

**Adarsh Arts and Commerce College,**

**Desaiganj (Wadsa), Dist- Gadchiroli**

**Course Outcomes- B. A.**

**Compulsory and Communicative English**

1. The students' reading and writing skills will develop after studying lessons and poems.
2. The students' handwriting will improve and they will know and be able to utter correct pronunciation.
3. After studying Communicative English, the students will be equipped with the communicative skills, both verbal and non-verbal. The students will be enabled to communicate clearly and with confidence.
4. After studying Communicative English, the students' elocution skill, reference skills and editing skill will develop.
5. After studying Communicative English, the students will be enabled to draft agendas, minutes, business letters, to conduct interviews, conduct the meetings, chairing the meetings, face interviews, prepare presentations, give presentations and to transfer information.

**English Literature**

1. The students of the subject will have the knowledge of biography of old and modern writers from India and other countries, writing in English, their themes, skill of characterization, plot construction, narrative devices, etc.
2. The students will learn various poetic devices and will develop poetic ability.
3. The students of the subject will learn techniques and stanza forms and will try composing poetry in English.
4. The students of the subject will be able to understand the different forms of English literature like story, poem, novel, drama, essay, biography, autobiography, travelogue, and their types, features also.
5. The students of the subject will have the knowledge of the background of English literature.
6. The students of the subject will be able to understand and differentiate literary values and life values.

7. The students of the subject will have the knowledge of literary theories.
8. The students of the subject will learn dramatic art and stage craft.
9. The students of the subject will be able to understand and apply various literary terms and devices.

### **Compulsory and Communicative Marathi**

1. The students' reading and writing skills will develop after studying lessons and poems, written by old and modern writers and poets.
2. After studying Communicative Marathi, the students' writing skill, particularly writing articles for Magazines, Periodicals, preparing advertisements, Report writing, etc. will develop
3. The students' handwriting will improve and they will know and be able to utter correct pronunciation.
4. Feelings like love and affection for motherland and mother tongue will be inculcated among the students.
5. After studying Communicative Marathi, the students' elocution skills, writing interview scripts, etc. will develop.

### **Marathi Literature**

1. The students of the subject will have the knowledge of old and modern writers and poets, their themes, skill of characterization, plot construction, narrative devices, etc.
2. The students of the subject will be able to understand the different forms of literature like story, poem, novel, drama, essay, biography, autobiography, travelogue, and their types, features also.
3. The students of the subject will have the knowledge of the background of different literary types.
4. The students of the subject will have the knowledge of literature by saints.
5. The students of the subject will be able to understand and differentiate literary values and life values.
6. The students of the subject will have the knowledge of literary theories.
7. The students of the subject will be able to understand and apply various literary devices.

### **Economics : Fundamental Micro Economics**

1. After studying the subject, the students will be able to explain basic concept and theory of Micro Economics.
2. The students of the subject will be enabled to demonstrate knowledge of the demand and supply theory and its equilibrium.
3. The students of the subject will be able to explain and calculate elasticity of demand.
4. The students of the subject will be able to explain production function and laws of production.
5. The students of the subject will be able to explain the market structure and determination of price.
6. The students of the subject will be able to explain theories of factors and pricing.

### **Economics : Micro Economics**

1. After studying the subject, the students of the subject will be able to explain inflation and deflation and its effects.
2. The students of the subject will be able to demonstrate knowledge of business cycle and its effects and control.
3. The students of the subject will be able to explain monetary system and policy and fiscal policy.
4. The students of the subject will be able to demonstrate knowledge of taxes.
5. The students of the subject will be able to understand foreign trade and international financial institution.
6. The students of the subject will be able to explain and calculate value of money.
7. The students of the subject will be able to explain consumption function and employment.
8. The students of the subject will be able to demonstrate knowledge of investment and theories.
9. The students of the subject will be able to explain and calculate National Income.

### **Economics : Indian Economy**

1. After studying the subject, the students of the subject will be able to understand nature and characteristics of Indian economy.
2. The students of the subject will be able to explain the relativity between population and Indian economy.
3. The students of the subject will be able to understand the concept of Globalization.
4. The students of the subject will be able to explain national income of India.
5. The students of the subject will be able to understand planning in India.
6. The students of the subject will be enabled with the knowledge of agriculture sector in India.
7. The students of the subject will be enabled with the knowledge of industrial and service sector in India.
8. The students of the subject will be able to understand foreign trade and foreign capital.
9. The students of the subject will be able to understand the problems of important areas of concern.
10. The students of the subject will be enabled with the knowledge of economic growth and development and its factors.
11. The students of the subject will become aware about environment and pollution.

### **Geography**

1. After studying the subject, the students of the subject will have the detail information of the subject Geography.
2. The students of the subject will be able to understand the Climate, different elements of climate and the impact of different climatic conditions on human life.
3. The students of the subject will have the detail information about Lithosphere, formation of land forms, their structure, their types, etc.
4. The students of the subject will have the detail knowledge of Oceans, formation of oceans, movements on oceans, and the utility of these movements.

5. The students of the subject will have the extensive geographical information of Maharashtra State and also the regional geographical information.
6. The students of the subject will have the inclusive analytical geographical information of India.

### **Home-Economics**

1. After studying the subject, the students (Girls) of the subject will know how to become an ideal housewife.
2. The students (Girls) of the subjects will be able to use various human and non-human resources to do domestic and social activities easily.
3. The ability to take decisions will be strengthened in the students (Girls) of the subject.
4. The students (Girls) of the subject will be able to handle their household activities easily with the proper management of time and energy.
5. The students (Girls) of the subject will be able to do interior decorations.
6. Creation of Self-employment will be promoted.
7. The students (Girls) of the subject will have the thorough knowledge of nutrition required for healthy constitution.
8. The students (Girls) of the subject will have the thorough knowledge of balanced diet at different stages of life.
9. The students (Girls) of the subject will have the scientific knowledge of preparing fully nutritious food items.
10. The students (Girls) of the subject will have the knowledge of how to improve nutritious standard of food items.
11. The students (Girls) of the subject will have the knowledge about food safety, food defect, food adulteration, etc.
12. The students (Girls) of the subject will have the knowledge of controlling diseases through proper diet.
13. The students (Girls) of the subject will have the knowledge of causes of malnutrition and remedies on the same.
14. The students (Girls) of the subject will be able to understand the science of child growth.
15. The students (Girls) of the subjects will have the information about maternity homes and also about the pre-birth growth of child.

16. The students (Girls) of the subjects will have the complete knowledge about pregnancy and immunization of child.
17. The students (Girls) of the subject will have the thorough knowledge about complete growth of child.
18. The students (Girls) of the subject will have the knowledge of diet of child in pre-schooling and during schooling stage.
19. The students (Girls) of the subject will have the knowledge about the relationship between children and parents, behavioural problems and the remedies on the same.

### **History**

1. After studying the subject, the students of the subject will have the knowledge of Ancient Indian Culture.
2. The students of the subject will be able to understand different approaches towards religion.
3. The students of the subject will know the social, political, economical and cultural ideas of Indian kings and emperors.
4. The students of the subject will have the knowledge of Ancient Indian Art and Architecture.
5. The students of the subject will know about the foreign aggressions on India.
6. The students of the subject will learn the importance of forts in Indian history.
7. The students of the subject will know about the foundation and establishment of Maratha Empire.
8. The students of the subject will know about the establishment of British rule in India, their administration and different policies.
9. The students of the subject will know about the mutiny, revolutionary movements and agitations by the Indians against the British rule.
10. The students of the subject will know about the social improvements and other remarkable activities done by Indian Social reformers.
11. The students of the subject will know about the movements by Indians for the liberation of India from British rule.
12. The students of the subject will be enabled to do comparative study of the history of other countries other than India.

13. The students of the subject will be able to prepare for different Competitive Examinations.

### **Sociology**

1. After studying the subject, the students of the subject will have the thorough knowledge of different aspects of the subject-Sociology.
2. The students of the subject will be enabled with the proper perspective to study Tribal Society.
3. The students of the subject will be able to understand the process of social change.
4. The students of the subject will be able to study different facets of society, going beyond Castes and Tribes.
5. The students of the subject will closely know about crime, violence against women, corruption, population explosion, etc.
6. The students of the subject will know about social problems at different stages.
7. The students of the subject will have the thorough knowledge of family structure, marriage, economy, social movements of Tribal society.

### **Political Science**

1. After studying the subject, the students of the subject will have the knowledge of Parliament (Lok Sabha and Rajyasabha), President, High Court and Supreme Court of India, etc.
2. The students of the subject will have the knowledge of Local Self Government, rights obtained by Zilla Parishad, Panchayat Samiti, Grampanchayat and Gramsabha due to 73<sup>rd</sup> amendment in Indian Constitution, rights obtained by Nagar Parishad, Nagar Panchayat and Municipal Corporation due to 74<sup>th</sup> amendment in Indian Constitution, and also of Right to Information-2005, and Human Rights, etc.
3. The students of the subject will have the knowledge of various Political Theories.
4. The students of the subject will be able to understand and analyze the concepts like leadership qualities, ideology, power, authority, legitimacy, etc.
5. The students of the subject will be able to understand the philosophy and political ideology of political thinkers like M. K. Gandhi, Lokmanya Tilak, Dr. B. R. Ambedkar, Jotiba Fuley, Pt. Jawaharlal Nehru, Ram Manohar Lohiya, etc.

6. The students of the subject will be able to understand the thoughts of Western Political thinkers like Plato, Aristotle, Hobbes, Lock, Rousseau, Mill, Bentham, Lenin, Karl Marks, etc.

## **Course Outcomes : Bachelor of Commerce**

### **Advance Accounting**

1. After studying the subject, the students of the subject will be equipped with the knowledge of Amalgamation, Absorption, Organization and External Reconstruction.
2. The students of the subject will be equipped with the practical knowledge about accounts of Insurance Companies.
3. The students of the subject will be able to understand and develop practical approach of holding accounts of companies.
4. The students of the subject will be able to explain and calculate Investment accounts.
5. The students of the subject will be able to explain and calculate single account system and double account system of companies.

