



Five Years Integrated M.Sc. Economics Program
(Five Year Full Time Degree Program)

SYLLABUS

(Five Years Integrated M.Sc. Economics, First Year)

School of Economics

Shri Mata Vaishno Devi University Katra

(April 2018)



ABBREVIATIONS / CODES / NOMENCLATURE	
Course Code Convention	
Example SEL 2122	Course Code for various Courses / Subjects SC: School Code T: Course Type Code (Lecture/Studio/Practical/Project etc.) L: Course Level (1, 2, 3, 4 & 5 for First, Second years ...) SA: Study Area / Sub Area Y: Semester Wise Course Number
SEL	School Code (SoE)
L	Lecture
P	Practical
E	Elective
C	Colloquium
D	Project Based
T	Training
S	Self Study
N	Non Credit
V	Special Lecture Topic
Teaching Scheme Convention	
L	Lecture
T	Tutorial
P	Practical
C	Course Credit
Evaluation Scheme Convention	
Minor	(Mid Term Exams / Tests) I & II
Major	Semester End Examination (ESE)
FFCS	Fully Flexible Credit System
CBCS	Choice Based Credit System

SEMESTER-I

1. Introductory Micro Economics

SEL1161			Introductory Micro Economics				Pre Requisites			
Version R-01							Co-requisites			
L	T	P	C	Minor Duration	Major Duration	Internal Marks	Minor-I Marks	Minor-II Marks	Major Marks	Total Marks
3	1	0	4	1.5 Hours	3 Hours	10	20	20	50	100

COURSE OBJECTIVES

The learning objectives of the course are:

1. To learn basic concepts of demand and supply
- 2.
3. To learn basic concepts of demand and supply
4. To learn various types of production functions
5. To learn

COURSE OUTCOMES

After successful completion of this course, students shall be able to;

1. Understand basic concepts of Micro Economics.
2. Understand nature and scope of Micro Economics.
3. Apply basic concepts of Micro Economics for developing economic theories.

COURSE CONTENTS

Unit-I

(18 Contact Periods)

Nature and scope of economics, definitions of economics, important concepts of economics, scarcity and choice, the basic issues of what to produce, how to produce and for whom to produce, problem of distribution of output, branches of economics, Concept of demand, law of demand, elasticity of demand: price, income and cross elasticity of demand, different methods of measurement of elasticity of demand and determinants of demand. Concept of supply, law of supply, elasticity of supply and determinants of supply.

Unit-II

(15 Contact Periods)

Production Possibility Curve, Production Function :- Law of Variable Proportions, Returns to Scale, Isoquants:- Properties and Types , MRTS, Producer's equilibrium, Linear Homogenous Production Function, Cobb - Douglas Production Function, Cost Concepts and its types, Short Run and Long Run Cost Curves, Revenue Concepts: - Average, Marginal and Total Revenue, Numerical Problems. Theory of Demand and Utility Analysis – Cardinal and Ordinal approach, Total and Marginal Utility, Consumer Preferences (Types of Preferences) & Indifference Curves Analysis-Properties, Types of Indifference Curves (for goods, bads, neuters, complements, substitutes), Marginal Rate of Substitution. Budget constraints, Properties of Budget set, Changes in Budget line, Consumer Equilibrium, price, income and substitution effects, Price consumption curve and income consumption curve, The Changes in demand and Engel's Curve and consumer surplus.



Unit-III

(15 Contact Periods)

Theories of distribution: Marginal productivity theory; Theories of wage determination; Wages and collective bargaining; Wage differentials; Theories of Rent: Ricardian and Modern, Quasi rent; Interest —Classical and Keynesian theories; Profits — Innovation, risk and uncertainty theories. Market: Meaning and Types, competitive and monopoly equilibrium; short run and long run under different cost conditions.

SUGGESTED BOOKS

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.
3. Verian H. “Microeconomic Analysis”, W.W Norton New York (Latest Edition).
4. Koutsoyiannis, A. “Modern Microeconomics”, Macmillan Press, London (Latest Edition).

2. BASIC STATISTICS

SEL1623			Basic Statistics				Pre Requisites			
Version R-01							Co-requisites			
L	T	P	C	Minor Duration	Major Duration	Internal Marks	Minor-I Marks	Minor-II Marks	Major Marks	Total Marks
3	1	0	4	1.5 Hours	3 Hours	10	20	20	50	100

COURSE OUTCOMES

After successful completion of this course, students shall be able to;

1. Understand basic concepts of Statistics.
2. Understand various concepts of measures of central tendency and dispersion.
3. Apply various concepts of central tendency and dispersion for statistical analysis.
4. Develop the ability to construct some basic model.

COURSE CONTENTS

Unit I

(18 Contact Periods)

Statistics: Scope and meaning and scope of Statistics, Classification Tabulation and Presentation of data. Measures of Central Tendency: Arithmetic Mean, Median and Mode (for both Grouped and Ungrouped Data), Properties of Arithmetic Mean, Graphical Location of Median and Mode, Comparison of Mean Median and Mode; Geometric and Harmonic Mean, Index Numbers: Their Concept as Weighted Averages, Problems in the Construction of Index Numbers, Chain Index, Cost of Living Index Number (Different Formulae), Wholesale Price Index and Cost of Living Index in India, Base Shifting, Uses of Index Numbers.

Unit II

(15 Contact Periods)



Dispersion, Skewness and Kurtosis: Range, Quartile Deviation, Mean Deviation and Standard Deviation, Properties of Standard Deviation, Comparison of Different Measures of Dispersion, Measures of Relative Dispersion–Curve of Concentration, Measurement of Economic Inequality–Gini Coefficient and Coefficient of Variation/Lorenz Curve, Measures of Skewness and Kurtosis. The Concept of Moments.

Unit III

(15 Contact Periods)

Correlation Analysis and Regression: Elementary Analysis of Linear Correlation: Covariance, Scatter Diagram, Coefficient of Simple Correlation–Properties and the Method of Calculation, Concept of Spearman’s Rank Correlation. The Concept of Regression, Regression Lines and their Estimation in a Bivariate series, Least Squares Method, The Concept of r^2 and Standard Error of Estimate.

SUGGESTED BOOKS

1. Croxton and Dudley “Applied General Statistics”, (Latest Edition).
2. Gupta S .P . “Statistical Methods”, Sultan Chand & Sons, N. Delhi (Latest Edition).
3. Hooda, R. “Statistics for Business and Economics”, Macmillan, ND (Latest Edition).
4. Jay L. Devore, Probability and Statistics for Engineers, Cengage Learning, 2010.
5. Richard J. Larsen and Morris L. Marx, An Introduction to Mathematical Statistics and its Applications, Prentice Hall, 2011.

3. BASIC MATHEMATICS FOR ECONOMISTS

SEL1024			Basic Mathematics for Economists				Pre Requisites			
Version R-01							Co-requisites			
L	T	P	C	Minor Duration	Major Duration	Internal Marks	Minor-I Marks	Minor-II Marks	Major Marks	Total Marks
3	1	0	4	1.5 Hours	3 Hours	10	20	20	50	100

COURSE OUTCOMES

After successful completion of this course, students shall be able to;

1. Understand basic concepts of Mathematics.
2. Understand various concepts of sets, relations, functions, linear algebra, sequence and time
3. Apply various concepts of sets, relations, functions, linear algebra, sequence and time for applied economic analysis.
4. Develop the ability to construct some basic mathematical model for analysis of economic theory.

COURSE CONTENTS

Unit I

Real Number system, Sets and their representations. Empty set, Finite and Infinite sets, Equal sets, Subsets, Subsets of a set of real numbers especially intervals (with notations), Power set,



Universal set, Venn diagrams, Union and Intersection of sets, Difference of sets, Complement of a set, Properties of Complement of Sets, Practical Problems based on sets. Ordered pairs, Cartesian product of sets. Definition of relation: domain, co-domain and range of a relation. Graphical presentation of functions. Types of functions: Constant, polynomial, rational, modulus, exponential, logarithmic and greatest integer function, with their graphs. Sum, difference, product and quotients of functions. Limit and Continuity.

Unit II

Matrices: Concept and types of matrices: null and identity matrix, transpose of a matrix, symmetric matrix; Operation on matrices: Addition and multiplication and multiplication with a scalar. Properties of addition, multiplication and scalar multiplication. Idiosyncrasies of matrix operation. Concept of elementary row and column operations. Invertible matrices and proof of the uniqueness of inverse. Determinants: Determinant of a square matrix (up to 3×3 matrices), properties of determinants, minors, cofactors, Adjoint and inverse of a square matrix. System of Linear equations: Consistency, inconsistency and number of solutions of system of linear equations by examples, solving system of linear equations in two or three variables (having unique solution) using inverse of a matrix. Solution of system of linear equations using Cramer's Rule.

Unit III

Sequence and Series, Arithmetic Progression (A.P.). Arithmetic Mean (A.M.) Geometric Progression (G.P.), general term of a G.P., sum of n terms of a G.P., Arithmetic and Geometric series, infinite G.P. and its sum, geometric mean (G.M.), Harmonic (mean) relation between A.M., G.M. and H.M., Formula for the following special sum : Arithmetico-Geometric Series, Exponential Series, Logarithmic Series, Binomial Series.

SUGGESTED BOOKS

1. Chiang, A. C. "Fundamental Methods of Mathematical Economics", McGraw Hill Publications
2. Sydester, K and P Hammond. "Essential Mathematics for Economic Analysis", Pearson Publications
3. Allen, RGD. "Mathematical analysis for economics", A.I.T.B.S publishers
4. Edward T Dowling, Introduction to Mathematical Economics, Schaum's Outline Series, McGraw Hill Publication.
5. Henderson "Microeconomic Theory- A Mathematical Approach", McGraw Hill (Latest Edition).
6. Baumol, W.J. "Economic Theory and Operations Analysis", Prentice Hall, ND (Latest Edition).

4. INTRODUCTORY MACRO ECONOMICS

SEL1171			Introductory Macro Economics				Pre Requisites			
Version R-01							Co-requisites			
L	T	P	C	Minor Duration	Major Duration	Internal Marks	Minor-I Marks	Minor-II Marks	Major Marks	Total Marks
3	1	0	4	1.5 Hours	3 Hours	10	20	20	50	100

COURSE OUTCOMES

After successful completion of this course, students shall be able to;

1. Understand basic concepts of Macro Economics.
2. Understand various concepts of National Income, Consumption functions, Investment function, monetary policies and Fiscal policies.
3. Develop the ability to construct some basic macroeconomic model for analysis of economic theory.

Unit-I

The roots of macroeconomics, Difference between micro and macro economics, macroeconomic Concerns, the role of government in the macro economy, the components of the macro economy, the methodology of macroeconomics. Introduction to National Income Accounting: Concepts of GDP, GNP and national income, approaches to calculating GDP, personal income, Nominal and real GDP, Limitations of the GDP concept, GDP and the black economy.

Unit-II

Circular Flow of Income in two, three, and four-sector economy, National Income concepts and accounting methods; flow of funds accounting and balance of payments accounting. The aggregate supply function-Production function and aggregate supply curve; The Classical System: The Full-Employment Model: Macroeconomic Equilibrium, the labour market, the product market, the capital market; extending the full employment model. Say's law of markets, Output and Employment in classical theory, the quantity theory of money, classical model with and without saving and investment. Keynes' objection to the classical theory.

Unit-III

Theories of consumption –Absolute, relative, permanent and life cycle income hypothesis. The decisions to invest- Autonomous and Induced investment, MEC and MEI schedule. Multiplier and accelerator theories of investment. The rate of interest and the rate of investment, the role of finance beyond the interest rate, Monetary and Fiscal policies instruments, their role and effects. Simple IS-LM approach to the determination of equilibrium interest rate. Elasticity and shifts of IS and LM schedules.

SUGGESTED BOOKS

1. Dornbusch, Fischer and Startz, *Macroeconomics*, McGraw Hill, 11th edition, 2010.
2. N. Gregory Mankiw. *Macroeconomics*, Worth Publishers, 7th edition, 2010.
3. Olivier Blanchard, *Macroeconomics*, Pearson Education, Inc., 5th edition, 2009.



4. Steven M. Sheffrin, *Rational Expectations*, Cambridge University Press, 2nd edition, 1996.
5. Andrew B. Abel and Ben S. Bernanke, *Macroeconomics*, Pearson Education, Inc., 7th edition, 2011.
6. Errol D'Souza, *Macroeconomics*, Pearson Education, 2009
7. Paul R. Krugman, Maurice Obstfeld and Marc Melitz, *International Economics*, Pearson Education Asia, 9th edition, 2012.

5. COMPUTER APPLICATIONS FOR ECONOMICS

SEL1141			Computer Applications for Economics				Pre Requisites			
Version R-01							Co-requisites			
L	T	P	C	Minor Duration	Major Duration	Internal Marks	Minor-I Marks	Minor-II Marks	Major Marks	Total Marks
3	1	0	4	1.5 Hours	3 Hours	10	20	20	50	100

COURSE OUTCOMES

After successful completion of this course, students shall be able to;

1. Understand basic concepts of Computers.
2. Understand various functions of excel, Database Management and Software Packages
3. Apply various functions of excel for economic analysis.

Unit-I

Computer fundamentals; Organization and components of a computer; Computer hardware - CPU, Memory; Input and output devices- Key Board, Mouse, VDU, Printer, Scanner, Digitizer; Operating system; Types of operating system and comparative analysis of different systems.

Unit-II

Introduction to MS- Excel; Basic mathematical calculations in Excel - Addition, Subtraction, Multiplication, Division; Data transformation - Differencing, lagging, Logarithms, Inverse, Squares, Merging, Sorting, Plotting, filling data gaps, File management; Basic statistical functions - Mean, Median, Mode, variance, Standard deviation, Max, Min, Quartile, Skewness, Geometric mean, Harmonic mean; Trimmed / Truncated mean, Outlier detection.

Unit-III

Introducing popular software packages - SPSS, Eviews, Stata, RATS, PcGive, SHAZAM, Minitab, Microfit, Gretel, SAS, R and Matlab; Comparative analysis of software packages; Data analysis using E-views and R; Minor projects.

