

**DEPARTMENT OF ECONOMICS**  
**SARBATI DEVI WOMEN'S COLLEGE, RAJGANGPUR**  
**PO, CO, PSO- NEP-2020**

**SEMESTER I**

**Core I**

**Basic Economics I**

**Course Description**

This course is designed to expose the students to the basic principles of how the economy works at the microeconomic level with some basic concepts like markets, and consumer choice in macroeconomics. The emphasis will be on thinking like an economist and the course will illustrate how microeconomic concepts can be applied to analyse real-life situations. This course also discusses the preliminary macroeconomic concepts associated with the determination and measurement of aggregate macroeconomic variables like savings, investment, and GDP.

**Course Outcomes (COs)**

- To expose the students to the introductory micro and macro-economic concepts.
- To explain how to think like an economist and illustrate how microeconomic concepts can be applied to analyses of real-life situations.
- To introduce preliminary macroeconomic concepts associated with the determination and measurement of aggregate macroeconomic variables like savings, investment, and GDP.
- To examine the circular flow of income and expenditure in a 2, 3, and 4-sector economy.

**Unit I: Exploring the Subject Matter of Economics, Markets and Welfare**

The Ten Principles of Economics: How people make decisions; Working of the economy as a whole; Thinking Like an Economist: The Economist as Scientist – The scientific method: Observation, Theory and more observation; Role of Assumptions; Economic Models; Why economists disagree; Graphs in Economics; The Market Forces; Markets and Competition; The Demand and Supply curves – Market vs Individual curves, Shifts in Demand and Supply Curves; Market Equilibrium and changes therein; Price Elasticity of Demand – determinants and computation; Income and Cross Elasticity of Demand; The Price Elasticity of Supply – determinants and computation; Consumer and Producer Surplus.

***LO: Upon completion of this module, students will get a basic idea about the basic underlying principles followed in economics and get a formative perspective to concepts of elasticity of demand and supply.***

**Unit II: Theory of Consumer Choice**

The Budget Constraint; Preferences – representing preferences with indifference curves; Properties of Indifference Curves; Two extreme examples of indifference curves;

Optimization – Equilibrium; Change in equilibrium due to changes in income, changes in price; Income and Substitution Effect; Derivation of Demand Curve; Three applications – Demand for Giffen goods, Wages and Labour Supply, Interest rate and Household saving.

***LO: Upon completion of this module, the students can understand the problem of choice and decision-making by consumers and have a vivid understanding of optimization and equilibrium.***

### **Unit III: Basic Concepts in Macroeconomics**

Macro vs. Micro Economics; Limitations of Macroeconomics; Stock and Flow variables, Equilibrium and Disequilibrium, Partial, and General Equilibrium Statics – Comparative Statics and Dynamics; National Income Concepts – GDP, GNP, NDP, and NNP at market price, factor cost, real and nominal; Disposable Personal Income.

***LO: Upon completion of this module, the students will be introduced to concepts of macroeconomic variables and the basic concept of National Income Accounting.***

### **Unit IV: Measurement of Macroeconomic Variables**

Output, Income and Expenditure Approaches; Difficulties of Estimating National Income; National Income Identities in a simple 2-sector economy and with government and foreign trade sectors; Circular Flows of Income in 2, 3 and 4-sector economies; National Income and Economic Welfare; Green Accounting.

***LO: Upon completion of this module, the students will be familiarized with the estimation of National Income and understand the circular flow of income and expenditures in a closed and open economy.***

## **2. Indian Economy I**

### **Core 1**

#### **Course Description**

Using appropriate analytical frameworks, this course reviews major trends in economic indicators and policy debates in India in the post-independence period, with particular emphasis on paradigm shifts and turning points. Given the rapid changes taking place in India, the reading list should be updated annually.

#### **Course Outcomes**

- *To have a clear idea about the principles that govern the economy's running at the micro and macro levels.*
- *To understand about the working of the input market.*
- *To gain clarity about dynamic concepts of Inflation, Employment, money, and income.*

- *To understand of the theories of determination of income and employment in the aggregate economy.*

### **Unit I: The Firm and Market Structures**

Cost concepts; Production and Costs; The various measures of cost – Fixed and Variable cost, Average and Marginal cost; Cost curves and their shapes; Costs in the short run and the long run; Economies and diseconomies of scale. Firms in Competitive Markets – What is a competitive market; Profit maximization and the competitive firm's supply curve; The marginal cost curve and the firm's supply decision; Firm's short-run decision to shut down; Firm's long-run decision to exit or enter a market; The supply curve in a competitive market – short run and long run

***LO: Upon completion of this module, the students will have a clear understanding of the traditional theory of cost and different cost concepts, and be able to distinguish between short-run and long-run costs, and relate them to a firm's decision-making under competitive markets.***

### **Unit II: The Input Markets**

The Demand for Labour – The production function and the marginal product of labour; Value of the marginal product of labour and demand for labour; Shifts in labour demand curve; The supply of labour – the trade-off between work and leisure; Shifts in the labour supply curve; Equilibrium in the Labour Market; Other factors of production: Land and Capital; Linkages among factors of production

***LO: Upon completion of this module, the students will get an insight into the analysis of demand and supply of inputs and the linkages among the factors of production.***

### **Unit III: Money and Changes in its Value**

Evolution and Functions of Money, Quantity Theory of Money – Cash Transactions, Cash Balances and Keynesian Approaches, Value of Money and Index Number of Prices

Inflation – Meaning, Causes, and Anti-Inflationary Measures; Classical, Keynesian, Monetarist and Modern Theories of Inflation, Inflationary Gap, Deflation- Meaning, Causes, and Anti- Deflationary Measures, Depression and Stagflation; Inflation vs. Deflation

***LO: Upon completion of this module, the students shall understand the evolution of money and the classical theories of money supply and be able to explain the causes of inflation and deflation in an economy and the impact and solution thereto.***

### **Unit IV: Determination of National Income**

The Classical Approach - Say's Law, Theory of Determination of Income and Employment with and without saving and Investment; Basics of Aggregate Demand and Aggregate Supply and Consumption- Saving – Investment Functions, The Keynesian Approach – Basics of Aggregate Demand and Aggregate Supply and Consumption, Saving,

Investment Functions; The Principle of Effective Demand; Income Determination in a Simple 2-Sector Model; Changes in Aggregate Demand and Income- The Simple Investment Multiplier

***LO: Upon completion of this module, the students shall get to know the classical and Keynesian theories of income and employment determination.***

## **SEMESTER II**

### **Core I**

### **3. Basic Economics II**

#### **Course Description**

This course is designed to expose the students to the basic principles of how the economy works at the microeconomic level with some basic concepts like production, firms and input markets. This course also aims to introduce the students to the basic macroeconomic concepts of money, inflation, and the theories of determination of income and employment in the aggregate economy.

