

**I SEMESTER
ECS 1121: MICROECONOMICS**

Total Teaching Hours Per Semester: 45
Number of Credits: 3

Number of Teaching Hours Per Week: 3

Course Outcomes:

- On Successful completion of the course, the student will be able to;
1. Analyse the economic behaviour of the consumer and the firm
 2. Explain the relationship between various variables such as Input and output, cost and output, price of the product and quantity demand and so on
 3. Product and Factor pricing under different market structure

Unit – 1 : Introduction to Economics, Demand and Supply	15
Chapter-1 introduction to Economics: Nature and scope of economics, Basic Concepts in economics, Importance of study of Economics, Understanding the economy, Mankiw's ten principles of economics	7
Chapter- 2: Demand: Meaning and Determinants of Demand, the Demand Schedule, The Law of Demand Exceptions to the Law of Demand, Elasticity of Demand: Meaning- Types: Price, Income and Cross Elasticity, Measurement of Elasticity of Demand	6
Chapter- 3: Supply: Concept of Supply, the Law of Supply, and Determinants of Supply. Market Equilibrium: Comparative static, Consumer's and Producer's Surplus	2
Unit – 2 Theory of Demand and Production function	15
Chapter-4. Cardinal Analysis: Utility: Law of diminishing marginal utility, equi-marginal utility, consumer's equilibrium,	4
Chapter-5. Ordinal analysis: Meaning of Indifference curves- Indifference Schedule- Indifference Map, properties of Indifference curves, shapes of Indifference curve under different situations, Budget line-Equilibrium position, Price consumption curve, Income consumption curve, Income, Price and substitution effects -inferior goods v/s Geffen goods, Samuelson's revealed preference theory	6
Chapter-6. Production Function Production Function - The Law of Variable Proportion - the Law of Returns to Scale- Isoquant, Least cost combination of Inputs	5
Unit – 3: Cost, Revenue, Price and Output determination under different Markets	15
Chapter No. 7 Cost -Concepts, Cost output relationship in the short-run and long- run	4
Chapter No. 8. Concepts of Revenue: Total, Average and Marginal Revenue Curve	3
Chapter No. 9. Price and Output determination under different market: Meaning and features of perfect competitive market, Monopoly, Monopolistic competition and oligopoly, Price and Output determination under these markets	8

References

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- Koutsoyiannis A, (2008) *Modern Microeconomics*, Macmillan, London.
- Dominick Salvatore (2002) *Theory and Problems of Microeconomic Theory*,
Schaum's Outline Series, McGraw-Hill Book Company, Singapore.
- Ferguson C.E and Maurice S. Charles, (1978) *Economic Analysis-Theory and Applications*,
Richard D. Irwin Inc. USA.
- Hubbard R. Glenn and Anthony Patrick O'Brien, (2016) *Microeconomics*, Pearson Prentice
Hall, New Jersey.
- Pindyck Robert S., and Daniel L. Rubinfeld, (2012) *Microeconomics*, Pearson Prentice
Hall, New Jersey.
- Varian, H. R (2010)., "Intermediate Microeconomics: A Modern Approach", W. W.
Norton and Company, 8th Edition,

I SEMESTER
ECS 1221: MATHEMATICS for Economics

Total Teaching Hours Per Semester: 45

Number of Teaching Hours Per Week: 3

Number of Credits: 3

Course Outcome: On Successful completion of the course, the student will be able to;

1. Perform basic operations in Vectors and Matrix algebra.
2. Calculate limits, derivatives and integrals of functions of multiple variables.
3. Calculate Optima for constrained and unconstrained optimization problems encountered in economics

