

## P.G. 1<sup>st</sup> Semester

### Paper: ECO701C (Core) Microeconomics-I

Credits: 4 = 4+0+0

#### **Unit – I: Consumer’s Behaviour (15)**

The violation of the premises of the indifference curves approach, The theory of Revealed Preference; Satiation and Lexicographical ordering; Linear expenditure systems, separable and additive utility functions, homogenous and homothetic utility functions, Choice of an utility index–indirect utility function and duality in consumption ; duality theorems, dual properties of utility and expenditure functions, Ray’s identity-ordinary and compensated demand curves and measures of welfare change – Linear expenditure system; composite commodities; consumer’s surplus; income leisure trade off.

#### **Unit –II: Theory of the firm (15)**

Production function: the homogenous production; Euler’s theorem and distribution; The CES production function, the generalised CES production function; the Kuhn Tucker conditions, duality in production; linear production functions: one output and multiple output case; optimising behaviour of firms; input demands: single and multiple inputs case; Cost functions: long and short run cost functions; Joint products: Constrained revenue maximisation and profit maximisation, generalisation to m variables: profit maximisation and substitution effects.

#### **Unit -III: Market Equilibrium :(15)**

Review of assumptions and equilibrium under perfect competition; Application of taxes under perfect competition; Pricing, output, tax, and entry consideration under imperfect competition: Monopoly, monopsony, monopolistic competition and duopoly; Managerial theories of the firm: contributions of Baumol, Morris and Williamson to managerial theories of the firm.

#### **Unit-IV: Equilibrium Analysis (15)**

Existence, uniqueness and stability of equilibrium under perfect competition: static stability, dynamic stability: lagged adjustment and continuous adjustment; futures market, hedging and risk analysis.

#### **Readings:**

- Henderson, J. and Quandt, R.E. Microeconomic Theory: A Mathematical Approach. McGraw-Hill Inc., USA; 3rd revised edition, (1980)
- Varian, H.R. Intermediate Microeconomics: A Modern Approach, Eighth Edition
- Nicholson, W. Snyder, C. Microeconomic Theory Basic Principles and Extensions, Cengage; 11<sup>th</sup> edition (2014)
- Perloff, J. M. Mason, C. Robert, Whaples, M. Microeconomics Theory & Applications with Calculus, Pearson Education Inc. (2013)

**Paper: ECO702C (Core)**  
**Macroeconomics-I**  
**Credits: 4 = 4+0+0**

**Unit-1: *National Income:* (10)**

Income Determination with Government sector and Foreign Trade, Foreign Trade Multiplier

**Unit-2: *Consumption* (18)**

The Consumption Data; The Absolute Income Hypothesis, The Relative Income Hypothesis; The Permanent Income Hypothesis; The Life Cycle Hypothesis; Random Walk Hypothesis; Consumption as a Random Walk; Further Aspects of Consumption Behaviour

**Unit-3: *Investment:* ( 15 )**

Fixed Investment: The Rental Price of Capital, the Cost of Capital and Determination of Investment; Residential and Inventory Investment: nature and determinants; the Accelerator Model, Multiplier Accelerator Interaction Process, flexible accelerator, Tobin's q theory

**Unit-4: *Open Economy Macroeconomics:* (12)**

The Open Economy IS-LM Model; BP Line, the Mundell-Fleming Model, extension of Mundell-Fleming Model to flexible exchange rate regime

**Recommended Readings:**

- N. Gragory Mankiw, Macroeconomics
- Brian Snowdon and H R Vane, Modern Macroeconomics
- Raghendra Jha, Macroeconomics for a Developing Economy
- Soumen Sikdar, Principles of Macroeconomics
- Eugene Diulio , Theory and Problems on Macroeconomics 3<sup>rd</sup> edition, Schaums Outline Series
- John Sloman, Economics, Third Edition, Prentice Hall of India Private Limited, New Delhi, 2002
- Levacic and Rebman: Macroeconomics: An Introduction to Keynesian Neo-Classical Controversies
- Ola Olson, Essentials of Advanced Macroeconomic Theory

**Paper: ECO703C (Core)**  
**Mathematical Methods for Economics-I**

**Credits: 4 = 4+0+0**

**Unit 1: Unconstrained optimization: (15)**

Unconstrained maxima and minima with more than one explanatory variables-economic applications: equilibrium of discriminating monopoly in the case of two and three variables; Multi – product equilibrium, Multi-plant equilibrium, equilibrium of firm with advertisement cost and subsidy.

**Unit 2: Optimization with equality constraint: (15)**

Geometric characterization, Lagrange characterization using calculus and economic applications. Review: utility maximization and consumer's behavior; comparative static analysis of utility maximization, least cost combination of inputs.

**Unit 3: Integration: Economic: (15)**

Applications of Integrals, estimation of consumer's surplus, producer's surplus (review). Problems relating to investment, capital formation and derivation of simple growth process (Domar); present value of a cash flow; present value of a perpetual flow.

**Unit 4: Matrix Algebra and its Applications: (15)**

Rank, Norm and Trace of a matrix, Partition matrix, Matrix inversion, Structure of input-output table, static Leontief system-Domestic and External sector.

