

## **B.Sc(Eco)Sem-I**

**Subject: Economics (Micro Economics)**

**Periods per week: 6**

**Tutorials per week: 3**

**Duration of period: 45 minutes**

### **Course Objectives**

- To introduce the students to the nature and scope of micro economics.
- To have better understanding of consumer behaviour.
- To make students understand various market situations.
- To enable the students to understand the concept of distribution of factor payments.

### **Course Outcomes**

- Knowledge about various economic concepts.
- Ability to think systematically about problems of business and wealth.
- Skill to use economics as a practical tool for decision making.

**Subject: Computer Science (Computer Fundamental and PC Software)**

**Periods per week: 6**

**Practicals per week: 6**

**Duration of period: 45 minutes**

### **Course Objectives**

- To introduce the students to the structure, functions and components of a computer system.
- To give complete knowledge of MS-Office applications.
- To understand the working of different components and devices.
- To impart detailed knowledge of various data storage devices.
- To give an in-depth understanding of role of computers in business, education and society.

### **Course Outcomes**

- Ability to work with various I/O devices.
- Familiarization with MS-Windows operating system.
- Knowledge of MS-Word and MS-PowerPoint.
- Development of skills viz. tabulate and graphically represent data, write business letters and sending e-mail, format a document, prepare PPTs etc.

**Subject: Quantitative Techniques-I**

**Periods per week: 6**

**Tutorials per week: 6**

**Duration of period: 45 minutes**

### **Course Objectives**

- To introduce the students to the concept of Quantitative Techniques.
- To understand the students the calculation of linear and quadratic equations.
- To familiarize with the concept of set theory and, sequence and series.

- To enable the students understand the difference between the permutation and combinations.
- To provide basic know-how to calculate the ratio of change in the value of function to the change in the independent variable.

### **Course Outcomes**

- Develops analytical thinking and decision making.
- Learn the method of making different arrangements and combinations.
- Differentiate between series and sequences.
- Ability to plot a graph using linear and quadratic equations.

### **Subject: Mathematics –Paper-I (Algebra)**

**Periods per week: 6**

**Duration of period: 45 minutes**

### **Course Objectives**

- To introduce the students to various types of equations such as linear, quadratic, cubic or biquadratic.
- To gain knowledge about the concept of matrices.
- To explain quadratic forms and conversions of quadratic forms in matrix and vice-versa.
- To understand that how many positive and negative roots of an equation can have.
- To learn about transformation of equations in another form.

### **Course Outcomes**

- Ability to recognize and use absolute values.
- Skill to use system of equations to mathematical problems.
- Develop the habit of drawing conclusions based on quantitative information.
- Ability to use the concept of matrix.

### **Subject: Mathematics –Paper-II (Calculus and Trigonometry)**

**Periods per week: 6**

**Tutorials per week: 6**

**Duration of period: 45 minutes**

### **Course Objectives**

- To enable the students to find inverse function and inverse of given function.
- To learn about trigonometric functions.
- To measure and draw angle of positive and negative rotation.
- To work with exponential, logarithm and trigonometric functions.

### **Course Outcomes**

- Ability to show whether a function is differentiable at a point.
- Skill to analyse the algebraic structure of function.
- Ability to express angles in both Degree and Radian measure.
- Understanding the use of limit of a function.

## **B.Sc(Eco) Sem-II**

**Subject: Economics (Indian Economy)**

**Periods per week: 6**

**Tutorials per week: 3**

**Duration of period: 45 minutes**

### **Course Objectives**

- To enable the students to understand the nature of Indian economy.
- To familiarize with the importance and various policies of agriculture and industrial development in India.
- To impart knowledge regarding various economic problems prevailing in the Indian economy and solutions to curb them.
- To study the objectives and strategies of economic planning in India.
- To understand the role of foreign trade, balance of payment, foreign capital and MNCs in India.

### **Course Outcomes**

- Awareness regarding economic problems prevailing in present scenario of Indian economy.
- Understanding of various Government policies in different sectors of Indian economy.
- Knowledge of priorities and targets of economic plans.
- Ability to suggest solutions for the economic problems in context to Indian economy.

**Subject: Computer Science (Programming using C)**

**Periods per week: 6**

**Practicals per week: 6**

**Duration of period: 45 minutes**

### **Course Objectives**

- To introduce students to a powerful programming language – C.
- To understand the basic structure of a C program.
- To gain knowledge of various programming errors.
- To enable the students to make flowchart and design an algorithm for a given problem.
- To enable the students to develop logics and programs.

### **Course Outcomes**

- In-depth understanding of various concepts of C language.
- Ability to read, understand and trace the execution of programs.
- Skill to debug a program.
- Skill to write program code in C to solve real world problems.

