Under-Graduate Syllabus (B.Sc. Honours)

DEPARTMENT OF ECONOMICS

PANSKURA BANAMALI COLLEGE
(Autonomous)

SYLLABUS
following
Learning Outcome-based Curriculum Framework

Semester Pattern
under
NATIONAL CREDIT AND CURRICULUM (NEP) Framework 2023

The Department of ECONOMICS
CODES & TITLES of the COURSES offered under the NEP Curriculum
(NEP 4 Year Undergraduate Course)

Semsester	COURSES		Total
	Subject Codes	**Course Titles**	
	1. Major Course Core (MCC)		
Sem.-I	ECOUMCC101	Introductory Microeconomics	4
Sem.-II	ECOUMCC202	Mathematical Methods for Economics	4
Sem.-III	ECOUMCC303	An Introduction to Linear Programming and Game Theory	4
	ECOUMCC304	Introductory Macroeconomics	4
Sem. -IV	ECOUMCC405	Intermediate Microeconomics	4
	ECOUMCC406	Probability and Statistics	4
	ECOUMCC407	Intermediate Macroeconomics	4
Sem.-V	ECOUMCC508	International Trade	4
	ECOUMCC509	Statistical Methods with MS Excel	4
	ECOUMCC510	Public Finance	4
	ECOUMCC511	Econometrics Theory	4
Sem.-VI	ECOUMCC612	Practical Econometrics	4
	ECOUMCC613	Indian Economy-I	4
	ECOUMCC614	Development Economics-I	4
	ECOUMCC615	Bank and Capital Market	4
Sem.-VII	ECOUMCC716	Case Studies in Applied Economic Analysis	4
	ECOUMCC717	Environment Economics	4
	ECOUMCC718	Economic Audit of Environment (Field Visit)	4
Sem.-VIII	ECOUMCC819	Development Economy-II	4
	ECOUMCC820	Indian Economy-II	4
	ECOUMCC821	Big data in Economics	4
	2. Major Course Discipline-Specific (MCD)		
Sem.-V	ECOUMCD501	Political Economy	4
Sem.-VI	ECOUMCD602	Bio-Economics	4
Sem.-VII	ECOUMCD703	Research Methodology	4
	ECOUMCD704	Welfare Economics	4
Sem.-VIII	ECOUMCD805	Contemporary Economic Issues	4

SINGLE MAJOR

	ECOUMCD806	Dissertation	4
3. Minor Courses (MIC) **(Offered to the Students from other departments)**			
Sem.-I	ECOUMIC101	Basic Economics	4
Sem.-II	ECOUMIC201	Micro and Macro Economics	4
Sem.-III	ECOUMIC302	Mathematical Economics	4
Sem.-IV	ECOUMIC402	Demography and Resource Economics	4
Sem.-V	ECOUMIC503	Money and Banking	4
Sem.-VI	ECOUMIC603	Statistical Methods in Economics with SPSS	4
Sem.-VII	ECOUMIC704	Environmental Economics	4
Sem.-VIII	ECOUMIC804	Case Studies in Applied Economics	4
4. Skill Enhancement Course (SEC)			
Sem.-I	ECOUSEC101	Economics of Floriculture	3
Sem.-II	ECOUSEC202	Economics of Education and Health	3
Sem.-III	ECOUSEC303	Data Analysis Using Software Packages	3

PANSKURA BANAMALI COLLEGE
(Autonomous)

Major Core Course (MCC)

Credit - 4

Semester Pattern

under

NATIONAL CREDIT AND CURRICULUM (NEP)
Framework 2023

CORE ECONOMICS COURSE 1: INTRODUCTORY MICROECONOMICS
COURSE CODE: ECOUMCC101
CREDIT - 4

Course Description

This course is designed to expose the students to the basic principles of microeconomic theory. The emphasis will be on thinking like an economist, and the course will illustrate how microeconomic concepts can be applied to analyze real-life situations.

Course Objective

This course is designed:
I.   To expose the students to the basic principles of microeconomic theory.
II. To introduce the first course in economics from the perspective of individual decision making as consumers and producers.

Course Learning Outcomes

On successful completion of this course, the student should be able to:
I.   Think like an economist and illustrate how microeconomic concepts can be applied to analyze real-life situations.
II. Learn some basic principles of microeconomics, interactions of supply and demand, and characteristics of perfect and imperfect markets.

Course Outline

Unit-I: Exploring the subject matter of Economics

Why study economics? Scope and method of economics; the economic problem: scarcity and choice; the question of what to produce, how to produce and how to distribute output; science of economics; the basic competitive model; prices, property rights and profits; incentives and information; rationing; opportunity sets; economic systems; reading and working with graphs.

Unit-II: Supply and Demand: How Markets Work, Markets and Welfare

Markets and competition; determinants of individual demand/supply; demand/supply schedule and demand/supply curve; market versus individual demand/supply; shifts in the demand/supply curve, demand and supply together; how prices allocate resources; elasticity and its application; controls on prices; taxes and the costs of taxation; consumer surplus; producer surplus and the efficiency of the markets.

Unit-III: The Households

The consumption decision - budget constraint, consumption and income/price changes, demand for all other goods and price changes; description of preferences (representing preferences with indifference curves); properties of indifference curves; consumer's optimum choice; income and substitution effects; labour supply and savings decision - choice between leisure and consumption.

Unit-IV: The Firm and Perfect Market Structure

Behavior of profit-maximizing firms and the production process; short-run costs and output decisions; costs and output in the long run.

Unit-V: Imperfect Market Structure

Monopoly and antitrust policy; government policies towards competition; imperfect competition.

Unit-VI: Input Markets

Labour and land markets - basic concepts (derived demand, productivity of an input, marginal productivity of labour, marginal revenue product); demand for labour; input demand curves; shifts in input demand curves; competitive labour markets; and labour markets and public policy.

Suggested Readings

- Karl E. Case and Ray C. Fair, Principles of Economics, Pearson Education Inc., 8th Edition, 2007.
- N. Gregory Mankiw, Economics: Principles and Applications, India edition by South Western, a part of Cengage Learning, Cengage Learning India Private Limited, 4th edition, 2007.
- Joseph E. Stiglitz and Carl E. Walsh, Economics, W.W. Norton & Company, Inc., New York, International Student Edition, 4th Edition, 2007.
- Pindyck, Robert S.; Rubinfeld, Daniel L. *Microeconomics*. Ninth edition : Pearson, 2018.

CORE ECONOMICS COURSE 2: MATHEMATICAL METHODS IN ECONOMICS
COURSE CODE: ECOUMCC202
CREDIT - 4

Course Description

The objective of this course 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 Objectives

This is the first of a compulsory two-course sequence.
 I.   This course would introduce the students to mathematical techniques that are used in Economics
 II.   The mathematical approach has the advantages of precision and clarity in understanding complex economic phenomena.
 III.   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.
 IV.   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.

Course Learning Outcomes

On successful completion of this course, the student should be able to:
 I.   Upgrades the mathematical skills acquired in school and paves the way for the second semester course, Mathematical Methods in Economics II.
 II.   Apply the analytical tools wherever optimization techniques are used in business decision-making. These tools are necessary for anyone seeking employment as an analyst in the corporate world.
 III.   Acquire the mathematical foundations necessary for further study of a variety of disciplines, including postgraduate economics, statistics, computer science, finance, and data analytics.
 IV.   Learn about vectors, matrices, and determinants; optimize a given constrained or unconstrained function; and work upon the convexity and concavity of functions.

Course Outline

Unit-I: Preliminaries
> Logic and proof techniques; sets and set operations; relations; functions and their properties; number systems.

Unit-II: Functions of one real variable
> Graphs; elementary types of functions: quadratic, polynomial, power, exponential, logarithmic; sequences. Continuous functions: characterizations, properties with respect to various operations and applications; differentiable functions: characterizations, properties with respect to various operations and applications; second and higher order derivatives: properties and applications.

Unit-III: Single-variable optimization
> Geometric properties of functions: convex functions, their characterizations and applications; local and global optima: geometric characterizations, characterizations using calculus and applications.

Unit-IV: Integration of functions

Unit-V: Difference equations
Unit-VI: Differential equations
Unit-VII: Linear algebra
> Vector spaces: algebraic and geometric properties, scalar products, norms, orthogonality; linear transformations: properties, matrix representations, and elementary operations; systems of linear equations: properties of their solution sets; determinants: characterization, properties, and applications.

Unit-VIII: Functions of several real variables
> Geometric representations: graphs and level curves; differentiable functions: characterizations, properties with respect to various operations and applications; second order derivatives: properties and applications; the implicit function theorem, and application to comparative statics problems; Homogeneous and homothetic functions: characterizations and applications.

Unit-IX: Multi-variable optimization
> Convex sets; geometric properties of functions: convex functions, their characterizations, properties and applications; further geometric properties of functions: quasiconvex functions, their characterizations, properties and applications; Unconstrained optimization: geometric characterizations, characterizations using calculus and applications; constrained optimization with equality constraints: geometric characterizations, Lagrange characterization using calculus and applications; Properties of Value Function: Envelope Theorem and Applications.

Suggested Readings:

- K. Sydsaeter and P. Hammond, Mathematics for Economic Analysis, Pearson Education Asia: Delhi, 2002.

Textbooks:

- NCERT (National Council of Educational Research and Training) textbooks, Class 11 & 12.

CORE ECONOMICS COURSE 3: AN INTRODUCTION TO LINEAR PROGRAMMING AND GAME THEORY
COURSE CODE: ECOUMCC303
CREDIT - 4

Course Description

A course on Linear Programming Problems (LPP) introduces students to optimization techniques using linear relationships to find the best outcome for a problem. It covers mathematical formulation, solution methods (like the Simplex method), and applications in various fields like business, engineering, and computer science.

On the other side, Game theory is a branch of Mathematical Economics that deals with strategic interactions amongst rational decision makers. Traditionally, game theoretic tools have been applied to solve problems in Economics, Business, Political Science, Biology, Scociology, Computer Science, and other interdisciplinaries. In recent years, application of game theory have been successfully extended to several areas of engineered/ networked system, static and dnamic spectrum auction, social and economic networks.

Course Objective

The primary course objective of a course on linear programming problems and game theory is to equip students with the knowledge and skills to formulate, solve, and analyze optimization problems using linear programming techniques, and to understand the strategic decision-making involved in game theory

Course Learning Outcomes

A typical course in Linear Programming and Game Theory aims to equip students with the ability to model and solve real-world problems using linear optimization techniques and game theory principles.

Course Outline

Unit-1 (Linear Programming Problem)

1. Linear Programming Problem: Formulation of an LPP; General linear programming problem; Graphical method of solving LPP; Nature of the solution of LPP; Areas of application of LPP; Examples

2. Simplex Method: Fundamental Theorem of Linear Programming; Reduction of a basic feasible solution; Optimality condition; Unboundedness; Alternative Optima

3. Duality Problems: Concept of Duality; Mathematical formulation of duals; Duality theorems; Complementary slackness; Duality and Simplex method; Economic interpretations of duality

4. Transportation Problem

Unit-2 (Game Theory)

1. Introduction to Game Theory: What is game theory?; Theory of rational choice; Interacting decision makers

2. Strategic Games and Nash Equilibrium: Strategic games with examples; Nash Equilibrium-concepts and examples; Best response functions; Dominated actions

3. Illustrations of Nash Equilibrium: Cournot's model of Duopoly market; Bertrand's model of duopoly market

Suggested Readings:

1. Allen, R.G.D. (1960). Mathematical Economics, 2e. London: Macmillan & Co., Ltd.
2. Robert J. Vanderbei. Linear Programming Foundations and Extensions, Springer, 2020.
3. Paul R. An Introduction to Linear Programming and Game Theory, Wiley, 2008.
4. Osborne, M.J. An Introduction to Game Theor, Oxford Universit Press, 2004.
5. Gibbons, R. A Primer in Game Theory, Pearson Education, 1982.
6. Prajit Dutta, Strategies and Games, MIT Press.

CORE ECONOMICS COURSE 4: INTRODUCTORY MACROECONOMICS
COURSE CODE: ECOUMCC304
CREDIT - 4

Course Description

This course aims to introduce the students to the basic concepts of macroeconomics. Macroeconomics deals with the aggregate economy. This course discusses the preliminary concepts associated with the determination and measurement of aggregate macroeconomic variables like savings, investment, GDP, money, inflation, and the balance of payments.

