unit discuss about the organizational change, resistance to change and it gives a in depth study of change in organizational, factors contribute to stress, coping strategies.

### **9.3: Operations Research for Managers (ORM)**

Unit-I- To Understand the nature, origin techniques and Business applications of Operations Research along formulation of LPP

Unit-II- To learn simple method and practice solution to LPP problems

Unit-III- To learn transportation problem, Business applications and practice solution to transportation problem by using various methods of TP.

Unit-IV- To learn Assignment problem, Business Applications, simulation process with models and practice solution to various assignment problem

Unit-V- To Understand the concept, structure, features models of queue systems and learn about the cost associated with queuing.

### **9.4: Strategic Management(SM)**

What is Vision and Mission, Objective of an entity, Meaning of Strategy and strategic management will be answered by students after completion of first unit. Second unit gives insights of analysis of Competitors, Competitive advantage and core competencies to students. Knowledge of types of strategies and strategic alliances will be gained after completion of third unit. Fourth unit throws light into types of strategies to be followed in case of different types of industries i.e. Emerging industries, Fragmented industries and stagnant industries. Familiarity about strategy implementation, evolution and control is the outcome of fifth unit.

#### **9.5.1: Finance**

##### **a) Security Analyses And Portfolio Management (SAPM)**

Unit-I- To understand investment theory, objectives attributes and recent development in investment Avenues

Unit-II- To learn and practice various approaches to investment valuation of equity and preference shares

Unit-III- To learn & practice valuation of fixed income securities and active & passive bond portfolio management strategies

Unit-IV- To learn and practice portfolio theories like Markowitzian, Capital Asset Pricing Model etc.

Unit-V- To evaluation the portfolio performance Including Shape, Treynor's and Jensen's model and Fama's Decomposition of returns.

### **b) Management of Financial Services (MFS)**

The concept of Indian Financial System as well as role of financial services in Indian economic development will be known to the students from first unit. Second unit gives insights of analysis of banking sector in India, its problems, Risk management and Asset Liability Management to students. After completion of unit three the topics of Non-Banking Financial Companies and Development banks will be clear for students. From Unit four students gain the knowledge about the concepts of Factoring, Credit Rating, role of IRDA and Insurance Companies. To enable the students to know about Mutual Funds and Venture capital is the purpose of crafting fifth unit.

## **9.5.2: Marketing**

### **a) Product & Brand Management (PBM)**

The first unit introduces the concepts of communication. This unit is intended to help the students understand the techniques of effective communication.

The aim of the second unit is to help the students of business management develop their oral and written communication skills. This unit throws light on the concepts of body language and paralanguage in order to enable the students understand the significance of non verbal communication in business.

The third unit is purely practical in nature and helps the students hone their skills in the areas such as-business letter writing, case analysis and report writing.

The employment related communication and the modalities of the business meetings are stressed upon in the fourth unit to facilitate the students learn the nuances of conducting meetings in the corporate world.

The fifth unit is aimed at helping the students develop their personality traits and presentation skills which are mandatory for a business manager in the competitive world.

## **b) Consumers Behaviour (CB)**

Unit-1: introduces the student about the importance of Consumer Behaviour in the market place and enhancing the Demand to the product, Consumer Models of various Marketing experts.

Unit-2: Equip the student about Environmental factors affecting Consumer Behaviour.

Unit-3: Helps the student to understand Consumer Buying Behaviour, Motivation, Personality, Psychographics etc.

Unit-4: Understand the student about the strategic marketing implications.

Unit-5: It enhances the knowledge of the student about the Global Consumer Behaviour and online buying behaviour.

## **9.5.3: Human Resource Management**

### **a) Organizational Development & Change Management (ODCM)**

Unit-1: Focuses the student on nature, scope and importance of Organisational Development and Consultant relationship.

Unit-2: Enlighten the student on O.D interventions and types of interventions.

Unit-3: Encompasses the student about leadership and leadership Development Programs.

Unit-4: Highlight the student about Change Management and types of changes in Organisations.

Unit-5: Enable the student about models of Organisational change and visionary leadership.

### **b) Recruitment & Selection (RS)**

The first unit make student to understand what recruitment is, factors effecting recruitment, recruitment challenges. It also explains the sources of recruitment, electronic resumes & career web sites.

The second unit gives an in depth study about selection and its concepts, process, methods. It also discuss about the evaluation of application forms, ethical issues in application form design.

The objective of third unit is to gives knowledge about selection tests, types of selection tests, which are used under the selection process to evaluative right candidate.

The fourth unit studies about Interview, interview process, types of interviews. It also study about physical examination & referenced checking.

The fifth unit helps the student to gain knowledge in placement and placement process. It also discuss about induction, orientation, objectives of orientation and its policy's.

#### **9.5.4: Information Technology**

##### **a) Concept of ERP (Enterprise Resource Planning)**

Unit-1- Helps to understand the about ERP concept, need and also the ROI of ERP.

Unit-2-Enhances the student knowledge on ERP Implementation and support, ERP lifecycle, BPPE related to ERP.

Unit-3- Imparts the student knowledge on with ERP modules like Finance, Accounting,HRP and Inventory control.

Unit-4-Student gains the knowledge ERP Technology Areas like Warehousing, Data mining, Business Intelligence and also emerging trends in ERP application.

Unit-5-Able to understand the student with practical knowledge on case studies of ERP Implementation in manufacturing and service.

##### **b) Management Information system**

Upon completion of

1. Unit-I the students will learn about types of information systems and basic building blocks of information technology.
2. Unit-II the students will understand fundamentals of Database Management System and System Development Life Cycle.
3. Unit-III the students will learn about Decision support systems and expert systems.
4. Unit-IV the students will understand about Digital firms, Information security and access control in MIS.
5. Unit-V the able to identify the applications of Information systems.

##### **b1) MIS Lab**

Upon completion of **MIS lab** the students learn about

1. Creation of company, ledgers vouchers and balance sheet.
2. Data types in SQL.

3. Creation of tables in SQL.
4. DDL, DML, TCL, and DCL commands.
5. Integrity constraints in Database.

## **10<sup>th</sup> Semester:**

### **10.1: International Business (IB)**

Unit-I- To Understand the nature, significance problems, challenges of International Business

Unit-II- To learn the various theories of International Trade along with merit & demerits

Unit-III- To learn national regulations, tariffs and trading blocks and their functions

Unit-IV- To Understand foreign exchange markets and learn exchange rate mechanism and foreign exchange trade

Unit-V- To learn International financial markets and instruments

### **10.2: Practical Entrepreneurship (PE)**

The concept of entrepreneurship and the theories of entrepreneurship are introduced in the first unit of P.E, in order to present the basic knowledge of entrepreneurship to the students of IM.B.A. Besides these, a brief note on women, rural and social entrepreneurship are also covered here.

The entrepreneurial competencies and the entrepreneurial motivation are included in the second unit to inculcate the idea of entrepreneurship among the students. The process of conducting Entrepreneurial Development Programmes and its benefits is also discussed in this unit.

The third unit deals with the concept of small business enterprises and their objectives in order to enable the students understand the concept small business.

The entire fourth unit is associated with the institutional finance available to the entrepreneurs. The financial institutions along with the industrial estates are included here to give a firsthand idea about financial sources available to the aspiring entrepreneurs.

The major concept of financial source of business, venture capital is discussed in the fifth unit. The regulatory framework and the exit strategies for venture capitalists are discussed here.

### **10.3: Cost and Management Accounting (CMA)**

Unit one gives knowledge about cost and management accounting and methods and techniques of costing to students. To enable the students to know about marginal costing and its business application is the purpose of crafting second unit. Budgeting, types of budget and standard costing are the subject matter of third unit which will be imbibed to students. Responsibility centres' and their performance is given as inputs at the end of fourth unit. Fifth unit enables students to gain about concepts about ABC costing, PLC and Target costing.

### **10.4: Project Work (PW)**

The students should undertake the Project internship during the summer vacation (For 6 weeks of duration) intervening between II & III Semesters of MBA Day Programme. Project Report Work should be carried out in the Final Year of MBA Programme i.e., III & IV Semesters for Day Programme. The students are required to do project work in any area of Management under the active guidance of Internal Faculty Member assigned to the student.

The Project work usually consists of selecting a Topic / Problem / Theme in any area of management, gather relevant data, analyze and interpret the same in a systematic and scientific manner. The Project Work should be undertaken under the supervision of the Faculty Member assigned for the purpose. The Project Report should be submitted to the University 30 days (one month) before commencement of Final Semester Examinations.

### **10.5.1: Finance**

#### **a)Financial Derivatives (FD)**

Unit-I- To Understand evolution, significance function types &regulation derivatives markets

Unit-II- To learn and Practice forwards and future trading and pricing of futures

Unit-III- To learn and practice options trading hedging strategies and valuation of option

Unit-IV- To learn evolution, features and types of SWAPS and pricing and valuing Swaps

Unit-V- To Understand construction of option strategies in various markets situation and their pay off

#### **b) Risk Management (RI. M)**

Meaning of Risk and uncertainty and rationale of risk management will be answered by students after completion of first unit. Second unit gives insights of risk identification, risk measurement and risk financing techniques. After completion of unit three the topics of Insurance, IRDA and pricing of insurance will be clear for students. Understanding about types of Insurance i.e. Life, Marine, Fire and Health care insurance will be the outcome of unit four. Unit five gives knowledge about Life insurance accounts, Fire insurance accounts and Marine insurance accounts to students.

### **10.5.2: Marketing**

#### **a) Services Marketing (SRV. M)**

The marketing of services along with the nature and classification of services is introduced in the first unit. The significance of service economy is also covered here to throw light on the basics of services in business.

The marketing mix elements including the extended marketing mix for services are discussed in the second unit to help the students understand the differences between the products and services.

The third unit deals with the consumer behaviour in services. The factors influencing the customer expectation and customer satisfaction are also discussed in this unit to enable the students understand pre and post purchase behaviours of the customers in services.

The service Quality model- the GAP model is discussed with a suitable example in the fourth unit. The service quality technique SERVPERF is also included here.

The fifth unit is entirely a practical unit where marketing of services in the sectors such as-- Education, health, Communication, Finance and Hospitality are discussed with examples to give the students real time experience from the field.

#### **b) Retailing Management (RT.M)**

Unit-1: Learn the student about Retail, Retailing Management and types of Retailing.

Unit-2: Provides the student about the evolution of Retail formats, Retail classification.

Unit-3: Enable the student the relationship between Retailing and customers and also the retail marketing strategy.



Unit-4: Gives the student knowledge about Retail store locations and also the role and responsibilities of merchandiser.

Unit-5: Imparts the knowledge about international retailing.

### **10.5.3: Human Resource Management**

#### **a) Performance Management (PM)**

The first unit helps the student to gain knowledge in the performance Appraisal, its process, needs for performance planning, problems of performance appraisal planning individual performance.

The second unit studies about the measuring performance in organization, it also describes the measurement scale system, information for measurement purpose.

The objective of third unit is to study about methods of performance appraisal, traditional & modern methods, performance appraisal assessment, performance review and feedback, strategies to improve performance.

The fourth unit discuss about the conceptual approach to performance management, its need I Indian organizations. It also studies about key performance areas & performance management cycles.

The fifth unit helps the students to know about developing and designing performance management systems, and using PMS data for HR decisions and performance improvements. It also studies about PMS and appraisal practices in India and other Asian countries.

#### **b) Training & Development (TD)**

The first unit helps the students to gain knowledge in Training in organization. It discusses about the benefits of training, concepts of training, performance appraisal and Training needs.

The second unit describes about training strategy in organization. It discuss about modular approach to program design, training methods and techniques, training styles, trainers roles, personality and behaviour and trainer's styles.

The objective of the third unit is to evaluation of training program, and discuss about training objectives, purpose, approaches of training, evaluation of training program, and criteria for measuring training success.

The fourth unit study's about training and development effectiveness, impact of training program, measurement of trainee behaviour before and after training program. And study about training environment.

The fifth unit helps the students to gain knowledge about management development program, its concept and process. It also studies about methods and evaluation of management development and executive development programs. Emerging trends in training & development like CBT, TBT, E-Learning.

#### **10.5.4: Information Technology**

##### **a) E-Commerce**

Upon completion of

1. Unit-I students will be able to identify the basic building blocks of E-Commerce.
2. Unit-II students will learn about Business to Consumer E-commerce Applications.
3. Unit-III students will understand Business to Business E-Commerce.
4. Unit-IV students will learn about E-payment system and its security issues.
5. Unit-V students will understand about cyber laws and Ethical Issues in e-commerce

##### **b) E – Accounting**

Upon completion of

1. Unit-I the students will learn about PC tools and advanced concepts of MS-Excel 2010/13.
2. Unit-II the students will understand accounting cycle, golden rules of accounting and final accounts.
3. Unit-III the students will learn about services of E-Commerce.
4. Unit-IV the students will be able to create company, vouchers, challans, MIS reports and Backup.
5. Unit-V the students will learn about different types of Taxes.

##### **10.5.4(b1). E – Accounting Lab**

Upon completion of E-Accounting lab the students learn about

1. Text formatting tools of MS-Word.
2. Cell formatting tools of MS-Excel and data validation.
3. PPT creation in MS-Power Point.
4. Searching for Online shopping, job, payment websites.



**TELANGANA UNIVERSITY**  
**DICHPALLY, NIZAMABAD – 503 322**  
**DEPARTMENT OF BUSINESS MANAGEMENT**  
**OUTCOME, STRUCTURE & OBJECTIVES- MBA**

**COURSE OUTCOME**

The outcome of the MBA program in Telangana University is to enhancing the careers, enriching the student lives through Education, Empowerment and Entrepreneurship. To cater the needs of Industry as Management Professionals with strong Ethical values, capable of assuming a pivotal role in various sectors of the Indian Economy and society. It is a student centric program with an objective of developing a career in diverse sectors of the Industry domestically and globally. To equip the students with requisite knowledge, skills and right attitude to provide effective leadership in a global Environment. The curriculum in Telangana University is designed in such a way for developing Entrepreneurial skills to become the Entrepreneurs looking at the needs and demands of broader sections of the society.