#### **Course Outcomes**

- *To have a clear idea about the principles that govern the economy's running at the micro and macro levels.*
- *To understand about the working of the input market.*
- *To gain clarity about dynamic concepts of Inflation, Employment, money, and income.*
- *To understand of the theories of determination of income and employment in the aggregate economy.*

#### **Unit I: The Firm and Market Structures**

Cost concepts; Production and Costs; The various measures of cost – Fixed and Variable cost, Average and Marginal cost; Cost curves and their shapes; Costs in the short run and the long run; Economies and diseconomies of scale. Firms in Competitive Markets – What is a competitive market; Profit maximization and the competitive firm's supply curve; The marginal cost curve and the firm's supply decision; Firm's short-run decision to shut down; Firm's long-run decision to exit or enter a market; The supply curve in a competitive market – short run and long run

***LO: Upon completion of this module, the students will have a clear understanding of the traditional theory of cost and different cost concepts, and be able to distinguish between short-run and long-run costs, and relate them to a firm's decision-making under competitive markets.***

#### **Unit II: The Input Markets**

The Demand for Labour – The production function and the marginal product of labour; Value of the marginal product of labour and demand for labour; Shifts in labour demand curve; The supply of labour – the trade-off between work and leisure; Shifts in the labour supply curve; Equilibrium in the Labour Market; Other factors of production: Land and Capital; Linkages among factors of production

***LO: Upon completion of this module, the students will get an insight into the analysis of demand and supply of inputs and the linkages among the factors of production.***

### **Unit III: Money and Changes in its Value**

Evolution and Functions of Money, Quantity Theory of Money – Cash Transactions, Cash Balances and Keynesian Approaches, Value of Money and Index Number of Prices

Inflation – Meaning, Causes, and Anti-Inflationary Measures; Classical, Keynesian, Monetarist and Modern Theories of Inflation, Inflationary Gap, Deflation- Meaning, Causes, and Anti- Deflationary Measures, Depression and Stagflation; Inflation vs. Deflation

***LO: Upon completion of this module, the students shall understand the evolution of money and the classical theories of money supply and be able to explain the causes of inflation and deflation in an economy and the impact and solution thereto.***

### **Unit IV: Determination of National Income**

The Classical Approach - Say's Law, Theory of Determination of Income and Employment with and without saving and Investment; Basics of Aggregate Demand and Aggregate Supply and Consumption- Saving – Investment Functions, The Keynesian Approach – Basics of Aggregate Demand and Aggregate Supply and Consumption, Saving, Investment Functions; The Principle of Effective Demand; Income Determination in a Simple 2-Sector Model; Changes in Aggregate Demand and Income- The Simple Investment Multiplier

***LO: Upon completion of this module, the students shall get to know the classical and Keynesian theories of income and employment determination.***

## **Core I**

## **4. Indian Economy II**

### **Course Description**

This course examines sector-specific policies and their impact in shaping trends in key economic indicators in India. It highlights major policy debates and evaluates the Indian empirical evidence. Given the rapid changes taking place in the country, the reading list should be updated annually.

### **Course Outcomes**

- To analyze the current state of Indian agriculture, including production trends, factors influencing production, and policy initiatives like land reforms and the green revolution.
- To evaluate the development of Indian industries, including historical industrial policies, challenges faced by small-scale industries, and the role of labor.
- To assess the contribution of the tertiary sector to the Indian economy, and understand the concept of Human Resource Development (HRD) and its role in India's development.
- To explain India's foreign trade scenario, including trade composition, export promotion strategies, and the role of foreign capital.
- To analyze the environmental policies implemented in India and the global response to climate change, considering India's specific situation.

### **Unit I: Agricultural Development in India**

Indian Agriculture: nature, importance, trends in agricultural production and productivity, factors determining production, land reforms, new agricultural strategies and green revolution, rural credit; Agricultural marketing and warehousing.

***LO: Students will be able to analyze the structure, challenges, and advancements in Indian agriculture, including policies, credit, and marketing.***

### **Unit II: Industrial Development in India**

Trends in industrial output and productivity; Industrial Policies of 1948, 1956, 1977, and 1991; Industrial Licensing Policies – MRTP Act, FERA, and FEMA; Growth and problems of SSIs, Industrial sickness; Industrial finance; Industrial labor.

***LO: Students will know about industrial output and productivity trends, industrial policies, the impact of licensing policies, small-scale industries' growth, industrial finance, and labor issues in India.***

### **Unit III: Tertiary Sector, HRD, and the External Sector**

Tertiary Sector: growth and contribution of the service sector to GDP of India, share of services in employment; Human development – concept, evolution, measurement; HRD: indication, importance, education in India, Indian educational policy; Health and Nutrition. Foreign Trade: role, composition, and direction of India's foreign trade, trends of export and import in India, export promotion versus import substitution; Balance of Payments of India; India's Trade Policies; Foreign Capital – FDI, Aid and MNCs.

***LO: Students will have an understanding of the growth of India's service sector, human development strategies (education & health), and international trade dynamics (exports, imports, foreign investment)***

### **Unit IV: Indian Economy and Environment**

Environmental Policies in India: The Environment (Protection) Act 1986, The Environment (Protection) Rules 1986, The National Forest Policy 1988, Policy statement for Abatement of Pollution 1992, National Conservation Strategy and Policy Statement on Environment and Development 1992, The National Environment Appellate Authority Act 1997, National Environmental Policy 2006; Global deal with Climate Change: Introduction, Intergovernmental Panel for Climate Change (IPCC), Impact of Climate Change on India, Global Response on Climate Change, Possible Role of India.

***LO: Students will be able to analyze key environmental policies in India, the global deal on climate change, IPCC's role, climate change impacts, and global responses to India's role.***

### **SEMESTER III**

#### **Core I**

#### **5. Microeconomics I**

##### **Course Description**

The course is designed to provide sound training in microeconomic theory to formally analyze the behavior of individual agents. Since students are already familiar with the quantitative techniques in the previous semesters, mathematical tools are used to facilitate understanding of the basic concepts; this course looks at the behavior of the consumer and the producer and also covers the behavior of a competitive firm.

##### **Course Outcomes:**

- To develop an understanding of preferences and consumer choice and formally analyze the behavior of individual agents
- To be able to use mathematical tools to facilitate understanding of the basic concepts of Economics.
- To understand the behavior of the consumer and the producer.
- To understand the behavior of a competitive firm.

##### **Unit I: Consumer Theory I**

Preferences and Utility, Axioms of Rational Choice, Utility, Trades and Substitutions, Indifference curves; Mathematics of Indifference curves, Utility functions for specific preferences, the many good cases; Utility Maximization and choice: the 2-good case (graphical analysis), the n-good case, Indirect utility function, the Lump sum principle, Expenditure minimization, properties of the expenditure function

***LO: This module will enable the students to understand the basic concepts in consumer behavior like utility, choice, optimization, and Indifference curves using mathematical tools; and differentiate between direct and indirect utility, and explain expenditure function and its properties.***

##### **Unit II: Consumer Theory II**

The Income and Substitution Effects: Demand function, changes in income, changes in goods price- Direct and Indirect Approaches (Slutsky), the Individual's Demand Curve, Compensated (Hicksian) demand curves and functions, demand elasticity, Consumer Surplus, Demand relationships among goods, the 2-good case, substitutes and complements, Net (Hicksian) substitutes, and Complements, Substitutability with many goods

***LO: This module will enable the students to analyze the effects of changes in income and prices on demand; differentiate between Ordinary and compensated demand; explain the concepts of price and income elasticities, and substitutability between goods; and understand the concept of Consumer Surplus***

### **Unit III: Production Theory and Costs**

Production Functions: Marginal productivity, Production with One Variable Input (labour) and with Two-Variable Inputs, Isoquant Maps and the Rate of Technical Substitution, Returns to Scale, Elasticity of Substitution, Some Simple Production Functions: Linear, Fixed Proportions; Technical Progress. Definition of Cost and its properties, Cost minimizing input choices (Optimization principles, Expansion Path), Cost Functions and Shift in Cost Curves, Long-Run versus Short-Run Cost Curves

***LO: This module will enable the students to understand concepts like production function in the short run and the long run, isoquants, and substitution between inputs; and explain concepts of cost, and optimization in the short run and long run.***

### **Unit IV: Profit Maximization**

The Nature and Behaviour of Firms, Marginal Revenue – Relationship between Average and marginal revenue, Short-Run Supply by a Price-Taking Firm, Profit Functions and its Properties, Profit maximization – General conditions, Input demands

***LO: This module will enable the students to understand the behavior of the competitive firm and concepts like average and marginal revenue; and learn the conditions for profit maximization, properties of profit function***

## **Core I**

## **6. Macroeconomics I**

### **Course Description**

This course introduces the students to formal modelling of a macro-economy in terms of analytical tools. It discusses various alternative theories of output and employment determination in a closed economy in the short run as well as long run, and the role of policies in this context.