Course Objective

This course aims to
  I. Introduce the students to the basic concepts of macroeconomics and how it deals with the aggregate economy.
  II. Discusses the preliminary concepts associated with the determination and measurement of aggregate macroeconomic variables like savings, investment, GDP, money, inflation, and the balance of payments.

Course Learning Outcomes

On completion of this course, the student will be able to:
  I. Train the students of economics about the basic elements of savings, investment, GDP, money, inflation, and the balance of payments.
  II. Understand how an economy works and develop the understanding about the money.

Course Outline

Unit-I: Introduction to Macroeconomics and National Income Accounting
  Basic issues studied in macroeconomics; measurement of gross domestic product; income, expenditure and the circular flow; real versus nominal GDP; price indices; national income accounting for an open economy; balance of payments: current and capital accounts; System of National Account (SNA).

Unit-II: Money
  Functions of money; quantity theory of money; determination of money supply and demand; credit creation; tools of monetary policy.

Unit-III: Inflation
  Inflation and its social costs; hyperinflation.

Unit-IV: The Closed Economy in the Short Run

Classical and Keynesian systems; simple Keynesian model of income determination; IS- LM model; fiscal and monetary multipliers.

Suggested Readings:

- Dornbusch, Fischer and Startz, Macroeconomics, McGraw Hill, 11th edition, 2010.
- N. Gregory Mankiw. Macroeconomics, Worth Publishers, 7th edition, 2010.
- Olivier Blanchard, Macroeconomics, Pearson Education, Inc., 5th edition, 2009.
- Richard T. Froyen, Macroeconomics, Pearson Education Asia, 2nd edition, 2005.
- Andrew B. Abel and Ben S. Bernanke, Macroeconomics, Pearson Education, Inc., 7th edition, 2011.
- Errol D'Souza, Macroeconomics, Pearson Education, 2009.
- Paul R. Krugman, Maurice Obstfeld, and Marc Melitz, International Economics, Pearson Education Asia, 9th edition, 2012.

CORE ECONOMICS COURSE 5: INTERMEDIATE MICROECONOMICS
COURSE CODE: ECOUMCC405
CREDIT - 4

Course Description

The course is designed to provide a sound training in microeconomic theory to formally analyze the behavior of individual agents. Since students are already familiar with the quantitative techniques from 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 Objective

The course is designed to:
  I.   Provide a sound training in microeconomic theory to formally analyze the behavior of individual agents.
  II.   Since students are already familiar with the quantitative techniques from the previous semesters, mathematical tools are used to facilitate understanding of the basic concepts.
  III. This course looks at the behavior of the consumer and the producer and also covers the behavior of a competitive firm.
  IV.   The emphasis will be on giving conceptual clarity to the student coupled with the use of mathematical tools and reasoning.
  V.   It covers general equilibrium and welfare, imperfect markets, and topics under information economics.

Course Learning Outcomes

After this, the students would be able to
  I.   Understand the basic elements of consumer theory and production theory and the functioning of a perfectly competitive market.
  II.   Give students a solid grasp of microeconomic analysis using mathematical techniques where appropriate.
  III. Learn about consumer and production theories and optimality and market failures.
  IV.   Learn about equilibrium
  V.   Develop the base for Game theory
  VI.   Apply the mathematical tools in Economic theory

Course Outline

Unit-I: Consumer Theory

   Preference; utility; cardinal measurement of utility; budget constraint; choice; demand;
   Slutsky equation; buying and selling; choice under risk and intertemporal choice; revealed
   preference.

Unit-II: Production, Costs and Perfect Competition

   Technology; isoquants; production with one and more variable inputs; returns to scale;
   short-run and long-run costs; cost curves in the short run and long run; review of perfect
   competition.

Unit-III: Market Structure and Game Theory

   Monopoly; pricing with market power; price discrimination; peak-load pricing; two-part
   tariff; monopolistic competition and oligopoly; game theory and competitive strategy.

Unit-IV: Market Failure

   Externalities, public goods, and markets with asymmetric information.

Suggested Readings:

- Hal R. Varian, Intermediate Microeconomics, a Modern Approach, W.W. Norton and
  Company/Affiliated East-West Press (India), 8th edition, 2010. The workbook by Varian
  and Bergstrom may be used for problems.
- C. Snyder and W. Nicholson, Fundamentals of Microeconomics, Cengage Learning (India),
  2010.
- B. Douglas Bernheim and Michael D. Whinston, Microeconomics, Tata McGraw-Hill (India),
  2009.
- Pindyck, Robert S.; Rubinfeld, Daniel L. *Microeconomics*. Ninth edition : Pearson, 2018.

CORE ECONOMICS COURSE 6: STATISTICS AND PROBABILITY
COURSE CODE: ECOUMCC406
CREDIT - 4

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 then develops the notion of probability, followed by probability distributions of discrete and continuous random variables and of joint distributions. This is followed by a discussion on sampling techniques used to collect survey data. The course introduces the notion of sampling distributions that act as a bridge between probability theory and statistical inference.

Course Objectives: The aims of this programme are to build upon the basic knowledge of Statistics, demonstrate the ability to use skills in Statistics and its related areas of technology for formulating and tackling related problems and identifying and applying appropriate principles and methodologies to solve a wide range of problems associated with Statistics.

Learning Outcomes: On completion of this course, students should gain fundamental knowledge on various aspects of –

fundamental, systematic and coherent understanding of the academic field of Statistics, its different learning areas and applications in Medical Statistics, Actuarial Statistics, Agricultural Statistics, Geo-Statistics, Financial Statistics, Population Statistics, Financial Econometrics, Clinical Trials and Epidemiology, Queuing Theory, Stochastic Processes, etc.,

   A. skills in areas related to one's specialization area within the disciplinary/subject area of Statistics and current and emerging developments in the field of Statistics.
   B. ability to distinguish between random and non-random experiments
   C. knowledge related to concept of discrete and continuous random variables, their probability distributions including expectation and moments, generating functions

Course Outlne:

Group-1

1. **Unit 1**: Nature of Statistics, Uses of Statistics, Statistics in relation to other disciplines, Abuses of Statistics. Types of Data: Concepts of population and sample, quantitative and qualitative data, cross-sectional and time-series data, discrete and continuous data. Different types of

scales: Nominal, ordinal, interval and ratio. Collection and Scrutiny of Data: Primary data – designing a questionnaire and a schedule, checking its consistency. Secondary data – its major sources. Complete enumeration. Presentation of data: Construction of Tables with one or more factors of classification, diagrammatic representations, frequency distributions and cumulative frequency distributions and their graphical representations.

2. **Unit 2**: Measures of Central Tendency: Mean, Median, Mode
3. **Unit 3:** Measures of Dispersion: Range, Mean deviation, Standard deviation, Coefficient of variation, Gini's Coefficient, Lorenz Curve
4. **Unit 4:** Moments, Skewness and Kurtosis

Group-2

1. **Unit 1**: Introduction to Probabilityy theory, random experiments, sample space, events and algebra of events. Definitions of Probability – classical, statistical. Limitations of Classical definition. Probability of union and intersection of events, Probability of occurrence of exactly m and at least m events out of n events, Examples based on classical approach and repeated trials.
2. **Unit 2**: Conditional Probability, laws of addition and multiplication, theorem of total probability, Bayes' theorem and its applications, independent events.
3. **Unit 3**: Random variables, distribution function and properties, p.m.f., p.d.f., illustrations and properties of random variables. Mathematical Expectation and properties

Suggested Readings:

● Goon, A.M., Gupta, M.K. and Dasgupta, B. (2002): Fundamentals of Statistics, Vol. I& II, 8th Edn. The World Press, Kolkata.
● Miller, Irwin and Miller, Marylees (2006): John E. Freund's Mathematical Statistics with Applications, (7th Edn.), Pearson Education, Asia
● Tukey, J.W.(1977) : Exploratory Data Analysis, Addison-Wesley Publishing Co.
● Freedman, D., Pisani, R. and Purves, R. (2014): Statistics, 4th Edition, W. W. Norton & Company.
● Mood, A.M., Graybill, F.A. andBoes, D.C. (2007): Introduction to the Theory of Statistics, 3rd Edn. (Reprint), Tata McGraw-Hill Pub. Co. Ltd

CORE ECONOMICS COURSE 7: INTERMEDIATE MACROECONOMICS
COURSE CODE: ECOUMCC407
CREDIT - 4

Course Description

This course introduces the students to formal modeling of a macroeconomy 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 the medium run and the role of policy in this context. It also introduces the students to various theoretical issues related to an open economy. Long-run dynamic issues like growth and technical progress are also discussed. It also provides the micro-foundations for the various aggregative concepts used in the current course.

Course Objective

    I.   This course introduces the students to formal modeling of a macroeconomy in terms of analytical tools.
    II.   It also introduces the students to various theoretical issues related to an open economy.
    III.   Introduces students to long-run dynamic issues like growth and technical progress.
    IV.   It also provides the micro-foundations to the various aggregative concepts used in the previous course

Course Learning Outcomes

After this, the students would be able to
    I.   Learn about aggregate demand and aggregate supply functions.
    II.   Establish a relationship between inflation and unemployment.
    III.   Learn about consumption and investment functions.
    IV.   Learn about long run dynamic issues like growth and technical progress
    V.   Learn about how fiscal and monetary policies work
    VI.   Learn about different trade cycles theories

Course Outline

Unit-I: Aggregate Demand and Aggregate Supply Curves
    Derivation of aggregate demand and aggregate and supply curves; interaction of aggregate demand and supply.

Unit-II: Inflation, Unemployment and Expectations
    Phillips curve; adaptive and rational expectations; policy ineffectiveness debate.

Unit-III: Microeconomic Foundations

➔ Consumption: Keynesian consumption function; Fisher's theory of optimal intertemporal choice; life-cycle and permanent income hypotheses; rational expectations and random walk of consumption expenditure.
➔ Investment: determinants of business fixed investment; residential investment and inventory investment.
➔ Demand for money.

Unit-IV: Fiscal and Monetary Policy

Active or passive; monetary policy objectives and targets; rules versus discretion: time consistency; the government budget constraint; government debt and Ricardian equivalence.

Unit-V: Schools of Macroeconomic Thoughts

Classicals, Keynesians, New Classicals, and New Keynesians.

Suggested Readings:

- Dornbusch, Fischer and Startz, Macroeconomics, McGraw Hill, 11th edition, 2010.
- N. Gregory Mankiw. Macroeconomics, Worth Publishers, 7th edition, 2010.
- Olivier Blanchard, Macroeconomics, Pearson Education, Inc., 5th edition, 2009.
- Steven M. Sheffrin, Rational Expectations, Cambridge University Press, 2nd edition, 1996.
- Andrew B. Abel and Ben S. Bernanke, Macroeconomics, Pearson Education, Inc., 7th edition, 2011.
- Errol D'Souza, Macroeconomics, Pearson Education, 2009
- Paul R. Krugman, Maurice Obstfeld and Marc Melitz, International Economics, Pearson Education Asia, 9th edition, 2012.
- Robert J. Gordon, Macroeconomics, Prentice-Hall India Limited, 2011.

CORE ECONOMICS COURSE 8: INTERNATIONAL TRADE
COURSE CODE: ECOUMCC508
CREDIT - 4

Course Description

The purpose of this course is to inform the basics of international trade theory and to examine the effects of international economic policies on domestic and world welfare. This course develops a systematic exposition of models that try to explain the composition, direction, and consequences of international trade and the determinants and effects of trade policy.
Course Objective

The module aims to introduce students to the main theoretical and empirical concepts in international trade, equip students with a thorough analytical grasp of trade theory, ranging from Ricardian comparative advantage to modern theories of intra-industry trade, and familiarise students with the main issues in trade policy and with the basic features of the international trading regime.

Course Learning Outcomes

At the end of the course, the students should be able to demonstrate their understanding of the economic concepts of trade theory. In some models, the student will be required to deal with simple algebraic problems that will help them to better understand these concepts, use diagrammatic analysis to demonstrate and compare the economic welfare effects of free trade and protection, demonstrate their understanding of the usefulness and problems related to topics in international trade, and demonstrate their critical understanding of trade policies.

Course Outline

Unit I: Introduction

>What is international economics about? An overview of world trade. Stylized facts about international trade

Unit II: Neoclassical trade theories

>Ricardian trade theory (notion of comparative advantage and gains from trade due to specialisation); an introduction to the distributional effects of trade; the specific factor model; Heckscher-Ohlin theory: Rybczynski and Stolper-Samuelson theorems; Heckscher-Ohlin theorem; factor price equalisation

Unit III: Open Economy Models

Short-run open economy models; Mundell-Fleming model; exchange rate determination; purchasing power parity; asset market approach; Dornbusch's overshooting model; monetary approach to balance of payments; international financial markets.