**Subject: Quantitative Techniques-II**

**Periods per week: 6**

**Tutorials per week: 3**

**Duration of period: 45 minutes**

### **Course Objectives**

- To familiarize with the role of Statistics in Economics.
- To enable the students classify, tabulate and represent data graphically.
- To learn the use of various statistical techniques.
- To understand how to use the concept of index numbers.
- To impart knowledge regarding time series analysis.

### **Course Outcomes**

- Practical Application of statistical techniques.
- Ability to analyze the trend of economic series.
- Knowledge of methods of collecting primary and secondary data.

**Subject: Mathematics–Paper-I (Calculus and Differential Equations)**

**Periods per week: 6**

**Tutorials per week: 6**

**Duration of period: 45 minutes**

### **Course Objectives**

- To enable students to understand the various differential equations.
- To learn about various rules used in integration for finding areas.
- To understand the concept of rate of change of one variable with respect to another variable.
- To gain knowledge about singular solutions.

### **Course Outcomes**

- Ability to solve problems involving relationship between changing quantities.
- Skill to use differential equation for solving mathematical problems.
- Ability to calculate an area by using various rules of definite integrals.
- Ability to recognize and use absolute value.

**Subject: Mathematics–Paper-II (Calculus)**

**Periods per week: 6**

**Duration of period: 45 minutes**

### **Course Objectives**

- To gain knowledge regarding double integration return area and triple integral volume.
- To explain several methods for evaluating multiple integrals, transformation to cylindrical coordinates and transformation to spherical co-ordinates.
- To learn how to analyse limit numerically.
- To enable the students to define Continuity in terms of limits.
- To identify types of continuity from description of function.

### **Course Outcomes**

- Clarity about meaning of limit of function of two or more variables.
- Ability to compute limits of a given function and check existence of limits as well.
- Ability to check continuity of function of two or more variables.

- Skill to calculate double and triple integral.

## **B.Sc.(Eco) Sem-III**

**Subject: Economics (Macro Economics)**

**Periods per week: 6**

**Duration of each period: 45 minutes**

### **Course Objectives**

- To introduce students to nature and scope of macro economics.
- To study factors affecting investment decision and theories of interest rate determination.
- To familiarize students with the importance of Keynesian concept of multiplier.
- To explain the meaning and types of inflation, its adverse effects on the economic development.

### **Course Outcomes**

- Understanding the role of various factors in the overall functioning of an economy.
- Skill to formulate economic policies using data regarding to various economic factors i.e. national income, employment, price level etc.
- Ability to understand the mutual dependence and interdependence of different sectors.

**Subject: Computer Science (Computer Oriented Numerical and Statistical Methods)**

**Periods per week: 6**

**Practicals per week: 6**

**Duration of period: 45 minutes**

### **Course Objectives**

- To learn how to perform error analysis for arithmetic operations.
- To demonstrate working of various numerical methods.
- To provide a basic understanding of the derivation and use of methods of interpolation and numerical integration.
- To impart knowledge of various statistical techniques.
- To develop students' understanding through laboratory activities to solve problems related to above stated concepts.

### **Course Outcomes**

- Skill to choose and apply appropriate numerical methods to obtain approximate solutions to difficult mathematical problems.
- Ability to apply various Statistical techniques such as Measures of Central Tendency and Dispersion.
- Understanding of relationship between variables using the method of Correlation and Trend Fit Analysis.
- Skill to execute programs of various numerical methods and statistical techniques for solving mathematical problems.

**Subject: Quantitative Techniques-III**

**Periods per week: 6**

**Tutorial per week: 3**

**Duration of each period: 45 minutes**

#### **Course Objectives**

- To impart knowledge of various mathematical concepts.
- To enable students to use mathematical concept in economics for solving problems.
- To enable students to understand that Mathematics and Economics are inter related.

#### **Course Outcomes**

- Ability to use the concept of maxima and minimum and partial derivatives in economics.
- Apply concept of integration for solving problems.
- Knowledge about the applications of matrices.
- Understanding of linear programming and its applications.
- Skill to apply input-output models in Economics.

**Subject: Mathematics–Paper-I (Analysis)**

**Periods per week: 6**

**Tutorial per week: 6**

**Duration of period: 45 minutes**

#### **Course Objectives**

- To enable students to use Sequences and Series.
- To familiarize with Riemann and Improper Integrals.
- To gain knowledge about Beta and Gamma functions.

#### **Course Outcomes**

- Use the definition of convergence to test an integral.
- Describe the real line as a complete ordered field.
- Apply the Fundamental theorem of Calculus to deal with problems of Real Analysis.
- Skill to solve different mathematical problems.

**Subject: Mathematics – Paper-II(Analytical Geometry)**

**Periods per week: 6**

**Tutorials per week: 3**

**Duration of period: 45 minutes**

#### **Course Objectives**

- To enable students to solve the pair of straight line.
- To understand the effects on a point when the origin gets shifted.
- To familiarize the students with the concept of rotation of axes and intersection of three plane.
- To understand the difference between 2D and 3D figures.