SUGGESTED BOOKS

1. Rajaraman, V.(1996), *Fundamentals of Computers*, Prentice Hall of India, New Delhi
2. Schied, F.(1983), *Theory and Problems of Computers and Programming*, Schaum's Outline Series, McGraw Hill, New Delhi.



1. MATHEMATICS FOR ECONOMIST-I

SEL 1025			Mathematics for Economist-I				Pre Requisites			
Version R-01							Co-requisites			
L	T	P	C	Minor Duration	Major Duration	Internal Marks	Minor-I Marks	Minor-II Marks	Major Marks	Total Marks
3	1	0	4	1.5 Hours	3 Hours	10	20	20	50	100

Course outcomes

1. This course will enable students understand basic concepts of differential calculus and integral calculus which are highly required in Economics.
2. This course focuses on the mathematical methods and models that are required to understand current economics and to investigate economic models.
3. The course emphasizes the economics applications of every mathematical concept being taught, So that way many applications in other branches of economics are covered in this.

Unit I

Continuity and differentiability, derivatives – rules of derivative (sum and difference, multiplication and quotient rule), derivative of composite functions (chain rule), derivatives of logarithmic and exponential functions, derivative using logarithm, derivative of functions expressed in parametric forms, second- and higher -order derivatives, functions of several variables, implicit function theorem, partial derivative, total derivative, economic applications, marginal and elasticity concepts, Increasing and decreasing function, Taylor’s approximation, Homogeneous production function, Cobb-Douglas production function and CES production function.

Unit II

Unconstrained optimization: Single variable, two variables and more variables case with Hessian determinant, convexity and concavity of functions. Constrained optimization with equality constraints, Lagrangian method, Bordered Hessian determinant. Economic applications: utility maximization, cost minimization, profit – output maximization, linear programming – formulation, solutions using graphical and Simplex methods.

Unit III

Indefinite integrals: Basic rules of Integration, Rules of Operation, Integration by parts, Integration by substitution, Integration by partial fraction. Definite integrals: Basic rules, Area under the curve. Economic applications: Marginal to total function, Consumer and producer surplus, Capital formation, Present value of a cash flow and perpetual flow.

1. Chiang, A.C. and K Wainwright, Fundamental Methods of Mathematical Economics”, McGraw Hill publication
2. Dorfman, Samuelson and Solow “Linear Programming and Economic Analysis”, McGraw Hill, NewYork.
3. Allen, RGD. “Mathematical analysis for Economics”, A.I.T.B.S publications
4. K Sydsaeter and Pter Hammond, Mathematics for Economic Analysis, Pearson Publishers.



5. Edward T Dowling, Introduction to Mathematical Economics, Schaum's Outline Series, McGraw Hill Publication.
6. Michael Hoy et al., Mathematics for Economics, Prentice Hall India.

2. PROBABILITY & STATISTICAL METHODS

SEL 1026			Probability and Statistical Methods				Pre Requisites			
Version R-01							Co-requisites			
L	T	P	C	Minor Duration	Major Duration	Internal Marks	Minor-I Marks	Minor-II Marks	Major Marks	Total Marks
3	1	0	4	1.5 Hours	3 Hours	10	20	20	50	100

Course outcomes

1. Students will learn various statistical concepts of analyzing the data and find the solutions of many day to day problems.
2. Various concepts of sampling techniques will be taught to the students which are helpful if they do research work.
3. Hypothesis falsification is a scientific way of looking at a problem. Students will learn the concepts of hypotheses and the method to test a hypothesis.
4. The concept of probability is the only technique to deal with many uncertain situations in life. So it is highly sought concept that students should learn. This course will help them to learn that concept.

Unit I

Principal steps in a sample survey; methods of sampling: random-simple and stratified random sampling, types of SRS and STRS, properties of random samples; non-random sampling, sampling vs. non-sampling errors, Probability: Concepts of Sample Space and Events, Probability of an Event, Addition and Multiplication Theorems; Conditional Probability and Independence of Events; Bayes theorem.

Unit II

Probability Distributions: Concept of a Random Variable, Discrete and Continuous Random Variable, Probability Density Function, Mathematical Expectation and Its Properties, Sampling Distribution of Sample Mean and Sample Variance. Theoretical Distributions: Binomial distribution- its properties, Poisson distribution and its properties, poisson distribution as a limiting case of binomial distribution, normal distribution-its properties, normal distribution as a limiting case of binomial distribution, Central Limit Theorem

Unit III

Estimation: parameter and statistic, estimates and estimators, point estimators and its properties (small sample and asymptotic properties), confidence intervals for population parameters. Hypothesis Testing: Defining statistical hypotheses; null vs alternative hypotheses, Type I and Type II errors; power of a test; the concept of degrees of freedom; testing hypotheses related to population parameters based on Z, t, χ^2 and F-tests.

SUGGESTED BOOKS



1. Croxton and Dudley “Applied General Statistics”, (Latest Edition).
2. Gupta S .P . “Statistical Methods”, Sultan Chand & Sons, N. Delhi (Latest Edition).
3. Hooda, R. “Statistics for Business and Economics”, Macmillan, ND (Latest Edition).
4. Jay L. Devore, Probability and Statistics for Engineers, Cengage Learning, 2010.
5. Richard J. Larsen and Morris L. Marx, An Introduction to Mathematical Statistics and its Applications, Prentice Hall, 2011.

3. PROGRAMMING AND DATA STRUCTURES

			Programming and Data Structure				Pre Requisites			
Version R-01							Co-requisites			
L	T	P	C	Minor Duration	Major Duration	Internal Marks	Minor-I Marks	Minor-II Marks	Major Marks	Total Marks
3	1	0	4	1.5 Hours	3 Hours	10	20	20	50	100

Unit-I

Introduction to the Digital Computer ; Introduction to Programming Variables, Assignment; Expressions; Input/output; Conditionals and Branching; iteration; Functions; Recursion; Arrays; Introduction to Pointers; Structures

Unit-II

Introduction to Data-Procedure Encapsulation; Dynamic allocation; Linked structures

Unit-III

Introduction to Data Structure – Stacks and Queues; Search Trees; Time and space requirements. (A programming language like C/C++ or any advance language may be used as a basis language.

SUGGESTED BOOKS

1. Let us C by Yashwant Kanetkar,
2. Data Structures – Schaum’s Outlines by Seymour Lipschutz

4. MONEY, BANKING & FINANCIAL INSTITUTIONS

SEL 1042			Money, Banking and Financial Institutions				Pre Requisites			
Version R-01							Co-requisites			
L	T	P	C	Minor Duration	Major Duration	Internal Marks	Minor-I Marks	Minor-II Marks	Major Marks	Total Marks
3	1	0	4	1.5 Hours	3 Hours	10	20	20	50	100

Course outcomes

1. Students will learn the origin of the important concept called money which is acting as blood of the economy.
2. Students will also understand various concepts and tools to analyse monetary policy to manage one economy.



- Students will learn from this course the functioning of RBI and its policy tools to control money supply and inflation.

Unit-I

Demand for Money: Classical and Keynesian approaches to demand for money. Post-Keynesian approaches to demand for money-Patinkin and the Real Balance Effect; Approaches of Baumol and Tobin; Friedman and the modern quantity theory; Crisis in Keynesian economics and the revival of monetarism. Supply of Money: RBI approach to money supply; High powered money and money multiplier; budget deficits and money supply; Money supply and open economy; Mechanistic and behavior model of money supply control of money supply.

Unit-II

Meaning and types; Functions of commercial banks; the process of credit creation-Purpose and limitations; Liabilities and assets of banks; investment policy, Evolution of commercial banking in India after Independence; A critical appraisal of the progress of commercial banking after nationalization; Recent reforms in banking sector in India. Basel Norms I, II and III. Functions of a central bank; Quantitative and qualitative methods of credit control-open market operations, variable reserve ratio and selective methods; The Reserve Bank of India: Roles and Functions, Monetary Policy of the RBI, Techniques of Monetary Control, Recent Policy Developments, Liquidity Adjustment Facility (LAF), MSF. Limitations of monetary policy of RBI.

Unit-III

Role and structure of money market and capital market – features of a developed money market, call money market. Treasury bill market, commercial bill market including commercial PAPER: and certificate of deposits, discount market–Government securities market – markets for derivatives features and options and other derivatives types, uses and pricing of derivatives Primary and secondary market for securities; SEBI its impact on the working of capital market in India. Financial sector reforms- recommendation of various committees (1991-2008), financial growth and financial inclusion.

SUGGESTED BOOKS

- Gupta, S.B. , *Monetary Economics*, S. Chand and Co., Delhi.
- N. Gregory Mankiw. *Macroeconomics*, Worth Publishers, 7th edition, 2010.
- Bhole, L. M. *Financial Institutions and Markets*, Tata Mc Graw Hill Company Ltd. Delhi.
- Khan M. Y. *Indian Financial System*, Tata McGraw Hill, New Delhi.
- Smith, P.F. *Money and Financial Intermediation: The Theory and Structure of Financial System*, Prentice Hill, Englewood Cliffs, New Jersey
- Dornbusch, Fischer and Startz, *Macroeconomics*, McGraw Hill, 11th edition, 2010.

5. INTERMEDIATE MICROECONOMICS

SEL 1019	Intermediate Microeconomics	Pre Requisites	
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Version R-01							Co-requisites			
L	T	P	C	Minor Duration	Major Duration	Internal Marks	Minor-I Marks	Minor-II Marks	Major Marks	Total Marks
3	1	0	4	1.5 Hours	3 Hours	10	20	20	50	100

Course Outcome

1. It will enable the students to learn various concepts and theories of market behaviour.
2. It will enable the students to learn various models of pricing of goods and services.
3. Students will also learn the microeconomic techniques which they may use in higher learning and research.

Unit I

Price and Output Determination under Perfect competition: Shortrun and longrun equilibrium of firm and industry, Dynamic changes and industry equilibrium, Monopoly market: equilibrium price and output, dynamic changes, and comparison with pure competition. Price discrimination and elasticity of demand, price discrimination and existence of industry, regulated monopoly Monopolistic Competition: Characteristics of Monopolistic Competition; Chamberlin’s Theory of Monopolistic Competition (importance of product differentiation, selling cost, product group); Short-run and Long-run Equilibrium of the Monopolistic Competition; Excess capacity.

Unit II

Price and Output Determination under Oligopoly: Characteristics and sources of oligopoly; Duopoly models of Oligopoly (Cournot, Bertrand, Chamberlin and Stackelberg); Kinked Demand model. Collusive Oligopoly: Cartels and joint profit maximization, Price leadership with low cost firm, dominant firm and barometric price leadership. Basing point price system. Critique of Neoclassical theory of firm: Hall and Hitch principle and Full cost pricing principle, Gordon attack on Marginalism. Average cost pricing and mark up rule, Critique of average cost pricing.

Unit-III

Theories of Limit Pricing: Bain’s Model, Sylos-Labini model, Bhagawati model, Modigliani Model; Managerial Theories of firm: Baumol’s Model of Sales Revenue Maximization, Marris’s Managerial Model of the Firm., Williamson’s Managerial Model of the Firm.

SUGGESTED BOOKS

1. 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.
2. A. Koutsoyiannis, *Modern Microeconomics*, Macmillan Press, London (2nd Edition).
3. Robert S. Pindyck, Daniel L. Rubinfeld, *Microeconomics*, Upper Saddle River, N.J. : Pearson/Prentice Hall, 2009. 7th ed.
4. Hugh Gravelle and Ray Rees, *Microeconomics*, Pearson Education, 2nd edition, 1992.
5. Joseph E. Stiglitz and Carl E. Walsh, *Economics*, W.W. Norton & Company, Inc., New York, International Student Edition, 4th edition, 2007.
6. C. Snyder and W. Nicholson, *Fundamentals of Microeconomics*, Cengage Learning (India),2010.



7. B. Douglas Bernheim and Michael D. Whinston, *Microeconomics*, Tata McGraw-Hill (India), 2009.
8. Henderson, M. and R.E. Quandt, *Microeconomic Theory: Mathematical Approach*, McGraw Hill, 1980
9. Mas-Colell, A., M.D. Whinston, and J. Green, *Microeconomic Theory*, Oxford University Press, 1995.
10. Hal R. Varian, *Microeconomic Analysis*, W.W Norton New York (Latest Edition).

SEMESTER-III

1. BASIC ECONOMETRICS

SEL 2122			Basic Econometrics				Pre Requisites			
Version R-01							Co-requisites			
L	T	P	C	Minor Duration	Major Duration	Internal Marks	Minor-I Marks	Minor-II Marks	Major Marks	Total Marks
3	1	0	4	1.5 Hours	3 Hours	10	20	20	50	100

Course outcomes

1. This course will enable students to learn the basic econometric tools like regression and various estimation problems associated with it.
2. It will also help students to know, understand and absorb the techniques and use it in their practical research problems
3. Students will learn to test various economic theory with help of data by using econometric tools.
4. It will help students to interpret econometrics model results and provide policy suggestions

Unit-I

Scope and importance of Econometrics, and limitations of Econometrics applications, variables, parameter and constant, sample and population, types of data and functions. Two variable linear regression model (2VLRM) analysis, error term and white noise error, PRF and SRF, CLRM and its assumptions, OLS method of estimation, properties of estimators and SRF, BLUE, GLS method, ANOVA, statistical inference, goodness of fit, normality assumptions, maximum likelihood estimation.

Unit-II

Econometric problems – Multicollinearity – Reasons – Consequences – Methods of Detection – Important Remedial measures. Heteroscedasticity – Reasons – Consequences – Methods of Detection (Rank Correlation test, Goldfeld and Quandt test, Glejse test) – Important Remedial measures. Autocorrelation – Reasons – Consequences - Methods of detection (Run test, Durbin-Watson d statistic) – Important remedial measures.

Unit-III

Dummy variable regression models – Nature of dummy variables – Models with one qualitative variable – Regression on one quantitative variable and one qualitative variable – Dummy variable trap – Regression on one quantitative and two qualitative variables. Auto regressive and distributed lag models – Role of lag in economics – Reasons – Estimation of distributed lag model – Koyck model.