Unit IV: New trade theories

External economies of scale, internal economies of scale, the Krugman model, firm heterogeneity, international movement of factors, introduction to the theory of multinational firms

Unit V: Trade policy

Instruments of trade policy: tariffs, quotas, export subsidies, and voluntary export restraints. The economics of trade policy, political economy of trade policy, controversies in trade policy

Suggested Readings:

- Feenstra, R., Taylor, A. (2014). International Economics, 3rd ed. Worth Publishers.
- Krugman, P., Obstfeld, M., Melitz, M. (2018). International Economics - Theory and Policy, 11th ed. Pearson Education.
- Pugel, T. (2015). International Economics, 16th ed. McGraw-Hill.

CORE ECONOMICS COURSE 9: STATISTICAL METHODS WITH MS EXCEL
COURSE CODE: ECOUMCC509
CREDIT - 4

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 then develops the notion of probability, followed by probability distributions of discrete and continuous random variables and of joint distributions. This is followed by a discussion on sampling techniques used to collect survey data. The course introduces the notion of sampling distributions that act as a bridge between probability theory and statistical inference. The semester concludes with some topics in statistical inference that include point and interval estimation.

Course Objective

- To familiarises students in the statistical techniques employed in not just economics, but increasingly, all social and pure scientific research.
- To help students to analyze data in economics and will also build a foundation for Econometrics.

Course Learning Outcomes

On completion of this course the student can understand:
- Utilizing statistical techniques for quantitative, data based problems, analysis and inference.
- Solve a range of problems using the techniques covered and conduct basic statistical analysis of data.
- Develops the ability to understand econometrics courses at the Honours and Masters levels.

Course Outline

Unit-I: Introduction and Overview
The distinction between populations and samples and between population parameters and sample statistics; the use of measures of location and variation to describe and summarize data; population moments and their sample counterparts.

Unit-II: Measurements of Central Tendency
Mean, Median, Mode

Unit-III: Measurements of Dispersion
Range, Mean Deviation, Standard Deviation, Relative Measures of Dispersion

Unit-IV: Moments, Skewness and Kurtosis

Unit-VI: Random Variables and Probability Distributions
Defining random variables; probability distributions; expected values of random variables.

Unit-VII: Correlation and Regression

Unit-VIII: Multivariate Analysis

Unit-IX: Index Numbers

Unit-X: Statistical Quality Control

Suggested Readings:

1. Jay L. Devore, Probability and Statistics for Engineers, Cengage Learning, 2010.
2. John E. Freund, Mathematical Statistics, Prentice Hall, 1992.
3. Richard J. Larsen and Morris L. Marx, An Introduction to Mathematical Statistics
4. and its Applications, Prentice Hall, 2011.
5. William G. Cochran, Sampling Techniques, John Wiley, 2007.

CORE ECONOMICS COURSE 9: PUBLIC FINANCE
COURSE CODE: ECOUMCC510
CREDIT - 4

Course Description

Course Objective 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. The paper is divided into two sections, one dealing with the theory of public economics and the other with the Indian public finances.

Course Objective

Course Learning Outcomes The module aims to introduce students to the main theoretical and empirical concepts in public economics, equip students with a thorough analytical grasp of implications of government intervention for allocation, distribution and stabilization, and familiarise students with the main issues in government revenues and expenditure.

Course Learning Outcome

At the end of the module the students should be able to demonstrate their understanding of the public economics. In some models, the student will be required to deal with simple algebra problems that will help them to better understand these concepts, use diagrammatic analysis to demonstrate and compare the economic welfare effects of various environmental policy options, demonstrate their understanding of the usefulness and problems related to taxation and government expenditure, and demonstrate their critical understanding of public policies

Course Outline

Unit-I: Introduction to Public Finance – Meaning and Space of Public Finance importance, Importance of Public Finance, Subject Matter of Public Finance.

Unit-II: Theory of Public and Private Goods – Evaluation of the theory of Social goods, need for the Public Sector, Rationale of Public expenditure or public goods, social wants and merit wants, private goods and social goods.

Unit-III: Public Expenditure – Scope of Public expenditure, Public and Private Expenditure compared, Reasons for growth of public expenditure, Wagner's and Musgrave's view of public expenditure, Principles of Public expenditure.

Unit-IV: Sources of Public Revenue – Meaning and Significance, Sources of Public Revenue, Tax and Non-Tax Revenues.

Unit-V: Kinds of Taxation – Direct and Indirect Taxes, Merits and Demerits, Advalorem and Specific Taxes, Progressive, Proportional and Regressive Taxes, Which Tax, System suitable?, Single and Multiple Taxation.

Unit-VI: Problem of Double Taxation – Meaning, Form, Problem of Double Taxation and fs solution.

Unit-VII: Effects of Taxation – Effects of taxation on production and distribution, Employment, Inflation, Taxation and depression, Regulatory effect of taxation.

Unit-VIII: Principle of Taxation – Benefit Principle – Lindahl Solution, Ability to pay theory – Equal Sacrifice Principle, Equal Proportorinal, equal absolute sacrifice principle. Limitatiens.

Unit-IX: Public Debit – Causes of borrowing, comparison between private and public debt, Internal and External Debt, Burden of Public Debt., Burden of Internal and External Debt.

Unit-X: Defecit Financing – Meaning, Objective and Role IS deficit financing inflationary.

Suggested Readings

1. Alam, S. (2016). GST and the states: sharing tax administrations. Economic and Political Weekly, 51(31).
2. Cullis, J., Jones, P. (1998). Public finance and public choice, 2nd ed. Oxford University Press.
3. Das, S. (2017). Some concepts regarding the goods and services tax. Economic and Political Weekly, 52(9).
4. Government of India. (2017). GST - Concept and status - as on 3rd June, 2017. Central Board of Excise and Customs, Department of Revenue, Ministry of Finance.
5. Hindriks, J., Myles, G. (2013). Intermediate public economics, 2nd ed. MIT Press.
6. Rao, M., Kumar, S. (2017). Envisioning tax policy for accelerated development in India. Working Paper No. 190, National Institute of Public Finance and Policy.
7. Reddy, Y. (2015). Fourteenth finance commission: Continuity, change and way forward. Economic and Political Weekly, 50(21), 27-36.
8. Stiglitz, J. (2009). Economics of the public sector, 3rd ed. W. W. Norton.

CORE ECONOMICS COURSE 11: INTRODUCTION TO ECONOMETRICS THEORY
COURSE CODE: ECOUMCC511
CREDIT - 4

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 Objective

This course provides a comprehensive introduction to:
● Basic econometric concepts and techniques.
● Covers statistical concepts of hypothesis testing, estimation and diagnostic testing of simple and multiple regression models.
● Covers the consequences of and tests for misspecification of regression models.

Course Learning Outcomes

After this, the students would be able to:
● Learn about statistical concepts of hypothesis testing.
● Develop understanding of estimation and diagnostic testing of simple and multiple regression models.
● Learn about consequences, detection and remedies when assumptions are violated.

Course Outline

Unit-I: Nature and Scope of Econometrics

Unit-II: Some Statistical Concepts
Normal distribution; chi-square, t-stat, and F-distributions; estimation of parameters; properties of estimators; testing of hypotheses: defining statistical hypotheses;
distributions of test statistics; testing hypotheses related to population parameters; Type I and Type II errors; power of a test; tests for comparing parameters from two samples.

Unit-III: Simple Linear Regression Model: Two Variable Case
Estimation of model by method of ordinary least squares; properties of estimators; goodness of fit; tests of hypotheses; scaling and units of measurement; confidence intervals; Gauss-Markov theorem; forecasting.

Unit-IV: Multiple Linear Regression Model
Estimation of parameters; properties of OLS estimators; goodness of fit - R2 and adjusted R 2; partial regression coefficients; testing hypotheses – individual and joint; functional forms of regression models; qualitative (dummy) independent variables.

Unit-V: Violations of Classical Assumptions: Consequences, Detection and Remedies
Multicollinearity; heteroscedasticity; serial correlation.

Unit-VI: Specification Analysis
Omission of a relevant variable; inclusion of irrelevant variable; tests of specification errors.

Suggested Readings

1. Jay L. Devore, Probability and Statistics for Engineers, Cengage Learning, 2010.
2. John E. Freund, Mathematical Statistics, Prentice Hall, 1992.
3. Richard J. Larsen and Morris L. Marx, An Introduction to Mathematical Statistics and its Applications, Prentice Hall, 2011.
4. D. N. Gujarati and D.C. Porter, Essentials of Econometrics, McGraw Hill, 4th edition, International Edition, 2009.
5. Christopher Dougherty, Introduction to Econometrics, Oxford University Press, 3rd edition, Indian edition, 2007.
6. Jan Kmenta, Elements of Econometrics, Indian Reprint, Khosla Publishing House, 2nd edition, 2008
7. Gujarati, Damodar N. Basic Econometrics. 4th ed. New York: McGraw-Hill, 2004.

CORE ECONOMICS COURSE 12: PRACTICAL ECONOMETRICS
COURSE CODE: ECOUMCC612
CREDIT - 4

Course Description

A course in practical econometrics equips professionals with the statistical tools and knowledge to analyze and interpret economic data, leading to informed decision-making. It focuses on applying econometric techniques, such as regression analysis and forecasting, to real-world economic phenomenon.

Course Objectives

The course aims to provide hands-on experience in using econometric software, interpreting results, and applying them to practical managerial and economic contexts. Students will be able to write programme for Simple statistical analysis and interpret through R-programming/ STATA/ E-views.

Course Learning Outcomes

- Improved use of econometric software.
- Modelling economic and financial data.
- Report writing.
- Self-testing assessments.
- Results interpretation.

Course Outline

Unit-I: Introduction to Econometrics
Unit-II: Data Structures and Types
Unit-III: Data Collection, its Sources and Data Preparation
Unit-IV: Fundamentals of Regression Analysis (Bi-variate and Multivariate analysis)
Unit-V: Violations of Classical Assumptions and its Remedies
Unit-VI: Detection of Outliers in real-life dataset

Note: As part of this practical course, students are encouraged to write a short research article that applies the concepts learned to real-life problems, thereby enhancing their practical understanding and analytical skills.

Suggested Readings
1. Johnston,J: Econometric Methods, McGraw-Hill Book Co., New York.
2. Maddala, G.S: Econometrics, McGraw-Hill Book Co., New York, 3rd Rd.
3. Gujarathi, D.N: Basic Econometrics, Fourth Edition, Tata McGraw-Hill, New Delhi.
4. Allen, RGD: Mathematical Analysis for Economists.
5. Mehta, BC and Madanani GMK: Mathematics for Economists, Sultan Chand and Sons, Delhi.

6. Taro Yamane: Mathematics for Economists (An Elementary Survey), Prentice Hall of India Private Ltd, New Delhi.

CORE ECONOMICS COURSE 13: INDIAN ECONOMY-I
COURSE CODE: ECOUMCC613
CREDIT - 4

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 will have to be updated annually.

Course Objective

- 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 will have to be updated annually.

Course Learning Outcomes

After this, the students would be able to:
- This course will help students understand the key issues related to the Indian economy.
- Review major trends in major economic indicators.
- Learn about major economic developments since independence.

Course Outline

Unit-I: Economic Development since Independence
Major features of the economy at independence; growth and development under different policy regimes—goals, constraints, institutions and policy framework; an assessment of performance—sustainability and regional contrasts; structural change, savings and investment.

Unit-II: Population and Human Development
Demographic trends and issues; education; health and malnutrition.

Unit-III: Growth and Distribution
Trends and policies in poverty; inequality and unemployment.

Unit-IV: International Comparisons

Suggested Readings

1. Jean Dreze and Amartya Sen, Jean Dreze and Amartya Sen, 2013. An Uncertain Glory: India and its Contradictions, Princeton University Press.
2. Pulapre Balakrishnan, 2007, The Recovery of India: Economic Growth in the Nehru Era, Economic and Political Weekly, November.
3. Rakesh Mohan, 2008, ―Growth Record of Indian Economy: 1950-2008. A Story of Sustained Savings and Investment, Economic and Political Weekly, May.
4. S.L. Shetty, 2007, ―India's Savings Performance since the Advent of Planning, in K.L. Krishna and A. Vaidyanathan, editors, Institutions and Markets in India's Development.
5. Himanshu, 2010, Towards New Poverty Lines for India,
6. Economic and Political Weekly, January.
7. Jean Dreze and Angus Deaton, 2009, Food and Nutrition in India: Facts and Intepretations, Economic and Political Weekly, February.
8. Himanshu. 2011, ―Employment Trends in India: A Re-examination,
9. Economic and Political Weekly, September.
10. Rama Baru et al, 2010, ―Inequities in Access to Health Services in India: Caste, Class and Region, Economic and Political Weekly, September.
11. Geeta G. Kingdon, 2007, ―The Progress of School Education in India, Oxford Review of Economic Policy.

