PANJAB UNIVERSITY, CHANDIGARH
(Estted. under the Panjab University Act VII of 1947-enacted by the Govt. of India)

FACULTY OF ARTS

SYLLABI

FOR

B.A.(HONOURS) IN ECONOMICS
1st to 6th SEMESTER

EXAMINATIONS, 2018-19

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Outline of Syllabi and Course Structure for various Courses in the Department of Economics 2018-2019

Course Structure for B.A. (Hons) Economics

Semester-I	Semester-II
Economics Core Course 1 : Introductory Microeconomics	Economics Core Course 3 : Introductory Macroeconomics
Economics Core Course 2 : Mathematical Methods for Economics-I	Economics Core Course 4 : Mathematical Methods for Economics-II
Ability Enhancement Compulsory Course (AECC)-I (Environment Studies)	Ability Enhancement Compulsory Course (AECC)-II (English Communication)
Generic Elective (GE) Course-I	Generic Elective (GE)Course-III
Generic Elective (GE) Course-II	Generic Elective (GE)Course-IV

Semester-III	Semester-IV
Economics Core Course 5 : Intermediate Microeconomics-I	Economics Core Course 8 : Intermediate Microeconomics-II
Economics Core Course 6 : Intermediate Macroeconomics-I	Economics Core Course 9 : Intermediate Macroeconomics- II
Economics Core Course 7 : Statistical Methods for Economics	Economics Core Course 10 : Introductory Econometrics
Skill Enhancement Course (SEC)-I	Skill Enhancement Course (SEC)-II
Generic Elective(GE)Course-V	Generic Elective(GE)Course-VI

Semester-V	Semester-VI
Economics Core Course 11 : Indian Economy-I	Economics Core Course 13 : Indian Economy-II
Economics Core Course 12 : Development Economics-I	Economics Core Course 14 : Development Economics-II
Discipline Specific Elective (DSE) Course-I	Discipline Specific Elective (DSE) Course-III
Discipline Specific Elective (DSE) Course-II	Discipline Specific Elective (DSE) Course-IV

Outlines of Syllabi and Course Structure for various Courses in the Department of Economics 2018-19

Course Structure for B.A. (Hons.) Economics

B.A. (Hons.) Semester I (under CBCS)

ECO-C1   Economics Core Course 1: Introductory Microeconomics

ECO-C2   Economics Core Course 2: Mathematical Methods for Economics-I

ECO-AECC1   Ability Enhancement Compulsory Course (AECC) –I (Environment Studies)

General Elective (GE) Course-I & II : any two of the following Papers from (GEI ,GE2) List)

SOC-GE02   Fundamental of Sociology (GE2 list)
STAT-GE-1   Statistical Methods(GE 1 list)
MAT-C2   Algebra (Open)

B.A. (Hons.) Semester II (under CBCS)

ECO-C3   Economics Core Course 3: Introductory Macroeconomics

ECO-C4   Economics Core Course 4: Mathematical Methods for Economics-II

ECO-AECC2   Ability Enhancement Compulsory Course (AECC) –II (English communication)

General Elective (GE) Course-III & IV : any two of the following Papers from (GE3 ,GE4) List)

SOC-GE04   Social Stratification (GE 4 list)

STAT-GE-2   Introductory Probability (GE3 list)

MAT-C4   Differential Equations (Open)

B.A. (Hons.) Semester III (under CBCS)

ECO-C5   Economics Core Course 5: Intermediate Microeconomics-I

ECO- C6   Economics Core Course 6: Intermediate Macroeconomics-I

ECO- C7   Economics Core Course 7: Statistical Methods for Economics

ECO-SEE1   Skill Enhancement Course 1: Data Sources-I

General Elective (GE) Course-V : any one of the following Papers

SOC-GE05	Indian Society: Images and Realities
STAT-GE-3	Basics of Statistical Inference
MAT-C1	Calculus

B.A. (Hons.) Semester IV (under CBCS)

ECO-C8	Economics Core Course 8: Intermediate Microeconomics – II
ECO-C9	Economics Core Course 9: Intermediate Macroeconomics– II
ECO-C10	Economics Core Course 10: Introductory Econometrics
ECO-SEE2	Skill Enhancement Course 2 : Data Sources-II

General Elective (GE) Course-VI : any one of the following Papers

SOC-GE06	Rethinking Development
STAT-GE-4	Applied Statistics
MAT-C3	Real Analysis

B.A. (Hons.) Semester V (under CBCS)

ECO-C11	Economics Core Course 11 : Indian Economy-I
ECO-C12	Economics Core Course 12 : Development Economics-I
ECO-DSE1	Discipline Specific Elective (DSE) Course-I :Economics of Public Finance
ECO-DSE2	Discipline Specific Elective (DSE) Course-II :International Economics

B.A. (Hons.) Semester VI (under CBCS)

ECO-C13	Economics Core Course 13 : Indian Economy-II
ECO-C14	Economics Core Course 14 : Development Economics-II
ECO-DSE3	Discipline Specific Elective (DSE) Course-III :History of Economic Thought
ECO-DSE4	Discipline Specific Elective (DSE) Course-IV :Economics of Industry

C: Core Courses; GE: Generic Elective; AECC: Ability Enhancement Compulsory Course

GE subjects are to be selected by the students from the pool of GE Subjects offered by the various Departments of the University.

Generic Elective Subjects (Offered by Economics Department) for Non-Economics Students

1.   ECO-GE2: Introductory Microeconomics

2.   ECO-GE4: Introductory Macroeconomics

3.   ECO-GE5: Indian Economy-I

4.   ECO-GE6: Indian Economy-II

NOTE: The Department is also generic electives in Sociology only for the students of the Economics as it may not be feasible for all the students of Economics Honors to study Sciences and no other department in humanities is offering any generic elective courses. So following Generic electives subjects in Sociology are also being offered:

1. SOC-GE02: Fundamentals of Sociology

2. SOC-GE04: Social Stratification

3. SOC-GE05: Indian Society: Images and Realities

4. SOC-GE06: Rethinking Development

5.   ⁻ECO-SEE1: Data Sources-I

6. ECO-SEE2 : Data Sources -II

Outlines of Syllabi and Course Structure for various Courses in the Department of Economics 2018-19

Course Structure for B.A. (Hons.) Economics

Syllabi of B.A. (Hons.) Semester I (under CBCS)

ECO-C1: INTRODUCTORY MICROECONOMICS

Max. Marks: 80   **Time: 3 Hrs.**
                                                                                            Credits: 6

                                                    (5 Class Room Teaching + 1 Tutorial)

Course Description

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

Instructions for Paper-setter and candidates:
• The maximum marks for the paper will be 100. The question paper will be of 80 marks and continuous evaluation 20 marks. Time allowed will be 3 hours.

The paper-setter must put a note in the question paper in this regard.

• There shall be **9** questions in all.

The first question **compulsory** comprising 15 short answer type questions spread over the whole syllabus. The candidates are required to attempt 10 questions. Each question shall be of **two** marks (10 x 2= 20).

Rest of the paper shall contain four units. Two questions shall be asked from each unit and the candidates shall be given internal choice. The candidates shall attempt one question from each unit. Each question will carry 15 marks (15x4=60)

UNIT- I
Exploring the subject matter of Economics. Why study economics? Scope and method of economics; the economic problem: scarcity and choice; the question of what to produce, how to produce and how to distribute output
Cardinal Utility Analysis .
Ordinal Utility Analysis: The consumption decision - budget constraint, consumption and income/price changes, demand for all other goods and price changes; description of preferences (representing preferences with indifference curves); properties of indifference curves; consumers optimum choice; income and substitution effects.

UNIT- II

Theory of production: laws governing short run and long run. Producers equilibrium and expansion path

Cost Theory: Short run and long run cost curves.

The Firm and Industry under Perfect Market Structure: Price and output determination ; short run and long run.

UNIT- III

Determinants of individual demand/supply; demand/supply schedule and demand/supply curve; market versus individual demand/supply; shifts in the demand/supply curve, demand and supply together; how prices allocate resources. The basic competitive model. Supply and Demand How Markets Work, Markets and Welfare Markets and competition

Elasticity of demand: its measurements, applications and determinants.

Consumer surplus; producer surplus and the efficiency of the markets.

Concept of dead weight loss ; Govt intervention in the form of Taxes and Subsidies.

UNIT- IV

Single seller monopoly: Price and output determination

Input Markets Labour and land markets - basic concepts (derived demand, productivity of an input, marginal productivity of labour, marginal revenue product); demand for labour; input demand curves; shifts in input demand curves; competitive labour markets and firms profit maximisation conditions in input market ; and labour markets and public policy. Derivation of labour supply and savings decision - choice between leisure and consumption.

Readings:

1. Karl, E. Case., and Ray C. Fair, (2007). *Principles of Economics (*8th ed.). Pearson Education Inc.
2. N. Gregory Mankiw. (2007) *Economics: Principles and Applications*. (4th ed.). India edition by South Western, a part of Cengage Learning, Cengage Learning India Private Limited.
3. Joseph E. Stiglitz, and Carl E. Walsh. (2007) . *Economics* (4th ed.). W.W. Norton & Company, Inc., New York, International Student Edition.
4. Salvotore. D (2006) *Theory and Problems of Microeconomic Theory* (Sachems series) (3rd ed.) Tata McGraw-Hill Publishing Company Ltd.
5. Salvotore.D. (2007). Micro economic theory and Applications(4th ed.) Oxford University Press.

ECO-C2: MATHEMATICAL METHODS FOR ECONOMICS–I

Max. Marks: 80   **Time: 3 Hrs.**
                                                        Credits: 6
                                    (5 Class Room Teaching + 1 Tutorial)

Course Description

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

Instructions for Paper-setter and candidates:
• The maximum marks for the paper will be 100. The question paper will be of 80 marks and continuous evaluation 20 marks. Time allowed will be 3 hours.
The paper-setter must put a note in the question paper in this regard.
• There shall be **9** questions in all.

The first question **compulsory** comprising 15 short answer type questions spread over the whole syllabus. The candidates are required to attempt 10 questions. Each question shall be of **two** marks (10 x 2= 20).

Rest of the paper shall contain four units. Two questions shall be asked from each unit and the candidates shall be given internal choice. The candidates shall attempt one question from each unit. Each question will carry 15 marks (15x4=60).

UNIT- I
Preliminaries and Functions of one real variable: Logic and proof techniques; sets and set operations; relations; functions and their properties; number systems. Graphs; elementary types of functions: quadratic, polynomial, power, exponential, logarithmic; sequences and series: convergence, algebraic properties and applications; continuous functions: characterizations, properties with respect to various operations and applications;

UNIT- II
Differentiable Functions and Single-variable optimization: Differentiable functions: characterizations, properties with respect to various operations and applications; second and higher order derivatives: properties and applications. Geometric properties of functions: convex functions, their characterizations and applications; local and global optima: geometric characterizations, characterizations using calculus and applications.