#### **Course Outcomes**

- Ability to differentiate between ball and simple circular disc.
- Knowledge of various geometrical figures such as circle, ellipse, hyperbola, sphere.
- Understand that intersection of sphere and plane is always a circle.

## **B.Sc.(Eco) Sem-IV**

**Subject: Economics (International Economics and Public Finance)**

**Periods per week: 6**

**Duration of period: 45 minutes**

### **Course Objectives**

- To introduce students to international business and the various modes to enter the international market.
- To aware students about the various commercial policy instruments.
- To impart knowledge regarding functioning of the International organizations.
- To aware the students regarding the functioning of foreign market.
- To have the deep insight into the various foreign trade promotion measures.

### **Course Outcomes**

- Ability to understand the aspects of globalization and its impact on the domestic market.
- Understanding of foreign exchange markets, foreign exchange risks and its management.
- Helpful in practical dealings in the foreign exchange market.

**Subject: Computer Science (Data Structures and Programming Language Using C++)**

**Periods per week: 6**

**Practicals per week: 6**

**Duration of period: 45 minutes**

### **Course Objectives**

- To give an overview of the benefits of Object Oriented Programming (OOP) approach over the Traditional Programming approach.
- To deliver comprehensive view of OOP concept.
- To impart detailed knowledge of a powerful object oriented programming language – C++.

### **Course Outcomes**

- Familiarization with a widely used programming concept – Object Oriented Programming.
- Develops logical thinking.
- Skill to write codes in C++ by applying concept of OOP, such as Objects, Classes, Constructors, Inheritance etc., to solve mathematical or real world problems .

**Subject: Quantitative Techniques-IV**

**Periods per week: 6**

**Tutorials per week: 6**

**Duration of period: 45 minutes**

### **Course Objectives**

- To explain the concept of partial and multiple correlation.
- To understand the different forms of non-linear equations.
- To familiarize with the concept of moments and moment generating functions.
- To impart knowledge regarding the use of probabilities and probability distributions.
- To enable the students to understand the meaning of sampling and various sampling techniques.

### **Course Outcomes**

- Develop decision making ability.
- Establishing cause and effect relationship between variables.
- Prediction and forecasting on the basis of data.
- Familiarization with the characteristics of various probability distributions.
- Ability to plot various growth curves on graph.

**Subject: Mathematics – Paper-I (Statics and Vector Calculus)**

**Periods per week: 6**

**Tutorials per week: 3**

**Duration of period: 45 minutes**

### **Course Objectives**

- To learn how to calculate the directions of the named vector, directional vector of reference point and cross product of two vectors.
- To formulate properties of the dot product, including the algebraic and geometric methods used to calculate it.
- To understand the relationship between lines and three dimensional geometric objects.
- To enable the students to distinguish between cylindrical and spherical coordinate system.

### **Course Outcomes**

- Understanding of the concepts of point and vector.
- Ability to compute dot and cross product given either algebraic or geometric inflammation.
- Skill to solve problems involving geometric relationship between line and planes.
- Ability to calculate first and second partial derivatives.

**Subject: Mathematics – Paper-II (Solid Geometry)**

**Periods per week: 6**

**Duration of period: 45 minutes**

### **Course Objectives**

- To enable the students to understand about cone and cylinder.
- To gain knowledge about rotation of axes.
- To familiarize with quadratic surfaces or conicoids.
- To learn about reduction of general equation of second degree.

### **Course Outcomes**

- Recognise line and rotational symmetries.
- Familiarization with cone and cylinder.
- Understanding of general equation of second degree.
- Knowledge of quadratic surfaces.

## **B.Sc.(Eco) Sem-V**

**Subject: Economics (Economics of Development)**

**Periods per week: 6**

**Duration of period: 45 minutes**

### **Course Objectives**

- To make students aware about nature of economy.
- To learn about various growth models.
- To enable students understand export promotion and import substitution strategies.

### **Course Outcomes**

- Understanding of various exports promotion and import substitution measures.
- Knowledge about economic growth and economic development.

**Subject: Computer Science (Database Management System and Oracle)**

**Periods per week-6**

**Practicals per week: 6**

**Duration of period: 45 minutes**

### **Course Objectives**

- To introduce the students to the database system.
- To learn how to design a database using different models.
- To enable the students to understand the database handling during execution of the transactions.
- To gain complete knowledge of SQL and PL/SQL.

### **Course Outcomes**

- Familiarization with Database Management System and its various forms viz. RDBMS, ORDBMS, OODBMS.
- Comprehensive knowledge of database models.
- Ability to code database transactions using SQL.
- Skill to write PL/SQL programs.