CORE ECONOMICS COURSE 14: DEVELOPMENT ECONOMICS-I
COURSE CODE: ECOUMCC614
CREDIT - 4

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 Objective

- To Introduce the development economics, and then proceeds to study comparative economic development.
- To explain the theories of economic development, models of economics growth and technical progress.
- To discuss the poverty and inequality associated issues.

Course Learning Outcomes

This course introduces students to the basics of development economics, with in-depth discussions of the concepts of development, growth, and poverty and inequality.

Course Outline

Unit-I: Conceptions of Development
Alternative measures of development, documenting the international variation in these measures, comparing development trajectories across nations and within them.

Unit-II: Growth Models and Empirics
The Harrod-Domar model, the Solow model and its variants, golden rule; technological progress and elements of endogenous growth, evidence on the determinants of growth.

Unit-III: Poverty and Inequality: Definitions, Measures and Mechanisms
Inequality axioms; a comparison of commonly used inequality measures; connections between inequality and development; poverty measurement; characteristics of the poor; mechanisms that generate poverty traps and path dependence of growth processes.

Unit-IV: Political Institutions and the Functioning of the State

The determinants of democracy; alternative institutional trajectories and their relationship with economic performance; within-country differences in the functioning of state institutions; state ownership and regulation; government failures and corruption.

Suggested Readings

1. Debraj Ray, Development Economics, Oxford University Press, 2009.
2. Partha Dasgupta, Economics, A Very Short Introduction, Oxford University Press, 2007.
3. Abhijit Banerjee, Roland Benabou and Dilip Mookerjee, Understanding Poverty, Oxford University Press, 2006.
4. Kaushik Basu, The Oxford Companion to Economics in India, OUP, 2007.
5. Amartya Sen, Development as Freedom, OUP, 2000.
6. Daron Acemoglu and James Robinson, Economic Origins of Dictatorship and Democracy, Cambridge University Press, 2006.
7. Robert Putnam, Making Democracy Work: Civic Traditions in Modern Italy, Princeton University Press, 1994
8. Charles I. Jones, Introduction to Economic Growth, W.W. Norton & Company, 2nd edition, 2002.

CORE ECONOMICS COURSE 15: BANK AND CAPITAL MARKET
COURSE CODE: ECOUMCC615
CREDIT - 4

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 Objective

- To exposes students to the theory and functioning of the monetary and financial sectors of the economy.
- To highlights the organization, structure and role of financial markets and institutions.
- To discuss financial and banking sector reforms and monetary policy with special reference to India are also covered.

Course Learning Outcomes

- This allows students to understand current monetary policies and financial market outcomes.
- It also enables them to critically evaluate policies.

Course Outline

Unit-I: Money
Concept, functions, measurement; theories of money supply determination.

Unit-II: Financial Institutions, Markets, Instruments and Financial Innovations
a. Role of financial markets and institutions; problem of asymmetric information – adverse selection and moral hazard; financial crises.
b. Money and capital markets: organization, structure and reforms in India; role of financial derivatives and other innovations.

Unit-III: Interest Rates
Determination; sources of interest rate differentials; theories of term structure of interest rates; interest rates in India.

Unit-IV: Banking System
a. Balance sheet and portfolio management.
b. Indian banking system: Changing role and structure; banking sector reforms.

Unit-V: Central Banking and Monetary Policy
Functions, balance sheet; goals, targets, indicators and instruments of monetary control; monetary management in an open economy; current monetary policy of India.

Suggested Readings

1. F. S. Mishkin and S. G. Eakins, Financial Markets and Institutions, Pearson Education, 6 th edition, 2009.
2. F. J. Fabozzi, F. Modigliani, F. J. Jones, M. G. Ferri, Foundations of Financial Markets and Institutions, Pearson Education, 3 rd edition, 2009.
3. M. R. Baye and D. W. Jansen, Money, Banking and Financial Markets, AITBS, 1996.
4. Rakesh Mohan, Growth with Financial Stability- Central Banking in an Emerging Market, Oxford University Press, 2011. 5-th edition, 2011.
5. L. M. Bhole and J. Mahukud, Financial Institutions and Markets, Tata McGraw Hill,
6. M. Y. Khan, Indian Financial System, Tata McGraw Hill, 7 th edition, 2011.
7. N. Jadhav, Monetary Policy, Financial Stability and Central Banking in India, Macmillan, 2006.
8. R.B.I. – Report of the Working Group: Money Supply Analytics and Methodology of Compilation, 1998.
9. R.B.I. Bulletin, Annual Report and Report on Currency and Finance (latest).

Unit-I: Introduction to Course and Continuous Data I

During this first lecture, we will introduce the content of the course and discuss different types of data that can be used in applied econometrics. We will talk about the concept of an independent and a dependent variable, and different ways to analyse data. We will introduce the main techniques for analysing individual-level data for continuous dependent variables. We will introduce the potential topics for student assignments, and discuss how to access data.

Unit-II: Continuous Data II

During the lecture, we will continue the discussion of analysis of continuous dependent variables by looking at univariate and bivariate analysis. We will cover simple linear regression and then extend this to multiple linear regression (when there is one dependent variable and more than one independent variable).

Unit-III: Categorical Data I

During the lecture for this week, we will discuss one of the main extensions to micro-econometrics, the use of non-continuous dependent variables. We will begin by looking at binary dependent variables (yes/no) and how to calculate and interpret odds ratios and marginal effects in Logit/Probit regression.

Unit-IV: Time Series

We will switch the focus of our analysis during this lecture, and look at the analysis of aggregate data, with a particular focus on time series analysis. We will discuss the concepts of (and main techniques for) lags, autocorrelation, trends and stationarity.

Unit-V: Panel Data I

We will extend our analysis of 'time', by looking at the main techniques for panel data analysis. That is, when we have more than one observation, for more than one individual. We will begin our discussion of panel data by discussing pooled regression and differencing.

Unit-VI: Panel Data II

We will extend our analysis of panel data by looking at fixed and random effects regression.

Unit-VII: Presenting Data

We will discuss some of the practicalities of summarising data for an academic or policy audience

CORE ECONOMICS COURSE 17: ENVIRONMENTAL ECONOMICS
COURSE CODE: ECOUMCC717
CREDIT - 4

Course Description

This course focuses on economic causes of environmental problems. In particular, economic principles are applied to environmental questions and their management through various economic institutions, economic incentives and other instruments and policies. Economic implications of environmental policy are also addressed as well as valuation of environmental quality, quantification of environmental damages, tools for evaluation of environmental projects such as cost-benefit analysis and environmental impact assessments. Selected topics on international environmental problems are also discussed.

Course Objective

- This course focuses on economic causes of environmental problems.
- In particular, economic principles are applied to environmental questions viewed as externalities and their management through various economic institutions, economic incentives and other instruments and policies.
- Methods for analysing economic implications of environmental policy are also addressed as well as the valuation of environmental quality, assessment of environmental damages, and tools needed for the evaluation of projects such as cost-benefit analysis, and environmental impact assessments. Selected topics on international environmental issues are also discussed.

Course Learning Outcomes

- The module aims to introduce students to the main theoretical and empirical concepts in environmental economics, equip students with a thorough analytical grasp of environmental policy theory, ranging from externalities to international environmental agreements and familiarise students with the main issues in environmental valuation and with the basic features of the environmental policy tools.
- At the end of the module the students should be able to demonstrate their understanding of the economic concepts of environmental policy.

Course Outline

Unit-I: Introduction
What is environmental economics; review of microeconomics and welfare economics.

Unit-II: The Theory of Externalities
Pareto optimality and market failure in the presence of externalities; property rights and the coase theorem, environmental externalities and state regulation on environment.

Unit-III: The Design and Implementation of Environmental Policy
Overview; pigouvian taxes and effluent fees; tradable permits; choice between taxes and quotas under uncertainty; implementation of environmental policy.

Unit-IV: Environment and Sustainable Development
Defining sustainability for renewable resources; a brief history of environmental change; common-pool resources; economic activity and climate change, measurement.

Unit-V: International Environmental Problems
Trans-boundary environmental problems; economics of climate change; trade and environment.

Unit-VI: Measuring the Benefits of Environmental Improvements
Non-Market values and measurement methods; risk assessment and perception.

Suggested Readings:

1. Charles Kolstad, Intermediate Environmental Economics, Oxford University Press, 2nd edition, 2010.
2. Robert N. Stavins (ed.), Economics of the Environment: Selected Readings, W.W. Norton, 5th edition, 2005.
3. Roger Perman, Yue Ma, James McGilvray and Michael Common, Natural Resource and Environmental Economics, Pearson Education/Addison Wesley, 3rd edition, 2003.
4. Maureen L. Cropper and Wallace E. Oates, 1992, ― Environmental Economics: A Survey,‖ Journal of Economic Literature, Volume 30:675- 740.

CORE ECONOMICS COURSE 18: ECONOMIC AUDIT OF ENVIRONMENT (FIELD VISIT)
COURSE CODE: ECOUMCC718
CREDIT - 4

Course Description

Each student must choose a research question from the field of Environment Economics and based on the data collected through survey under this paper. The research question should have relation to the economic impact on environment. Students are expected to answer the research questions through the various methods learnt through the programme. The final dissertation will need to be submitted to the department, after clearance is granted – based on the written dissertation, and a presentation – from their internal advisor and an external expert.

Course Objective

- To give the students an opportunity to locate the real world problems related to the discipline of economics.
- To give the students an opportunity to apply the theories they have learnt during the current programme of studies.
- To give the students a hand on experience to collect, classify and analyse real world data pertaining to the problems of the world of Economics with the help of mathematical and statistical tools.
- To make them able to handle information technology to understand the subject of Economics.
- To make the students able to join the emerging market of IT enabled data processing.

Course Learning Outcomes

At the end of the course the students will be able:
- To collect data
- To analyse and understand the data
- To understand and forecast economic phenomena properly

Faculty Allotment for the Research Project

Faculty allotment for the internal advisory/guidance is based on student selected topic/area of interest and availability of faculty in the department as well.

Evaluation of the Research Project

There are two stages of evaluation process involved -before student get final marks and grades.
1. **Viva Voice Examination**

Each student must present his/her research project once it completed and submitted to the department. The evaluation has to done by both internal advisor and an external expert. The viva-voice examination carries 20 marks and these marks are divided into five categories; (i) Communication Skills, (ii) Clarity of Thought, (iii). Body Language, (iv) Ability to Answer Questions, and (v) Overall Impression. Each category carries 4 marks. At the end, both internal advisor and external expert allotted marks shall combine and take an averages marks for the viva-voice.

2. Evaluation of Research Project Report

Each student needs to submit final dissertation to the department, after clearance is granted – based on the written dissertation. The evaluation of research project carries 50 marks. Both internal advisor and external expert allotted marks shall combine and take an averages marks for the research project report.

Consolidated Evaluation

The concerned department shall consolidate both viva-voice examination, and evaluation research project report marks and submit to the controller of examinations.

CORE ECONOMICS COURSE 19: DEVELOPMENT ECONOMICS-II
COURSE CODE: ECOUMCC819
CREDIT - 4

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 communities and 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 Objective

- To introduce the important of demography, human development and human capital for the economic development.
- To explain the link between environment and economic develop, and globalization and economic development.

Course Learning Outcome

- This course teaches the student various aspects of social sector in the international and national economics view point, as well as important themes relating to the environment and sustainable development.
- It also introduces them to some issues of governance, globalization and international financial institutions.

Course Outline

Unit-I: Demography and Development
Demographic concepts; birth and death rates, age structure, fertility and mortality; demographic transitions during the process of development; gender bias in preferences and outcomes and evidence on unequal treatment within households; connections between income, mortality, fertility choices and human capital accumulation; migration.

Unit-II: Land, Labor and Credit Markets
The distribution of land ownership; land reform and its effects on productivity; contractual relationships between tenants and landlords; land acquisition; nutrition and labor productivity; informational problems and credit contracts; microfinance; inter-linkages between rural factor markets.