### **Organizational Behaviour**

1. After studying the subject, the students of the subject will be able to understand the basic idea and concept of Organizational Behaviour.
2. The students of the subject will be able to explain the concept and theories of motivation.
3. The students of the subject will be equipped with the knowledge of group behavior.
4. The students of the subject will be able to understand the concept of leadership and develop the skill of leadership.
5. The students of the subject will be able to understand the concept of conflict management.
6. The students of the subject will be able to understand and explain concept of training.
7. The students of the subject will be equipped with the knowledge of Human Resource Management.



### **Business Economics**

1. After studying the subject, the students of the subject will be equipped with the knowledge of Business Economics and use the same in business decision making.
2. The students of the subject will be able to develop knowledge on demand analysis.
3. The students of the subject will be able to explain the production function.
4. The students of the subject will be equipped with the proper knowledge about pricing under various market conditions.
5. The students of the subject will be able to understand population and population theories.
6. The students of the subject will be able to develop knowledge on the concept of cost analysis.
7. The students of the subject will be able to develop knowledge on rent and wages.
8. The students of the subject will be able to develop knowledge on profit and interest.

### **Statistics Technique and Business Mathematics**

1. After studying the subject, the students of the subject will be able to explain the concept of Statistics technique.
2. The students of the subject will be able to explain and calculate the measures of Central tendency.
3. The students of the subject will be able to explain and calculate the measures of dispersion.
4. The students of the subject will be able to explain and calculate the measures of skewness.
5. The students of the subject will be able to explain and calculate the correlation and regression analysis.
6. The students of the subject will be able to explain and calculate the measures of Index number.
7. The students of the subject will be able to explain and calculate the measures of chi-square test.
8. The students of the subject will be able to explain and calculate ratio, percentage, profit and loss and simple and compound interest.

### **Business Communication**

1. After studying the subject, the students of the subject will be able to understand the concept of communication.
2. The students of the subject will be able to understand business writings.
3. The students of the subject will be able to develop skill of Public Speaking.
4. The students of the subject will be able to develop knowledge of communication media.
5. The students of the subject will be able to explain the basic idea of organizational behavior.
6. The students of the subject will be able to develop skill of public relation.
7. The students of the subject will be able to understand the legal aspects of recent trends.

### **Principal of Business Management**

1. After studying the subject, the students of the subject will be able to use business terms and concepts during communication.
2. The students of the subject will be able to explain the financial concepts.
3. The students of the subject will be able to use effective skills to promote respect and relationship.
4. The students of the subject will be able to utilize information by applying a variety of business and industry software and hardware to major business functioning.
5. The students of the subject will be able to demonstrate basic understanding of business management.

### **Corporate Accounting**

1. The students of the subject will be able to understand the journal entries of issues and shares and issue of debentures.
2. The students of the subject will be able to know the meaning of companies and working styles of companies.
3. The students of the subject will be able to know about the final accounts of the companies.
4. The students of the subject will be able to learn the valuation method of shares and goodwill and measurement of performance of companies.
5. The students will be able to differentiate the profit of the company before and post incorporation.
6. The students will be able to learn the concept of sources of redemption of debentures and redemption of preference shares.
7. The students of the subject will be able to understand all accounts of the companies.
8. The students of the subject will be equipped with the knowledge of banking system.
9. The students of the subject will be able to understand the working format of companies.
10. The students of the subject will be able to find out how can a company dissolve.

### **Auditing**

1. The students of the subject will be able to understand the audit process from the engagement planning stage through completion of the audit, as well as the rendering of an audit opinion via various report options.
2. The students of the subject will be able to understand auditors 'legal liabilities' and be able to apply case law in making a judgement whether auditors might be liable to certain parties.
3. The students of the subject will be able to understand various levels of persuasiveness of different types of audit evidence and explain the broad principles of audit sampling techniques.
4. The students of the subject will be able to understand the need of discussion for a independent or external audit and describe briefly the development of the role of the assurance provider in modern business society.
5. The students of the subject will be able to describe how the quality control procedures are necessary to ensure that a competent assurance engagement is

performed, and apply professional ethics including code of conduct to specific scenarios.

6. The students of the subject will be able to explain the internal audit process including the professional standards applicable to the internal audit profession.

### **Industrial Relations**

1. After studying the subject, the students of the subject will be able to understand the qualities of human resource manager in an organization.
2. The students of the subject will be able to analyze the importance of different methods of training given to the employees in organization.
3. The students of the subject will be able to understand the difference between on the job training and off the job training.
4. The students of the subject will be able to explain the need of recruitment of good industrial relation programme.

### **Management Accounting**

1. After studying the subject, the students of the subject will be able to explain the nature and processes of business and also how Management Accounting plays important roles in their decision making scenarios.
2. The students of the subject will be able to define and explain inventory management ideas and methods and their uses in business decisions.
3. The students of the subject will be able to apply Management Accounting ideas and practices in making long term business decisions.
4. The students of the subject will be able to apply Cost Management ideas in determining product / service Cost and in making business decisions with an emphasis on Activity – based Costing.

### **Cost Accounting**

1. After studying the subject, the students of the subject will be able to explain the Cost Accounting system.

2. The students of the subject will be able to define the concept of Cost, expense and revenue.
3. The students of the subject will be able to prepare the production cost statement and cost goods sold statement.
4. The students of the subject will be able explain the main manufacturing cost elements.
5. The students of the subject will be able to calculate Factory overhead cost and record the same.
6. The students of the subject will be able calculate production cost according to the job cost system.
7. The students of the subject will be able to prepare the accounting record.
8. The students of the subject will be able to explain the flow of cost in process system.
9. The students of the subject will be able to explain the steps that will be used in process costing.

#### **Monetary Economics**

1. After studying the subject, the students of the subject will be able to understand the role of Monetary Policy.
2. The students of the subject will be able to understand the most important theories in monetary economics.
3. The students of the subject will be able to access and evaluate the conduct of monetary policy by the world Central Bank.
4. The students of the subject will be able to understand the merits and demerits of different monetary policies used by Central Bank.
5. The students of the subject will be able to introduce the concepts of data and parameter uncertainty and discuss the policy under uncertainty.

#### **Financial Accounting**

1. After studying the subject, the students of the subject will be able to define the concept of book keeping and accounting.

2. The students of the subject will be able to explain the general purposes and functions of accounting.
3. The students of the subject will be able to describe the main elements of Financial accounting information – assets, liabilities, expenses and revenue.
4. The students of the subject will be able to explain the difference between management and financial accounting.
5. The students of the subject will be able to identify the main financial statements and their purposes.

### **Corporate law and Commercial Law**

1. After studying the subject, the students of the subject will be able to understand the concepts of corporate law and Commercial Law.
2. The students of the subject will be able to understand the rights obtained under Right to Information law.
3. The students of the subject will be able to know the rights and responsibilities regarding Cyber law.
4. The students of the subject will be enabled with the knowledge of Industry and Industrial functioning.
5. The students of the subject will be able to know about Excise law and Custom law regarding national and foreign trade.
6. The students of the subject will be able to know the transactions done through Negotiable Instrument.
7. The students of the subject will be able to know about the rights of customers.
8. The students of the subject will be able to know the details about the transaction in the sale of goods.
9. The students of the subject will be able to know about VAT and Service Tax.

### **Information Technology**

1. After studying the subject, the students of the subject will be able to bridge the fundamental concepts of computers with the present level of knowledge.
2. The students of the subject will be able to familiarize operating systems, programming languages, peripheral devices, networking, multimedia and internet.
3. The students of the subject will be able to understand binary, hexadecimal and octal number systems and their arithmetic.

4. The students of the subject will be able to identify core networking and infrastructure components and the roles they serve; and given requirements design and IT infrastructure including devices, topologies, protocols, systems software, management and security.
5. The students of the subject will be able to create a document in Microsoft Word with formatting.
6. The students of the subject will be able to write functions in Microsoft Excel to perform basic calculations and make Chart and Database.
7. The students of the subject will be able to create a presentation in Microsoft Power Point that is interactive and legible content.
1. The students of the subject will have competence and expertise, to an advanced level, using different accounting software packages (TALLY), in maintaining data and providing user information.
2. The students of the subject will have an ability to compare and contrast the advantages and disadvantages of different accounting software packages.
1. The students of the subject will be able to use knowledge of HTML code and editor to create simple web page also personal / business websites.
2. The students of the subject will be able to use critical thinking skills to design and create websites.

## **COURSE OUTCOMES- Bachelor of Science**

### **Dept. of Chemistry - Sem. I – Paper I : Inorganic chemistry**

- To know the basic concept of atomic structure, atomic orbital and shape of orbitals.
- To explain the discrete energy levels in which electrons orbit the nucleus of an atom.
- To learn the distribution of electron based no. of principles such as Aufbau, hunds rule etc
- To understand the fundamentals of the chemistry of the main group elements
- To study the relation of atomic structure to the periodic table of the elements
- To learn how to bond formed, strength of bond, energy of bond. • To know the how the repulsion of bond occurs.
- To understand how to diatomic molecules are combined.
- To learn how the predict geometries of simple molecules.
- To learn the entire concept of s-block and p-block of the periodic table and get to know the elements inside, Learn all about the s-block elements, including some of their distinguishing properties.
- To understand the application ofs-block and p-block elements in biosystem.
- To understand acid-base titration with different kinds of indicator. • How the inert gases are different than other elements.

### **Paper- II : Organic Chemistry**

- To understand the Inductive effect, electromeric effect and the cleavage of bonds.
- To enable the students to explain the types of reactions with suitable example.
- To learn the structure, shape of organic molecules like sp, sp<sup>2</sup>, sp<sup>3</sup> and reactivity of intermediates of carbocation, carbanions an free radical
- To study the strength of organic acids and bases.