**Subject: Quantitative Techniques-V**

**Periods per week: 6**

**Duration of period: 45 minutes**

**Course Objectives**

- To enable the students to understand nature of sampling distributions.
- To impart knowledge regarding the different statistical techniques to obtain estimators of different probability distributions.
- To enable the students to understand the knowledge of parametric and non-parametric tests.

**Course Outcomes**

- Develop logical reasoning.
- Ability to apply parametric and non-parametric tests for interpreting data.
- Ability to apply statistical techniques to obtain estimators of different probability distributions.

**Subject: Mathematics – Paper-I (Dynamics)**

**Periods per week: 6**

**Duration of period: 45 minutes**

**Course Objectives**

- To enable the students to understand and use the basics of dynamics.
- To introduce students to Newton's Law of Motion.
- To familiarize with conical pendulum, simple pendulum and free oscillation.

**Course Outcomes**

- Familiarization with Swinging of clock.
- Ability to explain Newton's Law.
- Knowledge of escape velocity.
- Learn how to deal with Attwood's machine.
- Understanding of how the value of gravity changes outside the earth.

**Subject: Mathematics –Paper-II (Number Theory)**

**Periods per week: 6**

**Duration of period: 45 minutes**

**Course Objectives**

- To enable the students to understand basic structures and properties of integers.
- To familiarize with Division Algorithm and Euclidean Algorithm.
- To impart knowledge regarding the use of concept of prime factorization.
- To understand and use Condition of Congruence.
- To familiarize with Euler phi and arithmetic functions.

**Course Outcomes**

- Ability to improve mathematical thinking.
- Ability to solve mathematical problems.

## **B.Sc. (Eco) Sem-VI**

**Subject: Economics (Quantitative Methods for Economists)**

**Periods per week: 6**

**Duration of each period: 45 minutes**

### **Course Objectives**

- To familiarize students with Quantitative techniques.
- To explain merits and limitations of various statistical techniques.
- To apply basic mathematical operations and basic algebra.

### **Course Outcomes**

- Understanding of various statistical techniques.
- Ability to use statistical techniques to solve various problems.
- Develop analytical thinking and reasoning among students.

**Subject: Computer Science (Information Technology)**

**Periods per week: 6**

**Practical per week: 6**

**Duration of period: 45 minutes**

### **Course Objectives**

- To enable the students to understand computer network and its application
- To familiarize with terms like operating system and its types, information system etc.
- To learn how to install and use system software and application software.
- To understand client server models including web servers, mail servers and file server.

### **Course Outcomes**

- Familiarization with the concepts of LAN, MAN and WAN.
- Knowledge of network technologies.
- Ability to use Internet browser for web surfing.
- Awareness regarding various career options available in the field of computer.
- Skill to select particular configuration of computer and operating system necessary for an application.

**Subject: Quantitative Techniques-VI**

**Periods per week: 6**

**Duration of period: 45 minutes**

### **Course Objectives**

- To explain the meaning, nature and scope of Econometrics.
- To enable the students to understand the concept of Best Linear Unbiased Estimators.
- To impart knowledge of various econometric problems.
- To learn how to apply the knowledge of mathematical model for solving economic problems.

### **Course Outcomes**

- Understanding of Gauss Markov Theorem and concept of  $R^2$  and adjusted  $R^2$ .
- Knowledge regarding effects and solutions of various econometric problems.

**Subject: Mathematics – Paper-I (Linear Algebra)**

**Periods per week: 6**

**Tutorials per week: 3**

**Duration of each period: 45 minutes**

### **Course Objectives**

- To enable students to solve system of linear equations using various methods.
- To learn how to perform matrix algebra, invertibility and the transpose and understand vector algebra in  $R^n$ .
- To gain knowledge about special matrices: diagonal, triangular and symmetric.
- To understand determinants and their properties.
- To find basis and dimensions of a vector space and understand change of basis.

### **Course Outcomes**

- Ability to understand and communicate mathematical statement, ideas and results both verbally and writing.
- Skill to apply mathematical knowledge.
- Ability to use strategies to solve problems in  $R^2$  and  $R^3$ .
- Skill to interpret and analyse numerical data.

**Subject: Mathematics – Paper-II (Numerical Analysis)**

**Periods per week: 6**

**Duration of period: 45 minutes**

### **Course Objectives**

- To enable the students to set up and solve linear equations algebraically.
- To familiarize with various types of errors.
- To illustrate the calculation of area of curved figures using definite integral.
- To learn how to use log tables and scientific calculators.
- To understand about tabular description of data.

### **Course Outcomes**

- Knowledge of number system.
- Familiarization with errors which occur while truncation and round off.
- Ability to solve various types of equation using different methods.
- Understanding of rate of change of one variable due to another variable.
- Skill to solve big calculations.