UNIT- III

Integration of functions: Methods of Substitution and partial fractions and simple economic applications

UNIT- IV

Difference equations: Introduction, solution of difference equations upto 2nd order, simple economic applications.

Readings:
K. Sydsaeter and P. Hammond, (2002).*Mathematics for Economic Analysis*, Pearson Educational Asia: Delhi.

GENERAL ELECTIVE (GE) COURSE-I & II

SOC-GE02: FUNDAMENTALS OF SOCIOLOGY

Max. Marks: 80   **Time: 3 Hrs.**
                                                                         Credits: 6
                                         (5 Class Room Teaching + 1 Tutorial)

Course Description

The systematic study of human behaviour and human society is a relatively recent development. The central emphasis of the paper would be to develop a conceptual clarity regarding the basic sociological terms and themes, thus leading to a development of a sociological terms and themes, thus leading to a development of a sociological outwork. The course would also discuss the works of founding father which led to the development to sociological thinking.

Instructions for Paper-setter and candidates:

1. The maximum marks for the paper will be 100. The question paper will be of 80 marks and continuous evaluation 20 marks. Time allowed will be 3 hours.

The paper-setter must put a note in the question paper in this regard.

2. There shall be **9** questions in all.

The first question **compulsory** comprising 15 short answer type questions spread over the whole syllabus. The candidates are required to attempt 10 questions. Each question shall be of **two** marks (10 x 2= 20).
Rest of the paper shall contain four units. Two questions shall be asked from each unit and the candidates shall be given internal choice. The candidates shall attempt one question from each unit. Each question will carry 15 marks (15x4=60).

UNIT – I

Developing Sociological Outlook: Definition and Scope; Significance and Uses of Sociology; Relationship of Sociology with other Social Sciences – Anthropology, Economics, Political Science, Psychology, Philosophy and History.

UNIT – II

Basic Concepts: **Society** – Meaning and Characteristics, Theories of Origin, Individual and Society. Community, Association and Institution – Meaning, Characteristics and Differences. Groups – Definition, Characteristics and Classification.

UNIT – III

Culture and Socialization: Culture-Definition, Cultural Lag, Acculturation, Assimilation, Pluralism. Culture and Personality.
Civilization: Definition, Traditional and Modern. Socialization – Meaning, Stages, Agencies.

UNIT – IV

Development of Sociological Thinking. Comte: Law of Three Stages. Marx: Materialistic Conception of History. Max Weber: Social Action and Rationality. Emile Durkheim: Social Facts and Social Solidarity.

Essential Readings:

1. Giddens, Anthony .*Sociology, Cambridge (*4th ed.). Polity Press.
2. Haralambos, Michael.(2015). *Sociology: Themes and Perspectives*. Oxford.
3. Davis, Kingley.(2002). *Human Society*. Surjeet Publications, Delhi.
4. Maclver, R S & Page Charles. *Society: An Introductory Analysis* (Latest ed.). Macmillan India Ltd.
5. Johnson, Harry (2003). *Sociology: A Systematic Introduction*. Allied Publishers, New Delhi.
6. Inkeles Alex. (2004).*What is Sociology? An Introduction to the Discipline and Profession*. Prentice-Hall, India.
7. Bradshaw, York W, et.al. (2001). *Sociology for a New Century*, Piner Forge Press, California.

Further Readings:
1. Johnson, Doley Paul.(1986).*Sociological Theory* (Or later ed.). New York, McMillan.
2. Ritzer, George. (2011).*Sociological Theory* .London (Or latest ed.). McGraw-Hill.
3. Coser Lewis. (2004). *Masters of Sociological Thought*, Rawat Publications, New Delhi.
4. Rao Shankar C.N. (2012).*Sociology*: *principles with an Introduction to Social Thought*.S.Chand and Company Pvt. Ltd.

STAT-GE-1: STATISTICAL METHODS

Max. Marks: 80   **Time: 3 Hrs.**
                                                            Credits: 6

                                   (5 Class Room Teaching + 1 Tutorial)

Course Description
This is a course on statistical methods for economics. It begins with some basic concepts and terminology that are fundamental to statistical analysis and inference. It then develops the notion of probability, followed by probability distributions of discrete and continuous random variables and of joint distributions. This is followed by a discussion on sampling techniques used to collect survey data. The course introduces the notion of sampling distributions that act as a bridge between probability theory and statistical inference. The semester concludes with some topics in statistical inference that include point and interval estimation.

Instructions for Paper-setter and candidates:
• The maximum marks for the paper will be 100. The question paper will be of 80 marks and continuous evaluation 20 marks. Time allowed will be 3 hours.

The paper-setter must put a note in the question paper in this regard.

• There shall be **9** questions in all.

The first question **compulsory** comprising 15 short answer type questions spread over the whole syllabus. The candidates are required to attempt 10 questions. Each question shall be of **two** marks (10 x 2= 20).

Rest of the paper shall contain four units. Two questions shall be asked from each unit and the candidates shall be given internal choice. The candidates shall attempt one question from each unit. Each question will carry 15 marks (15x4=60)

UNIT- I

Introduction: Definition and scope of Statistics, concepts of statistical population and sample. Scales of measurement - nominal, ordinal, interval and ratio.Variables and attributes, Diagrammatical Representation of Data, Summarization of Data: Frequency Distribution and Graphical Presentation.

UNIT- II

Measures of Central Tendency: mathematical and positional. Measures of Dispersion: range, quartile deviation, mean deviation, standard deviation, coefficient of variation, moments,measures of skewness and kurtosis

UNIT- III

Bivariate data: Definition, scatter diagram, simple correlation ,rank correlation.
Trivariate Data: Partial and Multiple Correlation Coefficients
Fitting of Simple linear and quadratic regression lines using principle of least squares

UNIT- IV

Theory of attributes and consistency of data, independence and association of attributes, measures of association and contingency for 2 x 2 and r x s contingency tables.

SUGGESTED READINGS:

1. Goon A.M., Gupta M.K. and Dasgupta B. (2002): Fundamentals of Statistics, Vol.I & II, 8th Edn. The World Press, Kolkata.
2. Miller, Irwin and Miller, Marylees (2006): John E. Freund's Mathematical Statistics with Applications, (7th Edn.), Pearson Education, Asia.
3. Mood, A.M. Graybill, F.A. and Boes, D.C. (2007): Introduction to the Theory of Statistics, 3rd Edn., (Reprint), Tata McGraw-Hill Pub. Co. Ltd.

MAT-C2: ALGEBRA

Max. Marks: 80   **Time: 3 Hrs.**
                                                                Credits: 6

(5 Class Room Teaching + 1 Tutorial)

Note :
1. **The question paper will have nine questions. Question No.1 spread over the whole syllabus will be compulsory. Candidates will attempt five questions.**
2. **There will be two questions from each unit and the students will be required to answer one question from each unit.**
3. **All questions carry equal marks.**

Objective: The concepts and techniques from linear algebra are of fundamental importance in many scientific disciplines The main objective is to introduce basic notions in linear algebra that are often used in mathematics and other sciences. The emphasis will be to combine the abstract concepts with examples in order to intensify the understanding of the subject.

UNIT- I

Polar representation of complex numbers, n^{th} roots of unity, De Moivre's theorem for rational indices and its applications. Equivalence relations, Functions, Composition of functions, Invertible functions, One to one correspondence and cardinality of a set, Well-ordering property of positive integers.

UNIT- II

General properties of polynomials, Descarte's rule of signs, positive and negative rule, Relation between the roots and the coefficients of equations, Algebraic solutions of the cubic and biquadratic, Division algorithm, Divisibility and Euclidean algorithm, Congruence relation between integers, Principles of Mathematical Induction, statement of Fundamental Theorem of Arithmetic.

UNIT- III

Systems of linear equations, matrices, rank, Gaussian elimination, Determinants and their properties, Cramer's Rule, Vector spaces , subspaces, bases and dimension, the null space and the column space of a matrix and their dimension.

UNIT- IV

Linear transformations, representation of linear transformations by matrices, change of basis, rank-nullity theorem, Applications to difference equations and Markov chains, Eigenvalues and eigenvectors, characteristic polynomials, minimal polynomials, Cayley-Hamilton Theorem, triangulation

References:
1.   Titu Andreescu and Dorin Andrica, *Complex Numbers from A to Z*, Birkhauser, 2006.
2.   Edgar G. Goodaire and Michael M. Parmenter, *Discrete Mathematics with Graph Theory,* 3rd Ed., Pearson Education (Singapore) P. Ltd. Indian reprint, 2005.

3.   David C. Lay, *Linear Algebra and its Applications,* 3rd Ed., Pearson Education Asia, Indian reprint, 2007.
4.   S.H. Friedberg, A.J. Insel and L.E. Spence: Linear Algebra, Prentice Hall, 2003.
5.   K. Hoffman and R. Kunze: Linear Algebra, 2nd Edition, Prentice-Hall of India, 1989.
6.   S. Lang: Linear Algebra, Undergraduate Texts in Mathematics, Springer-Verlag, New York, 1989.
7.   P. Lax, Linear Algebra, John Wiley & Sons, New York. Indian Ed. 1997

GENERIC ELECTIVE FOR NON-ECONOMICS HONOURS STUDENTS

ECO-GE2: INTRODUCTORY MICROECONOMICS

Max. Marks: 80   **Time : 3 Hrs.**
                                                                          Credits: 6
                                                      (5 Class Room Teaching + 1 Tutorial)

Course Description

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

Instructions for Paper-setter and candidates:

• The maximum marks for the paper will be 100. The question paper will be of 80 marks and continuous evaluation 20 marks. Time allowed will be 3 hours.

The paper-setter must put a note in the question paper in this regard.

• There shall be **9** questions in all.

The first question **compulsory** comprising 15 short answer type questions spread over the whole syllabus. The candidates are required to attempt 10 questions. Each question shall be of **two** marks (10 x 2= 20).

Rest of the paper shall contain four units. Two questions shall be asked from each unit and the candidates shall be given internal choice. The candidates shall attempt one question from each unit. Each question will carry 15 marks (15x4=60).

UNIT- I
Exploring the subject matter of Economics. Why study economics? Scope and method of economics; the economic problem: scarcity and choice; the question of what to produce, how to produce and how to distribute output Cardinal Utility Analysis.
Ordinal Utility Analysis : The consumption decision - budget constraint, consumption and income/price changes, demand for all other goods and price changes; description of preferences (representing preferences with indifference curves); properties of indifference curves; consumers optimum choice; income and substitution effects .

UNIT- II

Theory of production: laws governing short run and long run . Producers equilibrium and expansion path

Cost Theory: Short run and long run cost curves.

The Firm and Industry under Perfect Market Structure: Price and output determination ; short run and long run.

UNIT- III

Determinants of individual demand/supply; demand/supply schedule and demand/supply curve; market versus individual demand/supply; shifts in the demand/supply curve, demand and supply together; how prices allocate resources. The basic competitive model. Supply and Demand How Markets Work, Markets and Welfare Markets and competition.