SUGGESTED BOOKS

1. Gujarati, D.N. “Basic Econometrics”, McGraw Hill, ND (Latest Edition).
2. Johnston, J. “Econometric Methods”, McGraw Hill, London (Latest Edition).
3. Koutsoyiannis, A. “Theory of Econometrics”, Macmillan, London (Latest Edition).
4. Maddala, G.S. “Econometrics”, McGraw Hill, NY (Latest Edition).
5. Ramanathan, R. “Introductory Econometrics with Applications”, South Western Cengage Learning, ND (Latest Edition).
6. Theil, H. “Introduction to Econometrics”, Prentice Hall (Latest Edition).

2. INTERMEDIATE MACROECONOMICS

SEL 2013			Intermediate Macroeconomics				Pre Requisites			
Version R-01							Co-requisites			
L	T	P	C	Minor Duration	Major Duration	Internal Marks	Minor-I Marks	Minor-II Marks	Major Marks	Total Marks
3	1	0	4	1.5 Hours	3 Hours	10	20	20	50	100

Course Outcomes

1. This course will familiarize the student with the generally accepted principles of macroeconomics.
2. Macroeconomics is concerned with concepts like economic growth, unemployment, inflation, and the business cycle. So students can learn all these concepts to understand the working of Indian economy better
3. They will also learn various policy making tools to fit into particular macroeconomic situation.

Unit-I

Supply of money – Measures of money supply; Money multiplier theory, determinants of money supply; Demand for money - Approaches of Baumol and Tobin, Inflation and unemployment - Philips curve analysis; Factor and goods markets – “full” inflation; IS-LM analysis of an open economy; Foreign trade multiplier.

Unit-II

Characteristics of change and movements; Accelerator and multiplier principles and their interactions. Macroeconomic Policy Issues – Targets, Indicators and Instruments – Activist Policy – Gradualism *versus* Shock Therapy – Rules *versus* Discretion – Role of Credibility – Dynamic Inconsistency Problem – Inflation Targeting – Seignorage – Barro-Ricardo and Blinder-Solow Hypotheses – Political Economy of Stabilisation and Adjustment.

Unit-III

Balance of Payments – Exchange Rate Regimes – Mundell-Fleming Model under Fixed and Flexible Exchange Rates – Exchange Rate Overshooting – Purchasing Power and Interest Rate Parities Automatic Adjustment – Adjustment Policies: External *versus* Internal. Monetary approach to balance of payments-monetary analysis under a fixed exchange rate; monetary analysis under a flexible exchange rate; policy implication of the law of one price; policy implication of a small open economy model.

SUGGESTED BOOKS



1. Mankiw N. G. *Macroeconomics*, Worth Publishers
2. Levacic Rosalind and Alexander Rebman *Macroeconomics*, McMillan
3. Dornbusch Rudiger and Stanley Fischer, *Macroeconomics*, McGrawhill
4. Brian Snowden and Howard R.Vane, *A Macroeconomics Reader*. Routledge
5. Brian Snowden and Howard R.Vane. *Modern Macroeconomics Its Origins, Development and Current State*. Edward Elgar Publishing, Inc.
6. Froyen Richard T. *Macroeconomics*, Pearson Indian Ed
7. Romer David. *Advanced Macroeconomics*. McGrawhill
8. Barro J. R. *Macroeconomics*, PHI
9. Robert J Gordon *Macroeconomics*, Harper Collins

3. PUBLIC FINANCE

SEL 2131			Public Finance				Pre Requisites			
Version R-01							Co-requisites			
L	T	P	C	Minor Duration	Major Duration	Internal Marks	Minor-I Marks	Minor-II Marks	Major Marks	Total Marks
3	1	0	4	1.5 Hours	3 Hours	10	20	20	50	100

Course Outcomes

1. This course deals with the economic analysis of taxation, public expenditure and many other topics like black money. So it is important to understand the use of taxes and public expenditures for promoting socially efficient resource allocation.
2. The course will cover central theories and empirical basis for economic policy for a desirable income distribution.
3. Budgeting is an important concept which students will learn from this course.

Unit-I

Meaning and scope of public finance, public finance vs. private finance, fiscal functions- allocation, distribution and stabilisation role of government, public goods - pure and partial public goods, private goods and merit goods, characteristics of public goods, rationale of public provision of public goods, free rider problem and externality, the role of government – taxes vs. regulation, fundamental principle of public finance – Maximum Social Advantage.

Unit-II

Classification and growth of public expenditure, Wagner’s law of increasing state activity, Peacock- Wiseman Hypotheses, cannons of public expenditure, effects of public expenditure on production, distribution and economic activities. Sources and classification of public revenue, direct and indirect taxes, effects of tax on production, distribution and economic activities.



Principles of taxation – Benefit theory, Ability to pay theory, Burden of taxation: Neutrality in taxation, shifting and incidence of taxation, taxable capacity, allocative and equity aspect of taxation

Unit-III

Sources of public borrowing, importance of public borrowing, effects of public debt, tax vs. debt, burden of public debt- classical, Ricardian and others, shifting of debt burden, intergenerational shifting, methods of debt redemption, debt management, Basic concepts, balanced vs. unbalanced budget, balanced budget theorem and its criticism, budgetary deficits and their limitations, budget as an instrument of Economic policy, Zero based budgeting, the salient features of the most recent union budget of India.

SUGGESTED BOOKS

1. Ghosh, Ambar and Chandana Ghosh (2008): *Economics of the Public Sector*, PHI.
2. Musgrave R.A. and P. Musgrave, *Public Finance in Theory and Practice*, McGraw Hill International
3. Buchanan, J., M. (1970): *The Public Finances*, Richard D. Train Home-wood. Due, John F and Friedlander, Government Finance
4. Goode R. (1986): *Government Finance in Developing Countries* Tata McGraw Hill.
5. Houghton, J.M. (1970): *The Public Finance: Selected Reading*, Penguin, Harmondsworth

4. ECONOMICS OF NATURAL RESOURCES

5.

SEL 2062			Economics of Natural Resources				Prerequisites			
Version R-01							Co-requisites			
L	T	P	C	Minor Duration	Major Duration	Internal Marks	Minor-I Marks	Minor-II Marks	Major Marks	Total Marks
3	1	0	4	1.5 Hours	3 Hours	10	20	20	50	100

Course outcomes

1. Students will about various types of natural resources and how to conserve them for a sustainable development.
2. Students will learn the trade-off between the environment and development and subsequent concept of sustainability.
3. Water is a scarce resource. Students will learn how to conserve it and economize the consumption of water.

Unit-I

A resource Taxonomy, Efficient intertemporal allocations, Market Allocations, Natural resources management and sustainable development: Theories of optimal use of exhaustible and renewable resources, Environment and development trade off and the concept of sustainable development, integrated environmental and economic accounting, Environmentally corrected GDP

Unit II



Demand for energy, Natural gas price control, oil-the cartel problem, Transition fuels-environmental problems, Conservation and local management, Renewable and non-conventional sources of energy, Energy modelling, Need for and a sketch of an optimal energy policy.

Unit-III

The potential for water Scarcity, The efficient allocation of scarce water, Surface water and ground water, The current allocation system, potential remedies, Water pollution, Nature of water pollution programmes- sources of contamination, Types of pollutants, Water pollution control policy, Efficiency and cost effectiveness.

Suggested Reading List

1. Environmental Economics and Policy: Tom Titenberg, Addison- Wesley 1988
2. Resource and Environmental Economics: A.C Fisher. Cambridge University Press,1981
3. Economics of Natural Resource3 Use and Environment: D.W. Pearce and R.Turner: John Hopkins University Press.1991
4. Economics of Education: J. Vaizey: Faber and Faber, 1962
5. Private Health Care in India: Social Characteristics and Trends: R.V. Basu: 1998 Sage Publications
6. Econology and Economics: Ram Prasad Sengupta: Oxford University Press, 2001

5. OPEN ELECTIVE-I

HUMAN VIRTUES

SEMESTER-IV

1. ENVIRONMENTAL ECONOMICS

SEL2061			Environmental Economics				Pre Requisites			
Version R-01							Co-requisites			
L	T	P	C	Minor Duration	Major Duration	Internal Marks	Minor-I Marks	Minor-II Marks	Major Marks	Total Marks
3	1	0	4	1.5 Hours	3 Hours	10	20	20	50	100

Course Outcomes

After the successful completion of the course, the student will be able to;

1. Evaluate the economic roots of environmental problems.
2. Formulate environmental problems using economic theory.
3. Understand the current mechanism and the inherent economic interpretation of the pollution control measures at the national as well as at the global level.

Unit-I



Introduction, Welfare economics and Environment; Pareto optimality and competitive equilibrium, Fundamental theorems of welfare economics; Externalities and market inefficiency, Economic activity and environment quality – interactions and tradeoffs; Roots of environmental degradation – consumers and producers surplus, Market and government failure and environment degradation.

Unit-II

Measurements of environmental values – use values; option values and non- use values; valuation methods – methods based on observed market behaviour; hedonic property values and household production models (travel cost method and household health production function. Methods based on response to hypothetical markets, contingent valuation methods.

Unit-III

Environmental regulations – promoting coasian markets; pigouvian taxes and subsidies, command and control verses market based instruments. Coase’s bargaining solution and collective action; informal regulation and new model of pollution control. Ministering and enforcement of environmental regulation, Environmental institutions and grass root movements. International trade and environment in WTO regime. Mechanism for environment regulation in India; environmental protection laws and their implementation, Micro planning for environment preservation – water sheds joint forest management and self-help groups.

Suggested Reading List:

1. Kolstad, C. “Environmental Economics”, Oxford University Press (Latest Edition).
2. Baumol, W.J, and W.E. Oates “The Theory of Environmental Policy”, Cambridge University Press (Latest Edition).
3. Freeman, A. M. “The Measurement of Environmental and Resource Values”, Resources for the Future (Latest Edition).
4. Hanley, N., J.F. Shogren, and B. White “Environmental Economics: In Theory and Practice”, Macmillan India Ltd. (Latest Edition).
5. Joseph J Seneca and M K Taussig “Environmental Economics” (Latest Edition).
6. P Abelson “Cost Benefit Analysis and Environmental Problems” (Latest Edition).
7. Shyam Divan and Armin Rosencranz “Environmental Law and Policy in India”, Oxford University Press (Latest Edition).
8. R Rajagopalan “Environmental Studies”, Oxford University Press (Latest Edition).
9. Charles D. Kolstad “Environmental Economics”, Oxford University Press (Latest Edition).
10. Häksn Nordström & Scott Vaughan “Trade and Environment, WTO (Latest Edition).
11. Roger Perman, Yue Ma, James McGilvray, and Michael Common “Natural Resource and Environmental Economics, “(Latest Edition).

4. INTERNATIONAL ECONOMICS

SEL2051			International Economics				Pre Requisites			
Version R-01							Co-requisites			
L	T	P	C	Minor Duration	Major Duration	Internal Marks	Minor-I Marks	Minor-II Marks	Major Marks	Total Marks
3	1	0	4	1.5 Hours	3 Hours	10	20	20	50	100

Course Outcomes

After the successful completion of the course, the student will be able to;

1. Understand the basis for trade between two economies.
2. Measure the benefits accrued from international trade.
3. Evaluate the cost and the rate at which the goods and services will be traded between two countries.

Unit-I

Importance of the study of International Economics; Inter-regional and international trade; Theories of absolute advantage, comparative advantage and opportunity cost; Factor Endowments and Heckscher-Ohlin theory of trade — its main features, assumptions and limitations, Empirical studies - Leontief Paradox, Rybzyński effect, Factor price equalization and Stolper-Samuelson Theorem.

Unit-II

Gains from trade— Their measurement and distribution; Technical Progress and International Trade, Growth and Trade: Small and Open country cases, Concepts of terms of trade and their importance in the theory of trade; Doctrine of reciprocal demand — its importance and limitations in the theory of trade.

Unit-III

Concept and Types of Exchange Rate (bilateral vs trade-weighted exchange rate, cross exchange rate, spot, forward, futures), Demand for and Supply of foreign exchange, Exchange Rate Determination: Trade or Elasticity Approach, Purchasing-Power Parity Theory, The Monetary Model to Exchange Rates, Asset or Portfolio Model of Exchange Rates. Fixed versus Flexible exchange rate. Trade restrictions: Tariff. Partial Equilibrium analysis of Tariff, Theories of Tariff structure, Import Quotas and other Non-tariff barriers, Economic Integration: Customs Union and Free Trade Areas, WTO and India.

Suggested Reading List

1. Krugman Paul R. and Obstfeld Maurice. International Economics, Pearson Education
2. Salvatore Dominick. International Economics, Wiley India.
3. Sodersten Bo and Reed J. International Economics, McMillan Publisher
4. Carbaugh Robert. International Economics, South-Western College Publication.
5. Gandolfo Giancarlo. International Trade Theory and Policy, Springer Publication

2. OPTIMIZATION TECHNIQUES AND GAME THEORY

SEL 2022			Optimization Techniques and Game Theory				Pre Requisites			
Version R-01							Co-requisites			
L	T	P	C	Minor Duration	Major Duration	Internal Marks	Minor-I Marks	Minor-II Marks	Major Marks	Total Marks
3	1	0	4	1.5 Hours	3 Hours	10	20	20	50	100

Course Outcome of Optimization Techniques and Game Theory



1. To understand economics better, Optimization Techniques is the prerequisite. Because the problems discussed in economics are in fact optimization problems.
2. This course will enable the students to learn the basic tools and use them in their day to day life also.
3. To understand many recent developments in economics, this course is a prerequisite. So students will be well equipped for higher learning in Economics science if they learn this course.
4. Game theory is a burning area which is applied in every sphere of life starting from politics to defence and business. So it is apparent that this course is quite necessary.

Unit I

A special variety of Equilibrium Analysis, Maclaurin and Taylor Series, Exponential and Logarithmic Functions, The case of more than one choice variable, Optimization with Equality constraints and Economic analysis. Static open model, Hawkins-Simon theorem, A linear programming interpretation, Theorem on non- substitution- Samuelson's version, Leontief dynamic system-causal indeterminacy in dynamic model. Basic theorems on linear programming; The Simplex method; Duality and its economic interpretation; Dual simplex algorithm; Duality theorem; Complementary slackness theorem, Applications of liner programming in Economics.