- To understand the basic concept of structural chain, position, functional group of isomerism and their types.
- To study the Wedge formula, Newman, sawhorse and Fischer representations repulsion.
- To understand how to chirality of two carbon atoms are combined and how to distinguish geometrical and optical isomerism.
- To understand theory and erythroisomerism, CIP rules, E/Z nomenclature.
- To study racemisation, resolution inversion, retention of configuration.
- To understand how to prepare the alkane by wurtz reaction, Kolbe reaction and decarboxylation of carboxylic acid.
- To study the uses of alkane in day to day life for example L.P.G cylinder, C.N.G, octane number and Octane number.
- To study the uses of Baeyer's strain theory and strain less theory.
- Learn all about the manufacture procedure of alkene, including some of their distinguishing properties.
- To study the role of ozonolysis in biosystem.
- To understand how to identify alkynes from alkane and alkenes.
- To understand the preparation of phenol by decarboxylation, from acetylene and benzene sulphonic acid.
- To study the structure and orbital diagram of benzene and learn all about the aromaticity and Huckel's rule.

#### **PRACTICAL OUTCOME    B.Sc. Sem. I - Paper-I : Inorganic chemistry**

- Student will be learning how to prepare a solution and the use of an analytical balance for mass measurement
- To know the use of graduated cylinders, graduated pipettes, and volumetric flask for volumetric measurement
- To learn the gravimetric and volumetric analysis.
- To understand the estimation of different types of elements.
- To learn determination of total hardness of water and how to distinguish the soft water and hard water this is useful for many purposes.

#### **Paper- II (Organic Chemistry)**

- Student will be learning how to detect elements from unknown organic compound.
- Student will be learning qualitative organic analysis of organic compound possessing functional groups.

- To know the use of thermometers and temperature probes.
- To learn chromatographic method for separation of organic mixture.

### **Sem. II - Paper-I : Organic Chemistry**

- To understand the types of nucleophilic substitution reaction like SN1 and SN2 .
- Students will be able to learn elimination reaction of alkyl halide with E1 and E2 reaction and how substitution reactions differentiate from elimination reaction.
- Students will be able to learn reactivity and relative strength of C-halogen bond in aryl halides. • To understand the difference between the preparation of 1<sup>o</sup>, 2<sup>o</sup> and 3<sup>o</sup> alcohols.
- The application of diols in day to day life.
- To learn preparation of phenol from different types of reactions.
- To study the comparative acidic strength of alcohols and phenols.
- To understand the synthesis and reactions of ethers and how the ethers are very useful in our life.
- To understand the nomenclature, structure and reactivity of carbonyl group.
- To learn the preparation of aldehyde and ketone from different types of methods
- Students will be able to learn Rosenmund reduction, Reimer-Tiemann reaction and Friedel-Craft's acylation.
- To understand the useful Aldol condensation and Benzoin condensation.
- To learn how Wolff Kishner reduction and Meerwein-Ponndorf-Verley reduction are important. • Students will be able to learn nomenclature, structure and bonding in carboxylic acid.
- To understand the importance of carboxylic acid in biosystem and it is also related to the subject of Botany.
- To learn the most important Hell-Volhard-Zelinsky reaction.
- To study the concepts of dicarboxylic acid, its methods of formation such as effect of heat and work and how they are related or differentiated from carboxylic acid.
- Students will be able to learn the derivatives of carboxylic acid and their physical properties.

### **Paper -II : Physical Chemistry**

- To understand mathematical Concepts.
- Students will be able to learn electrolytes, ionization of acid and bases
- Students will be able to acquire knowledge about solubility of product of sparingly soluble salts.
- To acquire concepts in thermodynamics, different thermodynamic quantities such as heat and work and how they are measured, related or transformed from one to the other
- To know how to apply mathematical tools to calculate thermodynamic properties
- To know the basic thermodynamics laws.
- To understand the thermochemistry, to calculate the bond energy from thermodynamically data.
- To understand the explain gas behaviour using kinetic molecular theory and study of molecular velocity
- To learn gas laws governing the physical and chemical behaviour of gases.
- To understand viscosity, surface tension and determination its method.
- To learn the determination of crystal structure of solid compound, symmetry of compound interfacial angles.

#### **PRACTICAL OUTCOMES    B.Sc. Sem.-II Paper -I : Organic Chemistry**

- To learn the purification of organic compound by crystallization method.
- Students reported the melting point of sample before and after crystallization.
- Preparation of organic compound and determination of melting point by using thermometers and temperature probes.
- To study the different types of organic preparation with mechanism of various reaction, recrystallization and determination of melting point and calculation of quantitative yields.

#### **Paper-II : Physical chemistry**

- To understand heatcapacity, enthalpy of neutralization, enthalpy of ionization, enthalpy of hydration of solution by performing practical
- To understand change in enthalpy
- To learn the use of PH meter for finding PH of different solutions like fruit juice, shampoo, soap, etc.
- To learn the preparation of buffer solutions at a required pH, given a choice of solutions of acid/conjugate base pairs

- To understand how to determine relative viscosity of unknown liquids by using instrument Ostwald viscometer.
- To understand how to determine surface tension of liquids by using instrument stalagmometer.

### **Sem. III - Paper-I : Inorganic Chemistry**

- To understand the Ionic solids, to calculate the lattice energy from given data.
- The students will be able to learn the most important Born-Haber cycle.
- To understand the types and properties of metallic bonding.
- The Students will be able to learn free electron theory, valence bond theory and band theory.
- To understand the nature of conductor, insulators and semiconductors and how to use in electronic appliances.
- To study the basic concepts of hydrogen bonding with respect to their viscosity, solubility, melting point and boiling point.
- The students will be able to learn first transition series elements with reference to their electronic configuration, atomic and ionic radii.
- To understand the different properties of first transition series elements this is obtained in our nature and know how to use this series that begins with scandium, titanium and ends with zinc.
- The students will be able to learn second and third transition series elements.
- To study the comparative treatment of second and third transition elements in respect of oxidation state, magnetic behaviour and stereo chemistry
- The students will be able to learn errors in chemical analysis and to study how to differentiate random and systematic errors.
- To understand the Mean, median and standard deviation and significant figure and try to solve the related numerical problems which is very useful for mathematics and statistics and also useful for collecting and analysing numerical data.
- To learn theory of volumetric analysis
- To understand types and theory of acid-base titration with different kinds of indicator.
- To study how to use of redox titration and complex metric titration.
- To understand the classification and general characteristics reaction in non-aqueous solvent
- Students will be able to learn chemical fertilizers and how to use for farmers for producing food without affecting the environment as well as the surrounding ecosystem.

- To learn the advantages that fertilizers are very important for plant growth because it contains nitrogen, potassium and disadvantages so that excess of fertilizers are harmful for crop production.
- To learn the manures, compost and how to use of chemical fertilizers.
- To understand the importance of raw materials and general composition of Portland cement
- Students will be able to learn the manufacturing process of cement like dry and wet process which is very useful binding materials in construction.
- To study the composition and characteristics of constitutional compounds, mortars, concrete and curing and to learn how its strength increases over time and it hold up well against weather conditions and is easy to maintain.

### **Paper-II : Physical Chemistry**

- To understand concepts in thermodynamics, different thermodynamic quantities such as heat and work and how they are measured, related or transformed from one to the other
- The students learn how to apply the mathematical tools to calculate thermodynamic properties?
- To know about thermodynamics laws.
- To understand the thermo chemistry and to calculate the bond energy from thermodynamically data.
- To understand second law of thermodynamics and why need of second laws of thermodynamic
- To gain Concept of entropy and how entropy as criteria of spontaneity and equilibrium
- To learn Helmholtz free energy and Gibbs free energy and their properties.
- To learn Van't Hoff equation has been widely utilized to explore the changes in state functions in a thermodynamic system.
- To learn concept phase rules, phase, component and degree of freedom and application of phase rule to two phase equilibria.
- To understand Raoult's law of ideal solution
- To understand Henry's law and Nernst distribution law.
- To learn the determination of crystal structure of solid compound, symmetry of compound, interfacial angles, laws of rationality of indices.
- To understand crystal system and x – ray diffraction.

### **Sem. -III - Paper-I : Inorganic Chemistry**

- Student will be learning how to prepare a solution and the use of an analytical balance for mass measurement
- To learn how to titrations, occur. PAPER-I (Physical chemistry)
- To understand heat of solution, heat of ionization and critical solution of partially miscible liquids
- To learn the construction of phase diagrams of three component system.
- To know the molecular state of benzoic acid.

#### **Sem. - IV Paper-I : Inorganic Chemistry**

- To understand position of lanthanides and actinides in periodic table.
- To gain the concept of lanthanides and actinides elements and their characteristics.
- To learn how to identifies the periodic trends in physical and chemical properties of elements.
  - To know the reactivity of elements and explain reasons for the anomalous behaviour.
- To understand coordination compound, warner's coordination theory and experimental verification.
- To learn effective atomic number rule, chelates and their application.
- To learn isomerism in coordination compound.
- To understand gravimetric analysis and different steps involve in gravimetric analysis.
- To know concept of hard acid and soft acid and bases.
- To learn green chemistry and its goals.
- To know the terms, oxidation, reduction, oxidizing agent and reducing agent.
- To understand redox stability in water
- To learn metallurgy and various steps in metallurgy
- To understand hydrometallurgy and pyro metallurgy.

#### **Paper-II : Organic Chemistry**

- To understand the principle of UV spectroscopy.
- To know the difference type of excitation.
- To learn the basic principle of IR spectroscopy.
- Application of UV and IR spectroscopy.
- Students will be able to understand to nomenclature, structure and bonding of carboxylic acid.