Elasticity of demand : its measurements ,applications and determinants.

Consumer surplus; producer surplus and the efficiency of the markets.

Concept of dead weight loss; Govt intervention in the form of Taxes and Subsidies.

UNIT- IV

Single seller monopoly : Price and output determination

Input Markets Labour and land markets - basic concepts (derived demand, productivity of an input, marginal productivity of labour, marginal revenue product); demand for labour; input demand curves; shifts in input demand curves; competitive labour markets and firms profit maximisation conditions in input market ; and labour markets and public policy. Derivation of labour supply and savings decision - choice between leisure and consumption.

Readings:

1. Karl, E. Case and Ray C. Fair. (2007). *Principles of Economics* (8th ed.) Pearson Education Inc.
2. Mankiw.N.Gregory. (2007). *Economics: Principles and Applications* (4th ed.) India edition by South Western, a part of Cengage Learning, Cengage Learning India Private Limited.
3. Joseph E. Stiglitz and Carl E. Walsh. (2007). *Economics* (4th ed.) International Student Edition, W.W. Norton & Company, Inc., New York.

Syllabi of B.A. (Hons.) Semester II (under CBCS)

ECO-C3: INTRODUCTORY MACROECONOMICS

Max. Marks: 80

Time: 3 Hrs.
Credits: 6
(5 Class Room Teaching + 1 Tutorial)

Course Description

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

Instructions for Paper-setter and candidates:
• The maximum marks for the paper will be 100. The question paper will be of 80 marks and continuous evaluation 20 marks. Time allowed will be 3 hours.

The paper-setter must put a note in the question paper in this regard.
• There shall be **9** questions in all.

The first question **compulsory** comprising 15 short answer type questions spread over the whole syllabus. The candidates are required to attempt 10 questions. Each question shall be of **two** marks (10 x 2= 20).

Rest of the paper shall contain four units. Two questions shall be asked from each unit and the candidates shall be given internal choice. The candidates shall attempt one question from each unit. Each question will carry 15 marks (15x4=60).

UNIT- I

Introduction to Macroeconomics and National Income Accounting

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

UNIT- II

Money
Definition, Types, Functions of money; Quantity theory of money; Determination of money supply and demand; Credit creation.
Role of Monetary policy: goals and trade off; Tools of monetary policy.

UNIT-III

Inflation

Meaning and measurement of Inflation; Effects of Inflation.
Types of Inflation: cost push, demand pull and hyperinflation; Social costs of Inflation.

The Closed Economy in the Short Run

Classical system: Say's law of market; Classical theory of output and employment determination Keynesian system: Criticism of classical system; Keynesian theory of output and employment determination

Readings:

1. Andrew B. Abel and Ben S. Bernanke. (2011) *Macroeconomics* (7th ed.). Pearson Education, Inc.,
2. Dornbusch, Fischer and Startz.(2010) *Macroeconomics* (11th ed.) McGraw Hill.
3. N. Gregory Mankiw. (2010) *Macroeconomics, (*7th ed.) Worth Publishers.
4. Olivier Blanchard. (2009) *Macroeconomics* (5th ed.) Pearson Education, Inc,.
5. Richard T. Froyen. (2005) *Macroeconomics* (2nd ed.) Pearson Education Asia ,.
6. M. Friedman (1968) The Role of Monetary Policy, American Economic Review, Vol. LVIII, No. 1, pp. 1-17.
7. J. M. Keynes (1936), The General Theory of Employment, interest and Money, Macmillan and Co., Chapters: 1-3.

ECO- C4: MATHEMATICAL METHODS FOR ECONOMICS -II

Max. Marks: 80   **Time: 3 Hrs.**
                                                           Credits: 6
                                   (5 Class Room Teaching + 1 Tutorial)

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

Instructions for Paper-setter and candidates:
• The maximum marks for the paper will be 100. The question paper will be of 80 marks and continuous evaluation 20 marks. Time allowed will be 3 hours.

The paper-setter must put a note in the question paper in this regard.
• There shall be **9** questions in all.

The first question **compulsory** comprising 15 short answer type questions spread over the whole syllabus. The candidates are required to attempt 10 questions. Each question shall be of **two** marks (10 x 2= 20).

Rest of the paper shall contain four units. Two questions shall be asked from each unit and the candidates shall be given internal choice. The candidates shall attempt one question from each unit. Each question will carry 15 marks (15x4=60).

UNIT- I

Differential Equation*:* Introduction; Solution: Variable Separable Case, Homogeneous Case, Standard Linear Differential Equation, Bernoulli's form, Exact Equation; Solution of Linear differential Equation with Constant Coefficients; Simple Application Questions.

UNIT- II

Linear algebra: Vector spaces: algebraic and geometric properties, scalar products, norms, orthogonality; linear transformations: properties, matrix representations and elementary operations; systems of linear equations: properties of their solution sets; determinants: characterization, properties and economic applications.

UNIT- III

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

UNIT- IV

Multi-variable optimization: Convex sets; geometric properties of functions: convex functions, their characterizations, properties and applications; further geometric properties of functions: quasi convex functions, their characterizations, properties and applications; unconstrained optimization: geometric characterizations, characterizations using calculus and applications; constrained optimization with equality constraints: geometric characterizations, lagrange characterization using calculus and applications; properties of value function: envelope theorem and economic applications.

Readings:

K. Sydsaeter and P. Hammond (2002). *Mathematics for Economic Analysis*, Pearson Educational Asia: Delhi.

GENERAL ELECTIVE (GE) COURSE-III & IV

SOC-GE04: SOCIAL STRATIFICATION

Max. Marks: 80   **Time: 3 Hrs.**
                                                                   Credits: 6

                                        (5 Class Room Teaching + 1 Tutorial)

Course Description

The systematic study of human behaviour and human society is a relatively recent development. The central emphasis of the paper would be to develop a conceptual clarity regarding the basic sociological terms and themes, thus leading to a development of a sociological terms and themes, thus leading to a development of a sociological outwork. The course would also discuss the works of founding father which led to the development to sociological thinking.

Instructions for Paper-setter and candidates:
• The maximum marks for the paper will be 100. The question paper will be of 80 marks and continuous evaluation 20 marks. Time allowed will be 3 hours.

The paper-setter must put a note in the question paper in this regard.

• There shall be **9** questions in all.

The first question **compulsory** comprising 15 short answer type questions spread over the whole syllabus. The candidates are required to attempt 10 questions. Each question shall be of **two** marks (10 x 2= 20).

Rest of the paper shall contain four units. Two questions shall be asked from each unit and the candidates shall be given internal choice. The candidates shall attempt one question from each unit. Each question will carry 15 marks (15x4=60).

UNIT – I
Social Stratification: Concept - Social Stratification, Inequalities and Differentiation. Elements: Position, Role and Status. Perspectives on Stratification – Functionalist: Davis and Moore, Tumin; Conflict – Marx, Dahrendorf; Multi dimensional Weberian.

UNIT II
Forms of Stratification and Social Mobility: Forms of Stratification – Caste, Class, Race and Gender. Social Mobility: Definition; Indicators – Social, Economic, Political; Types – Horizontal and Vertical (Upward and Downward) and Intergenerational.

UNIT – III
Social Change: Social Change – Definition. Factors: Demographic, Technological, Educational, Legislative. Processes of Change: Sanskritization, Westernization, Modernization and Globalization.

UNIT – IV
Social Change in India: Change in Caste Structure; Rise of Middle and Neo-Middle Class; Changing Status of Women; Resurgence of Ethnicity.

Essential Readings:
1. Beteille, Andre (2002). *Equality and Universality – Essays in Political Theory*. Oxford University Press.
2. Tumin, Melvin, Singh, G. (1985). Social Stratification, (Latest ed.) Prentice Hall, New Delhi.
3. The New Middle Class in India – A Sociological Analysis, Jaipur, Rawat.
4. Singh, Yogendra (1986). *Modernization of Indian Tradition*, Jaipur, Rawat (or latest ed.)
5. Srinivas, M N. (2010) .*Social Change in Modern India*, Orient Black Swan Pvt. Ltd.
6. Sharma, K L. (2006). *Social Stratification and Mobility*, Rawat Publication, New Delhi.
7. Abraham Francis, M. (2004). *Modern Sociological Theory – An Introduction*, Oxford University Press, Delhi.

Further Readings:
1. D'Souza, V. S. (1981). *Inequality and Its Perpetuation*, Manohar Publications, New Delhi.
2. Singh, K S. (ed.) (1992). *Ethinicity Caste and People : India and Soviet Union.* Manohar Publications, New Delhi.
3. Singer Milton, CohaBeemard (2001). *Structure and Change in Indian Society*, Rawat Publications, New Delhi.
4. AtalYogesh.(2006). *Changing Indian Society*, Rawat Publications, New Delhi.
5. Beteille, Andre (2009). Sociology – Essays on Approach & Method. Oxford University Press.
6. *Rao Shankar* C.N. (2012).*Sociology*: principles with an Introduction to Social Thought.S.Chand and Company Pvt. Ltd.
7. *Rao Shankar* C.N. (2012). SOCIOLOGY OF INDIAN SOCIETY.S.Chand and Company Pvt. Ltd.
8. Haralambos, Michael.(2015). Sociology: Themes and Perspectives. Oxford.
9. Ministry of Women and Child Development, GOI. Report of the High Level Committee on Status of Women in India (2015). http://www.wcd.nic.in/documents/hlc-status-women

STAT-GE-2 :INTRODUCTORY PROBABILITY

Max. Marks: 80   **Time: 3 Hrs.**
                                                                                           Credits: 6
                                                          (5 Class Room Teaching + 1 Tutorial)

Course Description

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

Instructions for Paper-setter and candidates:
- The maximum marks for the paper will be 100. The question paper will be of 80 marks and continuous evaluation 20 marks. Time allowed will be 3 hours.

The paper-setter must put a note in the question paper in this regard.

- There shall be **9** questions in all.

The first question **compulsory** comprising 15 short answer type questions spread over the whole syllabus. The candidates are required to attempt 10 questions. Each question shall be of **two** marks (10 x 2= 20).

Rest of the paper shall contain four units. Two questions shall be asked from each unit and the candidates shall be given internal choice. The candidates shall attempt one question from each unit. Each question will carry 15 marks (15x4=60)

UNIT- I
Probability: Introduction, random experiments, sample space, events and algebra of events. Definitions of Probability – classical, statistical, and axiomatic. Conditional Probability, laws of addition and multiplication, independent events, theorem of total probability, Bayes' theorem and its applications.

UNIT- II
Random Variables: Discrete and continuous random variables, p.m.f., p.d.f. ,c.d.f. Illustrations of random variables and their properties. Expectation, variance, moments and moment generating function.