Unit-III: Individuals, Communities and Collective Outcomes
Individual behavior in social environments, multiple social equilibria; governance in organizations and in communities; individual responses to organizational inefficiency.

Unit-IV: Globalization
Globalization in historical perspective; the economics and politics of multilateral agreements; trade, production patterns and world inequality; financial instability in a globalized world.

Suggested Readings

1. Debraj Ray, Development Economics, Oxford University Press, 2009.
2. Partha Dasgupta, Economics, A Very Short Introduction, Oxford University Press, 2007.
3. Abhijit Banerjee, Roland Benabou and Dilip Mookerjee, Understanding Poverty, Oxford University Press, 2006.
4. Thomas Schelling, Micromotives and Macrobehavior, W. W. Norton, 1978.
5. Albert O. Hirschman, Exit, Voice and Loyalty: Responses to Decline in Firms, Organizations and States, Harvard University Press, 1970.
6. Raghuram Rajan, Fault Lines: How Hidden Fractures Still Threaten the World Economy, 2010.
7. Elinor Ostrom, Governing the Commons: The Evolution of Institutions for Collective Action, Cambridge University Press, 1990.
8. Dani Rodrik, The Globalization Paradox: Why Global Markets, States and Democracy Can't Coexist, Oxford University Press, 2011.
9. Michael D. Bordo, Alan M. Taylor and Jeffrey G. Williamson (ed.), Globalization in Historical Perspective, University of Chicago Press, 2003.

CORE ECONOMICS COURSE 20: INDIAN ECONOMY-II
COURSE CODE: ECOUMCC820
CREDIT - 4

Course Description

This course examines sector-specific polices 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 will have to be updated annually.

Course Objective

- This course examines sector-specific polices 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 will have to be updated annually.

Course Learning Outcomes

After this, the students would be able to:
- Learn about trends and performances in agriculture, industry and services sectors.
- Learn about economic reform policies.

Course Outline

Unit-I: Macroeconomic Policies and Their Impact
Fiscal Policy; trade and investment policy; financial and monetary policies; labour regulation.

Unit-II: Policies and Performance in Agriculture
Growth; productivity; agrarian structure and technology; capital formation; trade; pricing and procurement.

Unit-III: Policies and Performance in Industry
Growth; productivity; diversification; small scale industries; public sector; competition policy; foreign investment.

Unit-IV: Trends and Performance in Services

Suggested Readings:

1. Shankar Acharya, 2010, ―Macroeconomic Performance and Policies 2000- 8,‖ in Shankar Acharya and Rakesh Mohan, editors, India's Economy: Performances and Challenges: Development and Participation, Oxford University Press.
2. Rakesh Mohan, 2010, ―India's Financial Sector and Monetary Policy Reforms,‖ in Shankar Acharya and Rakesh Mohan, editors, India's Economy: Performances and Challenges: Development and Participation, Oxford University Press.
3. Pulapre Balakrishnan, Ramesh Golait and Pankaj Kumar, 2008, ―Agricultural Growth in India Since 1991, RBI DEAP Study no. 27.
4. B.N. Goldar and S.C. Aggarwal, 2005, ―Trade Liberalisation and Price- Cost Margin in Indian Industries, The Developing Economics, September.
5. P. Goldberg, A. Khandelwal, N. Pavcnik and P. Topalova, 2009, ―Trade Liberalisation and New Imported Inputs, American Economic Review, Papers and Proceedings, May.
6. Kunal Sen, 2010, ―Trade, Foreign Direct Investment and Industrial Transformation in India, ïn Premachandra Athukorala, editor, The Rise of Asia, Routledge.
7. A. Ahsan, C. Pages and T. Roy, 2008, ―Legislation, Enforcement and Adjudication in Indian Labour Markets: Origins, Consequences and the Way Forward, in D. Mazumdar and S. Sarkar, editors, Globalization, Labour Markets and Inequality in India, Routledge.
8. Dipak Mazumdar and Sandeep Sarkar, 2009, ―The Employment Problem in India and the Phenomenon of the ‗Missing Middle‖, Indian Journal of Labour Economics.
9. J. Dennis Rajakumar, 2011, ―Size and Growth of Private Corporate Sector in Indian Manufacturing, Economic and Political Weekly, April.
10. Ramesh Chand, 2010, ―Understanding the Nature and Causes of Food Inflation,‖ Economic and Political Weekly, February.
11. Bishwanath Goldar, 2011, ―Organised Manufacturing Employment: Continuing the Debate‖, Economic and Political Weekly, April.
12. Kaushik Basu and A. Maertens, eds, 2013, The New Oxford Companion to Economics in India, Oxford University Press.

CORE ECONOMICS COURSE 21: BIG DATA IN ECONOMICS
COURSE CODE: ECOUMCC821
CREDIT - 4

Course Description

This course wants to make the students able to handle large data associated with economic activities. To that respect the course has tried to use most advanced computer aided arguments. Students will be able to analyse large data especially pattern recornition, data mining independently after the successful completion of the course.

Course Objective

- Understand the Big Data Platform and its Use cases
- Provide an overview of Apache Hadoop
- Provide HDFS Concepts and Interfacing with HDFS
- Understand Map Reduce Jobs
- Provide hands on Hodoop Eco System
- Apply analytics on Structured, Unstructured Data.
- Exposure to Data Analytics with R.

Course Learning Outcome

The students will be able to:
- Identify Big Data and its Business Implications.
- List the components of Hadoop and Hadoop Eco-System
- Access and Process Data on Distributed File System
- Manage Job Execution in Hadoop Environment
- Develop Big Data Solutions using Hadoop Eco System
- Analyze Infosphere BigInsights Big Data Recommendations.
- Apply Machine Learning Techniques using R.

Pre- requisites : Should have knowledge of one Programming Language (Java preferably), Practice of SQL (queries and sub queries), exposure to Linux Environment.

Course Outline

Unit-I: Introduction to big data and Hadoop: Types of Digital Data, Introduction to Big Data, Big Data Analytics, History of Hadoop, Apache Hadoop, Analysing Data with Unix tools, Analysing Data with Hadoop, Hadoop Streaming, Hadoop Echo System, IBM Big Data Strategy, Introduction to Infosphere BigInsights and Big Sheets.

Unit-II: HDFS (Hadoop Distributed File System): The Design of HDFS, HDFS Concepts, Command Line Interface, Hadoop file system interfaces, Data flow, Data Ingest with Flume and Scoop and Hadoop archives, Hadoop I/O: Compression, Serialization, Avro and File-Based Data structures.

Unit-III: Map Reduce: Map Reduce Anatomy of a Map Reduce Job Run, Failures, Job Scheduling, Shuffle and Sort, Task Execution, Map Reduce Types and Formats, Map Reduce Features.

Unit-IV: Hadoop Eco System Pig: Introduction to PIG, Execution Modes of Pig, Comparison of Pig with Databases, Grunt, Pig Latin, User Defined Functions, Data Processing operators. Hive : Hive Shell, Hive Services, Hive Metastore, Comparison with Traditional Databases, HiveQL, Tables, Querying Data and User Defined Functions. Hbase : HBasics, Concepts, Clients, Example, Hbase Versus RDBMS. Big SQL : Introduction

Unit-V: Data Analytics with R Machine Learning: Introduction, Supervised Learning, Unsupervised Learning, Collaborative Filtering. Big Data Analytics with BigR.

Suggested Readings

1. Tom White " Hadoop: The Definitive Guide" Third Edit on, O'reily Media, 2012.
2. Seema Acharya, Subhasini Chellappan, "Big Data Analytics" Wiley 2015.
3. Michael Berthold, David J. Hand, "Intelligent Data Analysis", Springer, 2007.
4. Jay Liebowitz, "Big Data and Business Analytics" Auerbach Publications, CRC press (2013)
5. Tom Plunkett, Mark Hornick, "Using R to Unlock the Value of Big Data: Big Data Analytics with Oracle R Enterprise and Oracle R Connector for Hadoop", McGraw-Hill/Osborne Media (2013), Oracle press.
6. Anand Rajaraman and Jef rey David Ulman, "Mining of Massive Datasets", Cambridge University Press, 2012.
7. Bill Franks, "Taming the Big Data Tidal Wave: Finding Opportunities in Huge Data Streams with Advanced Analytics", John Wiley & sons, 2012.
8. Glen J. Myat, "Making Sense of Data", John Wiley & Sons, 2007
9. Pete Warden, "Big Data Glossary", O'Reily, 2011.
10. Michael Mineli, Michele Chambers, Ambiga Dhiraj, "Big Data, Big Analytics: Emerging Business Intelligence and Analytic Trends for Today's Businesses", Wiley Publications, 2013.
11. ArvindSathi, "BigDataAnalytics: Disruptive Technologies for Changing the Game", MC Press, 2012
12. Paul Zikopoulos ,Dirk DeRoos , Krishnan Parasuraman , Thomas Deutsch , James Giles , David Corigan , "Harness the Power of Big Data The IBM Big Data Platform ", Tata McGraw Hill Publications, 2012.

Department of ECONOMICS
Panskura Banamali College (Autonomous)
Book List

1. Pindyck, Robert S.; Rubinfeld, Daniel L. Microeconomics. Ninth edition : Pearson, 2018.
2. N. Gregory Mankiw, Economics: Principles and Applications, India edition by South Western, a part of Cengage Learning, Cengage Learning India Private Limited, 4th edition, 2007.
3. K. Sydsaeter and P. Hammond, Mathematics for Economic Analysis, Pearson Education Asia: Delhi, 2002.
4. Paul R. An Introduction to Linear Programming and Game Theory, Wiley, 2008.
5. Prajit Dutta, Strategies and Games, MIT Press.
6. Goon, A.M., Gupta, M.K. and Dasgupta, B. (2002): Fundamentals of Statistics, Vol. I& II, 8th Edn. The World Press, Kolkata.
7. Miller, Irwin and Miller, Marylees (2006): John E. Freund's Mathematical Statistics with Applications, (7th Edn.), Pearson Education, Asia
8. Krugman, P., Obstfeld, M., Melitz, M. (2018). International Economics - Theory and Policy, 11th ed. Pearson Education.
9. N. G. das, Statistical Methods
10. D. N. Gujarati and D.C. Porter, Essentials of Econometrics, McGraw Hill, 4th edition, International Edition, 2009.
11. Jan Kmenta, Elements of Econometrics, Indian Reprint, Khosla Publishing House, 2nd edition, 2008.
12. Christopher Dougherty, Introduction to Econometrics, Oxford University Press, 3rd edition, Indian edition, 2007.
13. Debraj Ray, Development Economics, Oxford University Press, 2009.
14. Partha Dasgupta, Economics, A Very Short Introduction, Oxford University Press, 2007.
15. Charles Kolstad, Intermediate Environmental Economics, Oxford University Press, 2nd edition, 2010.

submitted by

SOUMYAJIT BHUNIA
H.O.D [Economics]
Date: 06.05.2025

DEPARTMENT OF ECONOMICS

PANSKURA BANAMALI COLLEGE
(Autonomous)

Major Course Discipline (MCD)

Credit - 4

Semester Pattern
under
NATIONAL CREDIT AND CURRICULUM (NEP)
Framework 2023

MAJOR COURSE DISCIPLINE COURSE (MCD1): POLITICAL ECONOMY: CONCEPTS AND APPLICATIONS

COURSE CODE: ECOUMCD501
CREDIT - 4

Course Description

This course explores some of the fundamental structural changes and dynamics of the advanced capitalist system since the development of Fordism to the contemporary period. Particularly, the course analyses the changes in the organization of production, labour market institutions as well as shifts in corporate, managerial, financial and inter-firm governance structures. It further analyses the role of the state in the era of globalization, by studying both its changed ideological foundation and varied practices. It goes on to examine the social and geopolitical consequences of such fundamental shifts. It also integrates contemporary issues of gender and environment in a political economy framework. Though grounded in political economic traditions, the course also exposes the students to interdisciplinary thought and content. It also offers a layered and contrasting perspective to some of the issues analysed in the core theoretical courses, such as microeconomics and macroeconomics. It also provides a more global and interdisciplinary context for analyzing the issues studied in the compulsory courses on the Indian Economy and Development Economics.

Course Objective

This course exposes the students to the realities of the contemporary world economy and teaches them to develop critical analysis in an integrated and broader political economy framework. It thus enables them to form a more informed view of the world we inhabit by analyzing some of the most contemporary trends and developments from different perspectives. It also exposes the students to interdisciplinary skills and written argumentation, and prepares them for a more holistic research framework. The exposure to interdisciplinary thinking further enables the students for pursuing studies in diverse related areas such as development studies, economic sociology, critical geography, gender studies and social work as also for taking up employment in organisations ranging from international development agencies to development NGOs and corporate CSR.