- To learn the reactivity of carboxylic acid.
- To understand the various preparation and chemical reaction of carboxylic acid and its derivatives.
- Students will be able to understand to nomenclature, structure and bonding of Nitro compounds.
- To understand mechanism of nucleophilic substitution in nitro alkane.
- To learn about amino compound.
- To understand chemical reaction of amino compounds.
- To understand the Quantitative analysis of C, N, S, H.
- Students should learn about active methylene compound (preparation and synthesis).
- To know about various organometallic compound and their reactivity and chemical reaction.

#### **PRACTICAL OUTCOMES B.Sc. Sem. -IV Paper -I : Inorganic Chemistry**

- Student will be learn how to prepare a solution and the use of an analytical balance for mass measurement.
- Students will know how to use of graduated cylinders, graduated pipettes, and volumetric flask for volumetric measurement.
- Students will understand the gravimetric analysis.

#### **Paper-II : Organic Chemistry**

- Student will be learning identification of organic compound through element test, functional group test etc.
- Students will know the use of thermometers and determine Melting Point and Boiling Point of organic compound.

#### **Sem. V Paper- I : Organic Chemistry**

- To understand magnetic properties of nucleus
- To gain the concept of principle of NMR.
- To know what is mean by nuclear shielding and deseilding, chemical shift, spin-spin coupling.
- To know how to elucidate the structure of organic molecule using NMR data.
- To understand the molecular orbital diagram of heterocyclic compounds like furan, pyrrol, pyridine.
- To know electrophilic and nucleophilic substitution reaction on heterocyclic compound.

- To learn about different types of reagent like sulphur ylides, LDA etc.
- To understand the classification and ring size determination of various carbohydrate.
- To learn about the amino acid, peptide and protein.
- To understand what is mean by fats, oil and detergent.
- To learn how the colour imparted on fabrics by dye.
- To understand the basic terms like auxochrome, chromophore, Otto witts theory.
- To discuss the definition, basic terminology and types of drugs.

### **Paper- II : Physical Chemistry**

- To know the terms conductance, type of electrodes and electrolytes, conductivity, specific conductance, equivalence and molar conductance.
- To learn about Kohlrausch law and conduct metric titration.
- To understand the Arrhenius theory and Debye-Huckel theory
- To understand the difference types of cell and its e.m.f and measurement.
- To learn how to determine the thermodynamics quantities.
- To learn about types of process and laws of electrolysis.
- To understand difference types of reversible electrodes.
- To learn about Nernst equation and its application.
- To know about salt bridge and its application in titration.
- To learn the concept of various types of potentiometric titration
- To understand concept of quantum mechanics and classical mechanics with examples.
- To know what is DE-Broglie's hypothesis and Heisenberg uncertainty principle.
- To learn about Schrodinger wave equation and different operators.
- To learn about the application of particle in one dimensional box.
- To understand the various methods of concentration of solution
- To know about basic terminology-osmosis, lowering vapour pressure, osmotic pressure.
- To learn about quantum no. and its type and application.
- Students will be able to discuss different types of magnetic properties

### **PRACTICAL OUTCOME Sem.-V Paper-I : Organic Chemistry**

- The Students should understand about separation and identification of organic compound in given binary mixture.



- To learn about how the glucose, amide, can be estimated.
- To know the preparation of drugs like aspirin and paracetamol

### **Paper- II : Physical Chemistry**

- To determine strength of various acid by conductometric titration.
- How the FAS titrated by potentiometrically;
- To determine the saponification value of oil.

### **Sem –VI Paper -I : Inorganic Chemistry**

- To carry out Qualitative and quantitative analysis of Experimental data by sampling, errors, accuracy and Precision.
- To know modern instrument Flame Photometry and study Basic principles, instrumentation and application of it.
- To develop basic skills required for chromatography, ion exchange, solvent extraction, crystallisation, distillation, TLC and column.
- To Understand the Basic Principal of Soil Chemistry through Collection of sample, Chemical Analysis, Soil pH and Soil Salinity.
- To explore the basic knowledge of various pesticides, insecticides, fungicides and herbicides.
- To make them know about Preparation, properties and application o organometallic Compound like Al, Hg and Sn.
- To make the students aware about gold and silver Nanomaterial Technology and Carbon Nanotube.

### **Sem -VI Paper II: Physical Chemistry**

- To know about basic principle, techniques, and application of chromatography.
- To learn about extraction of solvent and its application in chemistry.
- To gain detail information about various fertilizer.
- To know about various methods of soil analysis.
- To understand Langmuir's theory of adsorption, adsorption chromatography.
- Ton learn types of colloidal system, its allocations, lyophilic and lyophobic sol, particle size range.
- To learn electrical properties: electrophoresis and electro osmosis, surfactant definition,

types.

**PRACTICAL OUTCOME Sem-VI Paper-I : Inorganic Chemistry**

- To understand the preparation of various complexes like potassium trioxalato ferrate, copper tetraamine complex.
- To perform jobs method and mole ratio methods to determine composition of Fe-SSA complex.
- To determine  $R_f$  value by paper chromatography.

**Paper-II : Physical Chemistry**

- To verify the Beer-Lambert law for determination of concentration of  $KMnO_4$ .
- To determine molecular mass of non-volatile solute by Rast method.

**Dept. of Mathematics B. Sc. I : Sem – I (CBCS)**

**Paper-I : Differential and Integral Calculus**

- The students know the calculus of several variables.
- The students understand the rate of change.
- The students understand the concept of differentiation.
- The students understand the concept of Integration.
- The students know the applications of differentiation, including measuring velocity, acceleration, etc.
- The students know the applications of Integration including estimating areas, volumes,
- The students understand the importance of Taylor's series.
- The students know mean value theorem of integral calculus.
- The students know how to solve improper integrals.
- The students can find area by double integration
- The students learn how to change the order of integration.

**Paper-II : Differential Calculus and Trigonometry**

- The students understand the concept of limit.
- The students learn Chain rule of differential calculus.
- The students learn Euler's theorem of differential calculus.
- The students understand the concept of slope.

- The students understand the concept of asymptotes.
- The students understand the concept of complex number.
- The students learn De Moivre's theorem in trigonometry.

### **Sem. - II - Paper-I : Ordinary Differential Equations and Difference Equations**

- The students understand the necessity of differential equations.
- The students learn about forming differential equations from physical situations.
- The students know various types of differential equations.
- The students know solution for various types of differential equations.
- The students know the methods of momentum and energy transfer.
- The students learn about the simultaneous differential equations.
- The students understand definition and properties of Wronskian.
- The students understand definition and properties of difference equations.

### **Paper-II : Partial Differential Equation**

- The students understand the importance of partial differential equations.
- The students know it is used in solving many problems of engineering and physics.
- The students know about linear partial differential equations.
- The students know various types of partial differential equations.
- The students understand the Charpit's method of partial differential equations.
- The students know about the Homogeneous and Non-Homogeneous partial differential equations.

### **SEM-III - Paper-I : Real Analysis**

- The students understand the concept of real sequence.
- The students know functions on metric spaces.
- To students understand connected metric spaces.
- The students understand complete metric spaces.
- The students understand compact metric spaces
- The students understand the concept of Riemann integral.
- The students learn the Fundamental Theorem of Integral Calculus.

### **Paper-II : Set Theory and Laplace Transform**

- The students know the development of the axiomatic view of set theory.

- To enable the students to identify the axioms of a system of set theory, for example the Zermelo-Fraenkel axioms, including the Axiom of Choice,
- Define cardinality, discuss and prove Cantor's Theorem and discuss the status of the Continuum Hypothesis,
- Explain basic concepts and prove basic facts about ordinals and well-ordered sets.
- Use transfinite induction to prove a selection of theorems relating to ordinals and cardinals.
- Define the set theoretic universe  $V$  and discuss its structure.
- To learn properties of Laplace transforms.
- To learn properties of inverse Laplace transforms.
- To understand how to solve ordinary differential equations and partial differential equations from Laplace Technique.

#### **Sem. IV - Paper-I : Algebra**

- To understand the concept of groups.
- To learn homomorphism and isomorphism.
- To learn group codes and how to uncode.
- To learn normal subgroups.

#### **Paper-II : Elementary Number Theory**

- To understand the concept of Division Algorithm
- To learn the Prime Numbers.
- To understand the concept of the Fundamental Theorem of Arithmetic.
- To learn the Fermat Numbers.
- To understand the concept of Congruence.
- To understand the properties of Congruence.
- To learn the Euler's Theorem.

#### **SEM V - Paper-I : Linear Algebra**

- To learn the importance of analytic function.
- To understand theorems on Cauchy Riemann equation.
- To learn about vector spaces.
- To understand theorems on basis and dimension.
- To know about Eigen values and Eigen vectors.
- To study linear transformations.
- To learn about the inner product space.

### **Paper-II Special Relativity-I**

- To learn Newtonian Mechanism
- To understand Maxwell's electromagnetic Theory
- To understand Einstein's special relativity theory
- To understand the elements of tensors
- To understand space-time structure

### **Sem-VI Paper-I Special Relativity-II**

- To understand relativity mechanics
- To understand the relativity and electromagnetism
- To study four dimensions of the theory
- To understand the thermodynamics of moving system
- To understand Lorentz transformation of thermodynamic quantities

### **Paper-II : Linear Programming and Transportation**

- To study standard form of Linear programming problems
- To understand the simplex method
- To study transformation problems, Algorithms, mathematical formulation of transportation problem
- To understand the Non-linear programming
- To study the techniques with examples

### **Dept. of Physics : Sem. I Paper – I : Mechanics and Relativity - I**

- Students understand the basic concepts of Classical Mechanics like laws of motion, centre of mass, momentum and energy, collision, dynamics of rigid body, rotational motion.
- Students understand space and time coordinate transformation in relativistic motion using Lorentz Transformation.
- Students will become familiar with fascinating concepts in Special Theory of Relativity viz. time dilation, variation of mass with velocity, length contraction, twin paradox, addition of velocities, etc.
- Students will have clear picture of mass energy equivalence relation and its applications. Understand how major concepts developed and changed over time.
- Students will experience the diverse applications of classical mechanics.
- Students will become capable of analysing and solving problems using oral and written reasoning skills based on the concepts of classical physics and special theory of relativity. Acquire a foundation for advanced courses in physics.