### **Course Outcomes:**



- To understand the basics of consumption function and its relation with income, and factors influencing consumption function.
- To get a knowledge about various types of investment spending and evaluate the impact of investment through multiplier and accelerator in economies.
- Discuss the various approaches to demand and supply of money.
- Analyse and interpret the IS-LM model as a step toward understanding economic fluctuations.

### **Unit I: Consumption**

Consumption – Income Relationship, Propensities to Consume and the Fundamental Psychological Law of Consumption; Implications of Keynesian Consumption Function; Factors Influencing Consumption Function; Measures to Raise Consumption Function; Absolute, Relative, Permanent, and Life-cycle hypothesis

***LO: This module shall enable the students to find out how consumption is affected by income and other factors.***

### **Unit II: Investment**

Autonomous and Induced Investment, Residential and Inventory Investment, Determinants of Business Fixed Investment, Decision to Invest and MEC, Accelerator and MEI, Theories of Investment: The Accelerator and Tobin's theory

***LO: Students will gain an understanding of different forms of investment spending and theories of investment***

### **Unit III: Demand for and Supply of Money**

Demand for Money – Classical, Neoclassical, and Keynesian Approaches, The Keynesian Liquidity Trap and its Implications, Supply of Money – Classical and Keynesian Approaches, The Theory of Money Supply Determination and Money Multiplier, Measures of Money Supply in India, RBI approach to money supply, Determination and Money multiplier. High-powered money and money multiplier

***LO: Students will be able to understand the workings of money in an economy.***

### **Unit IV: Aggregate Demand and Aggregate Supply**

Derivation of Aggregate Demand and Aggregate Supply Curves in the IS-LM Framework; Nature and Shape of IS and LM curves; Interaction of IS and LM curves and Determination of Employment, Output, Prices and Investment; Changes in IS and LM curves and their Implications for Equilibrium

***LO: This module shall help to gain knowledge about the way the goods market and money market serve as a basis for the determination of employment, output, price, and investment.***

## Core I

## 7. Mathematical Methods for Economics I

### Course Description

This is the first of a compulsory two-course sequence. The objective of this sequence is to transmit the body of basic mathematics that enables the study of economic theory at the undergraduate level, specifically the courses on microeconomic theory, macroeconomic theory, statistics and econometrics set out in this syllabus. In this course, particular economic models are not the ends, but the means for illustrating the method of applying mathematical techniques to economic theory in general. The level of sophistication at which the material is to be taught is indicated by the contents of the prescribed textbook.

### Course Outcomes:

- To use mathematical techniques in analyzing economic problems
- To get a fair idea about the number system, set theory, and different types of functions.
- Evaluate and use the concept of derivative of functions involving single variables to link the total and marginal concepts in Economics.
- Understand major concepts of Linear Algebra

### Unit I: Preliminaries and Functions of One Real Variable

Sets and set operations; Cartesian product; relations; functions and their properties; Number systems. Types of Functions: constant, polynomial, rational, exponential, logarithmic; Graphs and graphs of functions; Limit and Continuity of functions; Limit theorems.

***LO: This module will enable the students to know the theory of sets, ordered pairs, and Cartesian products; and learn the concepts of relation and function and limit and continuity of functions.***

### Unit II: Derivative of a Function

Rate of change and derivative; Derivative and slope of a curve; Continuity and differentiability of a function; Rules of differentiation for a function of one variable; Application- Relationship between total, average and marginal functions.

***LO: This module will enable the students to know the concept of the derivative and the rules for derivatives; and about the economic applications of differentiation in establishing the relationship between total, marginal, and average functions in Economics.***

### Unit III: Functions of two or more Independent Variables

Partial differentiation techniques; Geometric interpretation of partial derivatives; Partial derivatives in Economics; Elasticity of a function – demand and cost elasticity, cross and partial elasticity.

***LO: This module will enable the students to find out partial derivatives of multivariate functions; and calculate elasticities of multivariate functions.***

#### **Unit- IV: Matrices and Determinants**

Matrices: concept, types, matrix algebra, transpose, inverse, rank; Determinants: concept, properties, solving problems using properties of determinants, solution to a system of equations - Cramer's rule and matrix inversion method.

***LO: This module will enable the students to understand different types of matrices and determinants; and learn about the matrix operations and solve systems of linear equations using matrices.***

### **Semester IV**

#### **Core I**

#### **8. Microeconomics II**

##### **Course Description**

This course is a sequel to Microeconomics I. The emphasis will be on giving conceptual clarity to the student coupled with the use of mathematical tools and reasoning. It covers the Market, general equilibrium and welfare, imperfect markets, and topics under information economics.

##### **Course Outcomes:**

- To understand short-run and long-run supply decisions of a competitive firm & industry equilibrium
- To have a basic understanding of concepts of Pareto efficiency in consumption & production; general equilibrium, and welfare theorems
- To develop an understanding of imperfect markets such as Oligopoly
- To understand basic concepts of game theory.

#### **Unit I: Firm Supply and Equilibrium**

Supply decision of a competitive firm and Exceptions; Inverse Supply Function; Profits and Producer's Surplus; Long Run Supply Curve of a Firm; Long Run Average Costs; Short Run and Long Run Industry Supply; Industry Equilibrium in Short and Long Run; Meaning of Zero Profits; Economic Rent

***LO: Upon completion of this module, students will understand the short-run and long-run supply decisions of a competitive firm and the concept of industry equilibrium; and gain an idea about long-run average costs, zero profit, and economic rent.***

## **Unit II: General Equilibrium, Efficiency and Welfare**

The Edgeworth Box; Trade; Pareto Efficient Allocations; Existence, Stability and Uniqueness of equilibrium; Walras Law; The Welfare Theorems and their implications; The Firm; Production and the Welfare Theorems; Production possibilities, comparative advantage and Pareto efficiency

***LO: This module shall help to understand concepts like Pareto efficiency, and general equilibrium in consumption and learn welfare theorems, comparative advantage, production possibilities, and general equilibrium in production***

## **Unit III: Market Imperfections: Monopoly and Monopolistic Competition**

Barriers to Entry, Profit Maximization and Output Choice, Monopoly and resource Allocation, Price Discrimination, Degrees of Price Discrimination, Regulation of Monopoly, Dynamic Views of Monopoly. Monopolistic competition – product differentiation, Selling costs and excess capacity

***LO: This module shall aid in understanding the nature of monopoly markets and the role of barriers to entry and explain price discrimination; and to explain features of monopolistic competition and the question of economic inefficiency in equilibrium***

## **Unit IV: Oligopoly and Game Theory**

Non-collusive oligopoly models: Cournot, Bertrand, Stackelberg, Sweezy, Chamberlin, Collusive oligopoly models: Cartels, Price leadership. The Payoff Matrix of a Game; Nash Equilibrium, Pure and Mixed Strategies, The Prisoner's Dilemma, Repeated Games, Tit-for tat strategy, Enforcing a cartel, Sequential Games, A Game of entry deterrence

***LO: Upon completion of this module, students will be able to understand and explain the features of oligopoly and learn different models thereof; and the meaning and use of game theory in oligopoly; understand concepts like Nash equilibrium and different types of games, especially Prisoner's dilemma.***

## **Core I**

## **9. Macroeconomics II**

### **Course Description**

This paper deals with growth models and the classical school of thought, and its evolution into Keynesian economics. The students are introduced to long-run dynamics in growth and technical progress. This paper also familiarizes about the open economy and its dynamics.