**COURSE STRUCTURE**

**1<sup>st</sup> Semester:**

<b>Subject Code</b>	<b>Subject Title</b>	<b>Nature of the Course</b>	<b>No. of Teaching Hours per week</b>	<b>Max. Marks (IA + UE)</b>	<b>No. of Credits</b>
1.1	Management Theory & Practice (MTP)	<b>Core Discipline</b>	04	30+70=100	04
1.2	Managerial Economics (M E)	<b>Core Discipline</b>	04	30+70=100	04
1.3	Accounting for Managers (A M)	<b>Core Discipline</b>	05	30+70=100	05
1.4	Business Communications ( B C) ( 3+2)	<b>Skill Enhancement course</b>	03	30+50=80	05
	1.4.1. Soft skills (Lab)		02	20	-
1.5	Statistics for Management (ST. M)	<b>Ability Enhancement -Compulsory</b>	05	30+70=100	05
	<b>Open Elective</b>				
	<b>1. T.Q.M</b>	<b>Open Elective</b>	04	30+70=100	04

*1.6	2. W.T.O & I P R		04	30+70=100	04
	3. Cross Culture Management (CCM)		04	30+70=100	04
	4. Fundamentals of Business Analytics (FBA)		04	30+70=100	04
	Total		<b>27</b>	<b>600</b>	<b>27</b>

### 2<sup>nd</sup> Semester:

Subject Code	Subject Title	Nature of the Course	No. of Teaching Hours per week	Max. Marks (IA + UE)	No. of Credits
2.1	Marketing Management (M M)	<b>Core Discipline</b>	04	30+70=100	04
2.2	Human Resource Management (HRM)	<b>Core Discipline</b>	04	30+70=100	04
2.3	Financial Management (F M)	<b>Core Discipline</b>	05	30+70=100	05
2.4	Research Methods for Management (RMM)	<b>Ability Enhancement-Compulsory</b>	04	30+70=100	04
2.5	Information Technology For Managers (3+2)	<b>Skill Enhancement course</b>	03	30+50=80	05
	2.5.1. IT For Managers LAB		02	20=20	-
*2.6	<b>Open Elective</b>	<b>Open Elective</b>			
	1. Project Management (PM)		05	30+70=100	05
	2. M.S. M. E		05	30+70=100	05
	3. Advanced Excel (AE) (3+2) b) Advanced Excel Lab		03 02	30+50=80 20=20	05 -

	4. Corporate Social & Environmental Responsibility (CSER)		05	30+70=100	05
<b>Total</b>			<b>27</b>	<b>600</b>	<b>27</b>

**3<sup>rd</sup> Semester:**

<b>Subject Code</b>	<b>Subject Title</b>	<b>Nature of the Course</b>	<b>No. of Teaching Hours per week</b>	<b>Max. Marks (IA + UE)</b>	<b>No. of Credits</b>
3.1	Operations Management (OM)	<b>Core Discipline</b>	05	30+70=100	05
3.2	Organizational Behaviour (OB)	<b>Core Discipline</b>	04	30+70=100	04
3.3	Operations Research (OR)	<b>Ability Enhancement - Compulsory</b>	05	30+70=100	05
3.4	Strategic Management (SM)	<b>Core Discipline</b>	04	30+70=100	04
3.5.1	<b><u>Electives</u></b> <b><u>Finance</u></b> a) Security Analyses And Portfolio Management		05	30+70=100	05

	(SAPM)	<b>Electives</b>			
	b) Management of Financial Services (MFS)		04	30+70=100	04
3.5.2	<b><u>Marketing</u></b> a) Product & Brand Management (PBM)		05	30+70=100	05
	b) Consumers Behaviour (CB)		04	30+70=100	04
3.5.3	<b><u>Human Resource Management</u></b> a) Organizational Development & Change Management (ODCM)		05	30+70=100	05
	b) Recruitment & Selection (RS)		04	30+70=100	04
3.5.4	<b><u>Information Technology</u></b> a) Concept of ERP (Enterprise Resource Planning)		04	30+70=100	04
	b) Management Information system .(3+2)		03	30+50=80	05
	3.5.4.(b1) MIS Lab		02	20=20	-
<b>Total</b>			<b>27</b>	<b>600</b>	<b>27</b>

#### 4<sup>th</sup> Semester:

Subject Code	Subject Title	Nature of the Course	No. of Teaching Hours per week	Max. Marks (IA + UE)	No. of Credits
4.1	International Business (IB)	<b>Core Discipline</b>	04	30+70=100	04
4.2	Entrepreneurship Development	<b>Core</b>	04	30+70=100	04

	(ED)	<b>Discipline</b>			
4.3	Cost and Management Accounting (CMA)	<b>Core Discipline</b>	05	30+70=100	05
4.4	Project Work (PW)	<b>Core Discipline</b>	05	50+50=100	05
4.5.1	<b>Electives Finance</b> a) Financial Derivatives (FD) b) Risk Management (RI. M)	<b>Electives</b>	05 04	30+70=100 30+70=100	05 04
4.5.2	<b>Marketing</b> a) Services Marketing (SRV. M) b) Retailing Management (RT.M)		05 04	30+70=100 30+70=100	05 04
4.5.3	<b>Human Resource Management</b> a) Performance Management (PM) b) Training & Development (TD)		05 04	30+70=100 30+70=100	05 04
4.5.4	<b>Information Technology</b> c) E-Commerce d) E – Accounting(3+2)		04 03	30+70=100 30+50=80	04 05
	4.5.4 (b1) E – Accounting Lab		02	20=20	-
<b>Total</b>				<b>27</b>	<b>600</b>

## COURSE OBJECTIVE

### 1<sup>st</sup> Semester:

#### **1.1: Management Theory & Practice (MTP)**

The aim of the first unit is to help the students to gain the basic knowledge of management, levels of management, managers, professional managers and their skills.

The second unit helps the students to analyse planning, planning steps, short & long range planning. It also helps for making strategies decisions & various decision making techniques.

The objective of third unit is to help students to understand organization & its structure and design. It also gives knowledge in delegation of authority and decentralization. It analysis impact of technologies on organizational design.

The fourth unit discuss about the overview of controlling, directing & staffing and their process was discussed.

The fifth unit discuss about comparative management style and approaches like, American Management practices, Japanese Management Practices, characteristics of effective & leadership and benchmarking.

#### **1.2: Managerial Economics (M E)**

Students will be enriched about concepts of managerial economics like Opportunity Cost, Marginalism and Time value of money after completion of Unit one. What do consumers need and how much quantity will be clear from the concepts of demand and demand forecasting from Unit two. After completion of unit three students will be enriched with concepts of how much to produce and how much does it cost from the theory of production and cost analysis. How price is determined in different markets i.e Perfect competitive market, Monopoly and Monopolistic Competition will be the outcome of unit four. Unit five gives knowledge about Game Theory and its concepts to students.

#### **1.3: Accounting for Managers (A M)**

Unit -I-This chapter helps in learning the basic concepts of accounting discipline in the students.

Unit –II-This chapter helps students to learn and understand the preparation of final account of a company in a prescribed proforma and according to the companies act.



Unit –III-Studying this chapter helps to learn and understand the changes in items of financial position between two different Balance sheet dates showing clearly the different sources and applications of funds. It helps students to understand specific utilization of funds.

Unit –IV-Studying this chapter helps to learn and understand the changes in items of financial position between two different Balance sheet dates showing clearly the different sources and applications of funds. It helps students to understand specific utilization of funds.

Unit –V-This chapter helps students to learn the current information on cash inflow and outflow of any accounting period by way of operating activities, investing activities and financing activities.

#### **1.4: Business Communications (B C)**

The first unit introduces the concepts of communication. This unit is intended to help the students understand the techniques of effective communication.

The aim of the second unit is to help the students of business management develop their oral and written communication skills. This unit throws light on the concepts of body language and paralanguage in order to enable the students understand the significance of non verbal communication in business.

The third unit is purely practical in nature and helps the students hone their skills in the areas such as business letter writing, case analysis and report writing.

The employment related communication and the modalities of the business meetings are stressed upon in the fourth unit to facilitate the students learn the nuances of conducting meetings in the corporate world.

The fifth unit is aimed at helping the students develop their personality traits and presentation skills which are mandatory for a business manager in the competitive world.

##### **1.4.1 Soft skills (Lab)**

Students will be able to know about Business letter & Business Proposal and acquire the soft skills through participating in Group Discussion, Mock interview and JAM session.

#### **1.5: Statistics for Management (ST. M)**

Unit-I- To learn the features, function and applications to practice the measures of central tendency.

Unit-II- To understand the testing of Hypothesis and sampling theory in detail.

Unit-III-To learn and practice the large sample tests and small sample tests.

Unit-IV- To learn and practice non-parametric tests.

Unit-V- To Understand the Business forecasting techniques namely correlation, Regression and Time series analysis.

### **1.6.1-Total Quality Management**

Unit-1: Helps the student to know about the, how does the quality of a product or service imparts Today's Business Organisations.

Unit-2: Provides the knowledge about Business Process Re-engineering, Quality Gurus, Supplier rating and also about Bench marking.

Unit-3: Enable the student about the Quality standards and IT relationship with Quality standards.

Unit-4: knowledge the student to understand tools and techniques of TQM and Quality Function Deployment.

Unit-5: Equip the student about Management tools of TQM like Forced field Analysis, SPC, Orthogonal Design and Process Decision Program Chart.

### **1.6.2: W.T.O & I P R**

Unit-1- Helps to understand the student about GATT, WTO, Uruguay Round, TRIPS &TRIMS.

Unit-2- Enhances the student knowledge about WIPO, Bern convention, Budapest treatyadrid, Hange agreement and UPOV.

Unit-3- Imparts the knowledge how does the patentable & Non patentable Inventions, commercial exploitations are important to the product survival.

Unit-4- Student gains the knowledge regarding the Design of the product, Geographical indication, Registration and also about the restrictions of IPR.

Unit-5- Able to understand the student about Trademarks, copy rights, and Infringement.

### **1.6.3: Cross Culture Management (CCM)**

Unit-1- Introduces the student the impact of culture for a Business context, Cross Culture Business Management and also highlight the cultural background of Business stakeholders.

Unit-2 -Understand the student the role of culture in Global Business Scenario and also the strategies for Indian MNC's and Foreign MNC's.

Unit-3- Student get the knowledge about the Cross culture, Negotiations and Decision Making in the aspect of Multicultural context.

Unit-4- Student understands Global Human Resource Management in terms of staffing, Training, Motivating and leading.

Unit-5-Student inculcates & interprets the knowledge about the corporate culture and also how to design a strategy for a cultural change building and successful Implementation of culture change phase.

#### **1.6.4: Fundamentals of Business Analytics (FBA)**

Unit-1-Student understands the Data Analytics, Decision Models, Data warehousing and also the Importance of Master Data Management.

Unit-2-Student knows How to make Decision, the process, and the types of Decision-making.

Unit-3-Student get the knowledge on Descriptive Statistics and it's applications.

Unit-4-Student gains the knowledge about cluster analysis, Multidimensional scaling and factor Analysis.

Unit-5-Student gets the knowledge about Project Management, Controlling techniques like PERT and CPM.

### **2<sup>nd</sup> Semester:**

#### **2.1: Marketing Management (M M)**

The first unit introduces the basic concepts of marketing to the students in order to familiarize the students with the marketing environment. This unit focuses on the basic elements of business such as needs and wants of the customers.

The 2nd unit is aimed at helping the students understand the concepts like marketing segmentation, Targeting and positioning. The students are able to fragment the market for various products and services, on their own to formulate marketing strategies related to Segmentation, Targeting and Positioning.

The core decision areas involved in the product such as product Life Cycle, Product line, pricing and product mix are discussed at length in the third unit. At the end of this unit the students will be able to design a strategic marketing Plan for products and services.

The fourth unit throws light on distribution channel and marketing communication. All the elements of communication mix are taught here in order to prepare the students to work effectively in advertising agencies and marketing consultancy firms.

The marketing research is included in the fifth unit gives a detailed note on marketing research taken up by the business organizations. The entire research process covered here helps the students to become researchers in the field of marketing.

## **2.2: Human Resource Management (HRM)**

The main objective of first unit is to help student in basic concepts of Introduction to HRM. It also describes the history of HRM, functions of HRM, emerging role of HRM and challenges of HR Professionals.

The second unit studies about the human resource planning, forecasted demand/supply. It also discuss about the job analysis & job design, its concepts, process and methods of job analysis, job description, job specification.

The third unit study's about the Human Resource Management and it gives an overview of recruitment, selection, interviews, and placement. It also discuss about employee welfare measures, employee career management.

The objective of forth unit is to describe the employee Grievance and Grievance Handling process. It discusses about the disciplinary action, quality of work life, employee absenteeism, & trade unions.

The fifth unit study's about Stress, causes of stress. It mainly helps students to understand stress management techniques, talent management

## **2.3: Financial Management (FM)**

Unit-I- To Understand the overview of FM, Ethical and social responsibility and the role of Finance manager along with the concept time value of money.

Unit-II- To learn & practice the capital budgeting process and techniques and cost of capital

Unit-III- To learn capital structure theories, financial leverage and determine optimal capital structure.

Unit-IV- To Understand the Dividend decisions types and theories of dividend

Unit-V- To learn working capital management, policies including cash, receivables, Inventory, credit along with capital financing.

#### **2.4: Research Methods for Management (RMM)**

The concept of Research and its process as well as meaning of scientific research will be known to the students from unit one. Students will gain knowledge about the concepts of Hypothesis, measurement and scaling techniques from unit two. From Unit three students gain the knowledge about sampling, data collection and processing of data. After completion of unit four, statistical tools for data analysis will be clear for students. To enable the students to know about the report writing and its lay out in business and management research is the objective of designing unit five.

#### **2.5: Information Technology for Managers**

Upon completion of

6. **Unit-I** -The students will be able to identify the types of software.
7. **Unit-II**-The students will learn about Network and Database.
8. **Unit-III** -The students will learn about Security management tools and Staffing in IT Organization.
9. **Unit-IV**-The students will understand about basics of MS-Word, MS-Excel and MS Power Point.
10. **Unit-V**-The students will be able to learn about basics of Internet and Internet Surfing.

#### **2.5.1: IT for Managers LAB**

##### **Course Outcomes-**

Upon completion of **ITM lab** the students learn about

7. Internal and External Commands of MS-DOS.
8. Text formatting tools, Macro and Mail merge in MS-Word.
9. Working with Spread sheets, Creating Charts and applying Functions.
10. Creating a PPT and applying animations.
11. Surfing for required website and downloading files from websites.

### **2.6.1: Project Management (PM)**

Unit-1: Enable the student to understand the significance, need and future trends in Project Management.

Unit-2: Provides the knowledge about Project Planning and approaches to Project Planning.

Unit-3: learn the student about Project execution, Project Control and Project Monitoring.

Unit-4: It enables the student about Project Teams Cross functional Cooperation.

Unit-5: Equip the student about performance of a Project and also the Project termination and the types of Project termination.

### **2.6.2: M.S. M. E**

Unit-1- Student understand the importance of SSI towards the contribution of National incomes and also policy environment for Small scale Sector.

Unit-2-helps the student to understand the policy support mechanism for MSME's

Unit-3- Able the student to know about policy priority credit, Policy of technology up gradation in SSI and also the equity issues by small enterprises through OCTEI.

Unit-4-The student understand the Taxation benefits to SSI, Tax Holiday, Expenditure on scientific Research, Tax concession to SSI in Rural & Back ward Areas and also the expenditure on acquisition of patents &copy rights.

Unit-5- The student able to know the govt policy on handling sickness, in small Industries, causes and consequences of sickness, measure to prevent sickness in small units export promotion and Organisational support for export promotion.

### **2.6.3: Advanced Excel (AE) (3+2)**

Upon completion of

6. Unit-I students will learn about cell addressing, Auto fill, Editing, Copying and Moving Cells.
7. Unit-II students will learn about creating Tables and Data filtering tools.
8. Unit-III students will understand about Paste special function and data grouping.
9. Unit-IV students will learn different types of function of MS-Excel.
10. Unit-V students will understand pivot tables and pivot charts.

### **2.6.3a) Advanced Excel Lab**

Upon completion of ADVANCED EXCEL lab the students learn about

6. Data filtering tools and creation of Charts.
7. Data validation and data analyzing tools.
8. Creation of formulas to calculate sum, average etc.
9. Creation of Pivot tables.
10. Creating Macros and Merging workbooks.

#### **2.6.4: Corporate Social & Environmental Responsibility (CSER)**

Unit-1-Student understand about social issues concept and also on various social issues like Corporate Environment ,Agitation in youth, corruption, Black money, Terrorism, Sexual Harassment at work place, and social cost Development

Unit-2-Helps the student to gain the knowledge on Business Ethics, Moral standards, Professional Ethics, Ethics in Financing, Marketing, Human Resource Management, Information Technology and in production.

Unit-3-Student able to understand ethical Decision Making importance, Ethical dilemmas and also the qualities of CEO in Business Ethics.

Unit-4- The student can cope up about CDR, Relationship between CSR & Corporate Responsibility and Corporate Governance, CSR Models, drivers of CSR and also the major codes on CSR.

Unit-5- The student analyses what is Environment Responsibility, Environment Technology, Green Marketing and also the Ecological implications of technology.

#### **3<sup>rd</sup> Semester:**

##### **3.1: Operations Management (OM)**

Unit-1: Analyses the student about nature, scope and importance of Operations Management and also about the factors affecting plant location, lay out and types of layouts

Unit-2: Enable the student about Project Planning, Project control and Maintenance Management.

Unit-3: Understand the student regarding Quality control, Control Charts, Acceptance Sampling, and O.C curve.

Unit-4: Explain the student about the importance of Work study, Method study and Time study.

Unit-5: It forecast the student about Material Management, Inventory Management and Inventory control.

##### **3.2: Organizational Behaviour (OB)**

The first unit helps students to gain basic knowledge of organization behaviour and its concepts, theoretical approaches, cognitive approaches, behavioural approach, social learning approaches; it gives a brief about international Organizational behaviour and Managing Global workforce.

The second unit helps the students to understand the individual in the organization, personality, perception and also factors influencing perception. It also helps to understand motivation theories.

The third unit discuss about the groups in organization and its types & stages. It also gives knowledge about teams, conflicts and grievance handling process.

The object of forth unit is to help student to know about group dynamics, decision making. It also discusses about the leadership theories and organizational culture.

The fifth unit discuss about the organizational change, resistance to change and it gives a in depth study of change in organizational, factors contribute to stress, coping strategies.

### **3.3: Operations Research (OR)**

Unit-I- To Understand the nature, origin techniques and Business applications of Operations Research along formulation of LPP

Unit-II- To learn simple method and practice solution to LPP problems

Unit-III- To learn transportation problem, Business applications and practice solution to transportation problem by using various methods of TP.