### **Paper- II Gravitation & Elasticity**

- Students will understand the basic concept Newton's law of gravitation.
- Students will understand the logical knowledge about artificial satellite.
- Students will learn about GPS system.
- Students will know about Simple Harmonic Motion.
- Students will understand the basic concept of elasticity.
- Students will understand the logical knowledge construction of dam, building etc.
- Students will understand the basic concept of viscosity.
- Students will understand the logical knowledge about sprayer, atomizer and lift of an aeroplane.
- Students know the basic concept of Bernoulli's theorem and Poiseuille's equation.

### **Sem-II Paper- I Vector Analysis and Electrostatics**

- To understand the basic concepts vectors and vector analysis and its applications in Physics.
- To understand the basic theories in electrostatics such as electric field, electric dipole, electric quadrupole, electric potential, electric flux, Gauss's law and its applications to find out electric field, relation between electric field and electric potential.
- To develop the understanding of electric field in dielectric, capacitance, various types of capacitors, displacement vector, polarization in dielectric and use of it in practical applications.
- To develop skill to solve numerical problems on it.
- To acquire a foundation for advanced courses in physics

### **Paper- II Magneto statics & Electromagnetic waves**

- Students understand the basic knowledge about Faraday's law of electromagnetic induction.
- To understand the basic knowledge about transformer.
- To understand the basic concept Kirchhoff's law.
- To get Knowledge about Maxwell's equations.
- To understand the basic concept electromagnetic waves.
- To understand the basic concept about diamagnetic, paramagnetic and ferromagnetic material.

### **Sem -III - Paper- I Thermal Physics**

- To understand the Kinetic theory of gases.

- To know about Monoatomic, Diatomic and Polyatomic gases.
- To understand the concept of Thermodynamics, Law of Thermodynamics.
- To understand the concept of Entropy.
- To understand the Clausius – Clapeyron Equation, Joule – Thomson effect, Porus – plug experiment and its application.
- To develop skill to solve numerical problem on it.
- Acquire a foundation for advanced courses in physics.

### **Paper- II : Radiation and Statistical Physics**

- To develop understanding of black body, black body radiation, temperature dependence of black body radiation spectra, failure of classical theories like Wien's distribution law, Rayleigh – Jeans law to explain black body radiation spectra.
- To learn Plank's quantum postulates, Plan's energy distribution law.
- To understand the principles in statistical physics, mainly for systems in thermal equilibrium.
- To understand quantum and classical statistical mechanics for ideal systems, and be able to judge when quantum effects are important.
- The student will understand the connection between microphysics and thermodynamics.
- To know how to use statistical principles in a wide range of applications.
- To acquire a foundation for advanced courses in physics.

### **Sem-IV Paper- I : Waves, Acoustics and Laser**

- To understand the Lissajous figure, application of lissajous figure and the Optical method.
- To understand the Wave motion and Relation between Group velocity and Phase velocity.
- To know about Ultrasonic wave, Properties and Application.
- To understand the Noise and Music. And characteristics of musical sound.
- To understand the Types of Laser, Properties and Application of Laser.
- To develop skill to solve numerical problem on it.

### **Paper- II : Optical Physics**

- To understand the basic concepts of Light Waves and properties of light waves like interference, diffraction, wave front, phase change on reflection, interference in thin film due to reflected and transmitted light in parallel film, Haidinger Fringes, Fizeau Fringes.
- To understand Newton's Ring experiment and apply skills to find out wavelength and refractive index using Newton's Ring experiment.

- To understand Michelson's Interferometer experiment and apply skills to find out wavelength, wavelength difference, refractive index and visibility of fringes using Michelson's Interferometer.
- To know the Difference between Fraunhofer and Fresnel diffraction.
- The students will learn Half-period zones, zone plate, diffraction due to straight edge and narrow slit.
- To understand theory of diffraction grating and its application to find wavelength.
- To know how to explain the physics of polarisation, different methods for the production of polarisation by reflection, double refraction.
- The students will be able to explain Brewster's law, Nicol's prism and its applications, quarter and half wave plate. Develop skill to solve numerical problems on it.

#### **Sem-V Paper- II : Elements of modern Physics**

- To understand about Schrodinger's Equations.
- To understand the concept of Eigen value and Eigen equation.
- To understand the logic of tunneling.
- To know about size of nucleus.
- To understand the knowledge about Binding energy.
- To understand about radioactivity.
- To know about emission of  $\alpha$ ,  $\beta$  and  $\gamma$  emission .
- To understand knowledge about liquid drop model.
- To understand basic knowledge about Nuclear Fission.
- To know about nuclear fusion and stellar energy

#### **Sem -V Paper- II : Solid State Physics**

- To understand the Crystal structure, and Types of lattices.
- To know about Diamagnetic, Paramagnetic and Ferromagnetic material and Weiss's theory of Ferromagnetism.
- To understand the Three electric vectors E, D and P.



- To understand the Energy band picture of conductor, semiconductor and insulator and Kroning Penny Model.
- To understand the Theory of superconductivity and Types.
- To develop skill to solve numerical problem on it.
- To acquire a foundation for advanced courses in physics.

#### **Sem-VI Paper- I : Nuclear & Particle Physics**

- To understand the knowledge of constituent of nuclei.
- To know about Binding Energy and Packing fraction.
- To understand about different nuclear models.
- To understand the concept of nuclear force.
- To know about exo, endo reactions.
- To understand the concept of magic number
- To know about nuclear reaction.

#### **Sem-VI Paper- II : Digital and Analog Circuits and Instrumentation**

- To understand the Digital circuits and Types of number system.
- To understand the Types of Logic gates.
- To understand the Semiconductor devices and Application.
- To know about Power supply and Types of Rectifiers.
- To understand the Transistors and Classification of Amplifiers.
- To understand the Operational Amplifiers and application of Operational Amplifiers.
- To develop skill to Digital and Analog circuits on it.

#### **B. Sc.- Physics**

- Provide knowledge about material properties and its application for developing technology to ease the problems related to the society.
- To understand the set of physical laws, describing the motion of bodies, under the influence of system of forces.

- To understand the relationship between particles & atom, as well as their creation & decay.
- To analyze the applications of mathematics to the problems in physics & develop suitable mathematical method for such application & for formulation of physical theories.
- To learn the structure of solid materials & their different physical properties along with metallurgy, cryogenics, electronics, & material science.
- Understand the fundamental theory of nature at small scale & levels of atom & sub-atomic particles.
- Students will be able to demonstrate their understanding of the foundations in physics by demonstrating competence in the major through appropriate homework assignments and examinations.
- Students will be able to competently solve appropriate problems in upper level physics courses using increasingly important computational and mathematical tools, such as Mathematica.
- Students will be able to demonstrate competency in experimental design and scientific data collection and analysis.
- Students will be able to demonstrate competency in their understanding of scientific information, both orally and in writing.
- Students will be able to integrate competently the knowledge and skills acquired in the major and have adequate preparation to succeed in post-undergraduate studies or a professional career.
- Students will demonstrate an understanding of core knowledge in physics, including the major premises of classical mechanics, E&M and Modern Physics.
- Students will demonstrate written and oral communication skills in communicating physics-related topics. Students will design and conduct an experiment (or series of experiments) demonstrating their understanding of the scientific method and processes.
- Students will demonstrate an understanding of the analytical methods required to interpret and analyze results and draw conclusions as supported by their data.
- Students will demonstrate proficiency in the acquisition of data using a variety of laboratory instruments and in the analysis and interpretation of such data.
- Students will utilize a wide range of printed and electronic resources and information technologies to support their research on physical systems and present those results in the context of the current understanding of physical phenomena.

- Students will demonstrate understanding of the applications of numerical techniques for modelling physical systems for which analytical methods are inappropriate or of limited utility.
- Students will demonstrate a thorough understanding of the analytical approach to modelling of physical phenomena.
- Students will demonstrate an understanding of the impact of physics and science on society.
- Demonstrate a rigorous understanding of the core theories and principles of physics, which include mechanics, electromagnetism, thermodynamics, and quantum mechanics.
- Apply critical reasoning skills to model and solve physics related problems.
- Demonstrate proficiency in the collection, analysis and interpretation of data.
- Communicate scientific information in oral, written, and graphical formats.

### **Department of Zoology - Sem –I**

#### **Paper I – Nonchordate – Protozoa to Annelid**

- To describe general taxonomic rules on animal classification
- To classify Protista up to phylum using examples from parasitic adaptation
- To classify Phylum Porifera to Echinodermata with taxonomic keys
- To describe Phylum Nematoda and give examples of pathogenic Nematodes

#### **Paper II : Cell Biology**

- Students gain knowledge of different biomolecules and biochemical processes of cells
- Gather basic concepts of Cell Biology along with various cellular functions.
- Develop deeper understanding of what life is and how it functions at cellular level.
- Describe cellular membrane structure and function, fine structure and function of cell organelles.
- Perform a variety of molecular and cellular biology techniques
- Ability to observe chromosomal arrangements during cell division

#### **Sem. - II - Paper I- Life And Diversity of Animals Arthropod to Hemichordate**

- Understand the evolution, history of phylum.

- To understand about the Non Chordate animals.
- To understand the taxonomy and structures of Arthropoda
- To study the external as well as internal characters of non chordates.
- To study the distinguishing characters of non chordates.
- To understand the economical importance of Molluscs
- To understand the various internal systems like Digestive system, nervous system. .
- To understand the economical importance of Molluscan shells.