**Recommended Readings:**

- A.C. Chiang, "Fundamental Methods of Mathematical Economics", McGraw Hill.
- S. Baruah, "Basic Mathematics and its Economics Applications", MacMillan
- J. M. Henderson and R. E. Quandt, "Micro-economic Theory – A Mathematical Treatment."
- R.G.D. Allen, "Mathematical Analysis for Economists."
- Mouhammed, "Introduction to Mathematical Economics", Prentice Hall of India
- Hoy. M. et.al: Mathematical Economics

**Paper: ECO704C (Core)**  
**Statistical Methods for Economics**  
**Credits: 4 = 4+0+0**

**Unit 1: Probability: Basic Ideas (15)**

Review of Terminology and related concepts, different approaches to probability: classical, statistical and axiomatic; derivation of basic probability rules; conditional probability; pairwise and mutual independence; Bayes' Theorem (concept only); Random variable; Probability Distribution of a random variable; mathematical expectation; variance of random variable in terms of expectations; moments relating to discrete random variables.

**Unit-2: Theoretical Probability Distributions (15)**

Binomial, Poisson and Normal Distributions with Properties-Moment Generating Function-The central Limit Theory (without proof)

**Unit – 3: Sampling and Estimation (15)**

Concept of Sampling Distribution and Standard Error of a Statistic – Methods of Estimation –

Principles of Moments, Least Square and Maximum Likelihood (Concepts only)

**Unit – 4: Statistical Inference (15)**

Testing of Hypothesis: Type I and Type II Errors, One-tailed and Two-tailed Tests – Test based on Standard Normal, t and Chi-Square Distributions, F- distribution: F statistic distribution; F-test for equality of population.

**Readings:**

- Yamane, Taro, "Statistics – An Introductory Analysis".
- Hooda, P.R., "Statistics for Business and Economics", Macmillan.
- Gupta, S.C. and Kapoor, V.K., "Fundamentals of Mathematical Statistics"
- Nagar, A.L. and Das, R.K., "Basic Statistics", Oxford.
- Salvatore, Dominick and Reagle, Darrick, "Statistics and Econometrics", TMH
- Yamane, Taro, "Statistics – An Introductory Analysis".
- Hooda, P.R., "Statistics for Business and Economics", Macmillan.
- Gupta, S.C. and Kapoor, U.K., "Fundamentals of Mathematical Statistics"
- Nagar, A.L. and Das, R.K., "Basic Statistics", Oxford.
- Salvatore, Dominick and Reagle, Darrick, "Statistics and Econometrics", TMH

**Paper: ECO705C (Core)**  
**Environmental Economics**  
**Credits: 4 = 4+0+0**

**Unit 1:**

**The economy and the environment 16**

Deep ecology, interrelationship between the economy and the environment, global life support systems, laws of thermodynamics; alternative pollutants: biodegradable and conservative, point and non-point pollutants; pollution thresholds; market failure

**Unit 2: Resources and sustainability 16**

Types of resources: renewable and non-renewable; Depletable and non depletable resources; Carrying capacity and Backstop resources. Tragedy of the Commons

**Unit 3: Valuation of the environment 16**

Why value the environment? Kinds of values; alternative methods of valuation;

**Unit 4: Sustainability 16**

Concept of sustainable development; sustainable exploitation of resources; weak and strong sustainability; limits to growth; accounting for environmental degradation: green accounting.

**References**

- Hanley, N; Shogren, J. and White, B. (2006) *Environmental Economics: In Theory & Practice*, Second Edition 2nd ed., Palgrave, McMillan
- Eugene, T. 2017. *Environmental Economics*, Vrinda Publication
- Karpagam, M.2012. *Environmental Economics: A Textbook*. Sterling Publishers
- Stavins, Robert N., (Ed). *Economics of the environment*, W.W. Norton, 4<sup>th</sup> edition

**Paper: ECO706C (SEC)**  
**Statistical Software for Data Analysis and Presentation**  
**Credits: 2 = 2+0+0**

**Unit 1: Presentation of data (10)**

Creating charts with Microsoft excel; graphical representation of data: One dimensional–single, subdivided, multiple deviation; Two dimensional- histogram, pie diagram; Three dimensional- rectangular, cube; Pictograms and cartograms, scatter, line and radar diagrams; Representation of Economic relationships: Demand curve, Supply curve, Cost curves, Revenue curves

**Unit 2: Calculation of basic statistics: (10)**

Mean Median, Mode, Dispersion, Correlation, standard deviation, skewness; Covariance; correlation- Bivariate, Partial, Rank, Correlation matrix.

**Unit3: Data analysis (10)**

Hypothesis and Testing of Hypothesis: Concept of Hypothesis, Significance of Hypothesis, Types, Concept of Significance Level and Confidence Level, Use of Computer for Testing of Hypothesis, method of least squares

**References:**

- Cunningham, J.B. 2012. Using SPSS: An Interactive Hands-on Approach,
- Mcfedrin, P. 2013. Excel Data Analysis: Your Visual Blueprint for Analyzing Data, Charts and Pivot Tables, , 4ed

(Students may get plenty of free study material in the internet on the above topics and they may take help from you tube)