Unit-IV- To learn Assignment problem, Business Applications, simulation process with models and practice solution to various assignment problem

Unit-V- To Understand the concept, structure, features models of queue systems and learn about the cost associated with queuing.

### **3.4: Strategic Management(SM)**

What is Vision and Mission, Objective of an entity, Meaning of Strategy and strategic management will be answered by students after completion of first unit. Second unit gives insights of analysis of Competitors, Competitive advantage and core competencies to students. Knowledge of types of strategies and strategic alliances will be gained after completion of third unit. Fourth unit throws light into types of strategies to be followed in case of different types of industries i.e Emerging industries, Fragmented industries and stagnant industries. Familiarity about strategy implementation, evolution and control is the outcome of fifth unit.

#### **3.5.1: Finance**



### **a) Security Analyses And Portfolio Management (SAPM)**

Unit-I- To understand investment theory, objectives attributes and recent development in investment Avenues

Unit-II- To learn and practice various approaches to investment valuation of equity and preference shares

Unit-III- To learn & practice valuation of fixed income securities and active & passive bond portfolio management strategies

Unit-IV- To learn and practice portfolio theories like Markowitzian, Capital Asset Pricing Model etc.

Unit-V- To evaluation the portfolio performance Including Shape, Treynor's and Jensen's model and Fama's Decomposition of returns.

### **b) Management of Financial Services (MFS)**

The concept of Indian Financial System as well as role of financial services in Indian economic development will be known to the students from first unit. Second unit gives insights of analysis of banking sector in India, its problems, Risk management and Asset Liability Management to students. After completion of unit three the topics of Non-Banking Financial Companies and Development banks will be clear for students. From Unit four students gain the knowledge about the concepts of Factoring, Credit Rating, role of IRDA and Insurance Companies. To enable the students to know about Mutual Funds and Venture capital is the purpose of crafting fifth unit.

### **3.5.2: Marketing**

#### **a) Product & Brand Management (PBM)**

The first unit introduces the concepts of communication. This unit is intended to help the students understand the techniques of effective communication.

The aim of the second unit is to help the students of business management develop their oral and written communication skills. This unit throws light on the concepts of body language and paralanguage in order to enable the students understand the significance of non verbal communication in business.

The third unit is purely practical in nature and helps the students hone their skills in the areas such as- business letter writing, case analysis and report writing.

The employment related communication and the modalities of the business meetings are stressed upon in the fourth unit to facilitate the students learn the nuances of conducting meetings in the corporate world.

The fifth unit is aimed at helping the students develop their personality traits and presentation skills which are mandatory for a business manager in the competitive world.

### **b) Consumers Behaviour (CB)**

Unit-1: introduces the student about the importance of Consumer Behaviour in the market place and enhancing the Demand to the product, Consumer Models of various Marketing experts.

Unit-2: Equip the student about Environmental factors affecting Consumer Behaviour.

Unit-3: Helps the student to understand Consumer Buying Behaviour, Motivation, Personality, Psychographics etc.

Unit-4: Understand the student about the strategic marketing implications.

Unit-5: It enhances the knowledge of the student about the Global Consumer Behaviour and online buying behaviour.

### **3.5.3: Human Resource Management**

#### **a) Organizational Development & Change Management (ODCM)**

Unit-1: Focuses the student on nature, scope and importance of Organisational Development and Consultant relationship.

Unit-2: Enlighten the student on O.D interventions and types of interventions.

Unit-3: Encompasses the student about leadership and leadership Development Programs.

Unit-4: Highlight the student about Change Management and types of changes in Organisations.

Unit-5: Enable the student about models of Organisational change and visionary leadership.

#### **b) Recruitment & Selection (RS)**

The first unit make student to understand what recruitment is, factors effecting recruitment, recruitment challenges. It also explains the sources of recruitment, electronic resumes & career web sites.

The second unit gives an in depth study about selection and its concepts, process, methods. It also discuss about the evaluation of application forms, ethical issues in application form design.

The objective of third unit is to gives knowledge about selection tests, types of selection tests, which are used under the selection process to evaluative right candidate.

The fourth unit studies about Interview, interview process, types of interviews. It also study about physical examination & referenced checking.

The fifth unit helps the student to gain knowledge in placement and placement process. It also discuss about induction, orientation, objectives of orientation and its policy's.

### **3.5.4: Information Technology**

#### **a) Concept of ERP (Enterprise Resource Planning)**

Unit-1- Helps to understand the about ERP concept, need and also the ROI of ERP.

Unit-2-Enhances the student knowledge on ERP Implementation and support, ERP lifecycle, BPRE related to ERP.

Unit-3- Imparts the student knowledge on with ERP modules like Finance, Accounting, HRP and Inventory control.

Unit-4-Student gains the knowledge ERP Technology Areas like Warehousing, Data mining, Business Intelligence and also emerging trends in ERP application.

Unit-5-Able to understand the student with practical knowledge on case studies of ERP Implementation in manufacturing and service.

#### **b) Management Information system**

Upon completion of

6. Unit-I the students will learn about types of information systems and basic building blocks of information technology.
7. Unit-II the students will understand fundamentals of Database Management System and System Development Life Cycle.
8. Unit-III the students will learn about Decision support systems and expert systems.
9. Unit-IV the students will understand about Digital firms, Information security and access control in MIS.
10. Unit-V the able to identify the applications of Information systems.

#### **b1) MIS Lab**

Upon completion of MIS lab the students learn about

6. Creation of company, ledgers vouchers and balance sheet.
7. Data types in SQL.
8. Creation of tables in SQL.

9. DDL, DML, TCL, and DCL commands.
10. Integrity constraints in Database.

#### **4<sup>th</sup> Semester:**

##### **4.1: International Business (IB)**

Unit-I- To Understand the nature, significance problems, challenges of International Business

Unit-II- To learn the various theories of International Trade along with merit & demerits

Unit-III- To learn national regulations, tariffs and trading blocks and their functions

Unit-IV- To Understand foreign exchange markets and learn exchange rate mechanism and foreign exchange trade

Unit-V- To learn International financial markets and instruments

##### **4.2: Entrepreneurship Development (ED)**

The concept of entrepreneurship and the theories of entrepreneurship are introduced in the first unit of E.D, in order to present the basic knowledge of entrepreneurship to the students of M.B.A. Besides these, a brief note on women, rural and social entrepreneurship are also covered here.

The entrepreneurial competencies and the entrepreneurial motivation are included in the second unit to inculcate the idea of entrepreneurship among the students. The process of conducting Entrepreneurial Development Programmes and its benefits is also discussed in this unit.

The third unit deals with the concept of small business enterprises and their objectives in order to enable the students understand the concept small business.

The entire fourth unit is associated with the institutional finance available to the entrepreneurs. The financial institutions along with the industrial estates are included here to give a firsthand idea about financial sources available to the aspiring entrepreneurs.

The major concept of financial source of business, venture capital is discussed in the fifth unit. The regulatory framework and the exit strategies for venture capitalists are discussed here.

##### **4.3: Cost and Management Accounting (CMA)**

Unit one gives knowledge about cost and management accounting and methods and techniques of costing to students. To enable the students to know about marginal costing and its business application is the purpose of crafting second unit. Budgeting, types of budget and standard costing are the subject matter of third unit which will be imbibed to students. Responsibility centres' and their performance is given as inputs at the end of fourth unit. Fifth units enables students to gain about concepts about ABC costing, PLC and Target costing.

#### **4.4: Project Work (PW)**

The students should undertake the Project internship during the summer vacation (For 6 weeks of duration) intervening between II & III Semesters of MBA Day Programme. Project Report Work should be carried out in the Final Year of MBA Programme i.e., III & IV Semesters for Day Programme. The students are required to do project work in any area of Management under the active guidance of Internal Faculty Member assigned to the student.

The Project work usually consists of selecting a Topic / Problem / Theme in any area of management, gather relevant data, analyze and interpret the same in a systematic and scientific manner. The Project Work should be undertaken under the supervision of the Faculty Member assigned for the purpose. The Project Report should be submitted to the University 30 days (one month) before commencement of Final Semester Examinations.

#### **4.5.1: Finance**

##### **a) Financial Derivatives (FD)**

Unit-I- To Understand evolution, significance function types & regulation derivatives markets

Unit-II- To learn and Practice forwards and future trading and pricing of futures

Unit-III- To learn and practice options trading hedging strategies and valuation of option

Unit-IV- To learn evolution, features and types of SWAPS and pricing and valuing Swaps

Unit-V- To Understand construction of option strategies in various markets situation and their pay off

##### **b) Risk Management (RI. M)**

Meaning of Risk and uncertainty and rationale of risk management will be answered by students after completion of first unit. Second unit gives insights of risk identification, risk measurement

and risk financing techniques. After completion of unit three the topics of Insurance, IRDA and pricing of insurance will be clear for students. Understanding about types of Insurance i.e. Life, Marine, Fire and Health care insurance will be the outcome of unit four. Unit five gives knowledge about Life insurance accounts, Fire insurance accounts and Marine insurance accounts to students.

#### **4.5.2: Marketing**

##### **a) Services Marketing (SRV. M)**

The marketing of services along with the nature and classification of services is introduced in the first unit. The significance of service economy is also covered here to throw light on the basics of services in business.

The marketing mix elements including the extended marketing mix for services are discussed in the second unit to help the students understand the differences between the products and services.

The third unit deals with the consumer behaviour in services. The factors influencing the customer expectation and customer satisfaction are also discussed in this unit to enable the students understand pre and post purchase behaviours of the customers in services.

The service Quality model –the GAP model is discussed with a suitable example in the fourth unit. The service quality technique SERVPERF is also included here.

The fifth unit is entirely a practical unit where marketing of services in the sectors such as-- Education, health, Communication, Finance and Hospitality are discussed with examples to give the students real time experience from the field.

##### **b) Retailing Management (RT.M)**

Unit-1: Learn the student about Retail, Retailing Management and types of Retailing.

Unit-2: Provides the student about the evolution of Retail formats, Retail classification.

Unit-3: Enable the student the relationship between Retailing and customers and also the retail marketing strategy.

Unit-4: Gives the student knowledge about Retail store locations and also the role and responsibilities of merchandiser.

Unit-5: Imparts the knowledge about international retailing.

### **4.5.3: Human Resource Management**

#### **a) Performance Management (PM)**

The first unit helps the student to gain knowledge in the performance Appraisal, its process, needs for performance planning, problems of performance appraisal planning individual performance.

The second unit studies about the measuring performance in organization, it also describes the measurement scale system, information for measurement purpose.

The objective of third unit is to study about methods of performance appraisal, traditional & modern methods, performance appraisal assessment, performance review and feedback, strategies to improve performance.

The fourth unit discuss about the conceptual approach to performance management, its need I Indian organizations. It also studies about key performance areas & performance management cycles.

The fifth unit helps the students to know about developing and designing performance management systems, and using PMS data for HR decisions and performance improvements. It also studies about PMS and appraisal practices in India and other Asian countries.

#### **b) Training & Development (TD)**

The first unit helps the students to gain knowledge in Training in organization. It discuss about the benefits of training, concepts of training, performance appraisal and Training needs.

The second unit describes about training strategy in organization. It discuss about modular approach to program design, training methods and techniques, training styles, trainers roles, personality and behaviour and trainer's styles.

The objective of the third unit is to evaluation of training program, and discuss about training objectives, purpose, approaches of training, evaluation of training program, and criteria for measuring training success.

The fourth unit study's about training and development effectiveness, impact of training program, measurement of trainee behaviour before and after training program. And study about training environment.

The fifth unit helps the students to gain knowledge about management development program, its concept and process. It also studies about methods and evaluation of management development and executive development programs. Emerging trends in training & development like CBT, TBT, E-Learning.

#### **4.5.4: Information Technology**

##### **a) E-Commerce**

Upon completion of

5. Unit-I students will be able to identify the basic building blocks of E-Commerce.
6. Unit-II students will learn about Business to Consumer E-commerce Applications.
7. Unit-III students will understand Business to Business E-Commerce.
8. Unit-IV students will learn about E-payment system and its security issues.
5. Unit-V students will understand about cyber laws and Ethical Issues in e-commerce

##### **b) E – Accounting**

Upon completion of

6. Unit-I the students will learn about PC tools and advanced concepts of MS-Excel 2010/13.
7. Unit-II the students will understand accounting cycle, golden rules of accounting and final accounts.
8. Unit-III the students will learn about services of E-Commerce.
9. Unit-IV the students will be able to create company, vouchers, challans, MIS reports and Backup.
10. Unit-V the students will learn about different types of Taxes.

##### **4.5.4(b1). E – Accounting Lab**

Upon completion of E-Accounting lab the students learn about



5. Text formatting tools of MS-Word.
6. Cell formatting tools of MS-Excel and data validation.
7. PPT creation in MS-Power Point.
8. Searching for Online shopping, job, payment websites.
9. Creation of company, vouchers, Pay slips, challans, MIS reports and Backup.

## 5. FACULTY OF SCIENCE

**TELANGANA UNIVERSITY**  
**DEPARTMENT OF APPLIED STATISTICS**

**PROGRAMME: M.Sc. (Applied Statistics)**

Upon the completion of 2 year course of M.Sc. (Applied Statistics) the programme outcomes and programme specific outcomes are:

**PROGRAMME OUTCOMES**

- **PO-1:** The students are able to get statistical knowledge which will help in preparing the next generation statistician ready for scientific decision-making, aided with advanced statistical software translating into sharp and extensive analytics, related to various domains.
- **PO-2:** The students will be able to communicate the major tenets of statistics, explain their work orally and identify areas of future research areas in statistics.
- **PO-3:** To model the random phenomenon of various systems and processes using Statistical analysis.
- **PO-4:** To obtain sound scientific knowledge in Statistical and applied aspects of Statistics.
- **PO-5:** To become a data scientist for assessing in decision making.
- **PO-6:** To get a wide range of opportunities and private, corporate and government sector organizations.

**PROGRAMME SPECIFIC OUTCOMES**

- **PSO-1:** Understand the basic and advanced concepts of probability distributions.
- **PSO-2:** To design and develop models for various phenomenon and obtaining optimal strategies.
- **PSO-3:** Drawing the inferences in hypothesis testing and making the regression analysis.
- **PSO-4:** Study of various Multivariate techniques and Designs of experiments enable the students to acquire the broad knowledge in research.
- **PSO-5:** Optimization techniques enable the students in better decision making.
- **PSO-6:** To inculcate scientific attitude and enriched with interdisciplinary and trans disciplinary applications of Statistics for developing sound decisions.

### First Year (First Semester)

Paper	Paper Code	Subject	Instruction Hrs/ Week	Credits	Duration of Exam In Hrs	Max.Marks		
						IA	MAIN	Total
<b>Theory</b>								
I	AS 101T	Linear Algebra and Linear Models (LALM)	4	4	3	30	70	100
II	AS 102T	Probability Theory (PT)	4	4	3	30	70	100
III	AS 103T	Distribution Theory and Estimation (DTET)	4	4	3	30	70	100
IV	AS 104T	Sampling Theory and Surveys (STS)	4	4	3	30	70	100
<b>Practical</b>								
V	AS 105P	C++ Programming (C++)	6	3	3		100	100
VI	AS 106P	Linear Algebra, Linear Models, Distribution Theory, Estimation and Sampling Theory (LALM,	8	4	3		100	100

		<i>DTET, STS)</i>					
<b>Communication English &amp; Soft skills</b>	<b>2</b>	<b>1</b>	<b>2</b>	<b>10</b>	<b>40</b>	<b>50</b>	
<b>Total</b>	<b>32</b>	<b>24</b>				<b>650</b>	

**Learning Outcomes:**

The learning outcomes of the papers included in the I semester are:

**Paper-I: AS 101T-Linear Algebra and Linear Models(LALM):**

Unit-I: To learn the basic concepts of vector and matrix algebra, including linear dependence / independence, basis and dimension of a subspace. Gram-Schmidt orthogonality process. Moore-Penrose and generalized inverses and properties.

Unit-II: To understand Characteristic roots and vectors, Caley-Hamilton theorem, Quadratic forms and Cauchy-Schwartz and Hadamard inequalities.

Unit-III: To learn about the basic concepts of linear models and obtain the least square estimates of parameters of GLM and also testing different hypothesis in GLM.

Unit-IV: To learn about simple and multiple linear regression models and distributions of Quadratic forms.

**Paper-II: AS 102T-Probability Theory (PT):**

Unit-I: To understand about the various Probability related integrals, expectations of functions of random variables and moments.

Unit-II: To learn about the characteristic functions and different inequality theorems.