### **Course Outcomes:**

- To emphasize on conceptual understanding and some applications of important growth models.

- To enable critical appreciation of the classical school of thought and the evolution of Keynesian economics.
- To understand the theoretical underpinnings of economic policy in open economies, such as monetary and fiscal policy, the basic Mundell-Fleming model, and nominal and real exchange rate determination.
- To understand the trade-off between Unemployment and Inflation; get a critical understanding of Long-run and Short-run Phillips Curve, unemployment, and Expectations.

### **Unit I: Economic growth model:**

Accumulation of capital in the basic Solow model; supply and demand for goods, growth in the capital stock and the steady state, Golden rule level of capital, comparing steady states, transition to the golden rule steady state with too much and too little capital, population growth technological progress – Solow version

***LO: The module shall enable the students to get conceptual clarity and strengthen theoretical foundations of the Solow growth model***

### **Unit II: Classical and Keynesian Macroeconomic thought**

Classical macroeconomics, Employment and output determination: Say's law; the quantity theory of money, Keynes General theory: Keynes main propositions, Analysis of the labour market, Keynes critique of Says law and Quantity Theory of Money, the orthodox Keynesian school, underemployment equilibrium in the Keynesian model.

***LO: This module shall help students in developing a clear, comprehensive understanding of how and in what ways the Classical and Keynesian schools of economic thought differ from each other.***

### **Unit III: Open Economy and Macroeconomic policies**

Balance of payments –concepts, meaning of equilibrium and disequilibrium in Balance of payments measures to correct disequilibrium. Determination of foreign exchange rate- the balance of payments theory, fixed versus flexible exchange rate; the short run open economy model: The basic Mundell-Fleming model: Macroeconomic policies – Fiscal policy - Crowding- out and Crowding-in; Monetary policy and instruments, the Transmission Mechanism, Effectiveness of macroeconomic policies in the open and closed economies.

***LO: This module will enable students to get clarity on macroeconomic theories and models in the context of open economies, the interdependent nature of key macroeconomic variables, sectors, and markets, and the dynamics of responses to exogenous domestic and international economic shocks***

### **Unit IV: Inflation, Unemployment and Expectations**

Inflation – Unemployment trade-off and the Phillips curve – short run and long run analysis, Adaptive and Rational expectation hypothesis. The policy ineffectiveness debate. Phillips curve and orthodox Keynesian school. Solow and Tobin's modified Phillips curve.

**LO: Upon completion of this module, students shall be able to derive the Phillips Curve from the Aggregate Supply Curve, the short-run and long-run Phillips curve, and understand the role of adaptive expectations and rational expectations.**

## **Core 1**

## **10. Statistical Methods for Economics**

### **Course Description:**

This is a course on statistical methods for economics. It begins with some basic concepts and terminology that are fundamental to statistical analysis and inference. It is followed by a study and measure of the relationship between variables, which are the core of economic analysis. This is followed by a basic discussion on index numbers and time series. The paper finally develops the notion of probability, followed by probability distributions of discrete and continuous random variables, and introduces the most frequently used theoretical distribution, the Normal distribution.

### **Course Outcomes:**

- To summarize data effectively using measures of central tendency, dispersion, and graphical techniques.
- To analyze relationships between variables through correlation and regression analysis.
- To understand and interpret time series data by identifying trends and seasonality.
- To apply probability theory and sampling techniques to solve statistical problems and assess data validity.

### **Unit I: Data Collection and Measures of Central Tendency and Dispersion**

Basic concepts: population and sample, parameter and statistics; Data Collection: primary and secondary data, methods of collection of primary data; Presentation of Data: frequency distribution; cumulative frequency; graphic and diagrammatic representation of data; Measures of Central Tendency: mean, median, mode, geometric mean, harmonic mean, their relative merits and demerits; Measures of Dispersion: absolute and relative - range, mean deviation, standard deviation, coefficient of variation, quartile deviation, their merits, and demerits; Measures of skewness and kurtosis.

***LO: At the end of this module, students will be able to distinguish between population and sample, collect and organize data, and calculate measures of central tendency and dispersion to understand a data set's characteristics.***

### **Unit II: Correlation and Regression Analysis**

Correlation: scatter diagram, sample correlation coefficient - Karl Pearson's correlation coefficient and its properties, probable error of correlation coefficient, Spearman's rank correlation coefficient. Two variable linear regression analysis - estimation of regression lines (Least square method) and regression coefficients - their interpretation and properties, standard error of estimate.

***LO: This module shall help students master the techniques to measure the strength and direction of relationships between variables (correlation) and use linear regression analysis to model and predict those relationships.***

### **Unit III: Time Series and Index Number**

Time Series: definition and components, measurement of the trend- freehand method, methods of semi-average, moving average and method of least squares (equations of first and second degree only), measurement of the seasonal component; Index Numbers: Concept, price relative, quantity relative and value relative; Laspeyer's and Fisher's index, family budget method, problems in construction and limitations of index numbers, test for ideal index number.

***LO: Upon completion of this module, students will be able to analyze time series data for trends and seasonality, and construct and interpret index numbers to measure price and quantity changes.***

### **Unit IV: Probability Theory and Sampling**

Probability: Basic concepts, addition, and multiplication rules, conditional probability; Meaning of Sampling, Types of Sampling: Probability Sampling versus Non-Probability Sampling; Simple Random Sampling and its selection, Systematic Sampling, Multi-stage Sampling, Quota Sampling; Error: Sampling and Non-sampling.

***LO: Upon completion of this module, students will be able to calculate probabilities, understand different sampling methods (probability vs. non-probability), and identify potential errors associated with sampling.***

## **SEMESTER V**

### **Core I**

### **11. Development Economics I**

#### **Course Description:**

This is the first part of a two-part course on economic development. The course begins with a discussion of alternative conceptions of development and their justification. It then proceeds to aggregate models of growth and cross-national comparisons of the growth experience that can help evaluate these models. The axiomatic basis for inequality measurement is used to develop measures of inequality and connections between growth and inequality are explored. The course ends by linking political institutions to growth and inequality by discussing the role of the state in economic development and the informational and incentive problems that affect state governance.

## **Course Outcomes:**

- The course will enhance the understanding of concepts of development and the need for it.
- It helps students learn about aggregate models of growth.
- It examines the axiomatic basis for inequality measurement and explores the connections between growth and inequality.
- It familiarizes the students with the socio-economic and political institutions while showing their contribution to economic development.