### **Paper II- CELL BIOLOGY**

- Students gain knowledge of different biomolecules and biochemical processes of cells
- Gather basic concepts of Cell Biology along with various cellular functions
- Develop deeper understanding of what life is and how it functions at cellular level.
- Describe cellular membrane structure and function, fine structure and function of cell organelles. Perform a variety of molecular and cellular biology techniques
- Ability to observe chromosomal arrangements during cell division

### **Paper II- GENETICS AND EVOLUTION**

- To understand the fundamental molecular principles of genetics
- To understand the structure and function of DNA & RNA
- To understand about the transmission, distribution, arrangement, and alteration of genetic information and how it functions and is maintained in populations
- To describe the basics of genetic mapping.
- To understand Origin of life with respect to prokaryotic and eukaryotic cells.
- To understand the evidences of organic evolution by anatomical embryological list, paleontological, physiological, genetics and molecular biology evidences.
- To understand theories of organic evolution, isolation, and speciation.
- Understand geological time scale, methods and classification of animal distribution and factors affecting animal distribution.

### **Sem. - III Paper- I- Animal Diversity and Comparative Anatomy**

- To become Familiar with vertebrate world that surrounds us.
- To enable them to identify vertebrates and classify them up to the class level.

- To understand the basis of life processes in the chordates.
- To know higher vertebrates introduction digestive nervous reproductive system and comparative anatomy.
- To classify and characterize up to order -Urochordata, general characters Ascidian tadpole larva retrogressive metamorphosis.
- To classify and characterize up to order - Cephalochordata, morphological characters digestive system of Amphioxus.
- Classify and characterize up to order - Cyclostomata, morphological characters of Pteromyzon and Myxine.
- To classify and characterize up to order -pisces, general characters, osmoregulation.
- To classify and characterize up to order –amphibia, general characters, parental care.
- To classify and characterize up to order –Reptilia, general characters, snake venom poisonous and non poisonous snakes.
- Classify and characterize up to order –aves, general characters, flight adaptation migration.
- Classify and characterize up to order –mammals, general characters, prototheria, metatheria, eutheria.

### **Paper II – Physiology and Biochemistry-I**

- To know the fundamental principles and unifying facts of human physiology.
- To study the breathing mechanism, Hemoglobin (Hb %) as a respiratory pigments, function of respiratory organs and others respiratory organs.
- To study source and type of vitamins, deficiency and diseases.
- To know the digestive mechanism, digestion of carbohydrates, protein and fats.
- To study all digestive glands and its function (Structure and function of Salivary, Gastric, Intestinal, liver, Pancreas).
- To study of enzyme, nomenclature of enzyme, Induce–fit model and key-lock models, properties of enzyme and factors affecting enzyme activity.
- To study the mechanism of breathing, respiratory pigments, transports of O<sub>2</sub> and CO<sub>2</sub>.
- To study the respiratory disorders and effects of smoking.

### **Sem. - IV Paper I : Developmental Biology - I**

- To Study of types of eggs.
- To know fertilization mechanism and significance.
- To study types of cleavage.
- To study types of blastulation.
- To study morphogenetic movements in the early development of frog.
- To know development of chick.
- To study extra embryonic membrane.
- To know gametogenesis.
- To study implantation types.
- To know placentation types and functions.
- To know gene activation and apoptosis.
- To study stem cells
- To know IVF
- To study semen bank and AI and contraceptive

### **Paper II : Physiology and Biochemistry-II**

- To study the structure and function of nephron, mechanism of urine formation.
- To know the elementary ideas of dialysis and counter current mechanism.
- To study the structure and functions of endocrine glands (Pituitary, Thyroid, Adrenal)
- To know the male and female sex hormones.
- To study their productive cycle (menstrual & estrous cycle)
- To study the structure and function of neuron, E.M. structure of neuron
- To know the sliding filaments theory of muscle
- To study the properties of muscles (Twitch, tetanus, tonus, summation, muscle fatigue)
- To study the circulatory system in details.
- To know the blood groups and its genetics.
- To know the Blood pressure, 13 clotting factors, cardiac cycle, ECG and function of blood and its composition etc.

### **Sem. V Paper I : Parasitology**

- To understand Parasitism, Host Parasite relationship.
- To learn modes of infection

- To study structure, life cycle, pathogenicity and treatment of parasitic protozoan
- To study parasitic adaptation
- To learn causes and treatment of Arthropod parasite
- To learn structure, pathogenicity and treatment of bacterial and fungal diseases in fishes
- To study Vectors as disease transmitters

### **Paper II Aquatic Biology - II**

- To know the fundamental principles and unifying facts of aquatic biology.
- To study the ecosystems (Freshwater, marine water)
- To know the differences between lentic and lotic ecosystem
- To study different physicochemical and biological parameters of water & soil
- To know the fresh water and saline water fishery in India.

### **Sem.- VI Paper I : Immunology- I**

- Student will know about various biotechniques such as Sterilization ,autoclaves , centrifugation ,electrophoresis chromatography
- Students will have the knowledge about various tissue techniques related to histological studies. Distinguish Innate immunity and Acquired Immunity
- Students will understand the importance of Immune system CO2.
- To enable the students to apply the knowledge to collect various Biological data
- Understand the importance of Bio molecules
- Students will become familiar with various Applications of Bioinformatics
- Students will learn about the data collection, tabulation and presentation.
- Students will be able to described the mean, median, mode and SD.→
- Students will understand the Analysis of Variance.→ Described Student ‘t’ test and probability→
- Students will understood the Correlation and Regression.→

### **Paper II – Reproductive Biology**

- To know the fundamental principles and unifying facts of reproductive biology.
- To know the structure and functions of main reproductive organs of human being.
- To study the current state of knowledge about the functional organization of the human body.
- To study the physiology of reproduction
- To know the role of male reproductive system and female reproductive system.
- To know the general functions of reproductive organs of male and female.
- To study the physiology of coitus, spermatogenesis and oogenesis.
- To know the assisted reproductive technology including ZIFT, GIFT, IVF, AI, etc.
- To study the contraceptive measures.
- To study the physiology of pregnancy.
- To study the pregnancy test by using kit.
- To know the causes of infertility in male and female.
- To study the histology of reproductive organs of human being and other mammals too.

**Department of Botany Sem. I –  
Paper – I : Plant Diversity- I (Micro-organisms, Algae, Fungi and Plant Pathology)**

- Students will learn general characteristics of life.
- Students will learn general characteristics & nature of viruses, understand structure of T4 and TMV , and learn economic importance.
- Students will understand structure Mycoplasma, pathogenicity
  - The students will learn Bacteria, Classification of on the basis of Gram Staining Bacteria, and economic importance.
- Students will understand General character, ultra structure and reproduction of Nostoc  
Students understand concept of plant kingdom.
- The students will learn General characters, Classification (G.M. Smith, 1955) and Economic importance of algae Students learn Life history of – Chlorophyceae e. g. Oedogonium
- The students will learn Life history of – Charophyceae e. g. Chara Students learn Life history of- Xanthophyceae e. g. Vaucheria



- The students will learn life history of -Phaeophyceae e. g. Ectocarpus .
- The students will learn life history of – Rhodophyceae e. g. Batrachospermum  
Students understand general characteristics Classification (G. C. Ainsworth, 1971)  
and economic importance.
- Students will learn life history of- Mastigomycotina e. g. Albugo.
- The students will learn life history of- Zygomycotina e. g. Mucor.
- Students will learn life history of- Ascomycotina e. g. Penicillium.
- Students will learn life history of- Basidiomycotina e. g. Puccinia
- Students will learn life history of - Deuteromycotina e. g. Cercospora
- Students will understand general characteristics, Types (Crustose, Foliose, Fruticose)  
and economic importance.
- Students will understand Plant Pathology,
- Students will understand viral Disease: Mosaic of Tobacco (TMV)
- Students will understand Red rot of Sugarcane (Colletotrichumfulcatum).
- Students will understand Brown spot of rice (Helminthosporiumoryzae)
- Students understand loose smut of wheat (Ustilago hordei)
- Students understand bacterial disease: Bacterial Blight of Cotton

### **Paper II Plant Diversity - II (Bryophyta, Pteridophyta, Gymnosperm and Paleobotany)**

- Students will understand general characteristics, Classification (G. M. Smith) and  
Economic importance of Bryophytes.
- Students will learn life history of Hepaticopsida e. g. Riccia
- Students will learn life history of Anthocerotopsida e. g. Anthoceros
- Students will learn life history of Life Bryopsida e. g. Funaria
- Students will be fascinated by gaining the knowledge the Pteridophyta, General  
characteristics, classification (G. M. Smith) and Economic importance Understand  
telome theory and Types of stele.
- Students will learn External Morphology and Reproduction of Psilophyta e. g. Rhynia,  
Lycophyta e. g. Selaginella, ArthropHYta e. g. Equisetum, and Filicophyta e. g. Marsilea.
- Students get idea about Concept of Heterospory and seed habit telome theory and Types  
of stele.

- Students will learn general characteristic Gymnosperm, classification (Sporne, 1965) and Economic importance.
- Students understand external Morphology and Reproduction of Cycadales e. g. (Cycas ) and Coniferales ( Pinus).
- Students will be fascinated by gaining the knowledge Paleobotany and Geological time scale.
- Students will understand the process of fossilization (Replacement theory, Infiltration theory)
- Students will learn types of fossils (Impression, Compression and Petrification)
- Students will learn Fossil gymnosperm Glossopteris (Pteridospermatophyta) and Cycadeoidea (Cycadopsida).

### **Sem. II - Paper– I : Morphology and Anatomy of Angiosperms**

- Students will learn vegetative morphology of Angiosperm, Mode of living Autotrophic And Heterotrophic
- Students will understand habit erect forms, weak forms.
- Students will learn about normal root, modified root and its types.
- Students will learn about stem and its modification.
- Students will learn leaf, its parts and lamina (shape, margin, apex, base, surface, texture, venation).
  - Students learn types of leaves, its modification and phyllotaxy.
  - Students will understand definition and types Inflorescence
  - Students will understand flower is a modified shoot and types of flower.
  - Students will learn Parts of flower perianth, Calyx, Corolla, Androecium, Gynoecium.
  - Students will understand and acquire skill to write Floral formula and Floral diagram
  - Students will learn about fruit and its types.
  - Students will understand terminology of Meristems and classification (based on origin and position)
  - Students will learn Newman Theory of Root apical Meristem
  - Students will learn Tunica-Carpus Theory of Shoot apical Meristem
  - Students will learn tissue and its types
  - Students will understand the arrangement of vascular Bundle and types.