Unit-II

Kuhn-Tucker optimality conditions: Kuhn-Tucker Sufficiency theorem, Economic interpretation, Duality in non-linear programming

Formal statement, special cases and types, The Generalised Weierstrass Theorem, Calculus of Variations: Euler Equation, Necessary and Transversality Theorem; Dynamic Optimization: The principle of optimality and Bellman's equation, Dynamic Programming solution of multi-stage optimization problems, The maximum principle.

Unit-III

Rules of the Game, The Extensive and Strategic form of Games. Solutions: Dominant Strategy, Dominance Solvability, Nash Equilibrium. Applications: Cournot Duopoly, Stackelberg model, The commons problem; Mixed strategies and their applications: Natural Monopoly and Bankruptcy Law, Zero-sum games, Playing safe: Maximin, Playing sound: Minimax, Playing both safe and sound: Playing Nash. Perfect Information Games, Backward Induction, Application: R&D Model, Subgame Perfect Equilibrium, Finitely Repeated Games, Infinitely Repeated Games: Trigger strategies and Good behavior, Folk Theorem .The model of Commons problem, Sustainable Development and Social optimum, Moral Hazard and Incentives Theory, Games with Incomplete Information, Mechanism Design, The Revelation Principle, Signaling Games and the Lemons problem.

Suggested Reading List



1. Allen, R.G.D. (1976), Mathematical Analysis for Economists, Macmillan.
2. Arrow, K.J. and M.D. Intriligator (eds.) (1981). Handbook of Mathematical Economics, Vol.I, North Holland, Amsterdam.
3. Bez, K. (1983). An Introduction to Input Output Techniques, N.B.T., Goel Publishing House, Meerut.
4. Chiang, A.C. (1974). Fundamental Methods of Mathematical Economics, McGraw Hill and Kogakusha, New Delhi.
5. Dorfman R., Samuelson P.A and Solow R. M. Linear Programming and Economic Analysis. [Dover Publications](#).
6. Hadley, G. (1962). Linear Programming, Addison-Wesley Pub. Co., Massachusetts.
7. Binmore Ken. Game Theory: A Very Short Introduction. [Oxford University Press](#)
8. Brown Kevin Leyton, Shoham Yoav, Essentials of Game Theory: A Concise, Multidisciplinary Introduction. Morgan & Claypool
9. Dutta Prajit K Strategies and Games: Theory and Practice. [MIT Press](#).
10. Gibbons Robert, Game Theory for Applied Economists. [Princeton University Press](#)

4. MATHEMATICS FOR ECONOMISTS-II

SEL2021			Mathematics for Economists II				Pre Requisites			
Version R-01							Co-requisites			
L	T	P	C	Minor Duration	Major Duration	Internal Marks	Minor-I Marks	Minor-II Marks	Major Marks	Total Marks
3	1	0	4	1.5 Hours	3 Hours	10	20	20	50	100

Course Outcomes

After the successful completion of the course, the student will be able to;

1. Understand and interpret Basic economic theory using mathematical tools.
2. Understand the dynamics of social and individual economic situations.
3. Assimilate advanced economic theory with mathematical formulations like difference and differential equations.

Unit- I

Dynamic Analysis and Integral Calculus

Indefinite integrals: Concept and Rules of Operation (Rules of substitution and by-parts), Definite Integrals: concept, approximation of area under a curve, properties, economic applications – measuring total from marginal functions (MU, MR, MC, MP etc), consumer and producer surplus, investment and capital formulation, continuous interest – discount calculations

Unit-II

Differential Equation

First order differential equations: Linear equation (homogeneous and non-homogeneous cases with constant and variable coefficient terms), Exact differential equation, nonlinear differential equation (both cases). Second order differential equation: The particular integral and complementary function. Some economic applications

Unit-III

Difference Equation



Discrete time, Differences and Difference equation: First Order difference equation, Dynamic stability of equilibrium, Cobweb model, Second order linear difference equation, multiplier-accelerator interaction model, Inflation and unemployment analysis, longrun Phillips relation

Basic Reading List

1. A. C. Chiang and Kevin Wainwright (4 Ed.), *Fundamental Methods of Mathematical Economics*, McGraw Hill Education.
2. Taro Yamane (3 Ed.), *Mathematics for Economists: An Elementary Survey*, Prentice Hall of India.
3. Knut Sydsaeter & Peter Hammond (5 Ed.), *Essential Mathematics for Economic Analysis*, Prentice Hall of India.
4. M. Hoy, J Livernois, C McKenna, R Rees & T Stengos (4 Ed.), *Mathematics for Economics*, MIT Press.
5. R. G. D. Allen (2Ed.), *Mathematical Analysis for Economists*, Mcmillan & Co., London.
6. B. C. Mehta & G. M. K. Madnani (10 Ed.) *Mathematics for Economists*, S. Chand and Sons

5. OPEN ELECTIVE-II

SEMESTER-V

1. FINANCIAL ECONOMICS

SEL3042			Financial Economics				Pre Requisites			
Version R-01							Co-requisites			
L	T	P	C	Minor Duration	Major Duration	Internal Marks	Minor-I Marks	Minor-II Marks	Major Marks	Total Marks
3	1	0	4	1.5 Hours	3 Hours	10	20	20	50	100

Course Outcomes

After the successful completion of the course, the student will be able to;

1. Understand basic concepts, and systems of finance.
2. Interpret the current policies and how the rates are administered in the financial system of India.
3. Estimate the value of the financial assets like bonds, securities etc.

Unit-I

Introduction to Financial Economics Money and finance, financial intermediation and financial intermediaries, the structure of the financial system, Financial Markets Financial Instruments, Equilibrium in Financial Markets, Financial System and Economic Development. Time Value of Money Future Value, Net Present Value, Present value and Rate of Return; Multi period Compounding, Applications. Criteria to evaluate assets Risk and financial assets, Types of risk, Measurement of Risk and Return of an asset; Measurement of Risk and Return of a Portfolio; Determinants of Beta; Risk-Return trade off.



Unit-II

Structure of Interest rates, Theories of interest rate determination, Level of interest rates, Long period and Short period rates, Spread between lending and deposit rates, Administered interest rates, Appropriate interest rate policy. Ratio Analysis Different Kinds of Financial Ratios, Calculation and its importance in financial analysis. Investment Criteria Internal Rate of Return, Rate of interest Compounded and Effective Annual Rates of Interest.

Unit-III

Supply of Securities, Characteristics, Govt. Bonds, Pure Discount Bonds, Coupon Paying Bonds, Govt. securities market, Primary and secondary market for securities; Fundamentals of Valuation of Securities, Capital asset Pricing Model (CAPM). The Arbitrage Pricing Theory, Its Alternative Approach and Importance in Finance.

Suggested Reading List

1. Brahmaiah, B. and Subba Rao, P. (2003), Financial Future and Options, Himalaya Publishing House, Mumbai.
2. Gardener D. C. (2003), Derivatives, Macmillan India Limited, New Delhi.
3. John C. Hull, (2005), Options Futures and other Derivatives, Prentice Hall, New Delhi.
4. Khan, M. Y. and Jain, P. K. (2004), Financial Management, Text, Problems and Cases, Tata McGraw Hill Company Ltd. New Delhi.
5. Pilbeam, K (2010), Finance & Financial Markets, Palgrave Mc Millan.
6. Cuthbertson, K, (1996) Quantitative Financial Economics Stocks, Bonds and Foreign Exchange, John Wiley and Sons, USA.
7. Eichberger J. and I.R. Harper (1997) Financial Economics, Oxford University Press, New York.
8. Tuckman, B. (1995), Fixed Income Securities – Tools for Today’s Markets, Wiley Frontiers in Finance.

2. HISTORY OF ECONOMIC THOUGHT

SEL3012			History of Economic Thought				Pre Requisites			
Version R-01							Co-requisites			
L	T	P	C	Minor Duration	Major Duration	Internal Marks	Minor-I Marks	Minor-II Marks	Major Marks	Total Marks
3	1	0	4	1.5 Hours	3 Hours	10	20	20	50	100

Course Outcomes

After the successful completion of the course, the student will be able to;

1. Understand how the economic philosophy, theory and writings evolved with due course of time and happenings of the world.
2. Understand the basic difference between different paradigms of economic thought.
3. Evaluate the unique and heterodox Indian development thinking in comparison to the concurrent conventional development thinking in the rest of the world.



Unit-I

Rationale of studying Economic Thought; Physiocracy and Mercantilism; Adam Smith and his Economic theory, Ricardo’s contribution to classical Economic thought, Ricardo-Malthus glut controversy, Classical Stationary State with special reference to Mill’s views, A general Overview of Classical Economic Thought, Classical Economic Policy in Theory and Practice.

Unit-II

Marxian Economic Thought: Historical Materialism, The Labour Theory of Value, Theory of Money, Theory of Capital Accumulation, Distribution, Capitalist Reproduction, Disproportionality and Theories of Crisis, Marx vs Classicists; Neo-Marxist thought, Emergence of the Structuralist School

Unit-III

Main themes of Kautilya’s Arthasashtra; Modern Economic Ideas: Dada Bhai Naoroji, M.K. **Gandhi**, Bhimrao Ambedkar, Deendayal Upadhyay. A synthesis of Indian Economic thought, Comparison of Indian Economic thought with western Economic thought.

Suggested Readings List

1. Gide, Charles and Rist, Charles (1973): *A History of Economic Doctrines*, Oxford University Press.
2. Roll, Eric, *History of Economic Thought*, Faber and Faber Ltd.
3. O’Brien, D P (1975): *Classical Economists*, Oxford, Clarendon Press.
4. Ekelund, Robert B. and Robert F. Hebert, *A History of Economic Theory and Method*, third edition, New York: McGraw Hill, 1990
5. Henry W. Spiegel, *The Growth of Economic Thought*, 3rd ed. Durham: Duke University Press, 1991
6. Tom Bottomore (1980): *Dictionary of Marxist Thought*, Basic Blackwell Publishers.
7. Dasgupta, A K (1986): *Epochs of Economic Theory*, Oxford University Press, New Delhi
8. Schumpeter, J A (1954): *History of Economic Thought*, Oxford University Press

3. AGRICULTURAL ECONOMICS

SEL3032			Agricultural Economics				Pre Requisites			
Version R-01							Co-requisites			
L	T	P	C	Minor Duration	Major Duration	Internal Marks	Minor-I Marks	Minor-II Marks	Major Marks	Total Marks
3	1	0	4	1.5 Hours	3 Hours	10	20	20	50	100

Course Outcomes

After the successful completion of the course, the student will be able to;

1. Understand the complex nature of Indian Agriculture with the support of economic theory.
2. Understand the process of commercialization of agriculture and the nature of agricultural market.



3. Evaluate the current situation and problems in Indian agriculture and the effects of globalization on the process of agricultural development.

Unit-I

Nature and scope of agricultural economics; Traditional agriculture and its modernization; Role of agriculture in economic development; Interdependence between agriculture and industry- some empirical evidence; Agricultural development, poverty and environment. Principles of land utilization; Land distribution- structure and trends; Land values and rent; Land tenures and farming systems- Peasant, capitalist, collective and state farming; Land reform measures and performance; Problems of marginal and small farmers. Agriculture wages in India, Gender issues in agricultural services, Agricultural employment- Trends and determinants.;

Unit-II

Agricultural markets and marketing efficiency- marketing functions and costs; Market structure and imperfection; Regulated markets; Marketed and marketable surplus; Objectives of agricultural price policy- Instruments and evaluation; Food security in India and public distribution system.

Unit-III

Recent trends in agricultural growth in India; Inter regional variations in growth of output and productivity; Cropping pattern shifts; Supply of inputs- Irrigation, power, seed and fertilizers; Pricing of inputs and role of subsidies. International trade in agricultural commodities; Issues in liberalization of domestic and international trade in agriculture- Nature and features of agri-business; Globalization of Indian economy; Problems and prospects of Indian agriculture; Impact of World Trade Organization on Indian agriculture.

Suggested Reading List :

1. Bilgrami, S.A.R. “An Introduction to Agricultural Economics”, Himalaya Publishing House, Mumbai (Latest Edition).
2. Sadhu, A.N. and J. Singh “Agricultural Problems in India, Himalaya Publishing House, Mumbai (Latest Edition).
3. Bhaduri, A. “The Economic Structure of Backward Agriculture”, Macmillan, Delhi (Latest Edition).
4. Bilgrami, S.A.R. “Agricultural Economics”, Himalaya Publishing House, Delhi (Latest Edition).
5. Dantwala, M.L. et.al “Indian Agricultural Development Since Independence”, Oxford & IBH, New Delhi (Latest Edition)

4. INDUSTRIAL ECONOMICS

SEL3092			Industrial Economics				Pre Requisites			
Version R-01							Co-requisites			
L	T	P	C	Minor Duration	Major Duration	Internal Marks	Minor-I Marks	Minor-II Marks	Major Marks	Total Marks
3	1	0	4	1.5 Hours	3 Hours	10	20	20	50	100



Course Outcomes

After the successful completion of the course, the student will be able to;

1. Understand factors those affect the decision making of a firm.
2. Evaluate the performance of the firms.
3. Evaluate the current situation and problems in Indian industrial sector and the effects of globalization on the process of industrial development.

Unit-I

Introduction and scope of Industrial Economics; Types and choice of organizational firm – ownership and control; Passive and active behavior of firm; The Firm: Emergence and its objectives - Non –profit maximizing models. Cost theory and optimum size of a firm, Determinants of profitability and pricing decisions: Product pricing. Market structure and market conduct; Product differentiation and advertisement, Research & Development and Innovation; Market concentration, its measurement and effects on market Performance; Diversification, Integration and Merger, Theories of growth of firm: Constrained on growth. Industrial Efficiency: concept, determinants, measurement and decision making process.

Unit-II

Industrial finance and accounting: owned, external and other components of funds, financial statements – Balance sheet; Profit & Loss Account. Analysis of financial ratios and their relationships: assessment of financial soundness. Industrial location Analysis: determinants of Industrial location; Theories of Industrial location factors affecting location.

Unit-III

Globalization and its impacts on industries; Recent trends in Industrial growth and diversification; Industrial sickness; Policy initiatives to liberalize Indian industries and its effects; Role and performance of Public Sector in Indian economy; Issues in disinvestment and privatization of PSUs; Importance and performance of SSIs and Cottage industries in India; Challenges facing SSIs. Productivity in Indian industries; Industrial sickness; Under-utilization of capacity — factors accounting for it and consequences. New industrial policy and economic reforms; Industrial growth and pattern.