Course Learning Outcome

It also prepares the students to face the practical world of work, where economics, business, civil society organisations, social institutions and politics often cohabit in a complex interlinked structure, and employees are expected to comprehend and synthesize materials from diverse sources and perspectives.

Course Outline

Unit-I: Introduction and Historical Overview
Perspective on political economy with a historical overview: Capitalist development in the pre Second World War period, the 'Golden Age' and later

Unit-II: Changing Dynamics of Capitalist Production, Organisational Form and Labour Process
Fordist and Post-Fordist production; The changing dynamics of the organisation of production, markets and labour process; The evolution of the multinational corporations and their economic logic; The contemporary forms value chain networks and forms of inter-firm governance; The changing nature of employment, job security and labour rights .

Unit-III: The State in the Era of Globalisation: Ideology, Theory and Practice
Theoretical foundations and ideological underpinnings of the neoliberal state; The neoliberal state in practice: social contradictions, instability, and the nature of resolutions in a globalized world

Unit-IV: The Changing Role of Finance
The changing role of finance in the dynamics of capital accumulation and the shifts in corporate structure; Financialisation: its nature and consequences

Unit-V: The Social Dimension
Globalization and Uneven Development – Growth, inequality and crisis in an uneven geographical spread and its social ramifications

Unit-VI: Broader Perspectives (Gender and Environment)
Dimensions of Gender in work, accumulation and globalization; Political economic issues in environment, sustainability and inequality

Suggested Readings

1. Arnold, D., Bongiovi, J. (2013). Precarious, informalising, and flexible work: Transforming concepts and understandings. American Behavioral Scientist, 57, 289-308.
2. Beaud, M. (2001). A history of capitalism, 1500-2000. Chapters 2, 4, 5. Monthly Review Press.
3. Boyce, J. (2002). The political economy of the environment. Chapter 4. Edward Elgar.
4. Chang, D. (2009). Informalising labour in Asia's global factory. Journal of Contemporary Asia, 39, 161-179.
5. Dore, R. (2008). Financialisation of the global economy. Industrial and Corporate Change, 17, 1097-1112.
6. Dumenil, G., Levy, D. (2011). The crisis of neoliberalism. Chapter 1. Harvard University Press.
7. Elam, M. (1994). Puzzling out the post-Fordist debate: Technology, markets and institutions. In A. Amin (ed.): Post-Fordism: A reader. Blackwell.
8. Foster, J. (2009). The ecological revolution. Introduction. Cornerstone Publications.

9. Gereffi, G., Humphrey, J., Sturgeon, T. (2005). The governance of global value chains. Review of International Political Economy, 12, 78-104.
10. Gottfried, H. (2013). Gender, work and economy: Unpacking the global economy. Chapter 10. Polity Press.
11. Harvey, D. (2005). A brief history of neoliberalism. Introduction, Chapters 1- 3. Oxford University Press.
12. Hymer, S. (1975). The multinational corporation and the law of uneven development. In H. Radice (ed.): International firms and modern imperialism. Penguin Books.
13. Reddy, N. (2003). Economic globalisation, past and present: The challenges to labour. In K. Jomo, K. Jin (eds.): Globalization and its discontents, revisited. Tulika Books.
14. Sen, A. (1990). Gender and cooperative conflicts. In I. Tinker (ed.): Persistent inequalities: Women and world development. Oxford University Press.
15. Tonkiss, F. (2008). Contemporary economic sociology: Globalisation, production, inequality. Chapter 4. Routledge.

Additional Resources

● Dumenil, G., Levy, D. (2004). Capital resurgent: Roots of the neoliberal revolution. Chapter 11. Harvard University Press.
● Evans, P. (1998). Transnational corporations and the third world states: From old internationalisation to the new. In R. Wright, R. Rowthorn (eds.): Transnational corporations and the global economy. UNU/WIDER, Macmillan Press.
● Vaasudevan, R. (2013). Things fall apart: From the crash of 2008 to the great slump. Chapter 3. Sage Publications.

MAJOR COURSE DISCIPLINE COURSE (MCD2): BIO-ECONOMICS
COURSE CODE: ECOUMCD602
CREDIT - 4

Course Description

This course is all about to discover the whole value chain from Research & Development, over application, processing, retailing and final demand. Learn how the value chain and the rents and their distribution along the chain are affected by economic policies. Know how to measure adoption and environmental benefits, learn about the benefits and costs and the distribution of sustainable products, market power, approval processes, supply chain, guiding policies and the current social debate.

Course Objective

- To introduce the students to the world of Bio-economics.
- Make the students aware about the bioeconomy.
- Introduction to biobased resources, value chain, biomass.

Course Learning Outcome

- Students will be able to understand basic concept of Bioeconomics, challenges, opportunities & regulations
- Students will be able to understand development and innovation in terms of bioeconomy towards sustainable development
- Students will be able to understand Inter- and transdisciplinarity in bioeconomy and research approaches
- Students will be able to explain biobased resources ,value chain, innovative use of biomass and biological knowledge to provide food, feed, industrial products
- Identify the important factors driving the development of the circular bioeconomy;
- Assess the development of the circular bioeconomy from an economic perspective.

Course Outline

Unit-I: Introduction to Bioeconomics
Bio-economics- Concept, Development of Economics and Bioscience (Concept of resource economics for scarcity of biological resources), Evolution and Development of Economics and Biology (Charles Darwin and the evolutionary paradigm)

Unit-II: Bioeconomics and thermodynamics

Thermodynamic analysis and thermo economics, Exergy cost, Exergetic efficiency, 1st and 2nd Laws of Thermodynamics applied to economics, economic processes and elasticity, entropy and utility, Concept of excergy in waste – Waste to value.

Unit-III: Bioeconomics and sustainability

Development of resource efficient bioeconomy, Social and economic challenges for bioeconomy, Concept of Market and Market failures, Reasons for market failures, Externalities Concept and understanding of ecological and carbon footprint.

Unit-IV: Total Economic Value of Bioresources

Understanding of total economic value (TEV) of a resource, Application of the concept of TEV to renewable and non renewable resources, Understanding of the principles behind use and non -use value, Introduction to Option and Quasi -option value.

Unit-V: Market and Non -market valuation methods

Understanding of different Market and Non -market valuation methods, Revealed preference and stated preference methods for estimating use and non use value, Market cost method. Application of different methods to different conditions.

Unit-VI: Life Cycle Assessment and Impact Assessment

Life cycle assessment (LCA) – rationale and utility, Principles behind designing LCA, Understanding of Impact Assessment and its use in development of sustainability solutions.

Unit-VII: SWOT analysis of Bioeconomy

Rationale and criteria for SWOT analysis of Bioeconomies and their suggested use in Bio - entrepreneurial planning.

Unit-VIII: Generic bioeconomic mathematical models

Bioeconomic ModelsDynamic resource harvesting model, Dynamic optimization model, Demand-limited bionomic equilibrium, Growth and aging- The cohert model and multi cohort models.

Unit-IX: Ecological bioeconomics and bioeconomy for agriculture and fisheries

Forestry model, Inherent characteristic of fish stocks, The multi-cohert model for fisheries.

Suggested Readings

1. Sundar I. " Introduction to Bioeconomics", Global Research Publication, New Delhi, India.

2. Demirel, Y. "Nonequlibrium Thermodynamics- Transport and rate processes in Physical, Chemical and Biological Processes", Elsevier.
3. Bonaiuti, M. "From Bioeconomics to Degrowth", Routledge (Taylor and Francis Group), USA.
4. Virgin, I., and Morris, J.E. "Creating sustainable bioeconomies", (Taylor and Francis Group), USA.
5. Clark, C.W. "Mathematical bioeconomics", John Wiley & Sons, USA.
6. Principles of Bioeconomics by I. Sundar, Vedams eBooks (P) Ltd New Delhi, India

MAJOR COURSE DISCIPLINE COURSE (MCD3): RESEARCH METHODOLOGY
COURSE CODE: ECOUMCD703
CREDIT - 4

Course Description

The course begins with the formulation of a research problem and covers the issues concerning the generation of primary sample data. In this regard the designing of a questionnaire, the methods of design of a sample and its size, the modes of data collection from direct interview to online surveys, the appreciation of possible sources of errors, and the cleaning of data.

Course Objective

The course imparts skills to undertake data-based research.

Course Learning Outcomes

The student enrolling in this course would develop competency in executing sample surveys and would have reasonable exposure to a variety of secondary data sources.

Course Outline

Suggested Readings

1. Bethlehem, J. (2009). Applied survey methods: A statistical perspective. Wiley.
2. Cochran, W. (2008). Sampling techniques, 3rd ed. Wiley.
3. Cooper, D., Schindler, P., Sharma, J. (2012). Business research methods, 12th ed. McGraw-Hill.
4. Flick, U. (2012). Introducing research methodology: A beginner's guide to doing a research project. Sage Publications.
5. Groves, R., Fowler, F., Couper, M., Lepkowski, J., Singer, E., Tourangeau, R. (2009). Survey Methodology. Wiley.
6. Kumar, R. (2014). Research methodology: A step by step guide for beginners, 4th ed. Sage Publications.

DEPARTMENT OF ECONOMICS

PANSKURA BANAMALI COLLEGE
(Autonomous)

Minor Courses (MIC)

Credit - 4

Semester Pattern
under
NATIONAL CREDIT AND CURRICULUM (NEP)
Framework 2023

MINOR COURSES (MIC1): BASIC ECONOMICS
COURSE CODE: ECOUMIC101
CREDIT - 4

Course Description

This course is designed to expose the students to the basic principles of Microeconomics and Macroeconomics. The emphasis will be on thinking like an economist and the course will illustrate how microeconomic and macroeconomic concepts can be applied to analyze real-life situations. Microeconomics deals with individual agents where Macroeconomics deals with the aggregate economy. This course discusses the preliminary concepts associated with consumer behavior, demand and supply, production and cost, market, determination and measurement of aggregate macroeconomic variable like savings, investment, GDP, money, inflation, and the balance of payments.

Course Objective

This course is designed:
- To expose the students to the basic principles of microeconomic theory.
- Introduce the students to the basic concepts of macroeconomics and it deals with the aggregate economy.
- To introduces the first course in economics from the perspective of individual decision making as consumers and producers.
- Discusses the preliminary concepts associated with the determination and measurement of aggregate macroeconomic variable like savings, investment, GDP, money, inflation, and the balance of payments.

Course Learning Outcomes

On successful completion of this course the student should be able to:

- Think like an economist and illustrate how microeconomic concepts can be applied to analyze real-life situations.
- Learn some basic principles of microeconomics, interactions of supply and demand, and characteristics of perfect and imperfect markets.
- Train the students of economics about the basic elements of savings, investment, GDP, money, inflation, and the balance of payments.
- Understand how an economy works and develop the understanding about the money.

Course Outline

Unit-I: Exploring the subject matter of Economics
Why study economics? Scope and method of economics; the economic problem: scarcity and choice; the question of what to produce, how to produce and how to distribute output; science of economics; the basic competitive model; prices, property rights and profits; incentives and information; rationing; opportunity sets; economic systems; reading and working with graphs.

Unit-II: Supply and Demand: How Markets Work, Markets and Welfare
Markets and competition; determinants of individual demand/supply; demand/supply schedule and demand/supply curve; market versus individual demand/supply; shifts in the demand/supply curve, demand and supply together; how prices allocate resources; elasticity and its application; controls on prices; taxes and the costs of taxation; consumer surplus; producer surplus and the efficiency of the markets.

Unit-III: The Households
The consumption decision - budget constraint, consumption and income/price changes, demand for all other goods and price changes; description of preferences (representing preferences with indifference curves); properties of indifference curves; consumer's optimum choice; income and substitution effects; labour supply and savings decision - choice between leisure and consumption.

Unit-IV: The Firm and Perfect Market Structure
Behaviour of profit maximizing firms and the production process; short run costs and output decisions; costs and output in the long run.

Unit-V: Imperfect Market Structure
Monopoly and anti-trust policy; government policies towards competition; imperfect competition.

Unit-VI: Input Markets
Labour and land markets - basic concepts (derived demand, productivity of an input, marginal productivity of labour, marginal revenue product); demand for labour; input demand curves; shifts in input demand curves; competitive labour markets; and labour markets and public policy.