- Students will learn structure and function Xylem, Phloem, Cambium, Periderm.
- Students will learn comparative study of the primary structure of Dicot root (Sunflower) and monocot root (Maize).
- Students will learn comparative study of the primary structure of Dicot stem (Sunflower) and monocot root (Maize).
- Students will learn comparative study the primary structure of Dicot leaf (Sunflower) and monocot root (Maize).
- Students will understand secondary growth in Dicot stem e. g. Moringa
- Students will understand anomalous secondary growth in stem Bignonia, Boerhaavia  
Dracaena
- Students will learn anomalous secondary structure in root Beta vulgaris (Beet).

### **Paper – II : Taxonomy and Diversity of Angiosperms**

- Students will learn origin of Angiosperms according to Bennettian theory
- Students will learn primitive angiosperm – Magnolia.
- Students will be fascinated by gaining the knowledge of fossil Angiosperms (Flower Sahianthus and fruit –Enigmocarpon).
- Students will learn Botanical nomenclature (principles, rules, taxonomic ranks, typification ).
- Students will learn classification of Angiosperms and types of classification (Artificial, Natural and Phyllogenetic).
- Students will learn System proposed by Bentham and Hooker and its Merits & Demerits. Understand skill of Herbarium Techniques.
- Students will learn diversity of flowering plants dicot families (Ranunculaceae, Malvaceae Fabaceae (Pappilionaceae), aesculapiaceae, Mimosaceae, Solanaceae).
- Students will learn diversity of Dicot families (Lamiaceae, Apocynaceae, Asclepiadaceae, Asteraceae, Euphorbiaceae), Diversity of flowering plants Monocot families Liliaceae, Poaceae, Orchidaceae.

### **Sem. III Paper – I : Reproductive Biology of Angiosperms, Plant Growth and Development**

- Students will learn structure of Stamen, Microsporogenesis and Male gametophyte.

- Students will understand the Structure of Pistil, Megaspороogenesis and Polygonum type female gametophyte.
- Students will learn the types of Embryo sac (Mono, bi and tetrasporic).
- Students will Learn the structure and types of Ovules.
- Students will get knowledge about Pollination types, contrivances of self and cross pollinations, also attractions and rewards.  
Students will learn the information about Double fertilization and Triple fusion
- Students will get knowledge about Seed; Endosperm and its types; Embryo and its types.
- Students will get Information about Development of Dicot embryo (Onagrad type).
- Students will learn the Significance of seed: Ecological adaptations.
- Students will learn Seed dormancy; Suspended animation; causes and role of dormancy.
- Students will learn various methods to break seed dormancy and seed dispersal strategies.
- Students will understand about growth and development and phases of growth.
- Students get idea about plant regulators like Auxin, Cytokinin, Gibberelin, Abscisic acid and Ethylene Understand Plant Movements.
- Students will learn the process of Photoperiodism.
- Students will learn about Physiology of flowering and process of Vernalization.
- Students will learn about phytochromes.
- Students will get idea about senescence and abscission.

### **Paper – II : Plant Biochemistry and Physiology**

- Students will learn the definition, structure and classification of Carbohydrates.
- Students will learn structure of Aldoses and Ketoses, monosaccharides (glucose), disaccharides (sucrose), polysaccharides (cellulose and starch).
- Students will learn the definition and classification of lipids, fatty acids, oils and waxes, phospholipids, sphingolipids, sterols.
- Students will understand structure of Protein, classification amino acids and peptide bond.
- Students understand terminology of Enzymology and about mechanism action.
- Students understand nitrogen Metabolism.

- Students will acquire knowledge of properties of water, process of diffusion, osmosis and plasmolysis.
- Students will understand the Ascent of sap, Root pressure theory,
- Students will understand the process of transpiration, types of Stomata and their mechanism, guttation.
- Students will learn about Phloem transport: Bulk flow theory (Munch hypothesis).
- Students will understand the theories of absorption of solute in plants.
  - Students will learn active absorption, passive absorption.
  - Students will learn the process of Photosynthesis, photosynthetic pigments, cyclic and Noncyclic photophosphorylation.
- Students will learn C<sub>3</sub>, C<sub>4</sub> and CAM pathway, Terminology respiration, its types, structure of ATP, respiratory substrates and respiratory quotient (R. Q.)
- To understand glycolysis, citric acid cycle, ETS, oxidative phosphorylation, factors affecting respiration.

#### **Sem – IV - Paper – I : Cell Biology, Genetics and Biotechnology**

- Students will learn about all cell Biology and plant cell organelles (Cell wall, Plasma Membrane; General structure of Nucleus, Mitochondria, Plastids, Endoplasmic Reticulum, Golgi Complex, Vacuole, Lysosome, Peroxysome, Glyoxisome).
- Students will learn Mitosis, Meiosis with respect plant cells.
- Students will Learn about structure and replication of DNA.
- Students will get knowledge about Plant Tissue culture .
- Students will learn Mendel History and his Laws of inheritance (Dominance, Segregation and Independent Assortment).
- Students will understand Allelic and Non-allelic interaction of genes with reference to plants.
- Students will understand cytoplasmic inheritance.
- Students will learn linkage and its types.
- Students will learn Variation in Chromosome number, Polyploidy and Aneuploidy
- Students will learn chromosome abnormality (Deletion and Deficiency, Duplication, Inversion and Translocation). Understand terminology Mutation and its types.
- Students will learn various techniques of Genetic Engineering.
- Students will understand tools and techniques of Recombinant DNA technology.
- Students will learn the process of Protein synthesis-transcription and translation.

- Students will understand the Jumping genes in Maize.
- Students will learn Regulation of gene action in Prokaryotes.

### **Paper – II : Plant Ecology**

- Students will acquire knowledge of their environment.
- Students will learn Ecology, branches of ecology and significance.
- Students will learn climatic Factors and edaphic factors.
- Students will learn interactions between plants and animals, community and soil organisms.
- Students will understand structure and function of Ecosystem.
- Students will learn Biotic and Abiotic components, food chains, food web, ecological pyramid.
- Students will learn Biogeochemical Cycles (Water, Carbon, Nitrogen).
- Students will learn Environmental Pollution (Air, Water) and its control.
- Students will learn terminology of Autecology and Synecology; understand community dynamics.
- To understand Plant Succession, climax.
- To Fascinate the students about Phytogeography and also concept of continental drift
- To Get idea about Phytogeographical studies of Chandrapur and Gadchiroli districts. Western Himalaya, Eastern Himalaya, Indus plane, Gangatic plane, Central India, Western coast, Deccan, Assam.

### **Sem. V Paper I : Economic Botany - I**

- Students will understand the origin, Botanical description, cultivation and uses of cereal crops (Rice, Wheat, Maize, Jawar, Gram, Pigeon Pea, Lentil, Green gram and Black gram).
- Students will understand the origin, Botanical description, cultivation method and uses of Ground nut, Mustard, Sesame, Soyabean, Coconut, Linseed, Tembhurni, Charoli and Jambhul.
- Students will know about origin, Botanical description, cultivation method and uses of vegetable plants and fruit plants. (Tomato, Potato, Brinjal, Onion, Chili, Sugarcane, Mango, Papaya).

- Students will Know about origin, botanical description, Cultivation & uses of (Cotton, Jute, Sunhemp, Sisal hemp, Bamboo, Cowpea, Ferugreek and Lucerne).

#### **Paper- II : Economic Botany -II**

- Students will get knowledge about various plant of economic use and its importance.
- Students will understand the role of plant in human welfare.
- Students gain knowledge about origin, cultivation method, uses and botanical description of economical important plant (Spices, Beverages, Gum, Dye, Rubber, Timber, Bamboo, Medicines, Essential Oil, Bio-fuels) etc.

#### **Sem. VI Paper – I : Mycology and Plant Pathology – I**

- To understand brief idea about objectives of mycology and mycological institutes in India. Understand the process of parasexuality, Homothallism, Heterothallism.
- To know more about classification of plant diseases, culture media preparation Koch's postulates, importance of pathogenicity in 20th century.
- To know more about effect of temperature, soil environment, relative humidity, rainfall, wind, light on plant diseases.
- To learn more about defence mechanism and hyper sensitive reaction in plants.
- Students will know the Biological and chemical control of plant diseases.
- Students will know about plant quarantine.

#### **Paper- II Mycology and Plant Pathology -II**

- To understand role of fungi in industrial Mycology, scope & their utility.
- To understand the basic information on mushroom.
- To understand the scope and importance of plant pathology.
- To understand the life cycle and Symptoms of casual agent.
- Know the prevention & control measure of plant disease and its effects on economy of crop.

#### **Sem. - I - Compulsory Marathi**

- Students will be able to gain knowledge of about different writers, poet and novels, social workers,
- The students will get introduction of different types of people while reading text. Students will learn to analyse, interpret and write advertisement and reports.
- To develop writing and communicative skills.
- To acquire conversational skill in daily life.
- To understand the basic concept of literary genre, poem, prose and stories.
- To sharpen their critical, creative and analytical skills and enhance their proficiency in

Marathi Language.

**Sem. - II -Compulsory Marathi**

- The students will be able to gain knowledge of different writers like V. D. Sawarkar, Rasant Tukdoji Maharaj, P. L. Deshapende, Vasant Warhadpande and Baba Bhand, Saint Tukaram , Sane Guruji , Keshav kumar, Shanta Shelake, Dyanesh Wakudkar.
- To develop skill of Grammar and Letter writing.
- To learn tradition and culture of Indian villages.
- To make them aware of the Problems of Society
- To sharpen their critical, creative and analytical skills and enhance their proficiency in Marathi Language.