Unit-III: To understand about the convergence laws in probability and their implications.

Unit-IV: To learn about the laws of Large numbers and also central limit theorem.

**Paper-III: AS 103T-Distribution Theory and Estimation Theory(DTET):**

Unit-I: Helps the students to know about various discrete and continuous uni-variable distributions. Learn about truncated, compound and mixture distributions.

Unit-II: To learn about the central and non-central sampling distributions and their properties. Also to understand the joint and marginal distributions of order statistics.

Unit-III: Provides the knowledge about the Point estimation, factorization theorem, Cramer-Rao and Rao-Blackwell theorem and their applications.

Unit-IV: Enable the students to learn about the methods of estimation. To understand about a priori and posteriori distributions.

***Paper-IV: AS 104T-Sampling Theory and Surveys (STS):***

Unit-I: To differentiate between equal and unequal probability and sampling and also methods of drawing PPSSWOR.

Unit-II: To acquire knowledge in Ratio and Regression Method of Estimation using Simple Random Sampling and Stratified Random Sampling (Separate and Combined estimators).

Unit-III: To get knowledge in Cluster Sampling with equal and unequal sizes and also able to study about the Two Stage sampling (Sub-sampling).

Unit-IV: To learn important steps in planning a survey which is essential in analysis and also, they were able to learn Non-sampling errors and treatment of Non-sampling errors.

***Paper-V: AS 105P-C++ Programming ( C++):***

Students will be able to know the coding for different types of problems using C++.

***Paper-VI: AS 106P-Linear Algebra, Linear Models, Distribution Theory, Estimation and Sampling Theory (LALM, DTET, STS):***

Acquire practical knowledge by solving the numeric problems in linear models, by fitting different probability distribution and drawing and solving the problems by various sampling methods.

**First Year (Second Semester)**

Paper	Paper Code	Subject	Instruction Hrs/ Week	Credits	Duration of Exam In Hrs	Max.Marks		
						IA	MAIN	Total
<b>Theory</b>								
<i>I</i>	<b>AS 201T</b>	<i>Statistical Inference (SI)</i>	4	4	3	30	70	100
<i>II</i>	<b>AS 202T</b>	<i>Applied Regression Analysis (ARA)</i>	4	4	3	30	70	100
<i>III</i>	<b>AS 203T</b>	<i>Multivariate Data Analysis (MDA)</i>	4	4	3	30	70	100
<i>IV</i>	<b>AS 204T</b>	<i>Design of Experiments (DOE)</i>	4	4	3	30	70	100
<b>Practical</b>								
<i>V</i>	<b>AS 205P</b>	<i>Statistical Inference and Applied Regression Analysis(SI, ARA)</i>	6	3	3		100	100
<i>VI</i>	<b>AS 206P</b>	<i>Multivariate Data Analysis and Design of Experiments(MDA, DOE)</i>	8	4	3		100	100
<b>Computational Skills using R-Programming</b>			2	1	2	10	40	50
<b>Total</b>			<b>32</b>	<b>24</b>				<b>650</b>

**Learning Outcomes:**

The learning outcomes of the papers included in the II semester are:

***Paper-I: AS 201T-Statistical Inference (SI):***

Unit-I: To understand randomized and non-randomized test. Also, able to use Neymann – Pearson Lemma in determining most powerful test in testing of hypothesis.

Unit-II: To learn the concepts of Unbiased and Consistency tests and also implementation of Likelihood Ratio test and determining confidence intervals for the parameters of important distributions.

Unit-III: To acquire the knowledge in Non-parametric tests (one sample and two sample) and the Non-parametric tests for one-way and two –way layout (K-Samples).

Unit-IV: To understand and implement the Sequential Probability Ratio Test for testing the simple null hypothesis Vs. Simple alternative hypothesis of various distributions like Poisson, Binomial and Normal.

***Paper-II: AS 202T-Applied Regression Analysis (ARA):***

Unit-I: Understand the concept of linear and multiple regression, the problems of multi-collinearity and auto correlation for variable selection and Detecting problems of outliers in data.

Unit-II: To perform and understand statistical intervals in a multiple linear Regression and Estimate regression parameters in the presence of multi-collinearity using ridge Regression and outliers using robust estimator.

Unit-III: To understand and fit the Logistic Regression model and multiple Logistic Regression model.

Unit-IV: To differentiate between linear and non-linear regression and how to apply them in real life situations.

***Paper-III: AS 203T-Multivariate Data Analysis (MDA):***

Unit-I: To learn about the Multi-nomial Distribution, Multivariate normal distributions, marginal and conditional distributions.

Unit-II: To describe Wishart distribution and its properties. To use Hotelling's T-square and Mahalanobis D-square statistics for testing hypotheses regarding parameters of multivariate normal distribution and discriminant analysis.

Unit-III: To study about the Path analysis and computation of path coefficients, metric and non-metric scaling.



Unit-IV: To understand the theoretical properties and appropriate applications of techniques such as principal component analysis, and canonical correlation analysis.

***Paper-IV: AS 204T-Design of Experiments (DOE):***

Unit-I: To understand and perform one-way and two-way ANOCOVA and also learn factorial experiments.

Unit-II: To learn about total and partial confounding in factorial experiments and fractional factorial experiments.

Unit-III: To understand the balanced incomplete block design and partially balanced incomplete block designs.

Unit-IV: To learn about the response surface methodology and its implementation in first order and second order surface methods and also to learn about central composite designs.

***Paper-V: AS205P-Statistical Inference and Applied Regression Analysis(SI, ARA):***

Students will be able to test the hypothesis related to MP and UMP and also in determining the confidence intervals for the parameters of important distributions. Also will know about the fitting of different regression models.

***Paper-VI: AS206P-Multivariate Data Analysis and Design of Experiments (MDA & DOE):***

Students expertise in analysis of experiments and perform the data analysis for factorial experiment, confounding and fractional factorial experiments. Also they know the practical use of Mahanobis D square and Hotelling T square.

**Second Year (Third Semester)**

Paper	Paper Code	Subject	Instruction Hrs/ Week	Credits	Duration of Exam In Hrs	Max.Marks		
						IA	MAIN	Total
<b>Theory</b>								
<i>I</i>	<b>AS 301T</b>	<i>Operations Research–I (OR–I)</i>	4	4	3	30	70	100
<i>II</i>	<b>AS 302T</b>	<i>Reliability Theory (RT)</i>	4	4	3	30	70	100
<i>III</i>	<b>AS 303T</b>	<i>Forecasting Models (FM)</i>	4	4	3	30	70	100
<i>IV</i>	<b>AS 304T</b>	<i>Statistical Process and Quality Control (SPQC)</i>	4	4	3	30	70	100
<b>Practical</b>								
<i>V</i>	<b>AS 305P</b>	<i>Operations Research – I, Reliability Theory (OR–I, RT)</i>	6	3	3		100	100
<i>VI</i>	<b>AS 306P</b>	<i>Forecasting Models , Statistical Process and Quality Control (FM, SPQC)</i>	8	4	3		100	100
<b>Personality Development</b>			2	1	2	10	40	50
<b>Total</b>			<b>32</b>	<b>24</b>				<b>650</b>

**Learning Outcomes:**

The learning outcomes of the papers included in the III semester are:

***Paper-I: AS 301T-Operations Research-I (OR\_I):***

Unit-I: To learn about the optimization techniques like duality in LPP, Sensitivity Analysis and parametric programming.

Unit-II: To understand different models applied in queuing theory and sequencing.

Unit-III: To study about the Inventory models and Network constructing and determining the optimal path.

Unit-IV: To learn the all and mixed integer programming problem and stochastic programming problems.

***Paper-II: AS 302T-Reliability Theory (RT):***

Unit-I: To understand the structure functions and the coherent structures. Establishing the structure in terms of paths and cuts and also modular decomposition.

Unit-II: To learn reliability of independent components and association of random variables and also to study the bounds and improved bounds on system reliability.

Unit-III: The students were able to study the survival function, IFR, DFR, DFRA, NBU, NBUE. Also, study about the IFRA Closure theorem.

Unit-IV: To study maintenance and replacement policies involved in reliability of the system of components and also estimating the parameters of life distributions.

***Paper-III: AS 303T-Forecasting Models (FM):***

Unit-I: Understand and apply the smoothing techniques and the stationary stochastic process. Learn auto-covariance and auto-correlation functions and their estimation.

Unit-II: To learn Understand about linear stationary models and their properties. Model, estimate, and interpret and forecast observed TSAR approach up to 2 order and their ACF, PACF & Spectrum.

Unit-III: To understand the model identification by using ACF & PACF, initial estimates of parameters of AR, MA, & ARMA process and to learn the model estimation by using the LSE & MLE method.

Unit-IV: To understand the diagnostic checking of the model identified and derivation of the MMSE forecast calculating and updating.

***Paper-IV: AS 304T-Statistical Process and Quality Control (SPQC):***

Unit-I: To apply various basic quality control and improvement tools, Statistical process control tools- Control charts for variables, attributes. Demonstrate to use the methods of statistical process control and to determine when an out-of-control situation has occurred.

Unit-II: To design and use moving average control chart, EWMA control chart Cumulative sum chart, tabular Cumulative sum chart and V-mask schemes for detecting small shifts of the mean from goal conditions.

Unit-III: To learn Statistical product control tools- Sampling inspection plans. Design and implement sampling inspection plans. To choose an appropriate sampling inspection technique.

Unit-IV: To study the concept of Six sigma, Evolution of six sigma, DMAIC approach. Apply Total Quality management methodology. Design and implement of multivariate control charts. Multivariate Hotelling's  $T^2$  control chart and its applications.

***Paper-V: AS 305P- Operations Research-I and Reliability Theory (OR-I & RT):***

To expertise in the optimization techniques duality, sensitivity analysis, inventory, queuing, sequencing and networking. Also to establish the structures and determine the reliability and estimate the reliability.

**Paper-VI: AS 306P- Forecasting Methods and Statistical Process and Quality Control (FM & SPQC):**

To enable the practical knowledge of time series prediction using various models and also to establish the quality control techniques to know the process and product is under statistical quality control.

**Second Year (Fourth Semester)**

Paper	Paper Code	Subject	Instruction Hrs/ Week	Credits	Duration of Exam In Hrs	Max.Marks		
						IA	MAIN	Total
<b>Theory</b>								
<b>I</b>	<b>AS 401T</b>	<i>Operations Research–II (OR–II)</i>	4	4	3	30	70	100
<b>II</b>	<b>AS 402T</b>	<i>Applied Stochastic Processes (ASP)</i>	4	4	3	30	70	100
<b>III</b>	<b>AS 403T</b>	<i>Elective *</i>	4	4	3	30	70	100
<b>IV</b>	<b>AS 404T</b>	<i>IDC**</i>	4	4	3	30	70	100
<b>Practical</b>								
<b>V</b>	<b>AS 405P</b>	<i>Operations Research – II, Applied Stochastic Processes &amp; Elective (OR-II, ASP &amp; Elective)</i>	8	4	3		100	100
<b>VI</b>	<b>AS 405P</b>	<i>Statistical Package(SPSS)</i>	6	3	3		100	100
<b>Seminar</b>			2	1	2	10	40	50
<b>Total</b>			<b>32</b>	<b>24</b>				<b>650</b>

\* Electives: (1) Statistical Pattern Recognition (SPR) (2) Artificial Neural Networks (ANN)

\*\*IDC – Basic Statistics is offered for other than Applied Statistics Students.

**Learning Outcomes:**

The learning outcomes of the papers included in the IV semester are:

***Paper-I: AS 401T-Operations Research-II (OR-II):***

Unit-I: To learn the non-linear programming problem and quadratic programming problem optimization techniques.

Unit-II: To understand the concept of dynamic programming problem and goal programming problem.

Unit-III: To learn methods applied in Game theory and generating random numbers for various distributions.

Unit-IV: To understand the S-s policy and models involved in it. To expertise with the replacement policies.

***Paper-II: AS 402T-Applied Stochastic Process (ASP):***

Unit-I: To understand the stochastic processes, Markov chains, Transition probability matrix and various types of states. Explain Random walk, Gambler ruins problem and apply Poisson process in real life situations.

Unit-II: To learn Poisson process, Birth and Death process. Understand renewal theory and branching processes with applications.

Unit-III: To understand the applications of stochastic processes in Biological sciences, Communication and information system and Traffic- flow theory.

Unit-IV: Understand the applications of stochastic processes in social and behavioral sciences, Business management.

***Paper-III: AS 403T-Statistical Pattern Recognition (SPR):***

Unit-I: To learn about implementation of simple pattern classifiers, classifier combinations, and structural pattern recognizer. Gain knowledge about algorithms used in pattern recognition. Understand pattern recognition theories, such as Bayes classifier, linear discriminant analysis.

Unit-II: To understand about nearest neighbor rule that uses in a large amount of training data.

Unit-III: To understand about the probability of errors in two classes. Understand baye's concept how such a decision can minimize the classification error probabilities.

Learn applications and algorithm of H.M.M.

Unit-IV: To learn about feature selection and extraction, how to filtering the features to extract the features. Understand and examine the magnitude and direction of the coefficients for the original variables by using principal component analysis.

***Paper-IV: AS 404T-Artificial Neural Networks (ANN):***

Unit-I: The students were able to understand the concepts of Biological Neuron and Artificial Neuron. Also, study the Various Activation Functions used in Artificial Neural Networks Structures. Learn about the supervised and un supervised learning strategies in ANN.

Unit-II: To learn about the gathering and partitioning of data for ANN and its pre and post processing. Also, implementation of Back Propagation algorithm in Multilayer Feed Forward Neural Networks. Also study under-fitting and over-fitting

Unit-III: To study use of Normal distribution in Radial Basis Functions. Also, study about the Self organizing maps.

Unit-IV: To practical implementation of ANN in Classification, Clustering, regression and time series prediction and dimensionality reduction in analysis.

***Paper-V: AS 405P-Operations Research-II, Applied Stochastic Process, Statistical Pattern Recognition and Artificial Neural Networks (OR-II, ASP, SPR & ANN) :***

Expertise with the optimization techniques like non-linear programming problems, quadratic programming, dynamic programming and many more. The practical implementation of ASP, SPR and ANN models.

***Paper-VI: AS 406P- Statistical Package (SPSS) :***

To understand the main features of SPSS, manage data in SPSS, apply SPSS statistical techniques to summarize and describe data, interpret the results and present the findings.



## INFORMATION FOR SUBMITTING AQAR FOR THE YEAR (2021-2022)

### PROGRAMME: M.Sc Biotechnology

#### 1.PROGRAMME OUTCOMES:

(In a para or few bullet points)

- To create rich human resource to meet the demand of biotechnology field both in terms of academics, skill development and industry.
- To prepare students for facing further challenges of higher education for entry into top notch institutions at national and global level.
- To motivate students to utilize their knowledge/skills for making them successful entrepreneurs as globally and locally biotechnology has become a buzz in the area of human health, agriculture, medical, animal live stock, integration of computational tools into biology, etc.

#### 2.PROGRAMME SPECIFIC OUTCOMES

(In a para or few bullet points)

- Students pursuing masters in biotechnology have several opportunities to join into biotech industries (research and development, quality assurance and production), teaching, research and entrepreneurship.

#### 3.COURSE OUTCOMES

### SEMESTER I

#### **PAPER 1.1: Genetics**

- Students will learn about the basic concepts of inheritance and sex determination mechanisms, structure of chromosomes and variations in chromosome number and structure. These concepts are required for plant and animal breeding. They will study genetic disorders, induction of ploidy for development of seedless fruits in different plants, and for genetic counseling in humans to avoid the chance of occurrence of birth of newborns with genetic diseases. Early detection of genetic disorders can be identified through karyotyping. Pattern of inheritance in human can be learned through pedigree analysis.
- To understand the concepts of linkage and genetic mapping. These concepts help to construct the genetic maps of various organisms. Human gene mapping helps to study the inheritance of genetic disorders.
- Study the extra-nuclear inheritance. These concepts help to understand the maternal inheritance and its associated genetic disorders in humans.

### **PAPER 1.2: Cell Biology**

- The structure and function of cell organelles makes the students to understand the function of cell and its transport mechanisms which in turn is needed to study drug uptake by cells.
- The signaling mechanisms of growth factors and hormones are needed to understand the growth of cells.
- The cell division stages are required to understand the growth of somatic cells and formation and development of gametes. Cell cycle regulation mechanisms help to understand the cancer development.
- Cell death pathway mechanisms are required to develop the drugs for inducing death of infectious and tumor cells

### **PAPER 1.3: Biochemistry**

- The study of structure of carbohydrates, proteins, nucleic acids and lipids helps to understand their biological role.
- The study of metabolisms of carbohydrates, proteins and lipids helps to understand the mechanisms of occurrence of life style diseases such as diabetes, obesity, coronary diseases etc., and their prevention, Enzymology is required to understand the kinetics of drugs action. Estimation of carbohydrates, proteins and lipids can be done from human serum.