Unit – 1: Basics of Mathematical Economics, Vectors, Matrices and their applications	15
Chapter-1 Basics of Mathematical Economics: Nature of Mathematical Economics and its applications in Economic Analysis - Mathematical Model: Variables, Constants, Parameters, Equations and Identities- Sets: Set notation, operations, finite and infinite sets, laws of set operations	5
Chapter-2 Relations and Functions: Ordered pairs, relations and functions - Meaning and types of functions- constant function, polynomial functions, rational functions and non-algebraic functions. Simultaneous Equations- Vectors -vector spaces, linear dependence	5
Chapter-3 Matrices: Matrix Operations- Addition and Subtraction, Matrix Multiplication, Commutative, Associative and Distributive laws- Transpose - Inverse Matrix - Determinants: Properties, Rank of Matrix, Minor, Co-factor - Cramer's Rule	5
Unit – 2: Comparative Statics and Derivatives	15
Chapter- 4. Nature of Comparative Statics, Rate of Change and the Derivative - The concept of limit	4
Chapter–5: Continuity and Differentiability of a function – rules of differentiation of a function, Constant Functions, Linear, Power, Sums and Differences of Functions, Product of Functions, Quotient of Functions, Chain Rule, Exponential and Logarithmic Functions, application of derivatives in economics, marginal concept	5
Chapter - 6. Functions of Two or More Variables - Partial Derivatives, Higher Order Partial Derivatives, the Chain Rule and Total Derivatives– One and two variables- Differential Equations- First Order Linear Differential Equations- Nonlinear First Order Differential Equations- Second Order Linear Differential Equations – applications	6
Unit – 3: Integration and Optimization Techniques	15
Chapter - 7 Concept of Integration -Rules of Integration – Definite Integrals – Area and summation – Indefinite Integration	5
Chapter - 8. Applications integrations in Economic Analysis-Consumers Surplus- Producers surplus-Obtaining primitive function from marginal function	5
Chapter - 9. Concept of optimisation - Unconstrained Optimization - Lagrangian Multiplier, Constrained Optimization.Maxima and Minima	5

References

- Allen R.G.D., (2015) *Mathematical Analysis for Economists*, Macmillan.
- Chiang, A. C. and Wainwright, K(2005).“*Fundamental Methods of Mathematical Economics*”, McGraw Hill/Irwin, 4th Edition,
- Ljungqvist and Sargent (2012) *Recursive Macroeconomic Theory*, MIT Press, Second Edition
- Sydsaeter, K and Hammond, P., *Mathematics for Economic Analysis*, Pearson Educational Asia, 4th Edition, 2002.
- Bose D., (2003) *An Introduction of Mathematical Economics*, Himalaya Publishing House, Mumbai.
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- Yamane Taro, (2002) *Mathematics for Economists - An Implementer Analysis*, Phi Learning Publishers.

**II SEMESTER
ECS 2121: MACROECONOMICS**

Total Teaching Hours Per Semester: 45
Number of Credits: 3

Number of Teaching Hours Per Week: 3

Course Outcome:

On Successful completion of the course, the student will be able to;

1. Explain the concept of National Income and methods of its estimation
2. Analyse the relationship between Macroeconomic variables
3. Understand the determination of income and employment under Classical and Keynesian framework

Unit – 1: Introduction to Macroeconomics and National Income accounting	15
Chapter-1: Introduction to Macroeconomics: Nature of Macroeconomics and its significance, Indicators of Macro Economic Activity - Key Concepts: Stock and flow variables, different schools of thought	3
Chapter-2 Building blocks of Macroeconomic Analysis: Aggregate Demand (AD) curve, Aggregate Supply (AS) curve, Sources of shift in AD an AS, Equilibrium in National Income and Price level, Unemployment and National Income, Inflation and Unemployment, Circular flow of Income, Goods market and Money Market	4
Chapter-3 National Income Accounting: Measurement of Macro Variables and Economic Performance: National Income Accounting - <i>Important Concepts:</i> GNP, GDP, NNP, NDP, NI, PI, DPI- Real GDP versus Nominal GDP- GDP deflator- <i>Method of estimating National Income-</i> Expenditure Method- Income method-Value added or Net Product method- Difficulties in National Income Accounting- Trends in GDP in India -GNP and Quality of Life - Net Economic Welfare	7
Unit – 2: Classical and Keynesian Macroeconomics	15
Chapter- 4. Classical Theory: Introduction to classical theory of employment - Basic Assumptions of the Classical School- Say's law of Market- Determinants of Output, Employment, Savings, Investment, Wages, Prices, Interest Rate, Equilibrium Output and Employment-Implications of Classical Full-Employment Model-Critical Evaluation.	5
Chapter - 5. Keynesian Macroeconomics: Principle of effective demand- Keynesian theory of output, income and employment- Equilibrium Income and Output in Simple Two Sector Model, Three Sector & Four Sector Models	4
Chapter- 6: Keyes Psychological law of consumption- An Overview of Post Keynesian theories of consumption: absolute income, relative income, permanent income & life cycle hypothesis- Multiplier and Accelerator Analysis -Marginal Efficiency of Capital- Relevance and Critique of Keynesian Macroeconomics - Differences between Keynes and Classicals.	5