UNIT- III
Standard probability distributions: Binomial, Poisson, geometric, negative binomial, hyper geometric, uniform, normal, exponential, beta, gamma and their applications. Fitting of Binomial, Poisson and Normal Distributions

UNIT- IV
Chebyshev's inequality ,Convergence in probability, Weak law of large numbers, Convergence in Distribution, De-Moivre Laplace and Lindeberg-Levy Central Limit Theorems (C.L.T.).

SUGGESTED READINGS:

1. Hogg, R.V., Tanis, E.A. and Rao J.M. (2009): Probability and Statistical Inference, Seventh Ed, Pearson Education, New Delhi.
2. Miller, Irwin and Miller, Marylees (2006): John E. Freund's Mathematical Statistics with Applications, (7th Edn.), Pearson Education, Asia.
3. Meyer, P.L. (1970): Introductory Probability and Statistical Applications, Oxford & IBH Publishing, New Delhi.

MAT-C4: DIFFERENTIAL EQUATIONS
THEORY

[Max. Marks: 100]
(Final-80+Internal Assessment-20)
Credits: 4

Time : 3hrs.

Note :
1. **The question paper will have nine questions. Question No.1 spread over the whole syllabus will be compulsory. Candidates will attempt five questions.**
2. **There will be two questions from each unit and the students will be required to answer one question from each unit.**
3. **All questions carry equal marks.**

Objective: *To exhibit the techniques for obtaining solutions to ordinary differential equations and the basic ideas and theory behind those techniques.*

UNIT- I

Differential equations and mathematical models. General, particular, explicit, implicit and singular solutions of a differential equation. Introduction to compartmental model, exponential decay model, lake pollution model (case study of Lake Burley Griffin), drug assimilation into the blood (case of a single cold pill, case of a course of cold pills), exponential growth of population, limited growth of population, limited growth with harvesting. (Scope as in Chapters 1, 3.3 of S.L.Ross)

UNIT- II

Exact differential equations and integrating factors, separable equations and equations reducible to this form, linear equation and Bernoulli equations, special integrating factors and transformations. (Scope as in Chapter 2 of S.L. Ross)

UNIT- III

General solution of homogeneous equation of second order, principle of super position for homogeneous equation, Wronskian: its properties and applications, Linear homogeneous and non-homogeneous equations of higher order with constant coefficients. (Scope as in Chapter 4.1, 4.2 of S.L. Ross)

UNIT- IV

Power Series solution about an ordinary point, solutions about singular points, The method of Frobenius, Bessel's equation and Bessel function. (Scope as in Chapter 6 of S.L. Ross)

References:

1. Belinda Barnes and Glenn R. Fulford, *Mathematical Modeling with Case Studies, A Differential Equation Approach using Maple and Matlab,* 2nd Ed., Taylor and Francis group, London and New York, 2009.
2. C.H. Edwards and D.E. Penny, *Differential Equations and Boundary Value problems Computing and Modeling,* Pearson Education India, 2005.
3. Martha L Abell, James P Braselton, *Differential Equations with MATHEMATICA,* 3rd Ed., Elsevier Academic Press, 2004.
4. E. A. Coddington, An introduction to ordinary differential equation, Prentice-Hall of India.

5. W. E. Boyce and R. C. Diprima, Elementary differential equations and boundary value problems.
6. Earl D. Rainville and P. E. Benediet, Elementary differential equations, Seventh edition, Macmillian, Publishing Company, 1989.
7. S.L. Ross, *Differential Equations,* 3rd Ed., John Wiley and Sons, India, 2004.

MAT-C4:   DIFFERENTIAL EQUATIONS
PRACTICAL

[Max. Marks: 50](Final-40+Internal Assessment-10)
Time : 3hrs.

Credits: 2

List of Practicals (using any software)

1.   Plotting of second order solution family of differential equation.

2.   Plotting of third order solution family of differential equation.

3.   Growth model (exponential case only).

4.   Decay model (exponential case only).

5.   Lake pollution model (with constant/seasonal flow and pollution concentration).

6.   Case of single cold pill and a course of cold pills.

7.   Limited growth of population (with and without harvesting).

8.   Some other applications of the topics in the course.

References:

1.   Belinda Barnes and Glenn R. Fulford, *Mathematical Modeling with Case Studies, A Differential Equation Approach using Maple and Matlab,* 2nd Ed., Taylor and Francis group, London and New York, 2009.
2.   C.H. Edwards and D.E. Penny, *Differential Equations and Boundary Value problems Computing and Modeling,* Pearson Education India, 2005.
3.   S.L. Ross, *Differential Equations,* 3rd Ed., John Wiley and Sons, India, 2004.
4.   Martha L Abell, James P Braselton, *Differential Equations with MATHEMATICA,* 3rd Ed., Elsevier Academic Press, 2004.
5.   E. A. Coddington, An introduction to ordinary differential equation, Prentice-Hall of India.
6.   W. E. Boyce and R. C. Diprima, Elementary differential equations and boundary value problems.
7.   Earl D. Rainville and P. E. Benediet, Elementary differential equations, Seventh edition, Macmillian, Publishing Company, 1989.

ECO-GE4: INTRODUCTORY MACROECONOMICS

Max. Marks: 80   **Time: 3 Hrs.**
Credits: 6

(5 Class Room Teaching + 1 Tutorial)

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

Instructions for Paper-setter and candidates:
   • The maximum marks for the paper will be 100. The question paper will be of 80 marks and continuous evaluation 20 marks. Time allowed will be 3 hours.

The paper-setter must put a note in the question paper in this regard.
   • There shall be **9** questions in all.

The first question **compulsory** comprising 15 short answer type questions spread over the whole syllabus. The candidates are required to attempt 10 questions. Each question shall be of **two** marks (10 x 2= 20).

Rest of the paper shall contain four units. Two questions shall be asked from each unit and the candidates shall be given internal choice. The candidates shall attempt one question from each unit. Each question will carry 15 marks (15x4=60).

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

UNIT- II
Money
Definition, Types, Functions of money; Quantity theory of money; Determination of money supply and demand; Credit creation.
Role of Monetary policy: goals and trade off; Tools of monetary policy.

UNIT- III
Inflation
Meaning and measurement of Inflation; Effects of Inflation.
Types of Inflation: cost push, demand pull and hyperinflation; Social costs of Inflation.

UNIT- IV

The Closed Economy in the Short Run
Classical system: Say's law of market; Classical theory of output and employment determination
Keynesian system: Criticism of classical system; Keynesian theory of output and employment determination

Readings:

1. Andrew B. Abel and Ben S. Bernanke. (2011) *Macroeconomics* (7th ed.). Pearson Education, Inc.,
2. Dornbusch, Fischer and Startz.(2010) *Macroeconomics* (11th ed.) McGraw Hill.
3. N. Gregory Mankiw. (2010) *Macroeconomics, (*7th ed.) Worth Publishers.
4. Olivier Blanchard. (2009) *Macroeconomics* (5th ed.) Pearson Education, Inc.
5. Richard T. Froyen. (2005) *Macroeconomics* (2nd ed.) Pearson Education Asia .
6. M. Friedman (1968) The Role of Monetary Policy, American Economic Review, Vol. LVIII, No. 1, pp. 1-17.
7. J. M. Keynes (1936), The General Theory of Employment, interest and Money, Macmillan and Co., Chapters: 1-3.

ECO-C5: INTERMEDIATE MICROECONOMICS – I

Max. Marks: 80   **Time: 3 Hrs.**
                                                                    Credits: 6

                                              (5 Class Room Teaching + 1 Tutorial)

Course Description

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

Instructions for Paper-setter and candidates:
• The maximum marks for the paper will be 100. The question paper will be of 80 marks and continuous evaluation 20 marks. Time allowed will be 3 hours.
The paper-setter must put a note in the question paper in this regard.
• There shall be **9** questions in all.

The first question **compulsory** comprising 15 short answer type questions spread over the whole syllabus. The candidates are required to attempt 10 questions. Each question shall be of **two** marks (10 x 2= 20).

Rest of the paper shall contain four units. Two questions shall be asked from each unit and the candidates shall be given internal choice. The candidates shall attempt one question from each unit. Each question will carry 15 marks (15x4=60).

UNIT- I
Budget constraint; properties of budget set, how budget line changes.

Preference; Indifference curves, Marginal rate of substitution.

Utility; perfect substitutes, perfect complements,

Choice; optimal choice; neutrals and bads, discrete goods, concave preferences.

Demand; income offer curves and Engel curves, price offer curve and demand curve. Revealed preference

UNIT- II
Slutsky equation; the substitution effect, the total change in demand, rates of change.

Buying and Selling; net gross demand, offer curves and demand curves Intertemporal choice.

UNIT- III
Uncertainty and risk aversion
Technology : Production Functions ; Homogenous and homothetic ; Cobb Douglas and CES : Properties ; elasticity of substitution ; Eulers theorem.

UNIT-IV

Perfect competition: Assumptions: theory of a firm under perfect competition demand and revenue; equilibrium of the firm in the short run and long run; long run industry supply curve: Increasing, decreasing and constant cost industries.

Price controls: Price Ceiling; price floors; production import quotas Welfare: allocative efficiency under perfect competition.

Readings:

1. Scope as in Varian, H.R (2010). *Intermediate Microeconomics, a Modern Approach* (8th ed.). W.W. Norton and Company/Affiliated East-West Press (India) given as follows;

   Unit 1 chapters 2 to 7

   Unit 2 chapters 8,9,10

   Unit 3 chapters 12 to 18

   Unit 4 chapters 19, 22, 23

Advanced Readings:

2. Varian.H.R (2010). Intermediate Microeconomics, a Modern Approach (8th ed.)W.W. Norton and Company/Affiliated East-West Press (India).The workbook by Varian and Bergstrom could be used for problems.
3. C. Snyder and W. Nicholson.(2010).Fundamentals of Microeconomics, Cengage Learning (India).
4. Maddala, G.S. and Miller, R. L. (2006). Intermediate microeconomics: theory, issues, applications. McGraw-Hill Companies.
5. Koutsoyiannis, A. (2003). Modern microeconomics.(2nd ed.). Paperback
6. B. Douglas Bernheim and Michael D. Whinston. (2009). Microeconomics Tata McGraw-Hill (India).
7. Bergstrom, T. C., & Varian, H. R. (1990). Workouts in intermediate microeconomics. WW Norton.
8. Pindyck, Robert S., and Daniel L. Rubinfeld. Microeconomics. Upper Saddle River, N.J.: Pearson/Prentice Hall, 2009.
9. Mankiw, G. (2000). Microeconomics. In *Principles of Microeconomics* (Vol. 1, pp. 3–6, 270–272).

ECO-C6: INTERMEDIATE MACROECONOMICS - I

Max. Marks: 80   **Time: 3 Hrs.**
                                                                        Credits: 6
                                                        (5 Class Room Teaching + 1 Tutorial)

Course Description
This course introduces the students to formal modeling of a macro-economy in terms of analytical tools. It discusses various alternative theories of output and employment determination in a closed economy in the short run as well as medium run, and the role of policy in this context. It also introduces the students to various theoretical issues related to an open economy.