**Course Outcomes:**

**M. A. Marathi**

1. After studying the course, the students will be able to know about the origin of Marathi language. They will also be able to know different languages in the world.
2. After studying the course, the students will know the grammar, script of Marathi Language.
3. After studying the course, the students will be able to understand the formation of Marathi words, structure of sentences, and meaning of Marathi proverbs.



4. After studying the course, the students will know the correct pronunciation of different Marathi words. They will be able to know the standard Marathi, vernacular Marathi and also to write in Marathi language.
5. After studying the course, the students will know different forms of Marathi Literature, like poetry, story, novel, drama.
6. After studying the course, the students will know the contribution of different writers to Marathi Literature.
7. After studying the course, the students will know about different stages in the ancient literature in Marathi. They will also know about the ancient, medieval and contemporary literature in Marathi from social, cultural, political and literary perspective.
8. After studying the course, the students will be able to know the place of Marathi language and literature in different languages and literature in the world.
9. After studying the course, the students will know about the different isms in Marathi Literature as well as trends in Marathi literature like rural, tribal, etc

### **Course Outcomes:**

#### **M. A. Sociology**

1. After studying the course, the students will be able to understand the sociological theories of thinkers and will get influenced by these fundamental theories.
2. After studying the course, the students will be able to understand the Research Methodology in social sciences. They will be able to know various social Organizations, and analyze and bring forth the factual study of various social problems.

3. After studying the course, the students will be able to understand the actual social life and various social, economic and educational problems.
4. After studying the course, the students will be able to understand various religions from sociological point of view.
5. After studying the course, the students will be able to understand how the two concepts, namely gender and society are important as well as inter dependent.
6. After studying the course, the students will know about various Social Movements in India right from pre-independent period and also how these movements strived to ensure Human Rights.
7. After studying the course, the students will be able to understand the Social Offence, Child Offence and other offences and how these offences affect the society. They will become aware of the same.
8. After studying the course, the students will know about the existence of various problems in cities in India. They may be encouraged to adopt research based approach to solve these problems.
9. After studying the course, the students will be able to understand that social change and development are interrelated aspects, though different. They will know that the process of development is always going on in the society which causes social change.
10. After studying the course, the students will know that industrialization and society are interrelated as development occurs due to industrialization.
11. After studying the course, particularly the political sociology, the students will get influenced by various elements of media in the society, like TV, Radio, newspapers, etc.
12. After studying the course, the students will be able to understand the political sociology.

**Course Outcomes:**

**M. A. Economics**

1. After studying the course, the students will be able to understand how economy is working and moving as a whole.

2. After studying the course, the students will be able to understand inflation, rate of interest, price level, national income, GDP, GNP, etc.
3. After studying the course, the students will be able to understand the functioning of modern economic system.
4. After studying the course, the students will be able to analyze policy of the government regarding public finance.
5. After studying the course, the students will be able to understand the importance of applied agriculture and also they will be able to use it.
6. After studying the course, the students will be able to understand the factors of industrial development like capital, labour, investment, etc.
7. After studying the course, the students will be able to understand the outputs, production, industrial policy of the government, increase in production and differentiation in production.
8. After studying the course, the students will be able to examine the policy of the government regarding agriculture, industry and public finance.
9. After studying the course, the students will be able to understand Economic growth and development, and its factors.
10. After studying the course, the students will be able to understand various theories of growth and development.
11. After studying the course, the students will be able to examine the development policies of the government.
12. After studying the course, the students will come to know the Global Finance organizations and Economic Groups and Trade.
13. After studying the course, the students will be able to understand globalization of trade and inter connections of nations.

### **Course Outcomes**

#### **M. Com. Sem. I :**

## **1. Advanced Financial Accounting**

- The students will be able to review and understand the six sequential steps in financial statement analysis.
- The students will be able to effectively analyze, interpret, and use financial statements.
- The students will be able to use financial analysis tools, methods, and techniques to analyze a company's profitability.
- The students will be able to use financial analysis tools, methods, and techniques to analyze a company's risk, including unexpected changes in commodity prices, exchange rates, and interest rates.
- The students will be able to evaluate the quality of income statement and balance sheet information.
- The students will be able to prepare forecasted financial statements.
- The students will be able to review and understand three valuation models.
- The students will be able to understand accounting concepts and conventions, double entry and single entry book keeping system.
- The students will be able to acquire the skills like preparation of Journal, Ledger, Trial balance and Cash book and different methods of depreciation.
- The students will be able to prepare final accounts of a sole trading concern.
- The Students will learn concept of branch accounts, accounting for dependent branch.
- The Students will learn concept of department accounts, allotments of expenses and incomes and inter departmental transfers.
- The Students will understand the concept of hire purchase and installment, accounting for hire purchase transactions.
- The Students will learn the partnership accounts.

## **2. Indian Financial System**

- The students will be able to understand the concepts like flow of funds in financial

system, financial system and economic development.

- The students will learn different financial system and their framework.
- The students will learn non-banking financial institutions, their role in financial system, sources of finance and RBI guidelines.
- The students will learn the concept of micro finance and its importance in rural economy.

### **3. Managerial Economics**

- The students will be able to apply the knowledge of the mechanics of supply and demand to explain working of markets
- The students will be able to describe how changes in demand and supply affect markets
- The students will be able to understand the choices made by a rational consumer
- The students will be able to explain relationships between production and costs
- The students will be able to define key characteristics and consequences of different forms of markets

### **4. Marketing Management**

- Students will be able to identify the scope and significance of Marketing in Domain Industry
- Students will be able to examine marketing concepts and phenomenon to current business events in the Industry.
- The students will be able to coordinate the various marketing environment variables and interpret them for designing marketing strategy for business firms
- The students will be able to illustrate market research skills for designing innovative marketing strategies for business firms
- The students will be able to practice marketing communication skills relevant to the corporate world.

## **M. Com. Sem. II**

### **1. Research Methodology**

- The Student will be able to understand the objectives, importance and types of research.
- The Student will be able to understand different methods of primary data collection.
- The Student will be able to understand types of data analysis, measures of dispersion, and measures of central tendency, correlation and regression.
- The Student will be able to understand the aspects related to research report writing.

## **2. Advanced Cost Accounting**

- The students will be able to identify the meaning and importance of costing.
- The students will understand the various methods and techniques in costing.
- The students will be able to calculate the various types of budgets.
- The students will be able to calculate various types of variances.

## **3. Co-operation and Rural Development**

- The students will become aware about co-operation and rural development.
- The students will understand the rural economy.
- The students will become aware about cooperative structure, cooperative farming and micro credit in India.

## **4. Human Resource Management**

- The students will be able to demonstrate an understanding of key terms, theories / concepts and practices within the field of HRM
- The students will demonstrate competence in development and problem-solving in the area of Human Resource Management.
- The students will be able to provide innovative solutions to problems in the fields of HRM.
- The Students will be able to identify and appreciate the significance of the ethical issues in Human Resource.

### **1. Tax Procedures and Practices**

- The students will be able to understand the concepts of different aspects of income tax.
- The student will be able to understand Income Tax system properly, and will get the knowledge of different tax Provisions.
- The students will be able to give knowledge about submission of Income Tax Return, Advance Tax, and Tax deducted at source, Tax collection Authorities under the Income Tax Act, 1961.

### **2. Statistical Techniques**

- The students will get essential knowledge of the theory and key properties of probability and random variables, and the application of these concepts in practical situations.
- The students will be facilitated with an understanding of the main branches of basic statistical inference.
- The students' ability will be developed to use statistical techniques to analyze data and assess the accuracy of the resulting estimates and conclusions.
- The students will understand the fundamental concepts of statistical modeling, particularly linear regression models.
- This course will be of value to those intending to study any course involving economic modeling or any further course in statistics.

### **3. SERVICE SECTOR MANAGEMENT**

- The students will understand role and importance of Services marketing.
- The students will be able to explain Marketing Mix.
- The students will be able to identify and explain role of IT in Marketing of Services.
- The students will be able to explain the role and management of Services.

### **4. Computer Application in Commerce**

- The students will understand the basic terminology of computers
- The students will understand the practical concepts of MS Word, MS Excel, MS

PowerPoint and MS Access.

- The students will be equipped with the basic knowledge of CorelDraw Graphics Suite.
- The students will be familiar with the CorelDraw workspace, tools, panels, basic techniques and gain an insight into the techniques of creating and manipulating vector (design) objects, shapes and color fills.
- The students will be able to work with artistic text for the creation of logos, labels and any other one page print design material.
- With the help of the tools, the students will be able to add a great degree of dimensional effect and richness to your drawings.

## **M. Com. Sem. IV**

### **1. Advanced Management Accounting**

- The students will be able to critically evaluate many of the seminal contributions in management accounting research.
- The students will know and be able to critically evaluate contemporary research in the discipline.
- The students will understand the role played by management accounting in the modern organization.
- The students will understand and be able to evaluate practical issues in the application of management accounting.

### **2. Entrepreneurship Development**

- The students will be able to identify qualities of entrepreneurs
- The students will be able to write project proposal
- The students will be able to use various entrepreneurship models
- The students will be able to understand various schemes supporting entrepreneurship
- The students will be able to think creative and innovative



### 3. International Business Environment

- The students will be able to explain the concept of the various constituents of environment and their impact on businesses.
- The students will be able to apply the trade theories, investment theories, exchange rate theories and regional trading bloc theories and their impact on economic welfare.
- The students will be able to analyze the principle and the different exchange rate regimes' impact on businesses.
- The students will be able to integrate the concept and opening economies of developing countries like India through RTB and multilateral route (WTO).

### 4. PROJECT WORK

- The student will be able to understand the practical aspects related to research methodology.
- The student will be able to gather data and analysis of primary data and draft conclusions on the basis of that.
- The students will be able to apply research findings in practical world.
- The student will be able to interpret particular aspect of study depending on topic of project.



  
**PRINCIPAL**  
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