### **PAPER 1.4: Microbiology**

- To learn the microscopy for observation of microorganisms and their economical importance.
- The study of viruses makes to understand the viral infections and to develop preventive measures (Vaccines) and treatment.
- Microbiological techniques such as sterilization and pure culture techniques are needed for culturing the bacteria.
- Microbial physiology is needed to understand the growth and growth requirements of bacteria.
- Antimicrobial assays are done to identify the pathogenesis of a bacterial culture, techniques like culturing virus in egg yolk will also train the students in viral cultivation.

## **SEMESTER II**

### **PAPER 2.1: Molecular Biology**

- Students will gain knowledge on deeper understanding of DNA replication and transcription/translation process followed by hands-on-training on isolation of plasmid DNA from bacteria and genomic DNA from Plant. In addition, they handle Cloning procedures, Polymerase chain reaction for gene amplification and finally Real-time PCR for quantification of gene expression.

### **PAPER 2.2: Industrial Biotechnology**

- The contents develop the skills for screening, development and preservation of industrially useful microorganisms, industrial fermentation skills.
- Students will understand the process involved in commercial production of industrially useful products such as organic acids, Amino acids, enzymes and alcoholic beverages on large scale.
- The contents makes the students to understand the process involved in commercial production of industrially useful products such as antibiotics, vaccines, vitamins and dairy products. Students have hands on training on wine production. Checking quality control of the given sample by COD and BOD method.

### **PAPER 2.3: Immunology**

To provide students with an understanding of the immune system, its components, the defense mechanisms and immune related diseases.

Students will

- Understand the basic components of immune system and their functions
- Explain how the immune system works to generate an effective immune response
- Apply the principles and methods of various immunological techniques (blood grouping, Widal test, VDRL test, Rocket immunodiffusion, ODD, Rheumatic Arthritis, Anti streptolysin O)

### **PAPER 2.4: Biostatistics and Biophysical Techniques**

- Statistics and probability is required for presentation and evaluation of data
- Statistical tests are required for validation of data.
- Biological/Biochemical standards are needed for preparation of reference/controls for different kind of qualitative and quantitative analysis.
- Laboratory management is needed for maintenance of safety measures and handling of hazardous materials in laboratories. Students are trained to analyze the given data by using ANOVA, Regression, correlation and student T test. Technical training is given to students to handle electrophoretic unit, Chromatographic techniques like TLC, column chromatography, UV visible spectrophotometer, Nano spectrophotometer.

## **SEMESTER III**

### **PAPER 3.1: Recombinant-DNA technology**

- The student will gain a basic understanding on in vitro engineering of genes to produce novel products. They also learn about basic tools which are involved in cutting and joining DNA molecules with which they can develop genetically modified organisms. Students learn about transgenic animals, their application in pharmaceutical industry, cloning and its importance in microbial biotechnology and finally genetic transformation in plants. Students are also trained in handling instruments like PCR, RT PCR, Electrophoresis, Gel documentation and handling few techniques like cloning, Restriction digestion, Genome editing, Primer designing.

### **PAPER 3.2: Bioinformatics**

- Students get access to databases and learn the use of internet tools for searching and accessing data from data bases which help them to analyse huge data in omics (genomics, proteomics, and metabolomics). Further, students will become skilled in the area of drug discovery and protein modeling benefitting humankind. Students are trained in few softwares like BLAST, FASTA, DNA and Protein databases, Molecular modeling.

### **PAPER 3.3: Bioprocess Engineering**

- The contents are required to understand the basic principles of bioprocess engineering, designing of bioreactors and sterilization of media for industrial fermentations.
- The contents enables to learn different kind of techniques required for the recovery of product from industrial fermentations and various control mechanisms for bioprocess control and automation of the process in industrial fermentations.

### **PAPER 3.4: IPREERM**

- The concepts of various intellectual property rights helps to understand the protection of inventions in sciences.
- The concepts of entrepreneurship can develop the skills for start-ups, the concepts of project management can develop the skills for identification and designing a project.
- The contents of ethical issues can develop personal and professional ethics in students.
- The research methodology concepts make the students to know the literary sources available and their use, and writing research project, designing the experiments for research project and publication of research work in journals.

## **SEMESTER IV**

### **PAPER 4.1: Plant biotechnology**

- The contents make to learn the basic concepts of plant tissue culture, protoplast fusion, somaclonal variation and anther culture for the crop improvement. Further, students acquire knowledge on gene transfer techniques (direct/indirect) to generate transgenic plants for developing crop/ornamental plants resistant to biotic and abiotic stress.
- Through plant genetic engineering, students shall develop deeper understanding of introducing novel genes for plant improvement (improving nutrient quality, engineering secondary metabolite routes, engineering plant architecture, etc.). Students are trained in preparing different medium for plant tissue culture studies, genetic transformation of plants using direct and indirect methods like Agrobacterium. Somatic embryogenesis, secondary metabolite production using elicitors, synthetic seed production, protoplast isolation.

### **PAPER 4.2: Animal biotechnology**

- Enables the students to study about the concepts of animal cell and tissue culture, improvements of animal traits by conventional breeding, cloning and transgenesis, development of animal models, production various therapeutic agents and the tissue engineering for transplantation.

**PAPER 4.3: Medical Biotechnology (Elective)**

- Enables the students to study about the molecular basis of genetic disorders, identification of genes, prenatal and molecular diagnosis and therapy of genetic disorders, role of stem cells in therapy and importance of nanomedicine.

**PAPER 4.4: Environmental Biotechnology (Elective)**

- Students will know about the natural resources available and how they are polluted by environmental disasters and manmade disasters. Techniques to reduce the disasters and gaining sustainable development in Agriculture through biopesticides and biofertilisers.
- Students will learn technique to recycle the waste using Microorganisms.

## **INFORMATION FOR SUBMITTING AQAR FOR THE YEAR (2021-2022)**

### **PROGRAMME : MSc Botany**

#### **7. PROGRAMME OUTCOMES**

Pursuing Botany enhances the knowledge of the plants that have always played a key role for the betterment of various aspects of the society. PG in Botany gives insights on the plant classification, anatomy, physiology and biochemistry and even the molecular biology of the plants which will be useful to the students as most of the students pursuing PG in Botany hail from rural background. Further, PG in botany gives insight about the oldest as well as the latest important aspects of plants, and has several applied branches that deal with basics as well as advanced aspects of plants to meet the demand of scientific necessities of the contemporary world.

#### **8. PROGRAMME SPECIFIC OUTCOMES**

The study of PG in Botany enables the student to have good knowledge on various aspects of contemporary fields like microbiology, molecular biology, biotechnology, biochemistry, agricultural botany, bacteriology, virology. It intends to provide quality education with balanced basic knowledge of modern plants sciences to the students.

## I YEAR

Code No	Paper Title	No. of Instruction hours	Maximum Marks	No of Credits
<b>Semester –I</b>				
Bot 101	Phycology	4	70 UE +30 IE	4
Bot 102	Mycology	4	70 UE +30 IE	4
Bot 103	Bryology, Pteridology and Paleontology	4	70 UE +30 IE	4
Bot 104	Plant Biochemistry and Intermediary Metabolism	4	70 UE +30 IE	4
<b>Semester-II</b>				
Bot 105	Taxonomy of Angiosperms, Medicinal Botany & Ethnobotany	4	70 UE +30 IE	4
Bot 106	Gymnosperms and Embroyology	4	70 UE +30 IE	4
Bot 107	Developmental Anatomy and Palynology	4	70 UE +30 IE	4
Bot 108	Plant Physiology	4	70 UE +30 IE	4
<b>Practicals</b>				
Bot 151 & 155	Phycology, Taxonomy of Angiosperms, Medicinal Botany & Ethnobotany	4+4	70 UE +30 IE	4
Bot 152 & 156	Mycology, Gymnosperms and Embroyology	4+4	70 UE +30 IE	4
Bot 153 & 157	Bryology, Pteridology and Paleontology, Developmental Anatomy and Palynology	4+4	70 UE +30 IE	4
Bot 154 & 158	Plant Biochemistry & Intermediary metabolism and Plant Physiology	4+4	70 UE +30 IE	4

## **9. COURSE OUTCOMES**

### **SEMESTER I:**

#### **PAPER 1.1 : Phycology**

- ❖ The student gets insight on the study of Phycology also known as algology that are important as primary producers in aquatic ecosystems. Most algae are eukaryotic, photosynthetic organisms that live in a wet environment

#### **PAPER 1.2 : Mycology**

- ❖ The student understands the study of Mycology which is a branch of biology concerned with the study of fungi, including their genetic and biochemical properties as well as their taxonomy and their use to humans. Further, it gives insights in phytopathology which is the study of plant diseases.



### **PAPER 1.3 : Bryology, Pteridology, Paleontology**

- ❖ The paper deals with the study of Bryology which is the branch of botany concerned with the scientific study of bryophytes (mosses, liverworts, and hornworts)
- ❖ Pteridology which is the study of ferns and is a member of a group of vascular plants (plants with xylem and phloem) that reproduce via spores and have neither seeds nor flowers.
- ❖ Paleontology also spelled palaeontology or palæontology, is the scientific study of life that existed prior as well as the fossils to classify organisms and study their interactions with each other and their environments.

### **PAPER 1.4 : Plant Biochemistry and Intermediary Metabolism**

- ❖ The student gains insight on Plant Biochemistry which is the study of all the biochemical aspects occurring in the plants including the thermodynamical aspects of biological beings as well as the enzyme studies in detail.

### **SEMESTER II:**

#### **PAPER 2.1: Taxonomy of Angiosperms, Medicinal Botany & Ethnobotany**

- ❖ The student deals with the detailed study on the classification of Angiosperms, nomenclature, and detailed study of important plants

#### **PAPER 2.2: Gymnosperms and Embryology**

- ❖ The paper gives insights on the study of gymnosperms that a group of seed producing plants that include cycads, Ginkgo and gnetophytes

- ❖ It deals with the study of plant embryogenesis which is a process occurring after fertilization of an ovule to produce a fully developed embryo.

### **PAPER 2.3: Developmental Anatomy and Palynology**

- ❖ Understands the Developmental Anatomy which is the study of the tissue and cell structure of plant organs
- ❖ Comprehends Palynology which is the study of the structure and importance of pollen grains

### **PAPER 2.4: Plant Physiology**

- ❖ Plant Physiology throws light on the water relations in plants, photosynthesis, respiration, hormonal regulation and nitrogen metabolism of plants

## **II YEAR**

Code No	Paper Title	No. of Instruction hours	Maximum Marks	No of Credits
<b>Semester -III</b>				
Bot 201	Cell Biology, Genetics, Ecology and Phytogeography	4	70 UE +30 IE	4
Bot 202	Carbon Assimilation and Crop Productivity	4	70 UE +30 IE	4
Bot 203	Stress Physiology	4	70 UE +30 IE	4
Bot 204	Plant Tissue Culture and Biotechnology	4	70 UE +30 IE	4
<b>Semester-IV</b>				
Bot 205	Molecular Genetics, Biostatistics, Ecodiversity and Conservation	4	70 UE +30 IE	4
Bot 206	Phyto Hormones and Development	4	70 UE +30 IE	4
Bot 207	Physiology and Molecular Biology of Nitrogen Fixation	4	70 UE +30 IE	4
Bot 208	Plant Molecular Biology and Genetic Engineering	4	70 UE +30 IE	4
<b>Practicals</b>				
Bot 251&255	Cell Biology, Genetics, Ecology and Phytogeography, Molecular Genetics, Biostatistics, Ecodiversity and Conservation	4+4	70 UE + 30 IE	4
Bot 252, 253&256	Carbon Assimilation and Crop Productivity, Stress Physiology, Phyto Hormones and Development	6+6	105 UE +45 IE	6
Bot 254, 257 & 258	Plant Tissue Culture and Biotechnology, Physiology and Molecular Biology of Nitrogen Fixation, Plant Molecular Biology and Genetic Engineering	6+6	105 UE +45 IE	6

## **SEMESTER III**

### **PAPER 3.1: Cell Biology, Genetics, Ecology and Phytogeography**

- ❖ The students study the Cell Biology which includes the microscopic techniques, and regulation of genes
- ❖ Comprehends the importance of genetics like mutations, DNA damage and repair as well as an overview of all the laws of inheritance

- ❖ Gains knowledge on the various ecological aspects of terrestrial and marine ecosystems as well as different geochemical cycles
- ❖ The student gains insight on the most happening problem of the century viz., climatic changes, environmental pollution, global warming and the green house gases

### **PAPER 3.2: Carbon Assimilation and Crop Productivity**

- ❖ The student comprehends the importance of growing crops and enhanced yield in agriculture by studying carbon assimilation in C3 plants, C4 Plants and CAM plants as well as partitioning of assimilates, starch metabolism and molecular biology of photosynthesis

### **PAPER 3.3: Stress Physiology**

- ❖ The papers throws light on the on-going threats of the very existence of plant life on the surface of earth like water stress, temperature stress, heat stress, metal stress , allelochemical stress and UV – radiation stress

### **PAPER 3.4: Plant Tissue Culture and Biotechnology**

- ❖ The student learns the basic techniques of biotechnology and tissue culture focusing on morphogenesis, embryogenesis, protoplast, anther and pollen cultures as well as cryopreservation, micropropagation, invitro production of secondary metabolites

## **SEMESTER IV:**

### **PAPER 4.1 : Molecular Genetics, Biostatistics, Eco-Diversity and Conservation**

- ❖ The student gets insight on Plant Molecular Genetics which is the study of genes, DNA technology, DNA finger printing and Plant Genetic engineering.

- ❖ A thorough insight in Biostatistics which is the study of the sampling, experimental designing and data collection as well as the statistical usage of these samples using different components of biological material.
- ❖ The paper focuses on the Ecodiversity and Conservation of living organisms in all kinds in any habitats, habitat management, conservation policy and regulations, threats, biodiversity loss, extinctions, and the documenting of long-term changes as well as in situ and ex-situ conservations.

#### **PAPER 4.2 : Phytohormones and Plant Development**

- ❖ The student comprehends the importance of Plant hormones (or phytohormones) which are basically signal molecules, produced within plants, that occur in extremely low concentrations.

The paper also focuses on the hormonal regulation of organ development, senescence and importance of plant growth regulators as potential herbicides and weedicides

#### **PAPER 4.3 :Physiology and Molecular Biology of Nitrogen Fixation**

- ❖ The student understands the molecular aspects as well as the mechanism of Nitrogen fixation which is a chemical process by which molecular nitrogen is fixed by higher as well as lower plants
- ❖ The genetics of nitrogen fixation, current trends in nitrogen fixation, nitrogenase enzyme and hydrogenase enzyme activities are also focused.

#### **PAPER 4.4 :Plant Molecular Biology and Genetic Engineering**

- ❖ The student develops thorough insights on Plant Molecular Biology and Genetic Engineering throwing insights on role of restriction endonucleases, gene cloning, PCR, RAPD and QTLS.
- ❖ The student also gains knowledge on the different techniques used in Genetic Engineering

## INFORMATION FOR SUBMITTING AQAR FOR THE YEAR (2021-2022)

PROGRAMME : M.Sc Physics with electronics

### 10. PROGRAMME OUTCOMES

Through this Program M.Sc Physics with Electronics it is intended to:

- facilitate local rural students to understand and master globally relevant innovations in the field of physical science with special application to electronic instrumentation.
- develop the problem solving ability of the students in both theoretical and experimental aspects of physics through critical thinking and analysis.
- enable pupils to acquire ICT based skills along with subject proficiency so that they will be easily absorbed into world class institutions.
- provide research ambience and encourage to develop technical proficiency in the emerging fields.
- enhance their abilities so as to pursue research that will help the society to live in better standards.
- become instrumental in emerging fields such as space science and explore the mysteries of universe.

### 11. PROGRAMME SPECIFIC OUTCOMES

On completion of this program students will be able to:

- understand the basic concepts of physics and electronics. They will be able to appreciate how the diverse phenomena occur in nature and follow the basic laws.
- apply the knowledge acquired in university semester exams as well as in competitive exams such as NET, SET and GATE.
- enhance their analytical skills by working on assignments, giving seminar and attending seminars related to both theoretical and experimental domains.
- make use of PowerPoint presentations, Web-based academic links and also get hands on experience of using different software under experiential learning.