Unit – 3 Recent Debates in Macroeconomics	15
Chapter - 7 Supply side Economics	4
Chapter - 8. Money market and Goods market equilibrium-IS-LM model-Business cycle- Concept and theories	5
Chapter - 9. Macroeconomic policies; Monetary Policy and Fiscal Policy-Relative effectiveness of monetary and fiscal policy	5

References

- Ahuja H L (2013) Macroeconomics: Theory and Policy, S Chand & Company Pvt Ltd. New Delhi
- Mankiw N. Gregory, (2012) Macroeconomics, Worth Publishers, New York.
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- Oliver Blanchard, (2016) Macroeconomics, Pearson Prentice Hall, New Jersey, USA.

**II SEMESTER
ECS 2221: STATISTICS FOR ECONOMICS**

Total Teaching Hours Per Semester: 45

Number of Teaching Hours Per Week: 3

Number of Credits: 3

Course Outcome:

On Successful completion of the course, the student will be able to;

1. Calculate basic descriptive and inferential statistics.
2. Interpret descriptive and inferential statistics.
3. Explain the process of hypothesis testing

Unit – 1: Basics of Statistics for economics, Measures of central tendency and dispersion	15
<p>Chapter-1 Basics of Statistics for Economics: Why Study Statistics - Importance of Statistics in Economics- Descriptive and Inferential statistics -Data - Elements, Variables, and Observations, Scales of Measurement - Qualitative and Quantitative Data - Cross-Sectional and Time Series data-</p> <p>Chapter-2 Measures of Central Tendency: Arithmetic mean, median, mode, Geometric mean and Harmonic mean measurement and applications in Economics, properties of mean</p> <p>Chapter-3 Measures of dispersion- Meaning and significance of measure of dispersion -Measurement and applications of Range, quartile deviation, mean deviation, standard deviation, variance and coefficient of variation, measures of skewness and curtosis, scatter diagram, bivariate frequency distribuion, Measures of dispersion for qulaitaitve data</p>	5
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Unit – 2 Correlation, Regression, Time Series Analysis and Index Numbers	15
<p>Chapter- 4. Correlation and Regression: Meaning and types of correlation, methods of computation of correlation coefficient –Karl Pearson’s method, Spearman’s rank correlation method- Correlation for qualittitative data- Regression–meaning and importance of regression analysis, simple regression lines and equations and forecasting (two</p>	5

variables only)	
Chapter - 5. Time Series: Nature and Decomposition of Time Series - Analysis of Trend - Moving Average Method, Least-Square Method	5
Chapter - 6. Index Numbers: Nature and Purpose of Index Numbers - Types of Index Numbers: Price Index - Quantity Index, Link and Chain Index - Simple and Aggregate Index Numbers -Laspyre's Index, Paasche's Index, Marshall and Edgeworth's Index - Fisher's Index – Time- Reversal and Factor Reversal Tests-Deflation and Splicing of Index Numbers - Problems in the Construction of Index Numbers - Limitation of Index Numbers.	
Unit - 3 Introduction to Probability Distributions and Hypothesis Testing	15
Chapter - 7 Probability: Basic Concepts- Properties of Probability- Expected Values, Conditional Probability Random Variables: Discrete and Continuous	5
Chapter - 8. Probability Distributions - Probability Density Functions and Cumulative Distribution Functions – Expected values and Moments – The Binomial Probability Distribution, Poisson, Normal and exponential Distribution	5
Chapter - 9. Hypothesis Testing: Meaning of Hypothesis testing-Null and Alternative hypothesis, level of significance, One-tailed and two-tailed tests, Type I, Type II errors - Approaches to Hypothesis Testing - Confidence Interval Approach -Test of Significance Approach	5

References

- Gupta S P. (2012) *Statistical Methods*, S. Chand and Company, New Delhi.
- A L Nagar and R K Das (1983): *Basic Statistics*, Oxford University Press
- Anderson, Sweeney & Williams, (2002) *Statistics for Business & Economics*, Thomson South-Western, Bangalore.
- Daniel and Terrel: *Business Statistics for Management and Economics*; Hoaghton Mifflin Co., Boston, Toronts, 7th Edition, 1995, PP 1 to 972 + 6 Appendices
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