Suggested Reading List

1. Ahluwallia, I.J. (1992): *Industrial Growth in India*, OUP, Delhi.
2. Bain, J.E. (1959): *Industrial Organization*, Wiley and Sons, NY.
3. Barthwal, R.R. (1996). *Industrial Economics: An Introduction Text Book* (6e), New Age International, ND.
4. Divine, J. *et al.* (1976): *An Introduction to Industrial Economics*, George Allen and Unwin, London.
5. Hay, A.D. and D.J. Morris (1991): *Industrial Economics and Organization: Theory and Evidence*, OUP.
6. Mookherjee, D. (ed.) (1995): *Indian Industry: Policy and Performance*, OUP, Delhi.
7. Sivayya, K.V. and V.B.M. Das (1996): *Indian Industrial Economy*, S. Chand and Company, ND.



8. Smith, D.M. (1971): *Industrial Location: An Economic and Geographic Analysis*, John Wiley, NY.

5. ECONOMICS OF GROWTH AND DEVELOPMENT

SEL3101			Economics of growth and Development				Pre Requisites			
Version R-01							Co-requisites			
L	T	P	C	Minor Duration	Major Duration	Internal Marks	Minor-I Marks	Minor-II Marks	Major Marks	Total Marks
3	1	0	4	1.5 Hours	3 Hours	10	20	20	50	100

Course Outcomes

After the successful completion of the course, the student will be able to;

1. Estimate different measures of economic development.
2. Understand the development theories by different economists.
3. Compare the applicability of growth theories in modern dynamic world .

Unit I

Measuring Economic Development: Measurement of development and development gap: GDP, Per capita income, Gini coefficient and Theil Index- A critical assessment, Calculating the human development indices-HDI, HPI-1, HPI-2, GDI, GEM. Standard Primal Growth Accounting, Dual Approach to Growth Accounting, Problems with Growth Accounting, TFP Growth and R & D, Growth Accounting Versus Sources of Growth, Factors affecting economic growth-capital, labour, technology; Technological progress - embodied and disembodied technical progress.

Unit-II

Theory of Development : Classical theory of development - contributions of Adam Smith, Ricardo, Malthus; Karl Marx and development of capitalist economy - theory of social change, surplus value and profit; Immutable laws of capitalist development; Crisis in capitalism - Schumpeter and capitalistic Development. Vicious circle of poverty, circular causation, unlimited supply of labour, big push, balanced growth, unbalanced growth, critical minimum effort thesis, low-income equilibrium trap; Dualism -technical, behavioural and social; Ranis and Fei model; Dixit and Marglin model, Kelly et. al model; dependence theory of development; structural view of development.



Unit-III

Growth Models : Harrod-Domar; Neo-classical growth models- Solow and Meade; Joan Robinson's growth model; Cambridge criticism of neo-classical analysis of growth, the capital controversy, Growth models of Kaldor and Pasinetti, Optimal savings and Ramsey's Rule, Golden Rule of Capital Accumulation. Models with Endogenous Growth: One sector growth models- The AK model, learning by doing and knowledge spillover; two-sector model of Ujawa-Lucas, Romer's model of technological change; Growth models with consumer optimization(the Ramsey model), Overlapping Generations Model

Suggested Readings

1. Adelman, I. *Theories of Economic Growth and Development*, Stanford University Press.
2. Ghatak, S. *An Introduction to Development Economics*, Allen and Unwin
3. Kindleberger, C.P. *Economic Development*, McGraw Hill,
4. Todaro, M P. *Economic Development*, Longman, London.
5. Dasgupta, P. *An Enquiry into Well-being and Destitution*, Clarendon Press
6. Higgins, B. *Economics Development*, W.W. Norton
7. Hogendorn J.S. *Economic Development*, Addison, Wesley, New York.
8. Thirwal, A.P. *Growth and Development*, Macmillan.
9. Barro U. K., Robert J and Xavier Sala-i-Matin, *Economic Growth*, PHI.
10. Adelman, I. *Theories of Economic Growth and Development*, Stanford University Press.
11. Robert Barro and Xavier Sala-i-Matin, *Economic Growth*, PHI

SEMESTER-VI

1. BASIC ISSUES IN INDIAN ECONOMY

SEL3013			Basic Issues in Indian Economy				Pre Requisites			
Version R-01							Co-requisites			
L	T	P	C	Minor Duration	Major Duration	Internal Marks	Minor-I Marks	Minor-II Marks	Major Marks	Total Marks
3	1	0	4	1.5 Hours	3 Hours	10	20	20	50	100

Course Outcomes

After Successful Completion of this Course, students shall be able to;

1. Understand the underlying doctrines of the Development planning in India.
2. Understand the aspects of growth in different sectors of Indian economy.
3. Make out economic issues in India and will be able to realize the causes.

Unit I



Discourse on development Planning (Gandhi, Nehru-Mahalanobis) -Growth process during 1955-1974 – The structure and evaluation of the Mahalanobis model – The new agricultural policy - The Fifth Plan Model as the watershed – Growth process during 1974-1991 (Role of public sector – The fiscal constraint – The agrarian constraint – The savings constraint – The trade and payments constraint – Appraisal of the programme of industrialization) - *Economic Reforms since 1991*- Context and rationale of reforms – Sequencing of macroeconomic reforms and implications – Theoretical appraisal – The institutionalization of poverty ‘alleviation’

Unit II

Trends in GDP – Performance of Economic sectors (Agriculture, Industry and Services) – Employment scenario in India – Industrialisation and growth – Petty production and poverty – Sources of growth in India – Price Stability – Performance of external trade – Money market and banking system in India – Fiscal and monetary policy (issues and implementation, Tax reforms)
Reading list:

Unit III

Population growth and demographic features - Relative Poverty and redistribution – Problem of jobless growth – Literacy and Training in the labour force – Formalising the Economy – Black money.

SUGGESTED BOOKS

1. Kapila U. *Indian economy since Independence*. Academic Foundation, New Delhi
2. Misra, S. K. and Puri V. K. *Indian Economy — Its Development Experience*. Himalaya Publishing House, Mumbai
3. Chakraborty S. *Development Planning: The Indian Experience*. Clarendon Press.
4. Dutt R. and Sundharam K. P. M. *Indian Economy*. S. Chand & Company Ltd., New Delhi.
5. Mathur R. *Indian Economic Policy and Reform*. RBSA Publisher, Jaipur
6. Jalan B. *Indian Economic Policy*. Penguin Books Ltd
7. Government of India, *Economic Survey (Annual)*, Economic Division, Ministry of Finance, New Delhi

2. APPLIED ECONOMETRICS

Unit-I

Dummy independent variables-dummy variable trap, Testing structural stability of regression models comparing two regressions, interaction effects, estimating seasonal effects, ANOVA vs ANCOVA, piecewise linear regressions; Linear probability model, formulating a probability model, the probit and the Logit models, misspecification in Binary Dependent Models, Ordered Probit, Tobit models. Simultaneous equation bias and inconsistency of OLS estimators, Identification, rank and order conditions, Estimation- Recursive system,

Unit II



Distributed lag models- Koyck's geometric lag, Almon's polynomial lag, Partial adjustment and adaptive expectation models; Autoregressive models- estimation by using instrumental variables, Detecting autocorrelation in autoregressive models- Durbin h-test; error correction mechanism, Causality in economics- Granger and Sim's tests. Simultaneous equation bias and inconsistency of OLS estimators, Identification- rank and order conditions, Estimation- Recursive system, ILS, 2SLS, LIML, 3SLS methods

Unit III

Sources and types of panel data, Simple panel data methods-Policy analysis with Pooled Cross Sections, Two period panel data analysis, policy analysis with two period panel data analysis, Differencing with more than two time periods; advanced panel data methods- Fixed effects estimation, Random effects model, Wu-Hausman test, Dynamic Heterogeneous Panels: Bias in dynamic panels, solution to the bias problem, Bias in heterogeneous slope parameters, solution to heterogeneous bias-the mean group estimator, the pooled mean group (PMG) estimator.

Suggested Reading List

1. Jack Johnston and John Dinardo, *Econometric Methods*, McGraw-Hill International Editions, Singapore, 1997
2. Walter Enders, *Applied Econometric Time Series*, Wiley India (P) Ltd, New Delhi 2004
3. Amemiya, T. (1985) *Advanced Econometrics* Harvard University Press
4. Baltagi, B. H. (1998) *Econometrics* Springer, New York.
5. Dongherty, C. (1992) *Introduction to Econometrics*, Oxford University Press, New York.
6. Goldberger, A. S. (1998), *Introductory Econometrics*, Harvard University Press
7. Gujarati D. N. (1995), *Basic Econometrics* (2nd Edition) Mc Grow Hill, New Delhi.
8. Hill R. C., E. G. William and G.G. Judge (1997) *Undergraduate Econometrics*, Wiley
9. Kennedy P. (1998) *A Guide to Econometrics* (4th Edition) MIT Press, New York.

3. PUBLIC ECONOMICS

Unit-I

Properties of a good tax structure, Benefit and Ability-to-pay approaches; Impact of taxation on price, output, work effort, saving, investment and risk taking, Theory of incidence, Alternative concepts of incidence; Allocative and equity aspects of income tax and commodity tax; Theory of optimal taxation-The Inverse Elasticity Rule and the Ramsey Rule; Efficiency of Taxation- Excess burden and deadweight loss; Tradeoff between equity and efficiency; The problem of double taxation, Tax evasion and the black economy; Tax reforms in India.

Unit-II

Classical View of Public Debt; Ricardian equivalence, Keynesian and post-Keynesian theories, Compensatory aspect of debt policy, Debt Through Created Money; burden of public debt, Intergeneration equity, debt sustainability, Public Borrowings and Price Level; Crowding Out of Private Investment and Activity; principles of debt management, Methods of debt redemption, debt retirement and economic stabilization, Trends and Structure of Indian Public Debt; Issues in Debt Management in India.



Unit-III

Principles of multi-unit finance; Fiscal federalism in India; Assignment of function and sources of revenue; Constitutional provisions; Finance Commission, Devolution of resources and grants; Theory of grants; Resource transfer from Union to States — Criteria for transfer of resources; Centre-State financial relations in India, The recent most report of the Finance commission of India.

Suggested Readings List

1. Atkinson, A., and J. Stiglitz. “*Lectures on Public Economics*”. New York, NY: McGraw Hill, (Latest Edition).
2. Gruber, Jonathan “*Public Finance and Public Policy*”, Worth Publishers (Latest Edition).
3. Myles, G. “*Public Economics*”. New York, NY: Cambridge University Press (Latest Edition).
4. Buchanan, J., M. (1970): *The Public Finances*, Richard D. Train Home-wood. Due, John F and Friedlander, Government Finance.
5. Goode R. (1986): *Government Finance in Developing Countries* Tata McGraw Hill.
6. . Houghton, J.M. (1970): *The Public Finance: Selected Reading*, Penguin, Harmondsworth

4. ECONOMICS OF TOURISM

Unit-I

Basic concepts in Tourism, History of Development of Travel and Tourism, What is “tourism economics, Tourism product, Tourism and the National Economy, definitions and economic measures of tourism products and services, Methods for estimating visits, demand and value of recreation & tourism, Travel cost, Contributions of Tourism to national, regional and local economies as measured by production, income, value added and jobs, Management, planning, policy and marketing decision of tourism, transportation economics, Cost-benefit analysis, Competition among Tourism Industries, global Tourist, Sustainable Tourism Development.

Unit-II

Tourism demand-types of tourism demand- determinants of tourism demand-measurement of tourism-volume statistics-value statistics-visitor’s profile statistics-statistical measurement of tourism-measuring economic impact, Economic impact of tourism-Foreign exchange-employment generation investment and development-multiplier effect-regional development-tourism as a foreign exchange earner-negative economic impact.

Unit-III

Economic planning of tourism-Tourism five year plans-policy frame work of 9th five year plan-tourism investment policies and incentives-Government tourism promotion measures, Tourism management in India-national tourism policy 1982-objectives-national action plan 1992-objectives-strength of master plan-national tourism policy 2002- objectives- mariceling and overall overseas publicity. MODULE 5:- Objectives-frame work of policy-aims-SWOT analysis-general features-tourism product development-human resource development-market development-infrastructure action plan.

Suggested Reading List



1. James Mak, *Tourism and the Economy: Understanding the Economics of Tourism*, Versha Press
2. M. Thea Sinclair, Mike Stabler, *The Economics of Tourism*, Routledge Publisher
3. Kartik Chandra Roy, Clemant Allan, Tisdell Tousiam in *Indian and India,s Economic Development*, Nova Science Publishers.

5. RISK EVALUATION AND MANAGEMENT

Unit-I

Risk in Our Society: Property & liability risks, Perils, hazards, Direct and indirect loss, Pre and post-loss risk management, Risk management process basics, Insurance and Risk: Risk pooling, insurable risks v. hedging Accidental v. intentional, criminal, Types or lines of insurance, Value of insurance, bonding, Insurer side: public policy and affordability/availability, indemnification, insurance product overview, Undercurrents in pricing, markets in risk management Retaining risk, value of loss control, Loss of value, economic v. non-economic losses.

Unit-II

Client Side: Components of the cost of risk, Risk management process and analysis:(1) identification of exposures, hazards;(2) assessment of alternatives, use of forecasting and modeling, spread of risk, diversification, Valuing losses to property, legal risk, Use of contracts, variety of insurance products, Evaluating the costs of a loss and who impacted, PML and Retaining risk - client side & insurer side. Different Risk Model and Risk Matrix calculation.

Unit-III

Sources of risk, currency risk, fixed income risk, equity risk, commodity risk, market risk measurement, VaR as downside risk, definition, parameter, elements of VaR system, stress testing , contract risk Cost of risk, resources - drivers, strategic decision making, ERM Basics of financial side for insurers: Underwriting cycle, Solvency, Reserving for losses, loss adjustment expenses (LAE), and unearned premium, Risk management using forwards and futures: application of forwards and futures in hedging, speculation and arbitrage, pricing of futures and forwards.