- learn to carry out experiments in basic as well as certain advanced areas of physics and electronics. They will be able to make some electronic devices on their own.
- teach intermediate and graduation level students.
- Secure jobs as research associates in academic institutions and electronic industry.
- develop a critical attitude and logical reasoning that can be applied in diverse fields.

## 12. COURSE OUTCOMES

### SEMESTER I:

#### PAPER 1.1 : Mathematical Physics

On completion of this paper the students will be able to:

- recall differential equations and solve the linear & nonlinear equations by using standard methods.
- revise the knowledge of calculus vectors, probability, complex numbers and their properties.
- have conceptual understanding of Mathematical analysis by using Fourier and Laplace transforms.
- develop various methods for finding roots and applying the methods in problems to find the roots.
- acquiring knowledge about Invariant Formulation of physical laws embodied in Tensor Analysis.
- study basic and advanced mathematical tools required for physics problems.
- learn different techniques to solve differential and integral equations.
- understand various special functions and their applications.

#### PAPER 1.2 : Classical Mechanics

On completion of this paper the students will be able to:

- model mechanical systems both in inertial and rotating frames and understanding the Minkowski space.
- derive Lagrange's equation from Hamilton's principle, its application and few problems.

- understand the Hamilton's equation, physical significance of Hamiltonian, cyclic coordinates and applications.
- use Hamilton-Jacobi theory and can solve problems like harmonic oscillator to understand the theory of small oscillations.

#### PAPER 1.3 : Electromagnetic theory

On completion of this paper the students will be able to:

- derive the fundamental differential equations which must be satisfied by the potential and develop various methods to solve Electrostatic Potentials.
- learn the formulation of Maxwell's equations along with their general properties and understanding the basic law of charge and energy.
- understand the macroscopic behavior of a plane electromagnetic waves & develop the boundary conditions holding at a surface of discontinuity b/w two media.
- study the EM fields by concept of retarded potentials and calculate the total radiation emitted by an accelerated charge, angular distribution of radiation.

#### PAPER 1.4 : Electronics I

On completion of this paper the students will be able to:

- acquire the knowledge about working and uses of semi conductor devices and opto electric devices.
- understand the concept of Regulated power supply & studying the classified wave shaping techniques & working of Amplifiers.
- learn the concepts of Feedback amplifiers and Sinusoidal Oscillators.
- classify and explain the types of Modulation and understanding detention of waves.
- understand the components of electronics like Special Bipolar devices: BJT, Tunnel Diode, Photo Diode, Diac & Triac, SCR, UJT.
- study the basics of Unipolar Devices: FET, JFET and MOSFET.
- understand Sinusoidal Oscillators using BJT'S and different Multivibrators.

#### LAB 1.5 : Heat and acoustics Lab

On Completion of this lab the Students will realize the importance of temperature studies and will have hand on experience of :

- estimation of Errors of a simple pendulum.
- determine  $Y$  and  $\eta$  of a Flat spiral spring.

- study of temperature variation of resistance of a thermistor.
- study of variation of specific heat of a graphite with temperature.

#### LAB 1.6 : Computer Programming Lab

On Completion of this lab the Students will be able to:

- learn programming which is the core skill of a physicist to analyze the experiment and also to interact with equipment.
- study theory and solve problems studied in the Mathematical physics paper using Computer programming language “C”.
- gain proficiency in writing programs and analyze the results easily.

#### SEMESTER II:

##### PAPER 2.1 : Solid state physics I

On completion of this paper the students will be able to:

- find structure of a given material and analyze the same.
- formulate basic models for lattice vibrations and also for specific heat of solids.
- understand the band structure of solids, one can differentiate conductors, semiconductors and insulators based on band structure.
- learn to prepare glasses by various methods and classify imperfections and evaluate the expression for their equilibrium concentration.

##### PAPER 2.2 : Quantum mechanics I

On completion of this paper the students will be able to:

- understand the systematic representation of the mathematical formalism of Quantum mechanics along with a set of basic postulates.
- classify and develop of three different types of interactions and Applying different ideas in finding the energy eigen values & eigen functions of Hamiltonian.
- learn the concepts of Time-independent perturbation method, variation method and WKB approximation and Finding Approximate solution of systems by Different methods.
- understand the concept to find the solution for Time-Dependent perturbation theory.

- differentiate between classical and quantum mechanical theory and approach. Linear Vector Space, Dirac's ket & bra notations and their Eigen value equation.
- understand Basic postulates of quantum mechanics, matrix representation of vectors & operators and basics of commutation relations.
- solve Energy Eigen values of Linear Harmonic Oscillator by schrodinger equation & by Operators method, Solution of hydrogen atom radial part by schrodinger equation.
- understand the concept of Perturbation, Solving Time independent perturbation Degenerate and Non degenerate theories energy & wavefunction corrections of 1<sup>st</sup> and 2<sup>nd</sup> order & Various Approximation methods.
- learn about Time Dependent Perturbation theory, Transition Probability, Constant and Harmonic Perturbation and Fermi golden rule and studying Interaction of an atom with EM radiation, Einstein Coefficients.

#### PAPER 2.3 : Statistical mechanics

On completion of this paper the students will be able to:

- know the concepts of microstate and macrostate of a model system, the postulates of statistical mechanics.
- understand the features and examples of Maxwell-Boltzmann, Bose-Einstein and FermiDirac statistics.
- students can apply the Fermi-Dirac distribution to the calculation of thermal properties of electrons in metals.
- Gain insight of basics of fluctuations and know the Ising model and its applications to ferromagnetic systems.

#### PAPER 2.4 : Electronics II

On completion of this paper the students will be able to:

- acquire the knowledge about operational amplifiers and study the working of IC 555.
- explain the basics of Digital logic circuits, studying the working of flip-flops & shift registers and their uses.
- understand the Operational amplifiers, comparator and applications, Voltage regulators and features of Timer 555.
- study about Combinational Logic –Basic logic gates and Karnaugh maps.
- learn fundamentals of Sequential Logic, Flip-flops, Registers: buffer, shift and control shift registers, Latch, multiplexer, Demultiplexer.

- learn about counters: ripple synchronous & ring counters and Converters ( A/D and D/A).
- understand the features of 8085 microprocessor. Pin diagram of 8085, block diagram of 8085.

#### LAB 2.5 : Optics Lab

On Completion of this lab the Students will be able to:

- determine Cauchy's constant by dispersion of light through a prism.
- study the characteristics of LED.
- study the profile of laser beam.
- Obtain wavelength of the sodium light by studying the diffraction and interference pattern obtained with single and double slit.

#### LAB 2.6 : Electronics lab

On Completion of this lab the Students will:

- design & study Regulated Power supply.
- study Transistor Amplifiers in CE, CB, and CC modes.
- study different oscillators.
- study Astable, Monostable and Bistable Multivibrator.
- study Wave Generators.
- perform FET and MOSFET characterization and demonstrate application as an amplifier.
- construct and verify different Counters with different suitable IC'S.
- construct Basic Logic gates and verify their Truth- Tables.
- construct Combinational logic gates and verify De-Morgan's Theorem.
- study Basic Operational Amplifier (741).
- construct Shift Registers.
- study A/D and D/Converters.
- study Modulation and Detection.
- verify Half Adder and Full Adder.
- study Flip-Flops RS,JK,D type.

#### SEMESTER III:

##### PAPER 3.1 : Solid state physics II

On completion of this paper the students will be able to:

- understand about electrical properties of dielectric materials and can study ferroelectric materials.

- acquire knowledge of theory behind magnetic behavior of materials and will be able to identify different magnetic materials.
- will have a thorough insight into superconducting materials, their properties and various devices that work on principle of superconductivity.
- analyse the behavior of ferroelectric and ferromagnetic material in terms of their properties and applications.
- describe the dielectric properties of insulators, internal fields in dielectrics.
- differentiate various types of magnetic phenomena like diamagnetism, paramagnetism, ferromagnetism, anti-ferromagnetism and ferrimagnetism exhibited by different solids.
- understand the theories which explains the origin of these magnetic properties in solids.
- gain the knowledge to apply other concepts of physics which have been previously learned by the students particularly in quantum mechanics, classical mechanics, electromagnetism and statistical mechanics.
- apply learned concepts in other research areas like material science, nanomaterial science, functional materials, spintronics, quantum computing, bio physics, cryogenics, low dimensional semiconductors, etc.
- rigorous study of various theoretical treatments of superconductivity, including BCS theory.
- understanding the Josephson junction effects and their applications.

### PAPER 3.2 : Quantum mechanics II

On completion of this paper the students will be able to:

- have conceptual understanding of Scattering theory of Quantum mechanics.
- acquire knowledge about Orbital Angular Momentum in detail.
- understand the concept of diatomic molecules and study their energy levels.
- understand the concept of Relativistic Quantum molecules and study the energy states in electric and magnetic fields.
- Learn about laboratory and Centre of mass frame of reference, validity of Born approximations, partial wave Analysis, Optical theorem.
- study some mathematical tools like Angular momentum in quantum mechanics, commutation relations ,pauli spin matrices and Clebsh-Gordon Coefficients.
- understand Many Electron atom and Molecules, The Hartree and Hartree-fock method, central field approximation ,Born-Oppenheimer method-molecular orbital theory.

- appreciate importance of relativistic quantum mechanics compared to non-relativistic quantum mechanics, Dirac's equation and matrices for Klein-Gordon equation and Dirac particle in EM Field

### PAPER 3.3 : Electronic instrumentation

On completion of this paper the students will be able to:

- recognize the evolution and history of units, standards in measurements and performance characteristics of an instrumentation system.
- understand the working principles of different electronic instruments.
- understand about the various types signals and systems and perform operations on them.
- understand the block diagram of various electronic measuring instruments.
- gain basic knowledge on definitions of accuracy and precision-significant figures –types of errors-statistical analysis probability of errors-limiting errors.
- acquire knowledge on the performance characteristics of an instrumentation system, Zero, first and second systems- response of first and second order systems.
- review the Amplifiers and signal conditioning and understand the concepts of instrumentation amplifier-isolation amplifier-chopper amplifier-voltage to frequency and frequency to voltage converter.
- get an idea on filters with the phase sensitive detectors and phase locked loop .
- understand the difference between the signal generation and signal analysis with various topics like signal generation and function generator , sweep frequency generator ,wave analyzer and spectrum analyzer of CW,AM,FM and PM waves.
- understand the electronic measuring instruments like Q-meter,vector impedance meter,digital frequency meter and acquire knowledge on display and recording X-t ,X-Y recorders, magnetic tape recorders and storage oscilloscope.

### PAPER 3.4(A) : Digital logic circuits

On completion of this paper the students will be able to:

- understand the combinational logic circuits and simplifies the complex circuit to simple using sop and k-map methods. Describes about binary addition and design of full adder.

- understand and explain construction and working of flip-flops, counters and registers.
- analyze the IC logic families working and construction and also classifies the various families.
- explain different types of memory devices and its construction and working also basic ideas of PLD,PLA and PALs.

#### PAPER 3.4(B): Microprocessors & Interfacing

On completion of this paper the students will be able to:

- understand general organization and architecture of The 8086 Microprocessor
- study interfacing of peripheral devices and advanced microprocessors
- learn about the various IBM PC Motherboard and Drives
- differentiate various types of I/O Buses, Ports and Universal Serial Buses

#### LAB 3.5 : Nuclear Physics Lab

On Completion of this lab the Students will have:

- knowledge about different types of radiation sources by observing them physically.
- hands on experience about data acquisition and analysis in nuclear detectors.
- capacity to identify different types of radioactive decays using detectors like GM counter and scintillation counter.
- skill developed in performing experiments on radiation detectors and manually know how each component works.
- information about precautions to be taken while handling radioactive materials.

#### LAB 3.6 (A): Analog & Digital Lab

On Completion of this lab the Students will be able to:

- study power control by SCR using UJT.
- use PLL (IC 565) as FM Detector.
- study of Active filters-low pass, high pass and band pass.
- learn operation of PLL (IC565) as frequency synthesizer.
- calibrate Strain gauge.
- study the operation of LVDT.
- know Application of PLL (IC 565) as AM detector.
- construct a synchronous up/down counter using IC74192
- implement Boolean functions using a multiplexer.
- construct of a shift register using IC 7495.
- construct of an 8-bit full adder using two 4-bit adders.
- implement of Boolean functions using Dec/D.
- design a four variable Boolean function using a 1 of 16 data Sel/Mu.



- design a four variable Boolean function using gates.
- construct a 4-bit BCD decade counter.
- construct a full adder circuit using Decoder/Demultiplexer.
- construct a Johnson Counter.

#### LAB 3.6(B): Microprocessors Lab

On Completion of this lab the Students will be able to do programming and interfacing using Microprocessor (8086) for the following:

- Addition of 16-bit numbers stored in consecutive memory locations.
- Division of a 28 bit unsigned number by 8.
- Conversion of a 2-digit unsigned BCD number to binary.
- Addition of two words, each word containing four packed BCD digits.
- Interfacing the analog-to-digital converter (ADC) kit with PC and to develop suitable programs to convert the analog signal into digital value.
- Interfacing the digital-to analog converter (DAC) kit with PC and to develop suitable programs to generate various waveforms to display it on CRO.
- Interfacing the given stepper motor and to develop suitable program to rotate it at various stepping angles.

#### SEMESTER IV:

##### PAPER 4.1 : Nuclear Physics

On completion of this paper the students will be able to:

- gather advanced knowledge in Nuclear physics.
- study different nuclear interactions and the corresponding nuclear potentials and its dependence on the couplings are learned.
- have a wide understanding regarding alpha, beta and gamma decay.
- understand different sources of radiations, their classification, and their interaction with matter.
- understand radiation detection and measurement techniques.
- study basic properties of nucleus, its structure and different models that explain the behavior and characteristics.
- learn about types of nuclear reactions and conservation laws, reaction mechanisms.
- study interaction of gamma rays with particles and get clarity about the concepts of Compton scattering, pair production and the photo electric effect.
- study about nuclear forces and characteristics to get further insight into behavior of nucleus.

- have concept of experimental results and its representation in theory is developed by studying Fermi theory of beta decay, Kurie plot.
- gain a comprehensive knowledge after going through the basic particle physics and their properties are well understood.
- get an idea about the role of nuclear forces in nuclear reactions and the various models explaining nuclear structure.
- acquire knowledge regarding nuclear reactions and their kinematics.
- get information regarding various elementary particles, the interactions taking place among them and the conservation laws governing these particles.
- study in detail conservations laws and quark model.
- solve some of the problems related to nuclear physics.

#### PAPER 4.2 : Molecular spectroscopy

On completion of this paper the students will be able to:

- recognize the importance of symmetry properties which plays an important role in studying the structure & characteristics of molecule.
- acquire knowledge of transitions b/w different energy levels, which provides a direct method for evaluation of molecular parameters.
- study the techniques ,which provides valuable information regarding Molecular structure, symmetry, bond strength and intermolecular interaction etc.
- understand the energy transitions by means of resonance methods .i.e., NMR and ESR.
- understand the basic principles of vector atom model, Zeeman effect, Paschen Back effect and stark effect.
- understand the principle of microwave and infrared spectroscopy.
- understand the principle of Raman spectroscopy.
- understand the principle of vibrational analysis and rotational fine structure of electronic spectroscopy.

#### PAPER 4.3 : Instrumentation for measurement control and data transmission

On completion of this paper the students will be able to:

- use concepts in common methods for converting a physical parameter in to an electrical quantity.
- classify and explain with examples of transducers including those for measurement of temperature , strain , pressure.
- acquire knowledge in the process control systems like open and closed loop with examples.

- learn different methods of data transmission like digital data transmission , PAM ,PCM ,telemetry transmission channels.
- have understanding of characteristics of different transistors and different biasing operations and their applications.
- get an idea of displacement measurement and strain measurement.
- have understanding of operational amplifier characteristics and its applications, different types of transducers, impedance matching, filtering and noise reduction technique.
- understand computer controlled test systems-IEEE 488 bus.

#### PAPER 4.4 (A): Embedded Microsystems

On completion of this paper the students will be able to:

- explain block diagram of 8051 and its RAM, ROM Organization and different registers.
- understand and apply the different instructions of 8051.
- interface the 8051 to LCD, ADC,DAC, CRO, stepper motor etc.
- describe some advanced microcontrollers and its software like Dallas, RTOS, LCD, thermometer.