Instructions for Paper-setter and candidates:

• The maximum marks for the paper will be 100. The question paper will be of 80 marks and continuous evaluation 20 marks. Time allowed will be 3 hours.

The paper-setter must put a note in the question paper in this regard.

• There shall be **9** questions in all.

The first question **compulsory** comprising 15 short answer type questions spread over the whole syllabus. The candidates are required to attempt 10 questions. Each question shall be of **two** marks (10 x 2= 20).

Rest of the paper shall contain four units. Two questions shall be asked from each unit and the candidates shall be given internal choice. The candidates shall attempt one question from each unit. Each question will carry 15 marks (15x4=60).

UNIT- I

1. Aggregate Demand and Aggregate Supply Curves
Derivation of aggregate demand and aggregate supply curves; interaction of aggregate demand and supply.
IS-LM model; Fiscal and monetary policy multiplier

UNIT- II

2. Inflation, Unemployment and Expectations
Theories of Inflation, Keynesian; Monetarist; Structurlist
Phillips curve: short and long run; adaptive and rational expectations; policy ineffectiveness debate.

UNIT-III
3. Open Economy Models
Short-run open economy models; Mundell -Fleming model; exchange rate determination;
purchasing power parity; Asset market approach; Dornbusch's overshooting model.

Monetary approach to balance of payments; Disequilibrium in balance of payment and its consequences; Balance of payment adjustment policies under fixed and flexible exchange rate; International financial markets.

Readings:

1. Dornbusch, Fischer and Startz. (2010). *Macroeconomics* (11th ed.). McGraw Hill.
2. N. Gregory Mankiw. (2010). *Macroeconomics* (7th ed.) Worth Publishers.
3. Olivier Blanchard (2009).*Macroeconomics* (5th ed.). Pearson Education, Inc.
4. Steven M. Sheffrin. (1996).*Rational Expectations (*2nd ed.). Cambridge University Press,
5. Andrew B. Abel and Ben S. Bernanke. (2011). *Macroeconomics (*7th ed.). Pearson Education, Inc.,
6. Errol D'Souza.(2009) *Macroeconomics*. Pearson Education,
7. Paul R. Krugman, Maurice Obstfeld and Marc Melitz.(2012). *International Economics (*9th ed.).Pearson Education Asia.

ECO-C7: STATISTICAL METHODS FOR ECONOMICS

Max. Marks: 80   **Time: 3 Hrs.**
                                                                     Credits: 6
                                          (5 Class Room Teaching + 1 Tutorial)

Course Description

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

Instructions for Paper-setter and candidates:
• The maximum marks for the paper will be 100. The question paper will be of 80 marks and continuous evaluation 20 marks. Time allowed will be 3 hours.

The paper-setter must put a note in the question paper in this regard.
• There shall be **9** questions in all.

The first question **compulsory** comprising 15 short answer type questions spread over the whole syllabus. The candidates are required to attempt 10 questions. Each question shall be of **two** marks (10 x 2= 20).

Rest of the paper shall contain four units. Two questions shall be asked from each unit and the candidates shall be given internal choice. The candidates shall attempt one question from each unit. Each question will carry 15 marks (15x4=60).

UNIT-I

Introduction and Overview

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

Elementary Probability Theory

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

UNIT-II

Random Variables and Probability Distributions

Defining random variables; probability distributions; expected values of random variables and of functions of random variables; properties of commonly used discrete and continuous distributions (uniform, binomial, normal, poisson and exponential random variables).

UNIT-III

Random Sampling and Jointly Distributed Random Variables

Density and distribution functions for jointly distributed random variables (two variables case); computing expected values; covariance and correlation coefficients.

Sampling

Principal steps in a sample survey; methods of sampling; the role of sampling theory; properties of random samples.

UNIT-IV

Point and Interval Estimation

Estimation of population parameters using methods of moments and maximum likelihood procedures; properties of estimators; confidence intervals for population parameters.

Readings:

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

ECO-SEE 1: DATA SOURCES-I

Max. Marks: 80   **Time: 3 Hrs.**
Credits: 2
(2 Class Room Teaching)

Course Description
This course is designed to expose the students to the data sources of Indian Economic pertaining to macro economic variables. The emphasis will be on thinking like an economist and the course will illustrate how get data on macroeconomic concepts to be applied to analyze real-life situations.

Instructions for Paper-setter and candidates:
• The maximum marks for the paper will be 100. The question paper will be of 80 marks and continuous evaluation 20 marks. Time allowed will be 3 hours.
The paper-setter must put a note in the question paper in this regard.

• There shall be **9** questions in all.

The first question **compulsory** comprising 15 short answer type questions spread over the whole syllabus. The candidates are required to attempt 10 questions. Each question shall be of **two** marks (10 x 2= 20).

Rest of the paper shall contain four units. Two questions shall be asked from each unit and the candidates shall be given internal choice. The candidates shall attempt one question from each unit. Each question will carry 15 marks (15x4=60).

UNIT-I
National Income Accounts Data on key macroeconomic indicators: definitions, components, measurement and problems.

UNIT- II
Sources of data on Monetary Parameters: Components and Measurement of Money Supply, Banking statistics and their Limitations

UNIT- III
Sources of data on Fiscal Parameters: Details of Revenue and Expenditure of the central and state Governments, Deficit Indicators and Limitations.

UNIT- IV
Data Sources on Inflation: Consumer Price Index and Wholesale Price Index, its measurement and problems

Readings :

1. **RBI Database on Indian Economy**
2. **Latest National Account Statistics** India (CSO)
3. **India Statistics** (CSO – Cover Agriculture, Industry, Service and Social Sector)
4. **District Domestic Products (All Major States – 1999-00 to 2008-09)**
5. **Planning Commission Socio-economic Database on Indian Economy**
6. **Indian Planning Experience** - **A Statistical Profile**
7. **Economic Survey Database**
8. **Export-import Databank of India**

GENERAL ELECTIVE (GE) COURSE-V

SOC-GE05: INDIAN SOCIETY : IMAGES AND REALITIES

Max. Marks: 80   **Time: 3 Hrs.**
                                                       Credits: 6
                                   (5 Class Room Teaching + 1 Tutorial)

Course Objective:
This course seeks to provide an interdisciplinary introduction to Indian society.

Instructions for Paper-setter and candidates:
• The maximum marks for the paper will be 100. The question paper will be of 80 marks and continuous evaluation 20 marks. Time allowed will be 3 hours.

The paper-setter must put a note in the question paper in this regard.
• There shall be **9** questions in all.

The first question **compulsory** comprising 15 short answer type questions spread over the whole syllabus. The candidates are required to attempt 10 questions. Each question shall be of **two** marks (10 x 2= 20).

Rest of the paper shall contain four units. Two questions shall be asked from each unit and the candidates shall be given internal choice. The candidates shall attempt one question from each unit. Each question will carry 15 marks (15x4=60).

Outline:
1. **Ideas of India: Civilization, Colony, Nation and Society (3 Weeks)**
2. **Institutions and Processes (9 Weeks)**
2.1 Village, Town and Region
2.2 Caste, Religion and Ethnicity
2.3 Family and Gender
2.4 Political Economy
3. **Critiques (2 Weeks)**

COURSE CONTENTS AND ITINERARY

UNIT-I
1. **Ideas of India: Civilization, Colony, Nation and Society (3 Weeks)**
  1.1 Embree, Ainslie Thomas,.*Imagining India*. Delhi: Oxford University Press, 1989. Chapter 1-Brahmanical Ideology and Regional Identities. Pp. 9 – 27
  1.2 Cohn, Bernard. *India: Social Anthropology of a Civilization*, Delhi: OUP.
     Chapters 1, 3, 5 & 8 (1-7, 24-31, 51-59, 79-97)

2. **Institutions and Processes (9 Weeks)**
  2.1 Village, Town and Region
  2.1.1 Breman, Jan. 'The Village in Focus' from the Village Asia Revisited,Delhi: OUP 1997. Pp. 15-64
  2.1.2 Cohn, Bernard, *An Anthropologist Among Historians and Other Essays*, Delhi: OUP, 1987, Chapters. 4 and 6. Pp.78-85 & 100 – 135

UNIT-II

2.2 Caste, Religion and Ethnicity
    2.2.1 Mines, Diane P. *Caste in India*. Ann Arbor, Mich.: Association for Asian Studies, 2009. Pp. 1-35
    2.2.2 Fuller, C. J. *The Camphor Flame: Popular Hinduism and Society in India*.Delhi: Viking, 1992. Chapter 1. Pp. 3 – 28.
    2.2.3 Ahmad, Imtiaz et.al (eds). *Pluralism and Equality: Values in Indian Society and Politics*, Sage : New Delhi, 2000. Chapter: 'Basic Conflict of 'we' and 'they'' Between religious traditions, between Hindus, Muslims and Christians'.

UNIT-III

2.3 Family and Gender
    2.3.1 Dube, Leela. 'On the Construction of Gender: Hindu Girls in Patrilineal India', Economic *and Political Weekly*, Vol. 23, No. 18 (Apr. 30, 1988), pp.WS11-WS19.
    2.3.2 Gray, John N. & David J. Mearns. *Society from the Inside Out: Anthropological Perspectives on the South Asian Household.* New Delhi: Sage, 1989. Chapter 3. (Sylvia Vatuk) Household Form and Formation: Variability and Social Change among South Indian Muslims. Pp. 107-137

UNIT-IV

2.4 Political Economy
    2.4.1 Chatterjee, Partha. *State and Politics in India*. Delhi: Oxford University Press, 1997. Introduction: A Political History of Independent India. Pp. 1-39

3. Critiques (2 Weeks)
    3.1   Omvedt, Gail. *Understanding Caste*. New Delhi: Orient Black Swan, 2011. Chapters.5, 9, 11 and Conclusion. Pp. 30-38, 67 – 73, 83 – 90, 97 – 10

    3.2   Sangari, Kumkum and Sudesh Vaid. *Recasting Women: Essays in Indian Colonial History.*New Brunswick: Rutgers University Press. Introduction, Pp.1 – 25

STAT-GE-3: BASICS OF STATISTICAL INFERENCE

Max. Marks: 80   **Time: 3 Hrs.**
                                              Credits: 6
                               (5 Class Room Teaching + 1 Tutorial)

Course Description

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

Instructions for Paper-setter and candidates:
- The maximum marks for the paper will be 100. The question paper will be of 80 marks and continuous evaluation 20 marks. Time allowed will be 3 hours.

The paper-setter must put a note in the question paper in this regard.
- There shall be **9** questions in all.

The first question **compulsory** comprising 15 short answer type questions spread over the whole syllabus. The candidates are required to attempt 10 questions. Each question shall be of **two** marks (10 x 2= 20).

Rest of the paper shall contain four units. Two questions shall be asked from each unit and the candidates shall be given internal choice. The candidates shall attempt one question from each unit. Each question will carry 15 marks (15x4=60)

UNIT- I
Estimation of population means.