Suggested Reading List

1. Jorian, P. *Financial Risk Manager Handbook*, Wiley, 2002
2. Holton, G.A. *Value-at-Risk- Theory and Practice*, Academic Press, 2003
3. Alexander, C. *Market Models: A Guide to Financial Data Analysis*, Wiley 2004
4. Dubofsky, D.A. and Miller, T.W. *Derivatives: Valuation and Risk Management*, Oxford University Press, 2003.

SEMESTER-VII

1. ADVANCED MICROECONOMICS

Unit-I

Theory of Consumer Behaviour and Applications

Consumer preferences and utility functions: properties, types and existence of utility function, utility maximization and MRS (of various utility functions), homogeneity and homotheticity of

utility functions, monotonic transformation, Separable utility function. Demand function-Derivation of Marshallian demand function and Hicksian demand function (Some empirics), indirect utility function and expenditure function-properties. Relations between two demand functions, Roy's identity, Shephard's lemma. Labour-leisure choice and demand functions for leisure. Elasticity and aggregation of consumer demand-Engel's aggregation and income elasticity, Cournot's aggregation. Slutsky equation-income and substitution effect, nature of goods- gross (Marshallian) substitutes and complements, net (Hicksian) substitutes and complements, Slutsky versus Hicks Compensation, Composite commodity theorem. Consumer surplus and expenditure function. Revealed preference approach to consumer demand.

Unit II

Analysis of Behaviour under Risk and Imperfect Information

Expected utility-Fair gambles and expected utility hypothesis, St. Petersburg paradox, Von Neumann-Morgenstern theorem. Risk aversion-measuring risk aversion, mean-variance utility function, methods of risk for reduction - insurance, diversification, flexibility. The State-Preference Approach to Choice Under Uncertainty.

Asymmetric information-Complex contracts as a response to asymmetric information, Principal-agent model, Multitask agency. Performance measurement, Hidden actions, Owner-manager relationship, Moral hazard in insurance, hidden type and nonlinear pricing, adverse selection in insurance, market signaling, auctions

Unit III

General Equilibrium and Welfare Analysis

Partial market equilibrium, An elasticity interpretation (Some empirics), Welfare analysis, tax incidence analysis, Interrelations and Interdependence of Markets; General Equilibrium in Exchange and Production; General Equilibrium in Competitive Product Market. Pareto optimality, competitive equilibrium and pareto optimality, welfare theorems, Social welfare functions, Concept of fairness, Criteria of welfare maximization: Cardinalists criterion, Bentham's Criterion; Pareto optimality criteria; Compensation principle; Social welfare function – Properties and limitations: Theory of second best. Arrow's impossibility theorem.

Suggested Reading

1. Geoffrey A Jhele and Phillip J. Reny, *Advanced Microeconomic Theory*, Pearson publication.
2. E. Silberberg and Wing Suen, *The Structure of Economics: A Mathematical Analysis*, (Indian Edition), McGraw Hill Education, 2014.
3. Hal R. Varian, *Microeconomic Analysis*, W.W. Norton and Company/Affiliated East-West Press (India), 3rd edition, 2012.
4. Henderson, M. and R.E. Quandt, *Microeconomic Theory: A Mathematical Approach*, McGraw Hill, 1980
5. Hal R Varian, *Intermediate Microeconomics with Calculus* (International Student Edition), W. W. Norton & Company, 2014
6. C. Snyder and W. Nicholson, *Microeconomic Theory: Basic Principles and Extensions*, Cengage Learning (11th Edition), 2012.
7. Hugh Gravelle and Ray Rees, *Microeconomics*, Pearson Education, 2nd edition, 1992.
8. J. M. Perloff, *The Microeconomics with Calculus*, Pearson; 7th edition, 2015.



9. William David Anthony Bryant, *Advanced Microeconomics: Theory, Applications And Tests*, 2nd edition, 2017

2. TIME SERIES ANALYSIS

Unit-I

Properties of time series, Properties of AR, MA, ARMA, ARIMA processes, Stationary stochastic process- Random walk and white noise, Tests for Stationarity- Graphic inspection, Integrated series, Trend Stationary and Difference Stationary series, Unit Root Tests, ARIMA models- identification, estimation, diagnostic testing, forecasting- MA(1), ARMA(1,1) and ARIMA(1,1,0) processes, Seasonality

Unit II

Deterministic and stochastic trends, removing the trend, Unit roots and regression residuals, structural change, Cointegration: a general cointegrated system, error correction model and tests for cointegration; cointegration in single equations- Engle-Granger method, system estimation method – Johansen procedure

The stylized facts of economic time series, the ARCH model- testing for ARCH effects, estimation of ARCH model by iteration; the GARCH model, the GARCH (1,1) as an infinite ARCH(q), Maximum Likelihood Estimation of GARCH models, estimating GARCH model with EViews; Introduction to EGARCH model.

Unit-III

Vector Autoregressions (VARs): Estimation of VAR- Testing the order of the VAR, Testing for Granger causality and Sim's test, the Impulse Response Function, Orthogonal innovations, Variance Decompositions; Vector Error Correction Models-testing for Cointegration Ranks, Estimation of Cointegration Vectors, Estimation of a Vector Error Correction model; Structural VARs, Identification conditions, Estimation of structural equations, Forecasting in VAR models, Problems with VAR modeling.

Suggested Reading

1. Jack Johnston and John Dinardo, *Econometric Methods*, McGraw-Hill International Editions, Singapore, 1997
2. Walter Enders, *Applied Econometric Time Series*, Wiley India (P) Ltd, New Delhi 2004
3. Amemiya, T. (1985) *Advanced Econometrics* Harvard University Press
4. Baltagi, B. H. (1998) *Econometrics* Springer, New York.
5. Dongherty, C, (1992) *Introduction to Econometrics*, Oxford University Press, New York.
6. Goldberger, A. S. (1998), *Introductory Econometrics*, Harvard University Press
7. Kennedy P. (1998) *A Guide to Econometrics* (4th Edition) MIT Press, New York.

3. INTERNATIONAL TRADE: INSTITUTIONS AND POLICIES

Unit-I



Export documentation and information, Export contract; Foreign Exchange regulations, Exchange rate and forward exchange cover. Quality control and pre-shipment inspection; Export Trade Control; Cargo insurance; Commercial practice; Shipment of Export Cargo. Central excise clearance; Customs clearance of export/import cargo; Export by post-parcel by air; Role of clearing and forwarding agents. Export credit (letter of credit); Export credit guarantees and policies; Finance of export on deferred payment term; Duty drawback; import licensing. Export Houses/Trading Houses; Sales tax exemption on exports, Canalization, Certificate of origin; Documents prescribed by importing countries; Standardized export documents. International trade and second generation economic reforms in India.

Unit-II

Free trade versus Protection, Trade restrictions: Tariffs (Partial and General Equilibrium analysis), Effective Rate of Protection and optimum tariff, Non-tariff trade barriers: Import Quotas, Voluntary Export restraints, International Cartels, Dumping, Export subsidies. Economic Integration: Customs Union and Free Trade Areas, International Resource Movements and Multinational Corporations.

Unit-III

Forms of economic cooperation; Reforms for the emergence of trading blocs at the global level; Static and Dynamic effects of a customs union and free trade areas; Rationale and economic progress of SAARC/SAPTA and ASEAN regions. Problems and prospects of forming a customs union in the Asian region. Regionalism (EU, NAFTA); Multilateralism and WTO; Rise and fall of gold standard and Bretton-woods system; Need, adequacy and determinants of international reserves; Conditionality clause of IMF; Emerging International Monetary System with special reference to Post-Maastricht developments and developing countries; Reform of the International Monetary System, India and developing countries; Theory of short-term capital movements and East-Asian Crisis and lessons for developing countries; International trade and financial institutions— Functions of GATT/WTO (TRIPS, TRIMS), UNCTAD, IMF, World Bank and Asian Development Bank — Their achievements and failures; WTO and World Bank from the point of view of India.

Suggested Reading List

1. Batra, Raveendra N. (1975), The Pure Theory of International Trade under Uncertainty, The Macmillan Press.
2. Bhagwati, J. (Ed.) (1981), International Trade: Selected Readings, Cambridge University Press.
3. Chacholiades, Miltiades (1990), The Pure Theory of International Trade, McGraw Hill.
4. Dana, M.S. (2000), International Economics: Study, Guide and Work Book, Routledge Publishers.

4. ECONOMICS OF HEALTH AND EDUCATION**Unit-I**

Introduction: the relevance of economics in health and medical care, The Supply and Demand for Health and Medical Care, Health Insurance Industry, Decision-making under uncertainty, Insurance markets, Causes and consequences of employer-based private health insurance Managed care, Hospital Service Industry and Long-term Care, Physician Service Industry, Pharmaceuticals, the Government's Role and Policy Analysis, Social insurance Comparative



health systems, Health care reforms. Health care professionals and Hospital services Public policy in health care delivery- role of state; Health dimension of development – Poverty and Malnutrition; Theory of Production of health care; Inequalities in health – Class and gender perspectives.

Unit –II

Resource allocation problems in private and government hospitals – Resource allocation problems facing a private practitioner – The problem of multiple services of a hospital – Pricing of these services and the choice of the mix of services – The trade-offs between quantity and quality production function; productivity – Efficiency and equity considerations applied to the hospital sector – Spatial distribution of health care facilities and services – The demand for health services and the role of the physician – The impact of pharmaceutical companies and health insurance on this demand

Unit –III

Education as an instrument for economic growth; Human capital — Human capital vs. Physical capital, components of human capital; Demand for education — private demand and social demand, Determinants of demand; Cost of Education — Expenditure on education, private costs and social

costs and wastage and stagnation; Benefits of education — Direct and indirect benefits, private and social benefits; Educational planning and economic growth — Cost-benefit analysis, production function models, growth accounting equations of Schultz and Denison, Manpower requirements approach, programming and input-output models; Educational financing — Resource mobilization and utilization, pricing and subsidies and effects of educational financing on income distribution; Education and labour market — Effects of education, ability and family background on earnings, poverty and income distribution, education and employment; Economics of educational planning in developing countries with special emphasis on India.

Suggested Reading:

1. Briggs, A.H., Claxton, K. and Sculpher M. J. “Decision modelling for health economic evaluation”, Oxford: Oxford University Press (Latest Edition).
2. Cleverley, W.O., Cleverley, J.O. and Song, P.H. “Essential of health care finances”, Jones & Bartlett Learning (Latest Edition).
3. Cutler, D. “Your money or your life: strong medicine for America’s health care system”, Oxford University Press (Latest Edition).
4. Culyer, A.J. and Newhouse J.P., “Handbook of Health Economics”, Amsterdam, New York: North Holland/Elsevier (Latest Edition).
5. Culyer, A.J. “The dictionary of health economics”, Cheltenham, UK: Edward Elgar Publishers (Latest Edition).
6. Blaug, M. (1972), Introduction to Economics of Education, Penguin, London.
7. Bromely, D.W. (Ed.) (1995), Handbook of Environmental Economics, Blackwell, London.
8. Cohn, E. and T. Gaske (1989), Economics of Education, Pergamon Press, London.

5. INTERNATIONAL FINANCE**Unit-I**

The Balance of Payments: Definition and Use. Balance-of-Payments Accounting Principles: Credits and Debits. Double-Entry Bookkeeping. The International Transactions of India.



Accounting Balances and Disequilibrium in International Transactions. Measuring Deficits or Surpluses in the Balance of Payments. The principles of balance of payments, implications of the bop accounting identity balance of payments theory: different approaches and synthesis, imports, exports and deriving currency supply and demand curve. Stock vs flow theories, the monetary theory of exchange rates, asset approach to exchange rate portfolio-balance approach to exchanges rates, sticky price theory, theories of overshooting.

Unit-II

Functions of the Foreign Exchange Market. Equilibrium Exchange Rates. Cross Exchange Rates, Effective Exchange Rates and Arbitrage. Spot and Forward Exchange Rates, Foreign Exchange Futures and Options, Foreign Exchange Risks, Hedging, Speculation, Overview of Exchange Rate Determination: Trade or Elasticity Approach, Purchasing-Power Parity Theory, The Monetary Model to Exchange Rates, Asset or Portfolio Model of Exchange Rates. Classical gold-standard system, Bretton woods, European money market, hybrid system of exchange rates. purchasing power parity principle, interest parity combination of PPP and covered interest parity.

Unit-III

The eurodollar, euro currency markets, multinational banking, international trader with letters of credit, financing international trade, institutions regulating international trade GATT, WTO, free trade areas, customs union, NAFTA, ASEAN. Investment and borrowing with transaction costs, international dimension of cash management, portfolio investment international capital asset pricing, capital budgeting for foreign direct investment.

SUGGESTED BOOKS

1. Levi, M.D. International Finance: The Markets and Financial Management of
2. Multinational Business, 3rd Edition, McGraw Hill International Editions, Finance Series, 1996.
3. Pilbeam, K. International Finance, Macmillan, 1994

SEMESTER-VIII**1. Advanced Econometrics****Unit-I**

Concept of productivity and Efficiency, Data envelopment analysis, Stochastic frontier analysis, Vector Autoregressions (VARs): Estimation of VAR- Testing the order of the VAR, Testing for Granger causality and Sim's test, the Impulse Response Function, Orthogonal innovations, Variance Decompositions; Vector Error Correction Models-testing for Cointegration Ranks, Estimation of Cointegration Vectors, Estimation of a Vector Error Correction model; Structural VARs, Identification conditions, Estimation of structural equations, Forecasting in VAR models, Problems with VAR modeling.

Unit-II

Sources and types of panel data, Simple panel data methods Policy analysis with Pooled Cross Sections, Two period panel data analysis, policy analysis with two period panel data analysis,



Differencing with more than two time periods; advanced panel data methods- Fixed effects estimation, Random effects model, Wu-Hausman test. Dynamic Heterogeneous Panels: Bias in dynamic panels, solution to the bias problem, Bias in heterogeneous slope parameters, solution to heterogeneous bias-the mean group estimator, the pooled mean group (PMG) estimator.

Unit-III

Gravity Model analysis, Augmented Gravity Model, Contingent Evaluation Method, Threshold regression, Non-Linear Granger Causality, Types of discrete choice models, linear probability model, formulating a probability model, the probit and the Logit models, misspecification in Binary Dependent Models, Ordered Probit, Tobit models.