#### PAPER 4.4 (B): PC Architecture & Hardware

On completion of this paper the students will be able to:

- learn about basic Computer Organization
- write programs using Assembly language
- understand Microprogrammed Control
- study the working of various modules of Central Processing Unit
- understand functioning of Pipeline and Vector Processing
- analyse various Input-Output devices and their Organization
- study about various types of Memories and their Organization

#### LAB 4.5 : Modern Physics Lab

On completion of this lab the Students will:

- study about Zeeman effect
- study raman effect.
- find magnetic susceptibility of a given material.
- verify Beer's Law.

- understand electrical resistivity using Four Probe Method.
- find electrical resistivity of a given material by Two Probe Method.
- study Hall effect.
- analyse X-Ray Diffraction pattern obtained by Powder Method.
- study ESR spectrum.

#### LAB 4.6 (A) : Microcontrollers Lab

On completion of this lab the Students will:

- interface an ADC to the 8051.
- generate a square wave using the 8051 timer.
- generate a sine wave on the scope using the DAC.
- interface a stepper motor to the 8051.
- write a program to control the angle and direction of stepper motor rotation by the user.
- add two hexadecimal numbers.
- code a program to add hex numbers.
- code a program to add BCD numbers.
- code a program to add two multi-byte BCD numbers.
- convert Decimal numbers to Binary and Decimal to Hexadecimal.
- convert Hexadecimal numbers to ASCII.

#### LAB 4.6 (B) : Simulation lab

On completion of this lab the Students will:

- construct a synchronous up/down counter using IC74192 and display count using 7- segment display.
- implement Boolean functions using a multiplexer.
- construct a shift register using IC 7495.
- construct an 8-bit full adder using two 4-bit adders.
- implement Boolean functions using Decoder/De-multiplexer.
- simulate four variable Boolean function using a 1 of 16 data Sel/Mu.
- simulate 4 variable K-map and its study
- simulate 4-bit binary/BCD decade counter.
- simulate a full adder circuit Decoder/De-multiplexer.
- simulate a 4-bit shift register.
- design a counter with counts skipping.
- simulate a Johnson Counter.

# **GEOINFORMATICS COURSE OUTCOMES**

## **SEMESTER - I**

### **Geographic Information Systems GI-101T**

- Understand the fundamental theory of Geographic Information Science behind Geographic Information Systems (GIS)
- Understand main concepts that define Geographic Information Systems.
- Know and use GIS and its geo-processes and functions. Know and apply some basic techniques to thematic mapping design.
- Use GIS software to perform different spatial analysis
- Understand GIS Data Structures and GIS Data Analysis

### **Earth Systems Sciences GI-102T**

- Students learn the concepts, evolution of landforms
- Students gain the knowledge of various processes inducing the morphological changes in the landform by the various agents.
- to understand the lithosphere and its characteristics
- Understanding of atmosphere, and its structure and components

#### **• Principles of Remote Sensing GI-103T**

- Understanding basic components of remote Sensing
- to obtain knowledge of the sensor characteristics of various RS Systems
- Acquire knowledge of different missions & their utility
- to understand functioning, data acquisition and orbit operations of missions.

### **Cartography and Digital Mapping GI-104T**

- Understanding basic components of cartography
- Acquiring knowledge about various map projections and their characteristics
- Gaining knowledge about various surveying techniques
- Understanding modern methods of surveying and data processing

## **PRACTICALS**

### **Techniques of Mapping Analysis and Field Survey GI-105P**

- Gaining knowledge about mapping techniques
- Know the various methods of field survey

### **Basics of GIS &GPS GI-106P**

- Develop basic understanding and hands-on on GIS software and GPS ;
- Apply GIS for natural resource management,

## **SEMESTER II**

### **Digital Image Processing GI-201T**

- Understanding the basic of digital images and its characteristics
- able to do geocoding and geometric corrections of satellite data
- Understanding of image enhancement techniques
- Learning and developing skills on image classification and statistical operations

### **Photogrammetry GI-202T**

- Understanding of various types of aerial photographs and their scale
- Students may able to know errors in aerial photographs and their rectification
- Handling and knowledge of mirror and pocket stereoscopes
- Familiarize with concepts of choosing map projections, 2D transformation
- Acquiring knowledge about recent advances in aerial surveying and mapping

### **Spatial Analysis and Modeling GI-203T**

- Understanding of basic statistical methods for data analysis
- Handling and knowledge of different probability methods for parameter estimation
- Acquire skills programming for computer based data analysis of data objects for different GIS functions

### **Programming Languages GI-204T**

- Know the basis of C programming.
- Understand some advanced concepts of C programming
- Acquire skills programming for computer based data analysis of data objects in visual basics
- 

## **PRACTICALS**

### **Programming Languages & Open Source GIS GI-205P**

- Understand the basic difference between Proprietary and opensource GIS
- various kinds of Opensource GIS softwares
- Apply various tools in different thematic studies

### **Visual and Digital Image Analysis & Aerial Photo Interpretation GI-206P**

- Able to differentiate the visual and digital analysis
- Able to know elements of image analysis •
- Develop skills in photography, mapping

## **SEMESTER III**

### **Research Methodology & Spatial Analysis GI-301T**

- Able to expertise in identification of area of study, methodology, quantitative and quantitative analysis, and conclusions to be drawn about the area –
- fundamental to geographical research.
- Handle logistics and other emergencies on field.
- 

### **Climatology and Oceanography GI-302T**

- Students able to understand the elements of weather and climate
- Able to know the mean global atmospheric circulations and disturbances, world climate systems, climatic variability and change.

### **Web Mapping and Web GIS GI-303T**

- To understand the relevance of Internet in today's spatial decision making;
- To comprehend the importance of web Maps & web mapping;
- To understand Web GIS & its nuances; and
- To Visualise the Applications of WEB GIS.

### **Geoinformatics Applications in Disaster Management GI-304T**

- Understand the fundamentals and measurements of disaster management
- Gain knowledge in concepts of long term mitigation measures
- Gain exposure to various space based input for disaster management
- Understand the use of spatial data for emergency planning

## **PRACTICALS**

### **Overview of Web & Open Source GIS GI-305P**

- Know web Maps & web mapping;
- To Visualize the Applications of WEB GIS.

### **Applications of Geoinformatics in Resource Management GI-306P**

- Know the applications of resources inventory, assessment and analysis

## **SEMESTER IV**

### **Principles and Applications of GPS and GNSS GI-401T**

- Understand the working principle of GPS and GNSS ,
- To know the GNSS components, signal structure, and error sources.
- to understand various SBAS Systems and processing techniques used in GNSS
- Understanding the applications of GNSS

### **Perspectives in Spatial Studies GI-402T**

- Students will demonstrate an advanced understanding of the historical development of geographical thought.
- They can understand the major current philosophical and theoretical debates in geography
- Students will demonstrate an understanding of current research within the breadth of geography, as well as more in depth knowledge of research in their specialty areas.
- Students will develop a solid understanding of the concepts of “space,” “place” and “region” and their importance in explaining world affairs.

### **Trends in Urbanization GI-403T**

- To Gain knowledge of urban planning concepts.
- Get exposure in modelling in urban land use, morphology and its forecasting.
- the use of geomatics technology in planning and management in urban areas and regions.
- Familiarize with case studies, inputs from Remote Sensing and GIS

### **Geo informatics in Societal Development GI-404T**

- an ability to independently carry out investigation and development work to solve real life societal geospatial problems.
- To promote welfare amongs all sectors of the society
- Know demographic characteristics of urban and rural

## **PRACTICALS**

### **Statistical Techniques in Population & Urban Geography GI-405P**

- Know the various spatial statistical techniques
- the use of geomatics technology in planning and management in urban areas and regions

### **Major research Project GI-406P**

- Ability to write and present a substantial technical report/document and publish international level research articles.
- Students should be able to demonstrate a degree of mastery over the areas of Remote Sensing and GIS technology. The mastery should be at a level higher than the requirements in the appropriate bachelor program.
- An ability to write and present a substantial technical report/document/international level research articles.
- Students should be able to demonstrate a degree of mastery over the areas of Geoinformatics.



## **INFORMATION FOR SUBMITTING AQAR FOR THE ACADEMIC YEAR 2021-22**

### **PROGRAMME: 5-YEARS INTEGRATED M.Sc. PHARMACEUTICAL CHEMISTRY**

#### **PROGRAMME OUTCOMES**

- The students after completing 5 years Integrated M.Sc Pharmaceutical Chemistry program will be well equipped with related subject knowledge and skills and therefore will be well prepared to join any Research and Development institution.
- The rigorous training during this programme would make the students more confident in taking National-level competitive examinations.
- Advanced laboratories are equipped with UPLC, HPTLC, GCMS & HPLS etc. The University provides students hands-on training to help students excel as professionals in pharmaceutical industry.

#### **PROGRAMME SPECIFIC OUTCOMES**

Students after completion of 5 years Integrated M.Sc Pharmaceutical Chemistry program can start their own Pharmaceutical companies or work as an entrepreneur.

#### **Course Outcomes**

**IPCH-1.3T: ATOMIC STRUCTURE, BONDING, GENERAL ORGANIC CHEMISTRY  
& ALIPHATIC HYDROCARBONS**

**Course Outcomes:**

- Upon the successful completion of Unit-I, Students will be able explain the basic concepts and theories of atomic structure, dual behavior of atoms, electronic configuration of elements.
- After the completion of Unit-II, students will be able to tell the nature of energy considerations in ionic bonding, ionic character in covalent compounds and dipole moment.
- Unit-III informs about the theories (Valence bond and Molecular Orbital theories) to explain covalent bonding and shapes of molecules/ ions, resonance.
- After the completion of Unit-IV, the students will be able to explain the fundamentals and structural theories of organic chemistry and types of basic organic reactions.
- Unit-V provides knowledge to the students about the preparation and important reactions of Aliphatic Hydrocarbons including Alkanes/ Alkenes/ Alkynes .

**IPCH-3.2T: ENVIRONMENTAL SCIENCE****(Units: 5, Hours: 60, Credits: 4)****Course Outcomes:**

After the completion of five (5) Units of the syllabus of this paper, the students will gain the interpretable knowledge on the following themes:

- Able to explain the spheres of the earth, types of environmental pollution and the related hazards and control strategies (Unit-I)
- Describe the water quality and treatment procedures (Unit-II)
- Differentiate the solid wastes and hazardous wastes, legislation on management and their treatment with a special focus on disposal of medical and pharmaceutical waste (Unit-IV)
- Difference between renewable and non-renewable energy resources in nature, types of clean/safe renewable fuels, nature/environment conservation acts and future energy need projection in India.
- Basic concepts of nuclear and radiochemistry, Sources of radioactive pollution and treatment with examples

**IPCH-4.3T: COORDINATION CHEMISTRY, CHEMICAL KINETICS, DILUTE SOLUTIONS & COLLIGATIVE PROPERTIES, COLLOIDS & SURFACE CHEMISTRY**

**(Units: 5, Hours: 60, Credits: 4)**

**Course Outcomes:**

- On completion of Unit-I, the students will be able to discuss the chemistry and industrial applications of transition elements and elements in Lanthanide/actinide series (inner-transition elements)
- At the end of the Unit-II, the student will acquire knowledge on theories of bonding (VBT and CFT), their application and structural isomerism in coordination compounds.
- The content of Unit-III enables the students to describe the basics of chemical kinetics, reaction rates and factors influencing them, order of reactions and their determinations and collision theory
- After completing Unit-IV, the students will be able to explain about nature of liquid solutions using Raoult's law, Osmosis and Osmotic pressure. Knowledge on experimental methods for determining various colligative properties and Van't Hoff factor will be acquired.
- By taking the class of Unit-V, the students can understand the definition, classification, preparation, properties and industrial importance of Colloids and Micelles. Additionally, the students will be able to describe types of adsorption and application of adsorption isotherms.

**IPCH-5.1T: PHYSICAL CHEMISTRY AND TOPICS OF INDUSTRIAL IMPORTANCE**

**(Units: 5, Hours: 60, Credits: 4)**

**Course Outcomes:**

Upon completion of the course of **IPCH-5.1T**, the students will be able to:

- Define the terminology and fundamental thermodynamic properties correctly.
- Analyze and derivation of equilibrium constants, Relation between solution volume and partial molar volumes, thermodynamics of ideal and non-ideal solution systems and activity coefficients.
- Explain the various types of photochemical process, difference between thermal and photochemical processes, Jablonski diagram, fluorescence, phosphorescence, non-radioactive processes, Photosensitized reactions- Quenching of fluorescence
- Acquires knowledge on theories of surface adsorption and determination, types of catalysis, mechanism of surface-catalyzed reactions, some of the industrially important heterogeneous catalytic processes: hydrogenation, oxidation, Fischer-Tropsch, Water-Gas shift reactions and methanol economy.
- Describe the definition, classification, Synthesis, characterization, properties and

- application of nanomaterials with a special focus on gold/ silver/ carbon nanostructures.
- Able to analyze the 12 principles of 'Green Chemistry' with appropriate examples and their industrial implications/ current practices.

### **IPCH-5.2T: COORDINATION AND SUPRAMOLECULAR CHEMISTRY**

**(Units: 5, Hours: 60, Credits: 4)**

#### **Course Outcomes:**

After completing the **IPCH-5.2T** course, the student will acquire knowledge and able to interpret:

- Theories of metal-ligand bonding in coordination compounds, Solvation of metal ions and stability constants.
- Concept of labile and inert complexes, types of ligand substitution reactions and electron transfer reaction process in metal complexes with examples
- Metal centered electronic spectra of transition metal complexes, Types of magnetic behavior (dia-para, ferro, ferri and anti-ferro) and general applications of magnetic metal compounds in materials and pharmaceutical chemistry
- Main-group & Transition-metal clusters, metal-metal bonding, Wade-Mingos electron counting rules (polyhedral skeletal electron pair theory), isolobal analogy, Application of molecular clusters in catalysis, materials, and biology.
- Terminology in supramolecular chemistry, Classification of supramolecules and their applications in pharmacy, phase transfer reagents, molecular sensors, switches and molecular machinery, catalysis and nanotechnology.

### **IPCH-6.2T: CHEMISTRY OF MAIN GROUP ELEMENTS**

**(Units: 5, Hours: 60, Credits: 4)**

#### **Course outcomes:**

Upon the completion course of **IPCH-6.2T**, the students will be able to:

- Categorize main group elements (*s*- & *p*-block) in the modern periodic table and their electronic structures, periodic properties and reactivity as compared to other elements.
- Differentiate the different allotropes/ polymorphism belongs to *s*- & *p*-block elements and their compounds.
- Explain the and influence of multiple bonding among the main group elements other than carbon and the formation of inorganic rings/cages/chains ...
- Demonstrate the methods for the synthesis of the industrially and commercially useful compounds of *s* & *p* block elements in pharmacy, fertilizers, hi-tech materials, batteries, ceramics, cement, glass, rocket propellants and related science & technology prospects

- Illustrate the organometallic/organo-element chemistry of main group elements including organo-boranes/silanes/phosphanes/,, basic characterization and their use in organic/inorganic synthesis as reagents and catalysts.

### **IPCH-6.5T: QUANTUM CHEMISTRY, ELECTROCHEMISTRY AND POLYMERS**

**(Units: 5, Hours: 60, Credits: 4)**

#### **Course outcomes:**

After the completion of the paper (**IPCH-6.5T**) as titled above, the student will be able to understand and demonstrate the outcome as mentioned below.

- Account for the basic principles and emergence of quantum mechanics/ wave mechanics
- Solve the Schrödinger equation for model systems
- Describe many-electron atoms with the independent particle model
- Describe the Hermitian operators and Eigen values
- Classification of magnetic materials, Superconductivity theories and their application
- Electrochemical cells, Liquid Junction Potential (LJP), applications of EMF measurements
- Classification and chemical bonding of polymers, mechanisms of polymerization:, Ziegler-Natta catalysis, determination of molecular weight of polymers.
- Preparation, characteristics, mechanism and kinetics of various industrially important polymerizations and applications of polymers in pharmaceutical formulations

### **IPCH-7.4T: BIOINORGANIC AND PHYSICAL CHEMISTRY**

**(Units: 5, Hours: 60, Credits: 4)**

#### **Course outcomes:**

After carrying out the course **IPCH-7.4T** as titled above, the students acquires the adequate knowledge and able to unveil it as follows:

- Recognize the Metal ion binding to biomolecules and their biochemical functions and explain the situations that may occur when the metal ion concentration in excess/shortage and explore opportunities in the research areas of bio-inorganic chemistry
- Explain the role metal ions in chemotherapy, imaging and other similar applications
- Understand the metal complexes of small molecules based ligands like NO/N<sub>2</sub> and their importance in biosystems and industrially important homogeneous catalytic process.
- Able to demonstrate Debye-Huckel theory of electrolytic solutions and extended concepts and concept of ion-pairing and its thermodynamics(Unit-III)

- Describe the theory and application of electro-analytical techniques Polarography, Amperometric Cyclic Voltammetry in various areas of chemical sciences (Unit-IV)
- Able reveal about detailed information of theories of reaction rates in chemical kinetics including collision theory, transition state theory, Lindamann's theory, Eyring and Arrhenius equations and salt effect(Unit-V).