## **Unit I: Study of Economic Development**

Conceptions of Development economic growth and economic development; Alternative measures of development, documenting the international variations in these measures, comparing development trajectories across nations and within them measures of economic development – national and per capita income, basic needs approach, capabilities approach, three core values of development, PQLI, HDI, HPI, MDPI, GDI; Happiness Index

***LO: Upon completion of this module, students learn the alternative concepts associated with the development and the changes in the measurement of development over time.***

## **Unit II: Theories of Economic Growth and Development**

Classical theory, Marxian theory; Schumpeterian theory; Rostow's stages of economic growth; Harrod-Domar model, Solow model and convergence with population growth and technical progress.

***LO: Upon completion of this module, students gain an elaborate knowledge about the growth theories put forth by different Schools of Economics.***

## **Unit III: Poverty, Inequality, Agriculture, Industry and Development:**

Measuring poverty: Head Count Ratio, Poverty Gap Ratio, Squared Poverty Ratio, FGT Ratio; Measuring Inequality – Lorenz curve and Kuznets' inverted U hypothesis; Growth, poverty and inequality; Policy options – some basic considerations

Agriculture, Industry and Economic Development: Interdependence between agriculture and industries – A model of complementarities between agriculture and industry; terms of trade between agriculture and industry; functioning of markets in agrarian societies; interlinked agrarian markets

***LO: This module shall help the learners to understand different measures of poverty and inequality in an economy and gain an insight into the role of agriculture and industry in economic development and the dynamic complementarity between the two sectors.***



#### **Unit IV: Institutions and Economic Development:**

Role of institutions in economic development; Characteristics of good institutions and quality of institutions; The pre-requisites of a sound institutional structure; Different measures of institutions – aggregate governance index, property rights and risk of expropriation; The role of democracy in economic development; Role of markets and market failure; Institutional and cultural requirements for operation of effective private markets; Market facilitating conditions; Limitations of markets in LDCs; Corruption and economic development – tackling the problem of corruption

***LO: Upon completion of this module, students get to know the importance and role of institutions in the process of economic development.***

#### **Core I**

#### **12. Mathematical Methods for Economics II**

##### **Course Description:**

This course is the second part of a compulsory two-course sequence. This part is to be taught in Semester II following the first part in Semester I. The objective of this sequence is to transmit the body of basic mathematics that enables the study of economic theory at the undergraduate level, specifically the courses on microeconomic theory, macroeconomic theory, statistics and econometrics set out in this Syllabus. In this course, particular economic models are not the ends, but the means for illustrating the method of applying mathematical techniques to economic theory in general. The level of sophistication at which the material is to be taught is indicated by the contents of the prescribed textbook.

##### **Course Outcomes:**

- To use mathematical techniques to analyze economic problems.
- To have an understanding of the input-output models.
- To be able to use second and higher-order derivatives and integration to analyze the nature of functions.
- To develop the ability to optimise objective functions subject to satisfaction of constraints.

##### **Unit I: Linear models:**

Input-Output Model: Basic concepts and structure of Leontief's open and static Input-Output model; Solution for equilibrium output in a three-industry model; The closed model.

***LO: This module will enable the students to get an idea of the static input-output model in its closed and open versions, which are of great practical importance in Economics.***

##### **Unit II: Second and Higher Order Derivatives and Integration:**

Technique of higher order differentiation; Interpretation of second derivative; Second order derivative and curvature of a function; Concavity and convexity of functions; Points of inflection, Derivative of Implicit Function; Higher Order Partial Derivative. Indefinite Integrals; Rules of Integration; Techniques of Integration: Substitution Rule, Integration by parts, and Partial Fractions; Definite Integral – Area Interpretation.

***LO: This module will enable the students to know the concept of higher-order derivatives and integration, definite and indefinite; and the applications of higher-order derivatives and integration in Economics.***

### **Unit III: Single and Multivariable Optimization:**

Optimum values and extreme values; Relative maximum and minimum; Necessary versus sufficient conditions - First and Second derivative tests (using Hessian Determinants); Economic applications thereof, First and second order condition for extrema of multivariable functions; Convex functions and convex sets.

***LO: This module will enable the student to learn the concept of optimization of single and multi-variable functions.***

### **Unit IV: Optimization with Equality Constraints:**

Effects of a constraint; Finding stationary value – Lagrange-Multiplier method (Two variable single constraint case only): First and second order condition; The Bordered Hessian determinant.

***LO: This module will enable the student to understand the meaning and definition of constraint optimization, and the use of the Lagrange multiplier method and the Bordered Hessian determinant to optimize an objective function with respect to a constraint.***

## **Core I**

## **13. History of Economic Thought**

### **Course description**

This course provides a perspective to our intellectual history, development of economic thought and helps relate this to the current thinking. It introduces the students to the philosophers and economists who developed economic reasoning and modeling of economic activities. It also helps create critical abilities and attitudes.

### **Course Outcomes:**

- Understanding economic theories from Mercantilism to the Classical Economists of the eighteenth century and allowing the study of particular economic ideas and theories in considerable depth.
- To facilitate an understanding of economics effectively and comparing different theories of economists from the classical to Marxism.

- Exploring the contrasting theoretical approaches of different economists.
- Understanding the historical evolution of Indian economic thought and its comparison with Western economic thought.

### **Unit I: Introduction and Early Economic Thought**

Mercantilism-main characteristics, Thomas Mur's views; Physiocracy- main features, Tableau Economique, taxation; Early Classicism: Adam Smith- Theory of Value, Division of labour, capital accumulation, distribution, views on trade and economic progress; David Ricardo-theory of value, theory of rent, distribution, ideas on international trade and development.

***LO: This module summarizes the contributions of Adam Smith, David Ricardo, and Thomas to the field of economics.***

### **Unit II: Classicism Vs Marxism**

Thomas Malthus- population theory, glut theory; Karl Marx-dynamic of social change, theory of value, surplus value, theory of profit, crisis of capitalism, Johns Stuart Mill- ideas on value, distribution, views as a synthesizer.

***LO: This module shall enable the students to get general insights into the two schools of thought, namely the Classical and Marxian.***

### **Unit III: The Marginalists' Revolution**

Economic ideas of Jevons, Walras and Menger, Bohm-Bowerk, Wicksell ; Marshall – Role of time element in price determination, ideas on consumer surplus, Marshal as a synthesizer.

***LO: This module will help the students in gaining knowledge and understanding of the development of ideas within the field of economics and get a deeper understanding of the Marginalists' Revolution.***

### **Unit IV: Indian Economic Thought**

Main themes of Kautilya's Arthasashtra; Modern Economic Ideas: Dada Bhai Naoroji, M.K. Gandhi, village swaraj, non-violence, machines and labour, cottage industries; Comparison of Indian Economic thought with western Economic thought.

***LO: This module aids the student in evaluating the relevance and applicability of Indian economic thought in contemporary times.***

Or

## **Money and Banking**

### **Course Description**

This course exposes students to the theory and functioning of the monetary and financial sectors of the economy. It highlights the organization, structure and role of financial markets and institutions. It also discusses interest rates, monetary management and instruments of monetary control. Financial and banking sector reforms and monetary policy with special reference to India are also covered.