SUGGESTED BOOKS

1. Jack Johnston and John Dinardo, *Econometric Methods*, McGraw-Hill International Editions, Singapore, 1997
2. Walter Enders, *Applied Econometric Time Series*, Wiley India (P) Ltd, New Delhi 2004
3. Baltagi, B. H. (1998) *Econometrics* Springer, New York.
4. Dongherty, C. (1992) *Introduction to Econometrics*, Oxford University Press, New York.
5. Goldberger, A. S. (1998), *Introductory Econometrics*, Harvard University Press
6. Gujarati D. N. (1995), *Basic Econometrics* (2nd Edition) Mc Grow Hill, New Delhi.
Hill R. C., E. G. William and G.G. Judge (1997) *Undergraduate Econometrics*, Wiley
6. Kennedy P. (1998) *A Guide to Econometrics* (4th Edition) MIT Press, New York.

2. Advanced Macro Economics

Unit-I

Mundell-Fleming model — Asset markets, expectations and exchange rates; the new-classical critique of micro foundations, the new classical approach – market clearing, rational expectations and aggregate supply hypothesis; Policy Implications of new-classical approach - empirical evidence, critiques of new-classical macroeconomics.

Unit-II

Classical, Keynesian and Monetarist and Structuralist approaches to inflation; Philips curve analysis (Short run and long run)-Natural rate of unemployment-expectation augmented Phillips curve-Non-accelerating inflation rate of unemployment (NAIRU)- Tobin's modified Philips curve; Adaptive expectations and rational expectations hypothesis. Search theory DMP (Diamond, Mortenson, Pissarides) model. ; Policies to control inflation.

Unit-III

Theories of Business Cycle-Schumpeter, Kaldor, Samuelson, Hicks, and Goodwin, Targetting monetary aggregates-Targetting interest rates-Inflation targeting-Budget deficits and money creation-The Barro-Ricardo equivalence theorem (The Ricardian equivalence)- Hyper inflation-Costs of inflation- The issue of Central bank autonomy-Rules vs discretion- The Taylor Rule-



Time inconsistency of policy, Introduction to Macroeconomic Modelling, Framework for Modelling, Development and Comparison of Models, Key components of Macroeconometric Models, Modeling Consumption, Saving, Finance, Investment, Inflation and Trade.

SUGGESTED BOOKS

1. Mankiw N. G. *Macroeconomics*, Worth Publishers
2. Levacic Rosalind and Alexander Rebman *Macroeconomics*, McMillan
3. Dornbusch Rudiger and Stanley Fischer, *Macroeconomics*, McGrawhill
4. Brian Snowdon and Howard R.Vane, *A Macroeconomics Reader*. Routledge
4. Brian Snowdon and Howard R.Vane. *Modern Macroeconomics Its Origins, Development and Current State*. Edward Elgar Publishing, Inc.
5. Froyen Richard T. *Macroeconomics*, Pearson Indian Ed
6. Romer David. *Advanced Macroeconomics*. McGrawhill
7. Barro J. R. *Macroeconomics*, PHI
8. Robert J Gordon *Macroeconomics*, Harper Collins

3. Law and Economics

Unit-I

Convergence of Law and Economics, Law and Legal Institutions, Efficiency concepts (Pareto Optimal, Kaldor-Hicks etc), Coase Theorem, Defining Tort Law, Traditional Theory of Tort Law, Economic Theory of Tort Law: Various rules of liability, Hand rule, Activity Levels and Accident Risk, Determinants of Damages. The Legal Concept of Property: Meaning and Emergence, Bargaining Theory, An Economic Theory of Property, Protection of Property Rights, What Can be Privately Owned?-Public and Private Goods, What May Owners Do with Their Property?

Unit-II

Bargaining Theory, Economic Theory of Contract, Remedies for breach of contracts. The Litigation Process, Rationale to Sue:Differing Perception Model, Asymmetric Information Model, Social Vs. Private Incentives to sue, Procedural Rules and Litigation Costs: Discovery; English & American Rules, Settlement Bargaining, Selection of disputes for Trial, Judicial decision Making and Legal change, Appeals.

Unit-III

Traditional Theory of Criminal Law, Economic Theory of Crime and Punishment(i)Becker's Model(ii)Ehrlich's Model, Some Econometric Evidence on Criminal Behaviour, Optimal Punishment: Various Forms of Punishments, Economic Analysis of Death Penalty, Crime and Business Cycles, Constitutional Law and Economics

SUGGESTED BOOKS



1. Thomas J. Miceli, (2004) *The Economic Approach to Law*, 1st Edition, Stanford University Press.
2. Robert Cooter & Thomas Ulen (2013) *Law and Economics*, 6th Edition, Pearson New International Edition.
3. Thomas J. Miceli, (1997) *Economics of the Law: Torts, Contracts, Property, Litigation*, 1st Edition, Oxford University Press.
4. David J. Pyle, (1983) *The Economics of Crime and Law Enforcement*, 1st Edition, Palgrave Macmillan Publication.
5. A Mitchell Polinsky (2011) *An Introduction to Law and Economics*, 4th Edition, Aspen Publishers.

4. Corporate Finance

Unit-I

Financial Institution: Banking, Securities And Insurance Sector Financial Institution, Role Of Central Bank In Financial Market, Brief History Of Derivatives, Evolution Of Commodity, Currency, Stocks And Interest Rate Derivatives. Structure Of Derivative Markets, Forwards, Futures, Options, Swaps Etc. Derivatives Pricing Theory: Option Pricing: Black-Shoes Formula For Option Pricing, Binomial Models for Option Prices:

Unit-II

Definitions And Terminology. Volatility: Concept, Historical Volatility, Implied Volatility, Symmetric Volatility, Asymmetric Volatility

Role of Financial System in economic development; Capital and money markets; Risk management in Indian Financial Institutions; Interest Rate Analysis; Interest Rates in the Financial System; Yield Curve; Risk and Inflation;

Unit-III

Role of RBI in regulating financial institutions; Insurance Companies; Thrift Institutions; Capital Adequacy and Capital Planning; Problems of Time and Cost Over Runs; Financial Planning of Financial Institutions; Introduction to Depository Institutions; Role of Development Banking in Industrial Financing in India: Objectives and Functions of Different Financial Institutions in India. Mutual Funds; International Aspects of Financial Institutions

5. Programming Using Advanced Excel

Unit I

Logic review including relational operators: <, >, <=, >=, < >, = and the IF, AND, OR logical worksheet functions; How to use string concatenation to build self-adjusting relational logic (i.e. ">=" & A1) for functions like SUMIFS, COUNTIFS, How to use advanced Excel logic in your data processing formulas including how to make nested IF formulas and use NOT How to use INDIRECT, INDEX, ADDRESS, MATCH, ROW, COLUMN, OFFSET, COUNTA, cell names and string concatenation to construct formulas that adjust to changing data.

Unit II



How to create dynamic adjustable cell and range names that react to changing data size using COUNTA, OFFSET and INDIRECT, How to construct advanced Excel formulas that can automatically toggle between tables. Logic review including relational operators: <, >, <=, >=, <>, = and the IF, AND, OR logical worksheet functions, Using Excel for algebraic operations and plotting, Creating functions like COUNTIF, SUMIF, COUNTIF, Linking worksheets.

Unit-III

Manual Estimation of linear, Quadratic, cubic and log transformed functions, Creating templates for Econometric models, Hypothesis testing, Confidence intervals of estimates and regression, Multicollinearity, Heteroscedasticity and Autocorrelation

SUGGESTED BOOKS

1. Advanced excel essentials 2014 ed , Jordan Goldmeier Apress
2. Using excel for principles of econometrics, Genevieve Briand, R carter Hill, 4th Ed. Jhon Wiley and Sons

6. Economics of Information and Time**Unit-I**

Information and Pricing: Information Goods, Features of Information Good, Pricing and Packing, Bundling, Value added bundling. Asymmetric Information: Adverse Selection, Signaling, A Simple model of Educational Attainment, Equilibrium with Separation, Equilibrium with Pooling. Market Failures, Market Distortions, and Market Solution: Credible Signal of Quality, Market failure and its resolution through screening. Moral Hazard: The Problem with Insurance, What Determines Moral Hazard, Moral Hazard Is Multidimensional, Different types of moral hazard.

Unit-II

Behavioural Finance: Concept of Behavioural Finance, Standard Theory of Finance, Biases: Representativeness, Overconfidence, Biased Self-attribution. Behavioral Characteristics: Loss aversion, Narrow framing, Anchoring, Mental accounting, Diversification, Disposition effect , Herding, Regret, Media response, Optimism. Game Theory: Two-Player Games, Nash Equilibrium, The Prisoner's Dilemma, Sequential Game, Pure Strategies, Mixed Strategies. Rational Expectations: Common Stock, Concepts of efficiency, Efficient Markets Hypothesis (EMH), Weak form efficiency, Semi-strong form efficiency, Strong form efficiency, Evidence in favour of EMH, Empirical evidence against EMH.

Unit-III

Intellectual Property rights: Copyrights, Patent, Industrial Design, Trade Mark, Geographical Indication, Trade Secrets, Plant Varieties and Former Rights. Copy Rights and Oxford, Dynamical System: Modeling a dynamic system, Cause and Effect, Feedback, Causal Loop



Diagram, Augmenting Causal Loop Diagram, Loop Dominance, Delays, Digital Rights Management: Introduction, Uses, Implementation of Digital Rights Management, Digital Rights Management vs Copyright, Advantage and Disadvantage of DRM, Creative Commons, Copyrights and Education: Introduction to Creative Common, conditions, Attribution, Non-commercial, No Derivatives, Six License., Open Access: Introduction Approaches to open access, Benefits of Open Access, Open Licenses.

SUGGESTED BOOKS

1. Dutta Prajit K Strategies and Games: Theory and Practice. MIT Press.
2. Fudenberg Drew, Tirole Jean. Game Theory. MIT Press (MA)
3. Gibbons Robert, Game Theory for Applied Economists. Princeton University Press
4. Myerson Roger B. Game Theory: Analysis of Conflict. Harvard University Press.
5. Neumann John Von, Morgenstern Oskar, Rubinstein Ariel. Theory of Games and Economic Behavior. Princeton University Press.

SEMESTER-IX

1. Big Data Analysis

SEL7022			Big Data Analysis				Pre Requisites		C & C++	
Version R-01							Co-requisites			
L	T	P	C	Minor Duration	Major Duration	Internal Marks	Minor-I Marks	Minor-II Marks	Major Marks	Total Marks
3	1	0	4	1.5 Hours	3 Hours	10	20	20	50	100

Course Outcomes

After the successful completion of the course, the student will be able to;

1. Understand various concepts of Big Data
2. Learn various functions of Hadoop Ecosystem
3. Apply various concepts of big data in Economics

COURSE CONTENTS

UNIT I – Introduction to Big Data & Hadoop Architecture (20 Hours)



Types of Digital Data, Introduction to Big Data, Big Data Analytics , Big Data and its importance, Four Vs, Drivers for Big data, Big data analytics, Big data applications. Algorithms using map reduce, Matrix-Vector Multiplication by Map Reduce. Hadoop Architecture, Hadoop Storage: HDFS, Common Hadoop Shell commands , Anatomy of File Write and Read., NameNode, Secondary NameNode, and DataNode, Hadoop Map Reduce paradigm, Map and Reduce tasks, Job, Task trackers - Cluster Setup – SSH & Hadoop Configuration – HDFS Administering –Monitoring & Maintenance.

UNIT-II Hadoop Ecosystem and YARN (10 hours)

Hadoop ecosystem components - Schedulers - Fair and Capacity, Hadoop 2.0 New Features- NameNode High Availability, HDFS Federation, MRv2, YARN, Running MRv1 in YARN. Machine Learning: Introduction, Supervised Learning, Unsupervised Learning, Collaborative Filtering.

UNIT-III Hive AND HiveQL, HBase (15 hours)

Hive Architecture and Installation, Comparison with Traditional Database, HiveQL - Querying Data - Sorting And Aggregating, Map Reduce Scripts, Joins & Subqueries, HBase concepts- Advanced Usage, Schema Design, Advance Indexing - PIG, Zookeeper - how it helps in monitoring a cluster, HBase uses Zookeeper and how to Build Applications with Zookeeper.

Suggested Reading List:

1. Boris lublinsky, Kevin t. Smith, Alexey Yakubovich, “Professional Hadoop Solutions”, Wiley, ISBN: 9788126551071, 2015.
2. Chris Eaton, Dirk deroos et al. , “Understanding Big data ”, McGraw Hill, 2012.
Tom White, “HADOOP: The definitive Guide” , O Reilly 2012.
3. Tom Plunkett, Brian Macdonald et al, “Oracle Big Data Handbook”, Oracle Press, 2014.
4. Jy Liebowitz, “Big Data and Business analytics”,CRC press, 2013.

2. Entrepreneurship Skill

SEL7143			Big Data Analysis				Pre Requisites		Nil	
Version R-01							Co-requisites			
L	T	P	C	Minor Duration	Major Duration	Internal Marks	Minor-I Marks	Minor-II Marks	Major Marks	Total Marks



3	1	0	4	1.5 Hours	3 Hours	10	20	20	50	100
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Course Outcomes

After the successful completion of the course, the student will be able to;

1. Understand various concepts of entrepreneurship
2. Absorb Skills of entrepreneurship
3. Understand various sources of financing project

COURSE CONTENTS

Unit-I Introduction to Entrepreneurship

Entrepreneurial culture - establishing entrepreneurial system - idea processing, personal, financial information and intelligence - rewards and motivation - concept bank - role of industrial fair - Theories of entrepreneurship - entrepreneurial traits - types of entrepreneurs - behavioural patterns of entrepreneurs - entrepreneurial motivation, Business proposals: Pre-feasibility study - criteria for selection of product - ownership - capital budgeting -

Unit-II Entrepreneurship Skills for Preparing Feasibility Report

Project profile preparation - matching entrepreneur with the project - feasibility report preparation and evaluation Entrepreneurship Development ; resources and capabilities; resource type; environment of entrepreneurship development ;technological ,social, macro and micro economic factors, competition, ecological aspects etc. entrepreneurial strategies;

Unit-III Project Finance

E-entrepreneurship; Intrapreneurship; business models and strategies; venture capital financing; Industry innovation problems, new and emerging business opportunities in global dynamic environment. Ethical decision making, ethical dilemmas. Construction of business plans. Entrepreneurship development programs in India - training institutions - institutions provided technical, financial marketing assistance - role of consultancy organizations.