Unit-VII: Introduction to Macroeconomics and National Income Accounting
Basic issues studied in macroeconomics; measurement of gross domestic product; income, expenditure and the circular flow; real versus nominal GDP; price indices; national income accounting for an open economy; balance of payments: current and capital accounts.

UNIT-VIII: Money and Inflation
Functions of money; quantity theory of money; determination of money supply and demand; credit creation; tools of monetary policy, Inflation and its social costs; hyperinflation.

Unit-IX: The Closed Economy in the Short Run

Classical and Keynesian systems; simple Keynesian model of income determination; fiscal and monetary multipliers.

Suggested Readings

1. Karl E. Case and Ray C. Fair, Principles of Economics, Pearson Education Inc., 8th Edition, 2007.
2. N. Gregory Mankiw, Economics: Principles and Applications, India edition by South Western, a part of Cengage Learning, Cengage Learning India Private Limited, 4th edition, 2007.
3. Joseph E. Stiglitz and Carl E. Walsh, Economics, W.W. Norton & Company, Inc., New York, International Student Edition, 4th Edition, 2007.
4. Dornbusch, Fischer and Startz, Macroeconomics, McGraw Hill, 11th edition, 2010.
5. N. Gregory Mankiw. Macroeconomics, Worth Publishers, 7th edition, 2010.
6. Olivier Blanchard, Macroeconomics, Pearson Education, Inc., 5th edition, 2009.
7. Richard T. Froyen, Macroeconomics, Pearson Education Asia, 2nd edition, 2005.
8. Andrew B. Abel and Ben S. Bernanke, Macroeconomics, Pearson Education, Inc., 7th edition, 2011.
9. Errol D'Souza, Macroeconomics, Pearson Education, 2009.
10. Paul R. Krugman, Maurice Obstfeld and Marc Melitz, International Economics, Pearson Education Asia, 9th edition, 2012.

MINOR COURSES (MIC2): MICRO AND MACRO ECONOMICS
COURSE CODE: ECOUMIC201
CREDIT - 4

Course Description

This course is designed to expose the students to the basic principles of Microeconomics and Macroeconomics. The emphasis will be on thinking like an economist and the course will illustrate how microeconomic and macroeconomic concepts can be applied to analyze real-life situations. Microeconomics deals with individual agents where Macroeconomics deals with the aggregate economy. This course discusses the preliminary concepts associated with consumer behavior, demand and supply, production and cost, market, determination and measurement of aggregate macroeconomic variable like savings, investment, GDP, money, inflation, and the balance of payments.

Course Objective

This course is designed:
- To expose the students to the basic principles of microeconomic theory.
- Introduce the students to the basic concepts of macroeconomics and it deals with the aggregate economy.
- To introduces the first course in economics from the perspective of individual decision making as consumers and producers.
- Discusses the preliminary concepts associated with the determination and measurement of aggregate macroeconomic variable like savings, investment, GDP, money, inflation, and the balance of payments.

Course Learning Outcomes

On successful completion of this course the student should be able to:
- Think like an economist and illustrate how microeconomic concepts can be applied to analyze real-life situations.
- Learn some basic principles of microeconomics, interactions of supply and demand, and characteristics of perfect and imperfect markets.
- Train the students of economics about the basic elements of savings, investment, GDP, money, inflation, and the balance of payments.
- Understand how an economy works and develop the understanding about the money.

Course Outline

Unit-I: Consumer Behaviour
The consumption decision - budget constraint, consumption and income/price changes, demand for all other goods and price changes; description of preferences (representing preferences with indifference curves); properties of indifference curves; consumer's optimum choice; income and substitution effects; labour supply and savings decision - choice between leisure and consumption.

Unit-II: Supply and Demand: How Markets Work, Markets and Welfare
Markets and competition; determinants of individual demand/supply; demand/supply schedule and demand/supply curve; market versus individual demand/supply; shifts in the demand/supply curve, demand and supply together; how prices allocate resources; elasticity and its application; controls on prices; consumer surplus; producer surplus.

Unit-III: The Firm
Behaviour of profit maximizing firms and the production process; short run costs and output decisions; costs and output in the long run.

Unit-IV: Market Structure
Perfect Competition, imperfect competition.

Unit-V: Input Markets
Labour and land markets - basic concepts (derived demand, productivity of an input, marginal productivity of labour, marginal revenue product); demand for labour; input demand curves; shifts in input demand curves; competitive labour markets.

Unit-VI: Introduction to Macroeconomics and National Income Accounting
Basic issues studied in macroeconomics; measurement of gross domestic product; income, expenditure and the circular flow; real versus nominal GDP.

Unit-VII: Money and Inflation
Functions of money; quantity theory of money; determination of money supply and demand; credit creation; tools of monetary policy, Inflation and its social costs; hyperinflation.

Unit-VIII: The Closed Economy in the Short Run
Classical and Keynesian systems; simple Keynesian model of income determination;; fiscal and monetary multipliers.

Suggested Readings

1. Karl E. Case and Ray C. Fair, Principles of Economics, Pearson Education Inc., 8th Edition, 2007.

2. N. Gregory Mankiw, Economics: Principles and Applications, India edition by South Western, a part of Cengage Learning, Cengage Learning India Private Limited, 4th edition, 2007.
3. Joseph E. Stiglitz and Carl E. Walsh, Economics, W.W. Norton & Company, Inc., New York, International Student Edition, 4th Edition, 2007.
4. Dornbusch, Fischer and Startz, Macroeconomics, McGraw Hill, 11th edition, 2010.
5. N. Gregory Mankiw. Macroeconomics, Worth Publishers, 7th edition, 2010.
6. Olivier Blanchard, Macroeconomics, Pearson Education, Inc., 5th edition, 2009.
7. Richard T. Froyen, Macroeconomics, Pearson Education Asia, 2nd edition, 2005.
8. Andrew B. Abel and Ben S. Bernanke, Macroeconomics, Pearson Education, Inc., 7th edition, 2011.
9. Errol D'Souza, Macroeconomics, Pearson Education, 2009.
10. Paul R. Krugman, Maurice Obstfeld and Marc Melitz, International Economics, Pearson Education Asia, 9th edition, 2012.

MINOR COURSES (MIC3): MATHEMATICAL ECONOMICS
COURSE CODE: ECOUMIC302
CREDIT - 4

Course Description

The objective of this course 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 Objectives

This is the first of a compulsory two-course sequence.
  I.   This course would introduce the students to mathematical techniques that are used in Economics
 II.   The mathematical approach has the advantages of precision and clarity in understanding complex economic phenomena.
III.   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.
 IV.   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.

Course Learning Outcomes

On successful completion of this course, the student should be able to:
  I.   Upgrades the mathematical skills acquired in school and paves the way for the second semester course, Mathematical Methods in Economics II.
 II.   Apply the analytical tools wherever optimization techniques are used in business decision-making. These tools are necessary for anyone seeking employment as an analyst in the corporate world.
III.   Acquire the mathematical foundations necessary for further study of a variety of disciplines, including postgraduate economics, statistics, computer science, finance, and data analytics.
 IV.   Learn about vectors, matrices, and determinants; optimize a given constrained or unconstrained function; and work upon the convexity and concavity of functions.

Course Outline

Unit-I: Set Theory
Definition and types of sets; Set operations; Subsets and power sets; Venn Diagram

Unit-II: Functions of one real variable
Graphs; elementary types of functions: quadratic, polynomial, power, exponential, logarithmic; sequences. Continuous functions: characterizations, properties with respect to various operations and applications; differentiable functions: characterizations, properties with respect to various operations and applications; second and higher order derivatives: properties and applications.

Unit-III: Single-variable optimization
Geometric properties of functions: convex functions, their characterizations and applications; local and global optima: geometric characterizations, characterizations using calculus and applications.

Unit-IV: Integration of functions

Unit-V: Difference equations
Unit-VI: Differential equations
Unit-VII: Linear algebra
Vector spaces: algebraic and geometric properties, scalar products, norms, orthogonality; linear transformations: properties, matrix representations, and elementary operations; systems of linear equations: properties of their solution sets; determinants: characterization, properties, and applications.

Unit-VIII: Functions of several real variables
Geometric representations: graphs and level curves; differentiable functions: characterizations, properties with respect to various operations and applications; second order derivatives: properties and applications; the implicit function theorem, and application to comparative statics problems; Homogeneous and homothetic functions: characterizations and applications.

Unit-IX: Multi-variable optimization
Convex sets; geometric properties of functions: convex functions, their characterizations, properties and applications; further geometric properties of functions: quasiconvex functions, their characterizations, properties and applications; Unconstrained optimization: geometric characterizations, characterizations using calculus and applications; constrained optimization with equality constraints: geometric characterizations, Lagrange characterization using calculus and applications; Properties of Value Function: Envelope Theorem and Applications.

Suggested Readings:
- K. Sydsaeter and P. Hammond, Mathematics for Economic Analysis, Pearson Education Asia: Delhi, 2002.

Textbooks:
- NCERT (National Council of Educational Research and Training) textbooks, Class 11 & 12.

MINOR COURSES (MIC4): DEMOGRAPHY AND RESOURCE ECONOMICS
COURSE CODE: ECOUMIC402
CREDIT - 4

Course Description

This course is designed to expose students to the fundamental principles and core concepts of Demography and Resource Economics. It emphasizes the significance of demographic dynamics in shaping economic outcomes and resource allocation. Students will explore how demographic indicators—such as fertility, mortality, migration, and age structures—affect market morphology, government spending, private investment, and human development. The course will empower learners to critically analyze global population patterns and resource utilization through theoretical models and empirical frameworks. A special focus will be placed on applying demographic insights to understand economic development, environmental sustainability, and policy formulation.

Course Objectives

- To understand the basic principles and theories of population studies and resource economics.
- To assess the interlinkages between population growth, resource use, and economic development.
- To examine key demographic issues through the lens of classical and contemporary economic thought.
- To analyze national and global demographic patterns and their implications for policy design.

Course Modules

Module 1: Introduction to Demography; Meaning and types of demography; Scope and significance of demographic studies; Sources of demographic data: Census, Sample Registration System (SRS), National Family Health Survey (NFHS) Key demographic indicators: Crude Birth Rate, Death Rate, Total Fertility Rate (TFR), Infant Mortality Rate (IMR), Sex Ratio, Dependency Ratio

Module 2: Population Growth and Structure Global and national trends in population growth; Age-sex composition and its economic implications; Population pyramids: interpretation and significance

Module 3: Demographic Theories Malthusian Theory of Population; Theory of Demographic Transition: stages and implications.
Module 4: Population and Economic Development Population as a resource vs. a burden; Human capital formation: role of education, health, and nutrition; demographic dividend; Implications of an ageing population for productivity and public policy

Module 5: Resource Management and Policy Population pressure and its impact on land, water, and forests; Sustainable development goals and policies in the Indian context

Module 6: Theoretical Perspectives on Population and Economy Max Weber's interpretation of capitalism, population, and economic productivity Robert Solow's Neo-Classical Growth Model; role of population growth and technological progress in economic development.

Suggested Readings

1. A.K. Agarwala & S.P. Singh – The Economics of Development and Planning
2. T. Dyson – Population and Development: The Demographic Transition
3. P.K. Majumder: Fundamentals of Demography.
4. N.G. Mankiw – Principles of Economics (selected chapters)
5. Government Reports – NFHS, Census, Economic Survey (latest)

MINOR COURSES (MIC5): MONEY AND BANKING
COURSE CODE: ECOUMIC503
CREDIT - 4

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 Objective

- To exposes students to the theory and functioning of the monetary and financial sectors of the economy.
- To highlights the organization, structure and role of financial markets and institutions.
- To discuss financial and banking sector reforms and monetary policy with special reference to India are also covered.

Course Learning Outcome

- This allows students to understand current monetary policies and financial market outcomes.
- It also enables them to critically evaluate policies.

Course Outline

Unit-I: Money
Concept, functions, measurement; theories of money supply determination.

Unit-II: Financial Institutions, Markets, Instruments and Financial Innovations
  a. Role of financial markets and institutions; problem of asymmetric information – adverse selection and moral hazard; financial crises.
  b. Money and capital markets: organization, structure and reforms in India; role of financial derivatives and other innovations.

Unit-III: Interest Rates
Determination; sources of interest rate differentials; theories of term structure of interest rates; interest rates in India.

Unit-IV: Banking System
  a. Balance sheet and portfolio management.
  b. Indian banking system: Changing role and structure; banking sector reforms.

Unit-V: Central Banking and Monetary Policy

Functions, balance sheet; goals, targets, indicators and instruments of monetary control; monetary management in an open economy; current monetary policy of India.