### **Course Outcomes:**

- Understanding money and its types along with their functions and different measures of money supply.
- Understanding the basic concepts of banking, and its functions and to examine the banking scenario in India.
- To gain knowledge of the functions of central banks and monetary policies and how they have evolved.
- Get an understanding of the conceptual framework of the financial market and institutions of India.

### **Unit I: Money**

Definition and functions of money; Types of money: legal tender money and bank money, near money; Value of money and index number; construction of index number; WPI, CPI, PPI, GDP deflator, Cost of living index. Demand for money- Classical and Keynesian approaches, Patinkin and the Real Balance Effect; Friedman's Quantity theory of money. Supply of Money- Measures of money supply: M1, M2, M3 and M4 ; High powered money and money multiplier.

***LO: This module will enable students to understand various concepts of money and money substitutes, functions of money, and monetary aggregates.***

### **Unit II: Commercial Banking**

Meaning and types; Functions of commercial banks; the process of credit creation and its limitations; Balance sheet and portfolio management, Banking sector reforms in India; Lessons from Global Financial Crisis and Policy Response in India.

***LO: This module will make the students aware of basics of commercial Banking and Finance.***

### **Unit III: Central Banking**

Functions of a central bank; Quantitative and qualitative methods of credit control; Central Bank's Supervision and prudential measures for financial stability; current

monetary policy of India, liquidity adjustment facility (LAF) through Repo and reverse repo operation, MSF.

***LO: Upon completion of this module, students will be able to appreciate the effects of the major policy tools and understand how central banks affect the financial system of the economy.***

#### **Unit IV: Financial Markets**

Financial Market, Meaning, Types, Money market and Capital Market, Primary and Secondary Market, Stock Exchanges, SEBI; Role of Financial Markets for Economic Development. Financial Instruments: Government securities, derivatives, futures and options, bond, debentures.

***LO: This module shall help students to understand the nature of financial instruments and their usage.***

**Or**

#### **Economy of Odisha**

##### **Course description**

Using appropriate analytical frameworks, this course reviews major trends in economic indicators and policy debates in Odisha in pre- and post-Independence period, with particular emphasis of paradigm shifts and turning points. Given the rapid changes taking place in Odisha, the reading list will have to be updated annually.

##### **Course Outcomes:**

- To obtain a basic overview of the economy of Odisha in the pre-Independence period.
- To analyze the strengths and weaknesses of the macroeconomic scenario of Odisha's economy.
- To gain an understanding of the important economic sectors of Odisha and the challenges faced by them in recent times.
- To grasp the current economic problems in Odisha.

#### **Unit I: Odisha Economy before 1947**

Orissa's Economy in the Nineteenth Century: Benevolence or Exploitation, Forces of Nature, Animal Power, The Company Steps in, Public Works and Public Health, Education, Disintegration of Village Economy, New Social Environment, Changing Position of Social Classes, The Moneylenders, The Borrowers, Money-flows from Village to Metropolis, Pauperization of Peasantry, The Wage Earners, Demographic Changes, Profiting from Rural Adversity; Diarchy in 1919 and Separation of Provincial Finances from Central Government in 1937; Emergence of Federal Finance.

***LO: This module will ensure that the students understand the features of Odisha's economy in the pre-independence period.***

## **Unit II: Macro Economy of Odisha**

A macro glance of Odisha economy: aggregate income, broad sectoral decomposition, performance of districts, employment, child labour and bonded labour, employment programmes, consumption expenditure, cost of living; Odisha State public finances.

***LO: This module presents the ground realities of Odisha's macro-economic situation to the students.***

## **Unit III: Agriculture, Industry, Infrastructure and Environment in Odisha**

Agriculture: land ownership and land tenure, agricultural wages and rural unemployment, production and productivity of major crops, agricultural inputs, agricultural policy; Animal Husbandry; Fisheries

Industry: Investment, industrial policy, and the growth of large industries, mining and quarrying; Construction; tertiary sector: tourism, transport and power; Water Resources, Forest Resources

***LO: Upon successful completion of this module, students will be able to appreciate the importance and contribution of two important sectors, agriculture and industry, to Odisha's Economy.***

## **Unit IV: Social Sector in Odisha**

Poverty: income poverty and inequality; health sector: outcomes, infrastructure, finance, public health, NRHM; education: Literacy, Primary education, secondary education, higher education, SSA; human development

***LO: This module presents the salient features of the social sector in Odisha to the students.***

# **SEMESTER VI**

## **Core I**

## **14. Introductory Econometrics**

### **Course Description:**

This course provides a comprehensive introduction to basic econometric concepts and techniques. It covers statistical concepts of hypothesis testing, estimation and diagnostic testing of simple and multiple regression models. The course also covers the consequences of and tests for misspecification of regression models.

## **Course Outcomes:**

- To have a comprehensive introduction to basic econometric concepts and techniques.
- To gain an understanding of the statistical concepts of hypothesis testing, estimation, and diagnostic testing of simple and multiple regression models.
- To gain knowledge about the consequences, tests, and remedies of violation of Least Square assumptions.

## **Unit I: Introduction**

Definition, Nature and scope of econometrics; Theoretical Probability Distributions: Binomial, Poisson and Normal distributions: their properties. Theory of Estimation: Estimation of parameters; properties of estimators – small sample and asymptotic properties; point and interval estimation.

***LO: This module will enable the students to know about some common discrete and continuous theoretical probability distributions; and to know about estimators, point and interval, and the desirable properties of point estimators.***

## **Unit II: Hypothesis Testing**

Testing of hypotheses: defining statistical hypotheses; Simple and composite hypotheses; Null and alternative hypothesis; Type I and Type II errors, Critical region; Neyman-Pearson lemma; Power of a test; Test statistics: z, chi square, t and F.

***LO: This module will enable the student to gain knowledge about statistical hypotheses and the procedure of testing of hypothesis; and have an understanding of type I and type II errors in the procedure of hypothesis testing.***

## **Unit III: Linear Regression Analysis**

Two variable linear regression model – Assumptions; Least square estimates, Variance and co- variance between Least square estimates; BLUE properties; Standard errors of estimates; Co- efficient of determination; Inference in a two variable linear regression model; ANOVA; Forecasting. Introduction to multiple regression models.

***LO: This module will enable the students to understand the concept and usefulness of regression analysis and differentiate between Linear and non-linear relations; understand the difference between simple & multiple linear regression models and their estimation as well as inference drawn therefrom.***

## **Unit IV: Violation of Classical Assumptions**

Heteroscedasticity, Multicollinearity and Auto-correlation: Meaning, consequences, tests and remedies.

***LO: This module will enable the student to understand the consequences, tests, and remedies of violation of Least Square assumptions.***

Or

## Public Economics I

### Course description:

Public economics is the study of government policy from the points of view of economic efficiency and equity. The paper deals with the nature of government intervention and its implications for allocation, distribution and stabilization. Inherently, this study involves a formal analysis of government taxation and expenditures. The subject encompasses a host of topics including public goods, market failures and externalities.

### Course Outcomes:

- The course will familiarize the students with the relevance, responsibilities, and sources of receipts of the government.
- Students will be able to understand the rationale behind the public provision of specific goods and services and what can be left to market for provision.
- Students will be able to understand the normative ideas behind public expenditure, taxation, and public debt as well as the budget of government and its impact on the economy.
- Students will be able to understand the methods of fiscal management by the government in India.