The basic idea of significance test, Null and alternative hypotheses. Type I& Type II errors, level of significance, concept of p-value. Tests of hypotheses and confidence intervalsfor the parameters of a normal distribution (one and two sample problems), Paired t-test.

UNIT- II
Categorical data: Tests of proportions, tests of association and goodness-of-fit using Chi-square test, Yates' correction.

UNIT- III
Test of significance for correlation coefficient. Fisher's z –transformation for testing the hypothetical value of correlation coefficient.

Basic Idea of Non-parametric tests, sign test for median, Paired sign test, Wilcoxon signed rank test for symmetry, Wilcoxon two-sample test.

UNIT- IV
Analysis of variance, one-way and two-way classifications.Brief exposure of three basic principles of design of experiments, treatment, plot and block. Analysis of completely randomized design, randomized complete block design.

SUGGESTED READING:
1. Danial Wayne W.BioStatistics: A foundation for Analysis in the Health Sciences, John. Wiley (2005)
2. Goon, A.M., Gupta, M.K. and Dasgupta, B. Fundamental of Statistics, Vol I (1975) &Vol II, (2001)
3. Das, M.N. & Giri, N.C.: Design and analysis of experiments, John Wiley.
4. Dunn, O.J. Basic Statistics: A primer for the Biomedical Sciences (1964, 1977), John Wiley.
5. Bancroft, Holdon: Introduction to Bio-statistics (1962), P.B. Hoebar, New York
6. Goldstein, A Biostatistics- An introductory text (1971), The Macmillion, New York.

MAT-C1: CALCULUS

THEORY

[Max. Marks: 100]
(Final-80+Internal Assessment-20)
Time: 3hrs.
Credits: 4

Note :
- **The question paper will have nine questions. Question No.1 spread over the whole syllabus will be compulsory. Candidates will attempt five questions.**
- **There will be two questions from each unit and the students will be required to answer one question from each unit.**
- **All questions carry equal marks.**

Objective: Calculus is one of the major branches of mathematics that finds application in almost all the fields of science. This course is an introduction to calculus. Students will be introduced to the hyperbolic functions, curve tracing, applications of integration and vector functions.

UNIT-I

Higher order derivatives, Leibniz rule and its applications, L'Hospital's rule, Derivations and Applications of Reduction Formulae for the Integrals of Trigonometric Functions.
Scope as in [1] Chapter 2, Section 6.6 and [2] Chapter 4.

UNIT-II

Concavity and inflection points, asymptotes, curve tracing in Cartesian coordinates, tracing in polar coordinates of standard curves, Techniques of sketching conics, reflection properties of conics, rotation of axes and second degree equations, classification into conics using the discriminant, polar equations of conics. Hyperbolic functions and their properties.
Scope as in [1] Sections 3.4, 3.5, 6.10, 9.1, 9.2, 9.3.

UNIT-III

Volumes by slicing, disks and washers methods, volumes by cylindrical shells, parametric equations, parameterizing a curve, arc length, arc length of parametric curves, area of surface of revolution.
Scope as in [1] Sections 5.2 to 5.6

UNIT-IV

Triple product, introduction to vector functions, operations with vector-valued functions, limits and continuity of vector functions, differentiation and integration of vector functions, tangent and normal components of acceleration, modeling ballistics and planetary motion, Kepler's second law.
Scope as in [1] Sections 10.1 to 10.5, 11.1, 11.3, 11.4, 11.5.

Books Recommended

1. G.B. Thomas and R.L. Finney, *Calculus*, 9th Ed., Pearson Education, Delhi, 2005.
2. Shanti Narayan, Integral Calculus, S. Chand and Company Ltd, 2001.
3. M.J. Strauss, G.L. Bradley and K. J. Smith, *Calculus,* 3rd Ed., Dorling Kindersley (India) P. Ltd. (Pearson Education), Delhi, 2007.
4. H. Anton, I. Bivens and S. Davis, *Calculus,* 7th Ed., John Wiley and Sons (Asia) P. Ltd., Singapore, 2002.
5. R. Courant and F. John, *Introduction to Calculus and Analysis* (Volumes I & II), Springer-Verlag, New York, Inc., 1989.

MAT-C1: CALCULUS

PRACTICAL

(Using any software)

[Max. Marks: 50](Final-40+Internal Assessment-10)

Time : 3hrs.

Credits: 2

List of Practicals (using any software)

• Plotting of graphs of function eax + b, log(ax + b), 1/(ax + b), sin(ax + b), cos(ax + b), |ax + b|and to illustrate the effect of a and b on the graph.
• Plotting the graphs of polynomial of degree 4 and 5, the derivative graph, the second derivative graph and comparing them.
• Sketching parametric curves (Eg. Trochoid, cycloid, epicycloids, hypocycloid).
• Obtaining surface of revolution of curves.
• Tracing of conics in Cartesian coordinates/ polar coordinates.
• Sketching ellipsoid, hyperboloid of one and two sheets, elliptic cone, elliptic, paraboloid, hyperbolic paraboloid using cartesian coordinates.
• Matrix operation (addition, multiplication, inverse, transpose).

Books Recommended:

1. G.B. Thomas and R.L. Finney, *Calculus*, 9th Ed., Pearson Education, Delhi, 2005.
2. M.J. Strauss, G.L. Bradley and K. J. Smith, *Calculus,* 3rd Ed., Dorling Kindersley (India) P. Ltd. (Pearson Education), Delhi, 2007.
3. H. Anton, I. Bivens and S. Davis, *Calculus,* 7th Ed., John Wiley and Sons (Asia) P. Ltd., Singapore, 2002.
4. R. Courant and F. John, *Introduction to Calculus and Analysis* (Volumes I & II), Springer-Verlag, New York, Inc., 1989.

GENERIC ELECTIVE IN ECONOMICS FOR NON ECONOMICS STUDENTS

ECO- GE5 : INDIAN ECONOMY-I

Max. Marks: 80   **Time: 3 Hrs.**
Credits: 6
(5 Class Room Teaching + 1 Tutorial)

Course Description
Using appropriate analytical frameworks, this course reviews major trends in economic indicators and policy debates in India in the post-Independence period, with particular emphasis on paradigm shifts and turning points.

Instructions for Paper-setter and candidates:
•   The maximum marks for the paper will be 100. The question paper will be of 80 marks and continuous evaluation 20 marks. Time allowed will be 3 hours.
The paper-setter must put a note in the question paper in this regard.
•   There shall be **9** questions in all.

The first question **compulsory** comprising 15 short answer type questions spread over the whole syllabus. The candidates are required to attempt 10 questions. Each question shall be of **two** marks (10 x 2= 20).

Rest of the paper shall contain four units. Two questions shall be asked from each unit and the candidates shall be given internal choice. The candidates shall attempt one question from each unit. Each question will carry 15 marks (15x4=60).

Course Outline

UNIT-I
*Economic Development since Independence***:** State of the Indian economy at the Independence. Changes in the structure of the Indian economy. Adoption of Planning in India. Objectives, Strategy and Appraisal of Panning in India.

UNIT –II
*Economic Reforms in India***:** State of the Indian Economy in 1991. Features of Economic Reforms and Structural Adjustment Programme: Liberalization, Privatization and Globalization. Appraisal of Economic Reform Programme.

UNIT-III
*Agriculture and its Development in India***:** Features of Indian Agriculture. New Agricultural Strategy in India (Green Revolution).Economic Liberalization and Indian Agriculture.

UNIT-IV
*Industry and Public sector in India***:** Phases of Industrial Growth in India, Appraisal of the Industrial Policy resolution of 1956, 1980 and 1991. Performance of Public sector Undertakings in India and its Evaluation. Privatization – Nature and Extent in India.

Essential Readings:

1. Ahluwalia, I. J.,& Little, I. M. D. (Eds.). (1998). *India's economic reforms and development: Essays for Manmohan Singh*. New Delhi, India: Oxford University Press.
2. Brahmananda, P. R.,& Panchmukhi, V. R. (Eds.). (1987). *The development process of Indian economy*. Bombay, India: Himalaya Publishing House.
3. Jalan, B. (1992). *The Indian economics – problems and prospects*. New Delhi, India: Viking.
4. Lucas, E. B.,& Papanek, G. F. (Eds.).(1988). *The Indian economy – recent development and future prospects*.Oxford, England: Oxford University Press
5. Nayak, P. (Ed.). (2015). *Economic development of India*. New York, NY: Routledge.
6. *Dhar P.K.* (2016).*Indian Economy- Its growing dimensions*. New Delhi: Kalyani Publishers.

Further Readings:

1. Byres, T. J. (ed.). (1998). *The Indian economy: Major debate since independence*. New Delhi, India: Oxford University Press.
2. *Economic and political weekly*.(Various issues). Mumbai, India: Sameeksha Trust.

B.A. (Hons.) Semester IV (under CBCS)

ECO- C8: INTERMEDIATE MICROECONOMICS – II

Max. Marks: 80   **Time: 3 Hrs.**
                                                         Credits: 6
                                       (5 Class Room Teaching + 1 Tutorial)

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

Instructions for Paper-setter and candidates:
• The maximum marks for the paper will be 100. The question paper will be of 80 marks and continuous evaluation 20 marks. Time allowed will be 3 hours.

The paper-setter must put a note in the question paper in this regard.
• There shall be **9** questions in all.

The first question **compulsory** comprising 15 short answer type questions spread over the whole syllabus. The candidates are required to attempt 10 questions. Each question shall be of **two** marks (10 x 2= 20).

Rest of the paper shall contain four units. Two questions shall be asked from each unit and the candidates shall be given internal choice. The candidates shall attempt one question from each unit. Each question will carry 15 marks (15x4=60).

UNIT- I

Imperfect Competition
Monopoly; pricing; measurement of market power; Multiplant monopoly

Price discrimination; Inter temporal; peak-load pricing; two-part tariff

Regulation of Monopoly

Monopolistic competition: price and output determination
Economic efficiency and resource allocation

UNIT-II

Imperfect Competition
 Oligopoly; Price leadership; Cournot , Stackleberg and Bertrand Models

Game theory and competitive strategies: Dominant Strategy; Mixed strategies;
Prisoners Dilemma ; Repeated and Sequential games

UNIT- III

General Equilibrium, Efficiency and Welfare
Equilibrium and efficiency under pure exchange and production; overall efficiency
Welfare economics; Social welfare, welfare maximisation, envy and equity,

UNIT- IV

Market Failure

Externalities; Production and Consumption, Coase Theorem, Market Signals,
Public Goods: Provision of Public Goods, Free Riding, Different Levels of Public
Goods. Asymmetric Information: Market for Lemons, Moral Hazard, Adverse
Selection, Signaling.