Suggested Readings

1. F. S. Mishkin and S. G. Eakins, Financial Markets and Institutions, Pearson Education, 6 th edition, 2009.
2. F. J. Fabozzi, F. Modigliani, F. J. Jones, M. G. Ferri, Foundations of Financial Markets and Institutions, Pearson Education, 3 rd edition, 2009.
3. M. R. Baye and D. W. Jansen, Money, Banking and Financial Markets, AITBS, 1996.
4. Rakesh Mohan, Growth with Financial Stability- Central Banking in an Emerging Market, Oxford University Press, 2011. 5-th edition, 2011.
5. L. M. Bhole and J. Mahukud, Financial Institutions and Markets, Tata McGraw Hill,
6. M. Y. Khan, Indian Financial System, Tata McGraw Hill, 7 th edition, 2011.
7. N. Jadhav, Monetary Policy, Financial Stability and Central Banking in India, Macmillan, 2006.
8. R.B.I. – Report of the Working Group: Money Supply Analytics and Methodology of Compilation, 1998.
9. R.B.I. Bulletin, Annual Report and Report on Currency and Finance (latest).

MINOR COURSES (MIC6): STATISTICAL METHODS IN ECONOMICS WITH SPSS
COURSE CODE: ECOUMIC603
CREDIT - 4

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 then develops the notion of probability. This is followed by a discussion on sampling techniques used to collect survey data. Students are given hands-on training on the topics with the help of SPSS.

Course Objective

- To familiarises students in the statistical techniques employed in not just economics, but increasingly, all social and pure scientific research.
- To help students to analyze data in economics and will also build a foundation for computer aided methods..

Course Learning Outcomes

On completion of this course the student can understand:
- Utilizing statistical techniques for quantitative, data based problems, analysis and inference.
- Solve a range of problems using the techniques covered and conduct basic statistical analysis of data.
- Develops the ability to use platform like SPSS.

Course Outline

Unit-I: Introduction and Overview
The distinction between populations and samples and between population parameters and sample statistics; the use of measures of location and variation to describe and summarize data; population moments and their sample counterparts.

Unit-II: Measures of Central Tendency
Mean, Median, Mode

Unit-III: Measures of Dispersion
Range, Mean Deviation, Standard Deviation, Relative Measures of Dispersion

Unit-IV: Moments, Skewness and Kurtosis

Unit-V: Elementary Probability Theory

Sample spaces and events; probability axioms and properties; counting techniques; conditional probability and independence.

Unit-VII: Sampling
Principal steps in a sample survey; methods of sampling; the role of sampling theory; properties of random samples.

Suggested Readings:

1. Jay L. Devore, Probability and Statistics for Engineers, Cengage Learning, 2010.
2. John E. Freund, Mathematical Statistics, Prentice Hall, 1992.
3. Richard J. Larsen and Morris L. Marx, An Introduction to Mathematical Statistics and its Applications, Prentice Hall, 2011.
4. William G. Cochran, Sampling Techniques, John Wiley, 2007.

MINOR COURSES (MIC7): ENVIRONMENTAL ECONOMICS
COURSE CODE: ECOUMIC704
CREDIT - 4

Course Description

This course focuses on economic causes of environmental problems. In particular, economic principles are applied to environmental questions and their management through various economic institutions, economic incentives and other instruments and policies. Economic implications of environmental policy are also addressed as well as valuation of environmental quality, quantification of environmental damages, tools for evaluation of environmental projects such as cost-benefit analysis and environmental impact assessments. Selected topics on international environmental problems are also discussed.

Course Objective

● This course focuses on economic causes of environmental problems.
● In particular, economic principles are applied to environmental questions viewed as externalities and their management through various economic institutions, economic incentives and other instruments and policies.
● Methods for analysing economic implications of environmental policy are also addressed as well as the valuation of environmental quality, assessment of environmental damages, and tools needed for the evaluation of projects such as cost-benefit analysis, and environmental impact assessments. Selected topics on international environmental issues are also discussed.

Course Learning Outcomes

● The module aims to introduce students to the main theoretical and empirical concepts in environmental economics, equip students with a thorough analytical grasp of environmental policy theory, ranging from externalities to international environmental agreements and familiarise students with the main issues in environmental valuation and with the basic features of the environmental policy tools.
● At the end of the module the students should be able to demonstrate their understanding of the economic concepts of environmental policy.

Course Outline

Unit-I: Introduction
What is environmental economics; review of microeconomics and welfare economics.

Unit-II: The Theory of Externalities
Pareto optimality and market failure in the presence of externalities; property rights and the coase theorem, environmental externalities and state regulation on environment.

Unit-III: The Design and Implementation of Environmental Policy
 Overview; pigouvian taxes and effluent fees; tradable permits; choice between taxes and quotas under uncertainty; implementation of environmental policy.

Unit-IV: Environment and Sustainable Development
Defining sustainability for renewable resources; a brief history of environmental change; common-pool resources; economic activity and climate change, measurement.

Unit-V: International Environmental Problems
Trans-boundary environmental problems; economics of climate change; trade and environment.

Unit-VI: Measuring the Benefits of Environmental Improvements
Non-Market values and measurement methods; risk assessment and perception.

Suggested Readings

1. Charles Kolstad, Intermediate Environmental Economics, Oxford University Press, 2nd edition, 2010.
2. Robert N. Stavins (ed.), Economics of the Environment: Selected Readings, W.W. Norton, 5th edition, 2005.
3. Roger Perman, Yue Ma, James McGilvray and Michael Common, Natural Resource and Environmental Economics, Pearson Education/Addison Wesley, 3rd edition, 2003.
4. Maureen L. Cropper and Wallace E. Oates, 1992, ―Environmental Economics: A Survey,‖ Journal of Economic Literature, Volume 30:675-740.

MINOR COURSES (MIC8): CASE STUDIES IN APPLIED ECONOMICS
COURSE CODE: ECOUMIC804
CREDIT - 4

Course Description

The philosophy of case studies is that the best way to learn how to research is to do research. Students conduct, under the supervision of faculty, their own research projects, culminating in the writing of a research paper. Lectures will be given on a selection of topics that can prove useful in research.

Learning Outcomes

Upon successful completion, students will have the knowledge and skills to:

- Formulation of research objective
- Execution of a research agenda to adress the research objective
- A demonstration of your competency in the research methods your objective mandates
- Writing a research paper
- Presentation of the research project

PANSKURA BANAMALI COLLEGE
(Autonomous)

Skill Enhancement Course (SEC)

Credit - 3

Semester Pattern
under
**NATIONAL CREDIT AND CURRICULUM (NEP)
Framework 2023**

SKILL ENHANCEMENT COURSE (SEC-I): ECONOMICS OF FLORICULTURE
COURSE CODE: ECOUSEC101
CREDIT: 3

Course Description

Floriculture is one of the most important economic activities of the locality. This course introduces the students to the whole new world of economics of floriculture. The students will be given detailed idea about the related markets, infrastructure and support systems. They will also be trained to handle time series data on floriculture for successful forecasting. Use of information technology will also be discussed to tap the potential of global market.

Course Objective

- To make students aware about the world of economics of floriculture.
- To give the students detailed idea about the market organization, available infrastructure and support system related to floriculture.
- To make students to utilize time series trends in floriculture for successful forecasting.
- To make them able to handle information technology to tap the advantage of growing floriculture market worldwide.
- To make the students able to utilize the alternatives of floriculture as a successful employment opportunity.

Course Learning Outcomes

At the end of this course, the students should be able to:
- Understand the world market of floriculture, the trends in floriculture industry and to locate the potential employability related to the floriculture sector.
- Help the student to accept floriculture as a viable earning alternative.

Course outline:

Unit-I: Output Market
Market organization, different types of flower market, important national and international flower markets, variation in demand

Unit-II: Input Market
Input market structure, supply chain, seasonal variability

Unit-III: Forecasting
Price trend analysis, time series econometrics, forecasting

Unit-IV: Support System
Business law, exim policy, transportation, customs norms, warehousing, preservation, infrastructure, govtal support, banking support

Unit-V: e-commerce
e-commerce sites, managing e-commerce, online transaction, cyber

Suggested Readings

1. Economics of Floriculture: Problems and Prospects, Ruma Bhattacharyya
2. Floriculture in West Bengal: Problems and Potentials, Debashis Sarkar

SKILL ENHANCEMENT COURSE (SEC-2): ECONOMICS OF HEALTH AND EDUCATION
COURSE CODE: ECOUSEC202
CREDIT: 3

Course Description

The importance of education and health in improving well-being is reflected in their inclusion among the Millennium Development Goals adopted by the United Nations member states, which include among other goals, achieving universal primary education, reducing child mortality, improving maternal health and combating diseases. This course provides a microeconomic framework to analyze, among other things, individual choice in the demand for health and education, government intervention and aspects of inequity and discrimination in both sectors. It also gives an overview of health and education in India.

Course Objective

To introduce the study of health and education as components of human capital in the framework of economic theory.

Course Learning Outcome

- The students will learn the role of health and education in human development.
- They will be able to apply economic theory to understand the demand for health care, market failure in health insurance, economic evaluation of health care programmes and the role of public policy in the healthcare industry.
- They will also learn to analyse the returns to education, its role in labor market signaling and the progress of schooling in India.

Course Outline

Unit-I
1(a).   Role of Health and Education in Economic Growth.
1(b).   Role of Health and Education in Human Development
Importance in poverty alleviation; health and education outcomes and their relationship with macroeconomic performance.

Unit-II
Measurement of Health at the individual level and at the macro level.
Concept of mortality, Morbidity, Disability adjusted life years (DALYs), Measurement of DALYs.

Unit-III: Microeconomic Foundations of Health Economics
Demand for health; uncertainty and health insurance market; alternative insurance mechanisms; market failure and rationale for public intervention; equity and inequality.

Unit-IV: Evaluation of Health Programs
Costing, cost effectiveness and cost-benefit analysis; burden of disease.

Unit-V: Health Sector in India: An Overview
Health outcomes; health systems; health financing.

Unit-VI: Education: Investment in Human Capital
Rate of return to education: private and social; quality of education; signaling or human capital; theories of discrimination; gender and caste discrimination in India.

Unit-VII: Education Sector in India: An Overview
Literacy rates, school participation, school quality measures.

SKILL ENHANCEMENT COURSE (SEC-3): DATA ANALYSIS USING SOFTWARE PACKAGES
COURSE CODE: ECOUSEC303
CREDIT: 3

Course Description

This course teaches students how to use statistical softwares like SPSS or R or Eviews to analyze data, emphasizing practical applications and effective communication of results. The course aims to equip students with skills for research analysis, improve employability, and provide a foundation for advanced data analysis work. Students learn to use statistical software for data management, descriptive statistics, and various analytical techniques like t-tests, ANOVA, correlation, regression

Course Objectives

The course aims to
- Develop a comprehensive understanding of types and structure of data.
- Provide foundation for both basics and advanced statistical methods used in economic analysis, data analysis in research and also increasingly in fields like Artificial Intelligence and Data Analytics.

Course Learning Outcomes

By the end of the course, the students will/ able to understand:
- The usefulness of probability distribution and testing of hypothesis in economic decision making.
- Develop computational statistical design/solution for data based problems in research.

Course Outline

Unit-I: Introduction to Data
The basic types of economic data, their properties, and how they are used in econometric analysis. It also includes the steps involved in econometric analysis, from formulating a hypothesis to testing it with data; Steps in Economic Data Analysis

Unit-II: Data Presentation and Descriptive Statistics
Introduction to statistics; Understanding the Data, Tabular and Graphical presentation of data; measures of central tendency, dispersion, skewness, kurtosis and moments; Census, population and sample; Parameters and estimators; Sampling methods and distributions, sampling errors; Point and interval estimates.

Unit-III: Correlation and Regression (Basic concepts)
Introduction to correlation—correlation coefficient, Karl Pearson's Correlation Coefficient, Spearman's Rank Correlation; Introduction to regression - Simple linear regression, Method of ordinary least square, Multiple regression

Unit-IV: Accessing and Analyzing Economic Databases
Introduction to economic databases and data sources (e.g., FRED, World Bank, IMF); Exploring available economic datasets.

Unit-V: Introduction to Software Packages
EViews/SPSS/Python/R-Studio

Note: As part of this practical course, students are encouraged to write a short research article (application based on basic statistical concepts) that applies the concepts learned to real-life problems, thereby enhancing their practical understanding and analytical skills.