### Unit I: Introduction to Public Finance and Public Budgets

The concept of Pareto Optimality. Pareto improvement and potential Pareto improvement. Public good versus private good; Free riding and public Good provision. Maximum Social advantage. Market failure and role of government; Public Budget: kinds of budget, economic and functional classification of the budget; Balanced and unbalanced budget; Balanced budget multiplier; Budget as an instrument of economic policy

***LO: This module will give an idea of the goods to be provided by the government and market and the challenges faced by the government to provide public goods; and will also teach about different types of budgets and their implications for the economy.***

### Unit II: Public Expenditure

Meaning, classification, principles, cannons and effects, causes of growth of public expenditure, Wagner's law of increasing state activities, Peacock-Wiseman hypotheses. Pareto Optimality Criterion, social Allocation

***LO: This module will educate on the principles behind public expenditure and the causes behind the rise in the public expenditure.***

### Unit III: Public Revenue



Sources of Public Revenue; Taxation - meaning, cannons and classification of taxes, impact and incidence of taxes, division of tax burden, the benefit and ability to pay approaches, taxable capacity, effects of taxation, characteristics of a good tax system, major trends in tax revenue of central and state governments in India, Introduction of GST in India. Issues and Challenges relating to GST.

***LO: This module will educate on the sources of receipts for the government, theoretical ideas behind taxation, and implementation of GST in India.***

#### **Unit IV: Public Debt**

Sources, effects, debt burden – Classical/ Ricardian views, Keynesian and post-Keynesian views; shifting - intergenerational equity, methods of debt redemption, debt management, tax verses debt.

***LO: This module will give a fair idea of different aspects of the implications of public debt on the economy***

**Or**

### **Development Economics II**

#### **Course Description:**

This is the second Module of the economic development sequence. It begins with basic demographic concepts and their evolution during the process of development. The structure of markets and contracts is linked to the particular problems of enforcement experienced in poor countries. The governance of organizations is studied and this is then linked to questions of sustainable growth. The course ends with reflections on the role of globalization and increased international dependence on the process of development.

#### **Course Outcomes:**

- This course shall provide an introduction to basic demographic concepts and their evolution during the process of development.
- It will instill the ability to present a new interpretation of the dualistic structure of an economy and its implication for economic development.
- The course will give an in-depth understanding of environmental economics and application of economic principles to resolve specific environmental problems and issues.
- It will equip the students with an ability to explain the phenomenon of globalization, the economics, and the politics of international agreements, trade, and production patterns.

## **Unit I: Population and Development**

Demographic concepts: birth and death rates, age structure, fertility and its determinants, the Malthusian population trap and the microeconomic household theory of fertility; costs and benefits of population growth and the model of low-level equilibrium trap; rural-urban migration – the Harris Todaro migration model and policy implications.

***LO: Upon successful completion of the module, the students will learn about the basic demographic concepts of birth and death rates, age structure, fertility and mortality, demographic transition and development, fertility choices and human capital formation, and migration models.***

## **Unit II: Dualism and Economic Development**

Dualism – geographic, social and technological; the theory of cumulative causation (Myrdal); the regional inequalities in the context of economic development; the inverted U relationship; international inequality and the centre periphery thesis; dependency, exploitation and unequal exchange; the dualistic development thesis and its implications.

***LO: This module shall provide an understanding of the various concepts of dualism and the manner it has hindered the development of developing countries.***

## **Unit III: Environment and Development**

Basic issues of environment and development – Development and environment inter-linkage; Poverty, environmental degradation and externalities; common property resources, renewable and non-renewable resources; concept of sustainable development; basics of climate change.

***LO: This module shall help students getting an idea about the global perspectives on contemporary environmental and natural resource issues and appropriate economic concepts for analyzing them.***

## **Unit IV: International Trade and Economic Development and Financing Economic Development**

Trade and economic development; export-led growth; terms of trade and economic growth – the Prebisch Singer Hypothesis; trade strategies for development – import substitution vs. export promotion; international commodity agreements; trade vs aid; Foreign finance, investment and foreign aid – controversies and support Modalities.

***LO: The learners shall acquire an understanding of the linkage between International Trade and Economic Development, and trade strategies for development.***

## **Core I**

## **15. Computational Methods in Economics**

### **Course Description**

This course introduces the students to understand uses of computers and their applications in economics. After completion of the course, students will develop professional competency in working with MS Office.

### **Course Outcomes:**

- To understand the uses of computers and their applications in Economics.
- To develop professional competency in working with MS Office.
- To get hands-on use of Microsoft Office applications- Word, Excel, PowerPoint, and Access.
- To gain basic soft skills in handling data, creation, and formatting of Word documents, and making presentations.

### **Unit I: Computer Fundamentals**

The basic architecture of CPU and its functions – Input device and output device – Primary and secondary memory. Operating systems - concept and types, Windows-concepts and components; Basics of a computer network: LAN, WAN, and MAN; Introduction to internet and its applications; booting process, Machine language, and assembly language; Applications of computer in Economics, other fields.

***LO: This module shall make the students understand the basics of computers – parts, memory, network, and internet.***

### **Unit II: MS Word, PowerPoint, and Access Applications**

MS Word: Word basics, creation of a document, use of tables, pictures, and charts; editing, formatting, and printing documents; MS PowerPoint: Features, Creation of Slides for presentation, Types of view, Slide master, Templates and Slide transition; MS-Access: Data Field, Record, Database file, Types of files, Types of records, Data type, Database evolution, Data transfer from Excel to Access

***LO: Upon completion of this module, students shall be able to create text documents using MS Word, create interesting and appealing presentations using MS PowerPoint, and apply Database Management Software (DBMS) like MS Access to manage data of businesses and enterprises.***

### **Unit III: Worksheet & MS Excel**

Basics of worksheet –creating a worksheet, entering data into a worksheet, sorting data, autofill, saving & protecting a worksheet, Formatting of a worksheet. Previewing & Printing worksheet; Create an Excel chart; Drawing charts: Area, Bar, Column, Line, Pie, Scatter, etc. Move and Resize your chart; Charts Styles and Layouts; Chart Titles and Series Titles; Format chart Panel; Add labels to a Chart; Format chart segments; Format Axis titles; Format your Axis titles

Or

## **Environmental Economics**

### **Course Description**

This course introduces the students to the basics of environmental economics to understand the fundamentals of environmental concerns and develop insights into valuation of environment.

### **Course Outcomes:**

- To understand the basic concepts/principles of Environmental Economics
- To be able to analyse and apply the concepts to understand specific case studies.
- To develop insights into the valuation of the environment.
- To become capable to execute/create the Project or field assignment as per the knowledge gained in the course.

### **Unit I: Economy and Environment**

Concepts of Environmental Economics, Natural Resource Economics, and Ecological Economics. Important environmental Problems (Air pollution, water pollution, deforestation, climate change and global warming), Economy-Environment inter-linkages, Role of environment for economic development, Effect of economic development (industrialization, urbanisation, modernization of agriculture) on environment, Consequences of environmental degradation on the economy and the wellbeing of the people and other living beings, concept of Environment-Kuznets Curve hypothesis.

***LO: This module will aid in acquiring knowledge of the concepts related to Environmental Economics and in understanding the Environment-Economy interlinkage.***

### **Unit II: The Economics of Pollution and Climate change**

Environment and Market Failure, Nature of environment quality (Non-rivalry and non-excludability), Pollution as public bad, Pollution as negative externality. Pigouvian tax for optimal pollution, Property rights and bargaining for optimal pollution (Coase Theorem), Government's Command and Control method for controlling pollution. Climate change as market failure (Green house gas externality, lack of incentives for developing low carbon technology), policy measures for mitigations of climate change (carbon taxes and tradable carbon rights).