Readings:

1. Scope as in Varian. H.R (2010). *Intermediate Microeconomics, a Modern Approach* (8th ed.)W.W. Norton and Company/Affiliated East-West Press (India) given as follows:

   Unit 1 chapters 24, 25
   Unit 2 chapters 27, 28
   Unit 3 chapters 31, 32, 33
   Unit 4 chapters 34, 36, 37

Advanced Readings:

1. Varian.H.R (2010). *Intermediate Microeconomics, a Modern Approach* (8th ed.)W.W. Norton and Company/Affiliated East-West Press (India).The workbook by Varian and Bergstrom could be used for problems.
2. C. Snyder and W. Nicholson.(2010).*Fundamentals of Microeconomics,*Cengage Learning (India).
3. Maddala, G.S. and Miller, R. L. (2006). *Intermediate microeconomics: theory, issues, applications*. McGraw-Hill Companies.
4. Koutsoyiannis, A. (2003). *Modern microeconomics.(2nd ed.).* Paperback
5. B. Douglas Bernheim and Michael D. Whinston. (2009). Microeconomics Tata McGraw-Hill (India).
6. Bergstrom, T. C., & Varian, H. R. (1990). Workouts in intermediate microeconomics. WW Norton.
7. Pindyck, Robert S., and Daniel L. Rubinfeld. Microeconomics. Upper Saddle River, N.J.: Pearson/Prentice Hall, 2009.
8. Mankiw, G. (2000). Microeconomics. In *Principles of Microeconomics* (Vol. 1, pp. 3–6, 270–272).

ECO-C9: INTERMEDIATE MACROECONOMICS – II

Max. Marks: 80   **Time: 3 Hrs.**
                                                                    Credits: 6
                                          (5 Class Room Teaching + 1 Tutorial)

Course Description
This course is a sequel to Intermediate Macroeconomics I. In this course, the students are introduced to the long run dynamic issues like growth and technical progress. It also provides the micro-foundations to the various aggregative concepts used in the previous course.

Instructions for Paper-setter and candidates:
• The maximum marks for the paper will be 100. The question paper will be of 80 marks and continuous evaluation 20 marks. Time allowed will be 3 hours.

The paper-setter must put a note in the question paper in this regard.
• There shall be **9** questions in all.

The first question **compulsory** comprising 15 short answer type questions spread over the whole syllabus. The candidates are required to attempt 10 questions. Each question shall be of **two** marks (10 x 2= 20).

Rest of the paper shall contain four units. Two questions shall be asked from each unit and the candidates shall be given internal choice. The candidates shall attempt one question from each unit. Each question will carry 15 marks (15x4=60).

UNIT-I

Microeconomic Foundations
Consumption
Keynesian consumption function; Fisher's theory of optimal intertemporal choice; life-cycle and permanent income hypotheses; rational expectations and random-walk of consumption expenditure.
Investment
Determinants of business fixed investment; residential investment and inventory investment.

UNIT- II

Demand for Money
Interest sensitivity of money demand function: Keynes', Baumol's, Tobin's and Friedman's approaches.
Supply of money: High powered money; money multiplier.

UNIT-III

Trade Cycle Theories
Theories of trade cycles: Hansen-Samulson's multiplier-acceleration interaction theory; Hicks, Kaldor, Monetarist interpretation of trade cycles; Real business cycle theory.

UNIT-IV

Fiscal and Monetary Policy

Active or passive; rules versus discretion: time inconsistency; the government budget constraint; government debt and Ricardian equivalence.

Schools of Macroeconomic Thoughts

Monetarism: Main features.
New Classical: features and the structure of new classical models.
New Keynesian economics: Core propositions and main features.

Readings:

1. Dornbusch, Fischer and Startz.(2010).*Macroeconomics* (11th ed.). McGraw Hill.
2. N. Gregory Mankiw. (2010). *Macroeconomics.*(7th ed.) Worth Publishers.
3. Oliver Blanchard. (2009). *Macroeconomics* (5th edition). Pearson Education Inc.
4. Charles I. Jones. (2002). *Introduction to Economic Growth* (2nd ed.).W.W. Norton & Company.
5. Andrew B. Abel and Ben S. Bernanke (2011).*Macroeconomics* (7th ed.). Pearson Education, Inc.
6. Errol. D'Souza (2009). *Macroeconomics*. Pearson Education.
7. Robert J. Gordon (2011).*Macroeconomics*. Prentice-Hall India Limited.

ECO -C10: INTRODUCTORY ECONOMETRICS

Max. Marks: 80   **Time: 3 Hrs.**
                                                      Credits: 6
                                   (5 Class Room Teaching + 1 Tutorial)

Course Description

Objective: Application of economic theory need a reasonable understanding of economic relationship and relevant statistical methods. The econometric theory thus becomes a very powerful tool for understanding of applied economic relationships and for meaningful research in economics. This paper accordingly is devoted to equip the students with basic theory of econometrics and relevant applications of the methods. The topics covered in the course include various problems faced in estimation of both single equations and simultaneous equations models.

Besides the time-tested method of imparting verbal instructions through lectures, description and derivation of econometric models would be demonstrated by extensive use of blackboard. Examples, in so far as possible, would be selected from everyday life/experience. The feedback would be sought through the students writing assignments and written examinations.

Instructions for Paper-setter and candidates:
• The maximum marks for the paper will be 100. The question paper will be of 80 marks and continuous evaluation 20 marks. Time allowed will be 3 hours.
The paper-setter must put a note in the question paper in this regard.
• There shall be **9** questions in all.

The first question **compulsory** comprising 15 short answer type questions spread over the whole syllabus. The candidates are required to attempt 10 questions. Each question shall be of **two** marks (10 x 2= 20).

Rest of the paper shall contain four units. Two questions shall be asked from each unit and the candidates shall be given internal choice. The candidates shall attempt one question from each unit. Each question will carry 15 marks (15x4=60).

UNIT- I

Introduction: - Nature and Scope of Econometrics, Methodology of Econometrics. Specification of an econometric model. Nature of Data used in estimation.
Simple and multiple Regression Models: - Estimation of model by method of ordinary least squares; properties of the least squares estimators, the Gauss-Markov theorem. Goodness of fit-R^2 & Adjusted R^2 tests of hypotheses; confidence intervals.

UNIT -II

Econometrics Problems: - Nature, Consequences, Detection and Remedial measures of the problems of Multicollinearity, Heteroscedasticity and Autocorrelation.

UNIT- III

Specification Errors: Tests of Specification and misspecification: Omission of a relevant variable; Inclusion of irrelevant variable; Errors of measurement in dependent and independent variables. Model Selection Criteria.
Uses of Dummy variables as independent variables.

UNIT- IV

Dynamic Econometric models: - Lags in econometrics; Autoregressive and distributed lag models. Koyck's methods of estimation; Adaptive expectation and partial adjustment approaches for rationalization of Kayck's model.
Simultaneous Equation models:- Description, identification problem. Statement and derivation of Rank and Order conditions.

Readings

1. John E. Freund (1992). *Mathematical Statistics*. Prentice Hall.
2. Richard J. Larsen and Morris L. Marx (2011).*An Introduction to Mathematical Statistics and its Applications*. Prentice Hall.
3. D. N. Gujarati and D.C. Porter (2009). *Essentials of Econometrics* (4[th]ed.) McGraw Hill, International Edition.
4. Christopher Dougherty (2007). *Introduction to Econometrics* (3[rd]ed.) Oxford University Press, Indian edition.
5. Jan Kmenta, (2008). *Elements of Econometrics*.(2[nd]ed.). Indian Reprint, Khosla Publishing House.

ECO-SEE 2: DATA SOURCES-II

Max. Marks: 80   **Time: 3 Hrs.**
                                                                      Credits: 2
                                                          (2 Class Room Teaching)

Course Description

This course is designed to expose the students to the data sources of Indian Economic pertaining to macro economic variables. The emphasis will be on thinking like an economist and the course will illustrate how get data on macroeconomic concepts to be applied to analyze real-life situations.

Instructions for Paper-setter and candidates:
•   The maximum marks for the paper will be 100. The question paper will be of 80 marks and continuous evaluation 20 marks. Time allowed will be 3 hours.

The paper-setter must put a note in the question paper in this regard.
•   There shall be **9** questions in all.

The first question **compulsory** comprising 15 short answer type questions spread over the whole syllabus. The candidates are required to attempt 10 questions. Each question shall be of **two** marks (10 x 2= 20).

Rest of the paper shall contain four units. Two questions shall be asked from each unit and the candidates shall be given internal choice. The candidates shall attempt one question from each unit. Each question will carry 15 marks (15x4=60).

UNIT- I
Data sources on Agriculture, Subsidies and Commodities Prices; Coverage and limitations.

UNIT- II
Balance of Payments: Import and Export data on Indian Economy, composition and data Limitations. WITS Database and its Components.

UNIT-III
 Introduction to Industrial Databases: ASI and PROWESS. ; Coverage, important categories and limitations.

UNIT-IV
NSSO Data: Introduction to various rounds; Coverage, important categories and limitations.

Readings :
1.   **RBI Database on Indian Economy**
2.   **Latest National Account Statistics** India (CSO)
3.   **India Statistics** (CSO – Cover Agriculture, Industry, Service and Social Sector)
4.   **District Domestic Products (All Major States – 1999-00 to 2008-09)**
5.   **Planning Commission Socio-economic Database on Indian Economy**
6.   **Indian Planning Experience - A Statistical Profile**
7.   **Economic Survey Database**
8.   **Export-import Databank of India**

Generic Elective for Economics Honours Students only

GENERAL ELECTIVE (GE) COURSE-VI

SOC-GE06: RETHINKING DEVELOPMENT

Max. Marks: 80   **Time: 3 Hrs.**
                                                          Credits: 6
                                 (5 Class Room Teaching + 1 Tutorial)

Objective: This paper examines the ideas of development from a sociological perspective. It introduces students to different approaches to understanding development and traces the trajectory of Indian experience with development from an interdisciplinary perspective.

Instructions for Paper-setter and candidates:
• The maximum marks for the paper will be 100. The question paper will be of 80 marks and continuous evaluation 20 marks. Time allowed will be 3 hours.

The paper-setter must put a note in the question paper in this regard.
• There shall be **9** questions in all.

The first question **compulsory** comprising 15 short answer type questions spread over the whole syllabus. The candidates are required to attempt 10 questions. Each question shall be of **two** marks (10 x 2= 20).

Rest of the paper shall contain four units. Two questions shall be asked from each unit and the candidates shall be given internal choice. The candidates shall attempt one question from each unit. Each question will carry 15 marks (15x4=60).

Outline:
1. Unpacking Development
2. Theorizing Development
3. Developmental Regimes in India
4. Issues in Developmental Praxis

Course Contents and Itinerary

UNIT-I
1. Unpacking Development (4 Weeks)
   1.1 Bernstein, Henry. *Underdevelopment and Development*. Harmondsworth: Penguin, 1973. Introduction: Development and the Social Sciences. Pp. 13 – 28.
   1.2 Wolfgang, Sachs (ed.) The Development Dictionary: A Guide to Knowledge and Power. London: Zed Books. 1992. pp. 1-21.
   1.3 Rist, Gilbert. *The History of Development*. London: Zed, 2008. Pp. 8 – 46
   1.4 Ferguson, J. 2005. 'Anthropology and its Evil Twin; 'Development' in the Constitution of a Discipline', in M. Edelman and A. Haugerud (eds.) *The*

Anthropology of Development and Globalization. Blackwell Publishing. pp140-151.