- **IPCH-8.4T: PHYSICAL AND GENERAL CHEMISTRY**

**(Units: 5, Hours: 60, Credits: 4)**

**Course outcomes:**

Upon successful completion of syllabus of this paper, the students will have the knowledge and skills to:

1. Explain the classification and synthesis of materials and rationalize the physical properties and application of a range of functional materials including metals, ceramics, semi-conductors , polymers, composites, biomaterials, optical materials, LEDs, liquid crystals etc. This is related to chemistry of materials.
2. Describe the principles of Inorganic chemistry applicable in biology, inorganic compounds used as drugs and diagnostic agents, chelation and chemotherapies and radiopharmaceuticals. This course is more related to medicinal inorganic chemistry.
3. Explain the concept of symmetry in chemistry, symmetry operations, symmetry elements, molecular point groups and exercises, symmetry criteria for dipole moment and optical activity.
4. Provide detailed information on third law of thermodynamics, Hammett and Taft equations, Swain-Scott equation and the Edward equations, Hammond's postulate, kinetics of photochemical reactions and free radical polymerization.
5. Able to explain the comparison of classical and quantum mechanical particles; Schrodinger equation for the hydrogen atom, MO theory and wave function, comparison of MO and VB models. It is noticeable that the Quantum chemistry started to flourish in 20<sup>th</sup> century.

# DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

## PROGRAM OUTCOME & COURSE OUTCOME OF MASTER OF COMPUTER APPLICATIONS (MCA)

INFORMATION FOR SUBMITTING AQAR FOR THE YEAR (2021-2022)

PROGRAMME : MCA

### 13. PROGRAMME OUTCOMES

(In a para or few bullet points)

- Encourage students to become self-motivated, problem solving individuals who can find and understand the knowledge needed to be successful in the profession.
- Provide intellectual inputs to knowledge-based industries in the form of qualified and trained manpower.
- To attain self-sustainability and overall development through Research, Consultancy and Development Activities.
- To produce best quality Computer Science Professionals by imparting quality training, hands on experience and value education.
- To pursue creative research and new technologies in Computer Science and Engineering and across disciplines in order to serve the needs of industry, government, society, and the scientific community.
- Providing an environment in which students are given the essential resources to address, research and solve real-world problems, participating in interdisciplinary and multidisciplinary research and its applications.

### 14. PROGRAMME SPECIFIC OUTCOMES

(In a para or few bullet points)

- To apply knowledge of computing fundamentals, computing specialization and domain knowledge for the abstraction and conceptualization of computing models from defined problems and requirements.
- To have the ability to understand and analyze a given real-world problem and propose feasible computing solutions. Also analyze customer requirements, create high level design, implement and document robust and reliable software systems.

- To transform complex business scenarios and contemporary issues into problems, investigate, understand and propose integrated solutions using emerging technologies.
- To use the techniques, skills and modern hardware and software tools necessary for innovative software solutions and to possess leadership and managerial skills with best professional ethical practices and social concern
- To master fundamental project management skills, concepts and techniques, set attainable objectives and ensure positive results, meeting scope, time and budget constraints
- To recognize the need for self-motivation to engage in lifelong learning, the social, professional, cultural and ethical issues involved in the use of computer technology and give them due consideration in developing software systems
- To assess the need for innovation and initiate the process through entrepreneurship or otherwise and To work collaboratively as a member or leader in multidisciplinary teams
- To select teaching/software engineer as their career after acquiring necessary eligibility requirement.

## 15. COURSE OUTCOMES

### SEMESTER I:

#### PAPER 1.1 : **PCC101 Mathematical Foundations of Computer Science**

**Course Outcomes** – Students will learn to

1. Solve logic problems
2. Represent the relations and functions
3. Create recurrence relation
4. Apply algebraic structures
5. Work on various graph and tree concepts

#### PAPER 1.2 : **PCC102 Data Structures using C**

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

1. Implement linear and non-linear data structure operations using C
2. Suggest appropriate linear / non-linear data structure for any given data set.



3. Apply hashing concepts for a given problem
4. Modify or suggest new data structure for an application
5. Appropriately choose the sorting algorithm for an application

### PAPER 1.3 : **PCC103 Object Oriented Programming using Java**

#### Course Outcomes

1. Explain OOPs features and concepts
2. Write basic Java programs
3. Write I/O programs in Java
4. Use various built-in Java classes and methods
5. Create window based Java programs

### PAPER 1.4 : **PCC104 Computer Architecture**

#### Course Outcomes

1. Apply data representation methods
2. Write logic diagrams for micro operations
3. Write general register organization diagrams
4. Analyze computer arithmetic algorithms.
5. Explain I/O organization

### PAPER 1.5 : **PCC105 Probability and Statistics**

#### Course Outcomes

1. Understanding of Linear Algebra will boost the ability to understand and apply various data science algorithms.
2. Calculate probabilities by applying probability laws and theoretical results, knowledge of important discrete and continuous distributions, their inter relationships with real time applications.
3. Understanding the use of sample statistics to estimate unknown parameters.
4. Become proficient in learning to interpret outcomes.
5. Compute and interpret Correlation Analysis, regression lines and multiple regression analysis with applications.

### PAPER 1.6 : **PCC106 Managerial Economics and Accountancy**

#### Course Outcomes

1. Apply the fundamental concepts of managerial economics to evaluate business decisions Understand types of Demand and factors related to it.
2. Identify different types of markets and determine price –output

- under perfect competition.
3. Determine working capital requirement and payback
  4. Analyze and interpret financial statements through ratios

## SEMESTER II:

### PAPER 2.1 : **PCC201 Operating Systems**

#### Course Outcomes – Learners on completion of the course, be able to

1. Explain operating systems and illustrate the workings of various components.
2. Analyze the process, its states and process scheduling algorithms.
3. Demonstrate paging, demand paging, page replacement and segmentation with illustrations.
4. Elaborate the file access and allocation methods and mass storage structures. Describe concrete implementations of Linux system and Windows 7.

### PAPER 2.2 : **PCC202 Database Management System**

#### Course Outcomes

1. Explain the DB concepts and model requirements as ER-model
2. Suggest relational algebra queries from text specification
3. Write SQL queries for the given questions
4. Elaborate indexing and hashing
5. Describe concurrency control concepts

### PAPER 2.3 : **PCC203 Design and Analysis of Algorithms**

#### Course Outcomes

1. Carry out algorithms time complexity
2. Explain divide and conquer approach
3. Illustrate greedy method
4. Elaborate dynamic programming
5. Explore backtracking

### PAPER 2.4 : **PCC204 Artificial Intelligence**

#### Course Outcomes

1. Write python programs
2. Solve search problems
3. Apply propositional, predicate calculus and knowledge representation
4. Analyze probability theory

5. Explore machine learning and explain NLP

## PAPER 2.5 : **PCC205 Machine Learning**

### Course Outcomes

1. Solve regression problems
2. Apply dimensionality reduction methods
3. Analyze classification schemes
4. Explore clustering mechanisms
5. Explain evaluation metrics
6. PAPER 2.6 : **PCC206 Operations Research**

### Course Outcomes

1. Solve linear problems
2. Apply transportation problems
3. Analyze assignment problems
4. Explore dynamic programming
5. Explain gaming theory

## SEMESTER III:

### 1. PAPER 3.1 : **PCC301 Software Engineering**

**Course Outcomes** – Students will learn to

1. Apply software processes to solve software problem
2. Create SRS document and software architecture
3. Perform software planning in terms of staffing and scheduling
4. Create test cases and procedures
5. Re-engineer the developed software

### PAPER 3.2 : **PCC302 Computer Networks**

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

1. Elaborate the network model
2. Explain transmission media and functions of data link layer
3. Create routing tables based on DVR and LSR
4. Describe TCP and UDP protocols

5. Explain application layer protocols

### PAPER 3.3 : **PCC303 Data Science**

#### Course Outcomes

Student will be able to

1. Use various data structures and packages in R for data visualization and summarization
2. Use linear , non-linear regression models, and classification techniques for data analysis
3. Use clustering methods including K-means and CURE algorithm

### PAPER 3.4 : **PCC304 Web Technologies**

#### Course Outcomes

1. Write HTML and DHTML programs
2. Create programs on event models
3. Implement java script programs
4. Write VB script programs
5. Create ASP programs

### PAPER 3.5 : **PEC311(a) Information Security**

#### Course Outcomes

1. Explain the SDLC and security model
2. Describe various issues in information security
3. State the techniques for risk management
4. Elaborate the security technology
5. Specify the cryptography and implementation of information security

### PAPER 3.5 : **PEC312(b) Network Security**

#### Course Outcomes

1. Explain the fundamentals of network security
  2. Elaborate the concepts secret and public key cryptography
  3. Elucidate the hash functions digital signatures
  4. Describe the digital signatures and smart cards
- Explain the applications of network security

## PAPER 3.5 : **PEC313(c) Cyber Security**

### Course Outcomes

1. Explain the policies and security evolution
2. Describe cyber security objectives and guidance
3. Discuss policy catalog and issues
4. Elaborate cyber management and infrastructure issues
5. Elucidate the case studies on cyber security

## PAPER 3.5 : **PEC314(d) Soft Computing**

### Course Outcomes

1. Explain soft computing techniques, artificial intelligence systems.
2. Differentiate ANN and human brain.
3. Compare fuzzy and crisp logic systems.
4. Discuss genetic algorithms.
5. Identify and describe soft computing techniques and their roles in building intelligent machines

## PAPER 3.6 : **PEC321(a) Distributed Systems**

### Course Outcomes

1. Explain the architecture, processes and communication of distributed system
2. Elaborate the naming and synchronization strategies
3. Describe the fault tolerance and distributed object based system
4. Discuss the distributed file system and distributed web based system
5. Explain distributed coordination based system and map reduce

## PAPER 3.6 : **PEC322(b) Cloud Computing**

### Course Outcomes

1. Elaborate the cloud computing services and resource virtualization
2. Explain the scaling, planning and file system and storage
3. Describe the database technology and security issues
4. Elucidate portability issues and programming model case study
5. Discuss the enterprise architecture and its related information

## PAPER 3.6 : **PEC323(c) Enterprise Architecture**

### Course Outcomes

1. Learn the fundamentals of EA
2. Study the business architecture
3. Understand the organizational structure of EA
4. Comprehend enterprise engineering
5. Gain insights into cloud computing opportunities for EA

## PAPER 3.6 : **PEC324(d) Natural Language Processing**

**Course Outcomes** – Learners on completion of the course, be able to

1. Explain elementary probability and information theory
2. Discuss the linguistic essentials
3. Describe statistical inference and word sense disambiguation
4. Elaborate evaluation measures and markov models
5. Elucidate probabilistic context free grammars

SEMESTER IV:

## PAPER 4.1 : **PEC411(a) Big Data Analytics**

### Course Outcomes

1. Learn how to handle big data
2. Learn hadoop ecosystem
3. Learn mapreduce and hbase fundamentals
4. Learn database concepts related to big data
5. Learn NoSQL fundamentals

## PAPER 4.1 : **PEC412(b) Deep Learning**

### Course Outcomes

1. Learn deep learning basics and optimization algorithms
2. Understand deep learning computation, CNNs and modern CNNs

3. Study recurrent neural networks and its modern versions
4. Learn computer vision
5. Comprehend GANs

#### PAPER 4.1 : **PEC413(c) Information Retrieval System**

##### Course Outcomes

1. Explain IR strategies
2. Elucidate basic retrieval utilities
3. Discuss cross language IR
4. Describe efficiency aspects
5. Elaborate distributed IR

#### PAPER 4.1 : **PEC414(d) Optimization Techniques**

##### Course Outcomes

1. Learn the optimization basics
2. Learn optimization using calculus
3. Learn dynamic programming and its applications
4. Learn integer programming
5. Learn advanced optimization techniques

#### PAPER 4.2 : **PEC421(a) Block Chain Technologies**

##### Course Outcomes

1. Learn the basics of hash functions
2. Learn the importance of digital signature
3. Understand the structure of a blockchain.
4. Learn different ways of storing Bitcoin keys, security measures.
5. Learn how Bitcoin relies on mining.

#### PAPER 4.2 : **PEC422(b) Software Testing**

##### Course Outcomes

1. List a range of different software testing techniques and strategies and be able to apply specific (automated) unit testing method to the projects.
2. Distinguish characteristics of structural testing methods.
3. Demonstrate the integration testing which aims to uncover interaction and compatibility problems as early as possible.

4. Discuss about the functional and system testing methods.
5. Demonstrate various issues for object oriented testing.

#### PAPER 4.2 : **PEC423(c) Internet of Things**

### Course Outcomes

Student will be able to

1. Understand the various applications of IoT and other enabling technologies.
2. Comprehend various protocols and communication technologies used in IoT
3. Design simple IoT systems with requisite hardware and C programming software
4. Understand the relevance of cloud computing and data analytics to IoT
5. Comprehend the business model of IoT from developing a prototype to launching a product.

#### PAPER 4.2 : **PEC424(d) Digital Forensics**

### Course Outcomes

1. Know how to apply forensic analysis tools to recover important evidence for identifying computer crime.
2. To be well-trained as next-generation computer crime investigators.
3. Learn data acquisition
4. Learn processing crimes
5. Learn forensics tools

#### PAPER 4.3 : **OE411(a) Professional Ethics**

### Course Outcomes

1. Explain the developments of legal profession in India
2. Describe the seven lamps of advocacy
3. Elaborate disciplinary proceedings
4. Elucidate the accountancy for lawyers
5. Discuss insights into safety and risk

#### PAPER 4.3 : **OE412(b) Constitution of India**



## Course Outcomes

1. Explain the basics of the constitution
2. Elucidate the structure of the union government
3. Elaborate the state government structure
4. Describe the local administration
5. Discuss the election commission

### PAPER 4.3 : **OE413(c) Disaster Management**

## Course Outcomes

After completing this course, student will be

1. Acquainted with basic information on various types of disasters
2. Knowing the precautions and awareness regarding various disasters
3. Decide first action to be taken under various disasters
4. Familiarized with organization in India which are dealing with disasters
5. Able to select IT tools to help in disaster management

### PAPER 4.3 : **OE414(d) Management Information System**

## Course Outcomes

1. Relate the basic concepts and technologies used in the field of management information systems
2. Compare the processes of developing and implementing information systems.
3. Outline the role of the ethical, social, and security issues of information systems.
4. Translate the role of information systems in organizations.
5. Learn about Information System security and control.

### PAPER 4.3 : **OE415(e) Intellectual Property & Cyber Law**

## Course Outcomes

1. Explain the fundamentals of intellectual property
2. Elaborate the basics of international instruments of IPR
3. Describe the laws concerning copyright in India
4. Discuss the IP in trademarks
5. Explain the concept of patent

## PAPER 4.3 : **OE416(f) Environmental Science**

### Course Outcomes

1. Explain the scope and importance of environmental studies
2. Elaborate the environment and natural resources
3. Describe the environmental pollution
4. Discuss the regional and sectoral issues concerning environment
5. Explain the social issues and the environment

## PAPER 4.3 : **OE417(g) E - Commerce**

### Course outcomes

1. Learners will comprehend the increasing significance of E- Commerce and its applications in Business and Various Sectors
2. Learners will be competent with Digital Marketing activities on various Social Media platforms and its emerging significance in Business
3. Learners will recognize the Latest Trends and Practices in E-Commerce
4. Learners will identify the Challenges and Opportunities of E-commerce in an Organization
5. Learners will identify the current Payment, Security, Privacy and Legal Issues in E-Commerce.

## PAPER 4.4 : **Proj401 Project Work**

### Course outcomes

- Problem definition and specification.
- Literature survey, familiarity with research journals.
- Broad knowledge of available techniques to solve a particular problem.
- Planning of the work, preparation of bar (activity) charts, Presentation both oral and written.