***LO: This module will be useful for the students in understanding the nature of pollution and getting knowledge of pollution control and climate change mitigating tools.***

### **Unit III: Valuation of Environment**

Difficulties of valuation of eco-system services, Concepts of Economic value of environment (Use and non-use value, Option value, Existence value); Willingness to pay (WTP) and willingness to accept (WTA) compensation for improvement/deterioration of environment quality, Revealed Preference Method of valuation of environment (The hedonic price approach, Travel Cost approach)

Contingent Valuation method.

***LO: Upon completion of this module, the learner shall gain knowledge of the different methods of valuing environmental services.***

#### **Unit IV: Natural Resources and Sustainable Development**

Natural resources; renewable and exhaustible; management of exhaustible resources and the Hotelling's rule; management of renewable resources (case of fishery only) optimally, Concept of carrying capacity of Environment (related to resource use and pollution), Issues of irreversibility, uncertainty in the natural resource use and waste disposal, Sustainable Development: Concepts and Components (Social, Economic and Environmental), Daly's operational principles for sustainability, Sustainable Development Goals (SDGs).

***LO: This module shall initiate an understanding of the limits of the use of natural resources from the point of view of their sustainability and Sustainable development.***

**Or**

#### **International Economics**

##### **Course Description**

This course introduces the students to international trade and finance to understand the theories of international trade and develop insights into trade policy and balance of payments. The course also develops insight into the international financial system and the trade policy of India.

##### **Course Outcomes:**

- To understand the basic concepts/principles of International Trade and Finance.
- To acquire the ability to analyse the concepts to understand specific case studies and practical issues.
- To develop insights into trade policy and balance of payments.
- To develop an insight into the international financial system and the trade policy of India.

#### **Unit I: Importance of Trade and Trade Theories**

Importance of the study of International Economics; Inter-regional and international trade; Theories of Trade-absolute advantage (Adam Smith), comparative advantage (David Ricardo) and Opportunity cost (Haberler); Heckscher-Ohlin theory of trade – assumptions (Irreversible Factor intensity of goods, Perfect competition with homogeneous products, Constant returns to scale, equal access to technology to producers of all countries, difference in factor endowment between the countries), factor abundance, factor intensity and limitations (Leontief Paradox); Factor Price Equalization theorem.

***LO: This module shall endow the knowledge of the different trade theories to the learners.***

## **Unit II: Trade Policy**

Concepts of terms of trade; Doctrine of reciprocal demand – Offer curve technique; Gains from trade, types; Free Trade vs Protected Trade, Tariffs- types, effects under partial and general equilibrium analysis; Quotas- effects its impact in partial equilibrium analysis; General Equilibrium analysis of tariff; the concept of optimum tariff.

***LO: Upon successful completion of the module, students shall get an understanding of the different tools used by the Government to intervene in trade and their welfare implications.***

## **Unit III: Exchange Rate and International monetary system**

Concept and Types of Exchange Rate (bilateral vs. trade-weighted exchange rate, cross exchange rate, spot, forward, futures), Demand for and Supply of foreign exchange, Exchange Rate Determination: Mint Parity Theory, Purchasing-Power Parity Theory, Fixed versus Flexible exchange rate; IMF: Objectives of IMF, IMF's assistance to member countries ( Rapid Financing

Instrument, Rapid Credit Facility Stand only) for BoP deficit correction., World Bank and WTO; Their achievements and failures; Their Role from the point of view of India

***LO: This module will be useful for the students in getting to know about the exchange rate and theories relating to its determination and gaining knowledge of the different international financial institutions.***

**Unit IV: Balance of Payments** Concepts and components of balance of trade and balance of payments; deficit and surplus in the balance of payments, Disequilibrium in balance of payments; Various measures to correct deficit in BOPs (Expenditure switching and expenditure reducing policies, Direct control), Depreciation Vs. Devaluation; Elasticity approach to devaluation, Foreign trade multiplier.

***LO: This module shall enable an understanding of the concept of disequilibrium in Balance of Payment (BOP) and the different measures for correcting the same.***

## **Multi-Disciplinary Course - SEMESTER-I**

### **Paper-III: Economics in Everyday Life (Economics)**

*This objective of this course is to expose the non-economics students to the subject matter of economics by introducing them with the most basic concepts of economics.*

#### **Unit I: Basic Concepts in Economics**

*Meaning and Definition of economics, Economics is a Science or an Art, Microeconomics verses Macroeconomics, Basic economic issues of a household: (How to address the different needs with the limited income?) Needs, resource scarcity and optimal allocation of resources Important economic concepts: Goods, Service, Value, Price, Utility, Types of Utility, Firm, Industry, Supply and Demand, Market (only concept)*

**LO: Upon completion of this module, students will get a basic idea about the basic concepts in economics and understand the importance of economics in their day to day life.**

#### **Unit II: Money and Banking**

*Definition of Money, Evolution of Money, Value of Money, Functions of Money, Types of Money, Banking, Different types of Banks, Functions of Commercial bank, Functions of Central Bank.*

**LO: Upon completion of this module, students will get a basic idea about money and banking which they can use and get benefited in their day to day life.**

#### **Unit III: Public Finance and Budget**

*Meaning of Public Finance, Difference between Public Finance and Private Finance, meaning of Budget, Objectives of Budget, Types of Budget (only concept)*

**LO: Upon completion of this module, the students will be introduced to concepts of public finance and budget.**

#### **Unit IV: Indian Economy Concepts**

*Basic Characteristics of Indian Economy, Meaning and Significance of Demographic Statistics, Analysis of Size of Population, Sex Ratio, Literacy Rate, Human Development, Sustainable Development Goal (SDG) (Concept only)*

**LO: This module shall enable the students to gain an in-depth understanding of the Indian economy, including its demographic profile, human development and sustainable development goals.**

## **Multi-Disciplinary Course - SEMESTER-II**

### **Paper-IX:**

### **Demography (Economics)**

#### **Unit-1:**

**LO.** Understand of key concepts of demography as a discipline

**Introduction: Demography** - Its Definition, Nature and Scope; Relationship with other disciplines; Demographic Balancing Equation; Sources of Demographic Data in India: Salient Features of Census, Civil Registration System, National Sample Survey, National Family Health Survey; Population Distribution and Growth – Measures and Determinants; Concepts of Rate, Ratio and Proportion.

#### **Unit -II:**

**LO.** Examine population dynamics and resultant socioeconomic issues and problems.

**World Population Growth; Doubling time; Population Growth in India;** Population Dynamics: Fertility, Mortality and Migration - Measures, Determinants and Implications; Theories of Population - Malthusian Theory and theory of Demographic Transition, Population policies and programmes in India.

#### **Unit-III: Practical**

**LO.** Compare and relate population growth and distribution of developed and developing countries

1. Arithmetic and Geometric Projection - Calculation and Graphical display;
2. Construction of population pyramid,
3. Construction of Lorenz Curve
4. Calculation and presentation of Population Growth Rate, Crude Birth Rate, Age-Specific Fertility Rate, Infant and Neonatal Mortality Rate, Maternal Mortality Ratio Based on Supplied Data.
5. Practical Record and Viva-Voce.