Suggested Reading List:

1. Dollionger “Entrepreneurship Development”, Pearson (Latest Edition).
2. Vasant Desai “Dynamics of Entrepreneurship Development in Mgt”, Himalaya (Latest Edition).
3. Charantimath P.M. “Entrepreneurship Development in Small Business Enterprises”, Pearson (Latest Edition).
4. Saji Kumar “Impact of Globalisation on SMEs Industries”, ICFAI (Latest Edition).
5. Singh B.N.T. “Industrial Development under Structural adjustment Programme”, D.D. Publication (Latest Edition).
6. Bhatia B.S. and Batra G.S. “Entrepreneurs and Small Business Management”, D.D. Publisher (Latest Edition).

3. Business Analytics

SEL7023			Business Analytics				Pre Requisites		Econometrics & Financial Econometrics	
Version R-01							Co-requisites			
L	T	P	C	Minor Duration	Major Duration	Internal Marks	Minor-I Marks	Minor-II Marks	Major Marks	Total Marks
3	1	0	4	1.5 Hours	3 Hours	10	20	20	50	100

Course Outcomes

After the successful completion of the course, the student will be able to;

1. Understand various concepts of Business Analytics
2. Learn risk analytics for bank, health care & workforce
3. Apply Business Analytics for Business Development

COURSE CONTENTS

UNIT – I INTRODUCTION TO BUSINESS ANALYTICS (9 hours)

Introduction to Business Analytics - State of the practice in analytics role of data scientists - Key roles for successful analytic project - Main phases of life cycle - Developing core deliverables for stakeholders. Cluster Analysis: Objectives and Assumptions, Research design in cluster analysis, deriving clusters and assessing overall fit. Discriminant Analysis- concept, objective and applications. Procedure for conducting discriminant analysis. Stepwise discriminate analysis.

UNIT – II DECISION TREES & NEURAL NETWORKS (9 hours)

Introduction to Decision trees - Classification by decision tree induction – Various types of pruning methods – Comparison of pruning methods – Issues in decision trees – Decision Tree Inducers – Decision Tree extensions. Single-Layer Networks: The Perceptron, The Adaptive Linear Neuron (Adaline) and the Least Mean Square Algorithm - Multilayer Perceptrons

UNIT II - RISK ANALYTICS FOR BANK, HEALTH CARE & WORKFORCE (9 hours)

Credit Risk Analytics , Internal capital Adequacy Assessment Process related Risk Analytics , Limit Management , Risk-Adjusted Performance Management ,Fraud Risk. Introduction to Healthcare Sector; HIPAA, Four Enterprise Disciplines of Health Analytics, Health Outcome Analysis, Health Value and Cost; Customer Insights, Actuary Services, Framework for Customer Analytics; Risk Management. Workforce Environment and Psychology, HR Analytics and Talent Management- Understanding and Predicting Retention, Boosting Employee Engagement, Sources of Hire and Quality of Hire, Profiling High Performers.

Suggested Reading List:



1. Joseph F Hair, William C Black et al , “Multivariate Data Analysis” , Pearson Education, 7th edition, 2013.
2. T. W. Anderson , “An Introduction to Multivariate Statistical Analysis, 3rd Edition”, Wiley, 2003.
3. William r Dillon, John Wiley & sons, “Multivariate Analysis methods and applications”, Wiley, 1984.
5. Hamdy A Taha, “Operations Research”, Pearson, 2012.
6. S R Yaday, A K Malik, “Operations Research”, Oxford, 2014.

4. Programming Using R & Python

SEL 7024			Programming in Python (PL -2)				Pre Requisites			
Version R-01							Co-requisites			
L	T	P	C	Minor Duration	Major Duration	Assignment	Minor 1 Marks	Minor 2 Marks	Major Marks	Total Marks
3	0	2	4	1 Hour	3Hours	10	20	20	50	100

COURSE OBJECTIVES:

The learning objectives of the course are:

1. To learn the basic syntax, loops, conditions, operators, data structures in Python language
2. To learn how to code in a function oriented way
3. To learn how to code in an object oriented way
4. To learn GUI creation in Python
5. To learn how to design solutions to the programming problems and code in Python using the first four learning objectives

COURSE OUTCOMES

After Successful Completion of this Course, students shall be able to;

1. Know the basic syntax and Data Structures in Python.
2. Think and Design solution in Object Oriented way as well as Procedural way.
3. Enjoy coding and compete at online programming sites like CodeChef, HackerEarth etc.

COURSE CONTENTS

UNIT – I INTRODUCTION TO R & Python

(20 Contact Periods)

Reading and getting data into R – ordered and unordered factors – arrays and matrices – lists and data frames – reading data from files – probability distributions – statistical models in R - manipulating objects – data distribution. Application of various econometrics techniques in R studio.

Introduction to Python: Introduction to importance of IDEs like Spyder (Anaconda)/PyCharm for professional programming, explore Python shell as a calculator and for inputting Python expressions directly, HelloWorld program in Python script, Python keyword and Identifiers,



Indentation, Comments, Data Types in. Operators in Python: comparison, arithmetic, logical, Boolean, bitwise, assignment.

UNIT-II Basic constructs

(10 Contact Periods)

Input and Output in Python, if-else , for loop, while loop, break, pass, continue, creating Functions, functions with arguments, returning values form functions, lambda expressions, recursion, global and local variables, Importing other modules/packages and using their functions, creating random numbers/random-choice to create programs for simple guessing games like Rock –Paper-Scissors. Problems on 1D/2D/3D arrays using list. Problem solving using dictionary as look-up table.

UNIT-III Object Oriented Programming & GUI creation in Python

(15 Contact Periods)

Basics of Object oriented programming: Class and Object. Defining variables and functions inside class. Creating objects, Inheritance, Multiple and Multi Level Inheritance, Function over-riding, the concept of composing objects of a different class in an object, problems on object composition. GUI creation using Python’s de-facto GUI package like tkinter or alternative packages like: [wxPython](#), [PyQt \(PySide\)](#), [Pygame](#), [Pyglet](#), and [PyGTK](#). Creating labels, buttons, entry (textbox), combobox, checkbutton, radiobutton, scrolledText (textarea), spinbox, progressbar, menubar, filedialog, tabs etc. Creating GUI simple games like Tic-Tac-Toe

Suggested Reading List:

- Think Python 2nd Edition - How to Think Like a Computer Scientist, Allen B Downey, O’Reilly publication
- Learn Python 3 the Hard Way, Zed A. Shaw, Pearson publication
- Head First Programming: A Learner’s Guide to Programming using the Python Language, Paul Barry David Griffiths Barry Griffiths, O’Reilly publication
- Dive into Python 3, Mark Pilgrim, A press publication

5. Advanced Financial Economics

SEL71801			Advanced Financial Economics				Pre Requisites		Financial Economics	
Version R-01							Co-requisites			
L	T	P	C	Minor Duration	Major Duration	Internal Marks	Minor-I Marks	Minor-II Marks	Major Marks	Total Marks
3	1	0	4	1.5 Hours	3 Hours	10	20	20	50	100

Course Outcomes

After the successful completion of the course, the student will be able to;

1. Understand advanced concepts of financial economics
2. Learn various functions of Derivatives Markets



3. Estimate the advanced models of Capital Market & Derivative Market

COURSE CONTENTS

UNIT – I Markets for Derivatives Periods)

(20 Contact

Derivatives, Types, uses and pricing of derivatives; Future Contracts and Forward Contracts; Future and forward Markets, Origin of Future Trading; Future Prices Relation between Spot and Future Prices, Commodity Future; Financial Future; Hedging in Futures. Options. The Put Option and Call Option; Option Pricing, the Pay-Offs From Buying and Selling Options. Option Pricing Models: Binomial Model. Swaps Currency and Interest Rate Swaps; Equity and Commodity Swaps. European and American options; pricing futures, wasp and synthetic futures; bounds for option prices, put-call parity; Black-Scholes option pricing models, option to expand, valuation of a real option.

UNIT-II Capital Structure Choice & Efficient Markets Hypothesis Periods)

(10 Contact

Defining capital market efficiency, relationship between the value of information and efficient capital markets, rational expectations and market efficiency, market efficiency with costly information. Various approaches to efficient market hypothesis, variance bounds tests, anomalies, cross-asset relationships, over-reaction hypothesis.

UNIT-III Markets for Investment Banking Periods)

(15 Contact

Corporate debt and underwriting procedures securitization and asset backed debt securities, high yield debt investment bankers as traders and market-makers, private placements. Equity issues; valuing an initial public offering, international equity issues, GDR, ADR, convertible securities, innovation and new equity securities, derivative securities

Suggested Reading List

1. Brahmaiah, B. and Subba Rao, P. (2003), Financial Future and Options, Himalaya Publishing House, Mumbai.
2. Gardener D. C. (2003), Derivatives, Macmillan India Limited, New Delhi.
3. John C. Hull, (2005), Options Futures and other Derivatives, Prentice Hall, New Delhi.
4. Khan, M. Y. and Jain, P. K. (2004), Financial Management, Text, Problems and Cases, Tata McGraw Hill Company Ltd. New Delhi.
5. Pilbeam, K (2010), Finance & Financial Markets, Palgrave Mc Millan.
6. Cuthbertson, K, (1996) Quantitative Financial Economics Stocks, Bonds and Foreign Exchange, John Wiley and Sons, USA.
7. Eichberger J. and I.R. Harper (1997) Financial Economics, Oxford University Press, New York.
8. Tuckman, B. (1995), Fixed Income Securities – Tools for Today's Markets, Wiley Frontiers in Finance.



6. Panel Data Econometrics

SEE7121			Panel Data Econometrics				Pre Requisites		Advanced Econometrics	
Version R-01							Co-requisites			
L	T	P	C	Minor Duration	Major Duration	Internal Marks	Minor-I Marks	Minor-II Marks	Major Marks	Total Marks
3	1	0	4	1.5 Hours	3 Hours	10	20	20	50	100

Course Outcomes

After the successful completion of the course, the student will be able to;

1. Understand concepts of Panel Data Econometrics
2. Learn Dynamic Panel Data
3. Estimate advanced model of VAR & binary dependent variable

COURSE CONTENTS

UNIT – I Introduction to Panel Data

(20 Contact Periods)

Structure of panel data: cross-sectional dimension and time-series dimension, Balanced and unbalanced panels, panels and pseudo-panels, Error component models: one-way and two-way & Fixed or random effects, The Hausman specification test, Detection of Heteroscedasticity and Autocorrelation in panel Data, Instrumental Variable and GMM Estimation, The fixed effects model: Least Squares Dummy Variables (LSDV) estimation Testing for fixed effects, The random effects model: Generalized Least Squares (GLS) estimation, The Between and Within estimators, The fixed effects model: Least Squares Dummy Variables (LSDV) estimation, Testing for fixed effects, The random effects model: Generalized Least Squares (GLS) estimation

UNIT-II Dynamic Panel Regression

(10 Contact Periods)

Serial correlation in error component models, Dynamic fixed effects model: bias of LSDV estimator, Dynamic random effects model: instrumental variables estimation

UNIT-III Binary Dependent Variable, VAR and Panel Data

(15 Contact Periods)

Binary dependent variable models: review, Fixed effects logit: conditional maximum likelihood estimation, Fixed effects logit: semiparametric estimation, Random effects probit.

Vector Autoregressions: review, Panel stationary VAR with individual effects, Panel stationary VAR with individual effects and shocks to a common factor, Panel nonstationary VAR with individual effects.

Suggested Reading List

1. Jack Johnston and John Dinardo, *Econometric Methods*, McGraw-Hill International Editions, Singapore, 1997
2. Walter Enders, *Applied Econometric Time Series*, Wiley India (P) Ltd, New Delhi 2004
3. Amemiya, T. (1985) *Advanced Econometrics* Harvard University Press
4. Baltagi, B. H. (1998) *Econometrics* Springer, New York.
5. Kennedy P. (1998) *A Guide to Econometrics* (4th Edition) MIT Press, New York.

Econometrics Specialization

S. No.	Course Code	Course	Credits
1	SEE7121	Financial Econometrics	4 credits
2	SEE7122	Time Series and Spectral Analysis	4 credits
3	SEE7123	Business Forecasting and Simulation	4 credits
4	SEE7124	Panel Data Econometrics	4 credits
5	SEE7125	Multivariate Data Analysis	4 credits
6	SEE7126	Macro-Economic Modeling	4 credits

Financial Economics Specialization

S. No.	Course Code	Course	Credits
1	SEE71801	Advanced Financial Economics	4 credits
2	SEE71802	Financial Regulation & Banking Supervision	4 credits
3	SEE71803	Business Forecasting and Simulation	4 credits
4	SEE71804	Behavioral Finance	4 credits
5	SEE71805	Financial Econometrics	4 credits
6	SEE71806	Financial Engineering	4 credits

Agricultural Economics Specialization

S. No.	Course Code	Course	Credits
1	SEE7031	Agricultural Marketing and Price Analysis	4 credits
2	SEE7032	Agricultural Development and Policies	4 credits
3	SEE7033	Farm Management	4 credits
4	SEE7034	Agricultural Finance	4 credits
5	SEE7035	Agricultural Production Economics	4 credits

6	SEE7036	Agribusiness and Entrepreneurship	4 credits
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Developmental Economics Specialization

S. No.	Course Code	Course	Credits
1	SEE7101	Economics of Infrastructure	4 credits
2	SEE7102	Rural Economics	4 credits
3	SEE7103	Urban Economics	4 credits
4	SEE7104	Energy Economics	4 credits
5	SEE7105	Economics of Microfinance	4 credits
6	SEE7106	Transport Economics	4 credits

Environmental Economics Specialization

S. No.	Course Code	Course	Credits
1	SEE7061	Environmental Valuation	4 credits
2	SEE7062	Environmental Policies	4 credits
3	SEE7063	Economics of Global Climate Change	4 credits
4	SEE7064	Trade and Environment	4 credits
5	SEE7065	Environment and Sustainable Development	4 credits
6	SEE7066	Economics of Exhaustible Resources	4 credits