UNIT-II

2. Theorizing Development (5 Weeks)

2.1 Harrison, David. *The Sociology Of Modernization And Development*. London: Routledge, 1991. Chapters 1 &2. Pp. 1 – 54

2.2 Frank, Andre Gunder. 1966. 'The Development of Underdevelopment', *Monthly Review*. 18 (4) September 17-31

2.3 Redclift, Michael. 1984. *Development and the Environmental Crisis. Red or Green alternatives ?*New York: Methuen & Co. Chapter 1 and 7, pp 5-19,122-130.

2.4 Visvanathan, Nalini, Lynn Duggan, Laura Nisonoff & Nan Wiegersma (eds). 1997. The Women, Gender and Development Reader. Delhi: Zubaan, pp33-54.

2.5 Sanyal. Kalyan. 2007. *Rethinking Capitalist Development: Primitive Accumulation, Governmentality and Post-Colonial Capitalism*. New Delhi: Routledge, pp 168-189.

2.6 Sen, A. 1999. *Development as Freedom*. New Delhi : Oxford University Press, pp. 3-11.

UNIT-III

3. Developmental Regimes in India (3 Weeks)

3.1 Bardhan, Pranab. *The Political Economy of Development In India*. Delhi: Oxford, 1992. Pp. 1-60.

3.2 Chatterjee, Partha. Democracy and Economic Transformation in India, *Economic and Political Weekly*, Vol. 43, No. 16 (Apr. 19 - 25, 2008), pp. 53-62.

UNIT-IV

4. Issues in Developmental Praxis (2 Weeks)

4.1 Scudder. T. 1996. 'Induced Impoverishment, Resistance and River Basin Development' in Christopher McDowell (ed.) *Understanding Impoverishment: The Consequences of Development Induced Displacement*. Oxford: Berghahn books. Pp. 49-78.

4.2 Sharma, Aradhana. *Logics of Empowerment: Development, Gender and Governance in Neoliberal India*. Minneapolis: University of Minnesota Press,2008. Chapters. Introduction, Chapter 4 and Conclusion.

Max. Marks: 80   **Time: 3 Hrs.**
                                                                    Credits: 6
                                                    (5 Class Room Teaching + 1 Tutorial)

Course Description

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

Instructions for Paper-setter and candidates:

• The maximum marks for the paper will be 100. The question paper will be of 80 marks and continuous evaluation 20 marks. Time allowed will be 3 hours.

The paper-setter must put a note in the question paper in this regard.

• There shall be **9** questions in all.

The first question **compulsory** comprising 15 short answer type questions spread over the whole syllabus. The candidates are required to attempt 10 questions. Each question shall be of **two** marks (10 x 2= 20).

Rest of the paper shall contain four units. Two questions shall be asked from each unit and the candidates shall be given internal choice. The candidates shall attempt one question from each unit. Each question will carry 15 marks (15x4=60).

UNIT- I

Economic Time Series: Components of time series, Additive and multiplicative models with their merits and demerits, Illustrations of time series. Measurement of trend:free-hand curve method and method of moving averages, curve fitting using least squares (linear, quadratic and modified exponential), Measurement of seasonal variations by method of ratio to trend and moving averages.

UNIT- II

Index numbers**,** definition, Methods to construct price, quantity and value index numbers. Problems involved in the construction of index numbers, use of averages, simple aggregative and weighted average methods. Laspeyre's, Paasche's, Edgeworth - Marshall and Fisher's index numbers. Time and factor reversal tests of index numbers. Chain Base index numbers, Cost of living index number, interpretation and applications of index numbers.

UNIT- III

Statistical Quality Control: Importance of statistical methods in industrial research and practice.

Causes of variations in quality: chances and assignable. General theory of control charts, process & product control. Control charts for variables: X-bar and R-charts. Control charts for attributes: p and c charts for equal and unequal samples.

UNIT- IV

Demographic Methods: Measurement of population rates of vital events.
Measurement of mortality: CDR, SDR (w.r.t. Age and sex), IMR
Measurement of fertility and reproduction: CBR, GFR and TFR.
Measurement of population growth: GRR, NRR,
Life (mortality) tables: definition of its main functions and uses.

SUGGESTED READING:

1. Mukhopadhya, P. (1999): Applied Statistics, New Central Book Agency, Calcutta
2. Goon, A.M., Gupta, M.K. and Dasgupta, B. (2001): Fundamental of Statistics, Vol II, World Press, Kolkata.
3. Gupta, S.C. and Kapoor, V.K. (2008): Fundamentals of Applied Statistics, 4th Edition (Reprint), Sultan Chand & Sons.
4. Montgomery, D.C. (2009): Introduction to Statistical Quality Control, 6th Edition, Wiley India Pvt. Ltd.

MAT-C3: REAL ANALYSIS

Max. Marks: 80 **Time: 3 Hrs.**
Credits: 6

(5 Class Room Teaching + 1 Tutorial)

Note **:**
1. **The question paper will have nine questions. Question No.1 spread over the whole syllabus will be compulsory. Candidates will attempt five questions.**
2. **There will be two questions from each unit and the students will be required to answer one question from each unit.**
3. **All questions carry equal marks.**

Objective: The aim of this course is to make the students learn about the completeness property of R, sequences and series of real terms and various tests of convergence along with the cardinality of sets.

UNIT- I
Reals and Extended Real Numbers Systems, The Completeness Property of Reals, The Archimedean Property, Density of Rational Numbers in *R,* Decimal and General Expansions of Reals, Definition of Real Powers of positive real numbers.
Scope as in [1] Sections 2.3, 2.4. and [2] 1.21, 1.22, 1.23

Sequences, Subsequences, Bounded sequence, Convergence of a sequence, Divergence of a sequence, Limit Theorems.
Scope as in [1] Sections 3.1, 3.2

UNIT- II
Monotone Sequences, Monotone Subsequence Theorem, Cauchy sequence, Cauchy Criterion for Convergence, Limit Superior and limit inferior of a sequence, Limit points of a Set, Bolzano-Weierstrass Theorem for Sequences and for Sets, Nested Interval Theorem.
Scope as in [1] Sections 3.3, 3.4, 3.5

UNIT- III
Equivalent Sets, Finite Sets. Countable Sets, Uncountable Sets, Cardinality of a Set, Schroder-Bernstein Theorem, Cardinality of Reals and Rationals, The Cantor Set and its Uncountability, Limit Points of the Cantor set.
Scope as in [3] 2.1 to 2.16

UNIT- IV
Convergence and Divergence of Infinite Series, Cauchy Criterion, Comparison Test, Limit Comparison Test, Ratio Test, Root Test, Generalized Root Test, Integral Test, Alternating series, Leibniz Test, Absolute and Conditional convergence, Addition and Multiplication of Series, Rearrangement of a Series.
Scope as in [2] 3.21 to 3.26, 3.38, 3.33 to 3.35, 3.42, 3.43, 3.45 to 3.55

Books Recommended:

1. R.G. Bartle and D. R. Sherbert, *Introduction to Real Analysis*, 3rd Ed., John Wiley and Sons (Asia) Pvt. Ltd., Singapore, 2002.
2. W. Rudin. Principles of Mathematical Analysis, 3rd edition. McGraw Hill, 1976.
3. N. L. Carothers, *Real Analysis*, Cambridge University Press 2000.
4. Brian S. Thomson, Andrew. M. Bruckner and Judith B. Bruckner, *Elementary Real Analysis*, Prentice Hall, 2001.
5. Gerald G. Bilodeau , Paul R. Thie, G.E. Keough, *An Introduction to Analysis*, 2nd Ed., Jones & Bartlett, 2010.
6. S. C. Malik and Savita Arora, *Mathematical Analysis,* 3rd Edition, New Age International Publishers, 2008.
7. S.K. Berberian, *A First Course in Real Analysis*, Springer Verlag, New York, 1994.
8. M. H. Protter and C. B. Morrey, *A First Course in Real Analysis,* 2nd Edition, Springer Verlag, Indian Reprint, 2004.
9. C. C. Pugh, *Real Mathematical Analysis,* Springer Verlag, New York, 2001.
10. S. Abbott, Understanding Analysis, Springer Verlag, New York, 2008.
11. T. M. Apostol, *Mathematical Analysis*, 2nd Edition, Narosa Publishing House, Reprint 2002.

GENERIC ELECTIVE IN ECONOMICS FOR NON- ECONOMICS STUDENTS

ECO-GE6: INDIAN ECONOMY-II

Max. Marks: 80   **Time: 3 Hrs.**
                                                                                   Credits: 6
                                                        (5 Class Room Teaching + 1 Tutorial)

Course Description

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

Instructions for Paper-setter and candidates:

• The maximum marks for the paper will be 100. The question paper will be of 80 marks and continuous evaluation 20 marks. Time allowed will be 3 hours.

The paper-setter must put a note in the question paper in this regard.

• There shall be **9** questions in all.

The first question **compulsory** comprising 15 short answer type questions spread over the whole syllabus. The candidates are required to attempt 10 questions. Each question shall be of **two** marks (10 x 2= 20).

Rest of the paper shall contain four units. Two questions shall be asked from each unit and the candidates shall be given internal choice. The candidates shall attempt one question from each unit. Each question will carry 15 marks (15x4=60).

UNIT-I

***Service Sector in India*:** Service Sector Growth-Pattern and Future Prospects. Sustainability of Services Led Growth in India. Need for Infrastructure and Government strategy on Infrastructure Development in India.

UNIT-II

***Public Finance*:** Indian Tax Structure, Fiscal Reforms in Indian Economy, Fiscal Responsibility and Budget Management in India.

UNIT-III

***Financial Sector and its Development in India*:** Structure of the Financial System in India. Nationalization of Banks – Causes and Evaluation of Performance. Banking Sector Reforms since 1991.Capital Market – Growth, Problems and Reforms since 1991.Role of Securities Exchange Board of India (SEBI).

UNIT-IV

External Sector: Trade Policy during Pre and Post Reform Period. Foreign Capital in India-its Need and Flow, FDI and MNCs in India.

Readings:

1. Brahmananda, P. R.,& Panchmukhi, V. R. (Eds.). (1987). *The development process of Indian economy*. Bombay, India: Himalaya Publishing House.
2. Jalan, B. (1992). *The Indian economics – problems and prospects*. New Delhi, India: Viking.
3. Krueger, A. O. (Ed.). (2003). *Economic policy reforms and the Indian economy.* New Delhi, India: Oxford University Press.
4. Nagaraj, R. (2006). *Aspects of India's economic growth and reforms*. New Delhi, India: Academic Foundation.
5. Nayak, P. (Ed.). (2015). *Economic development of India*. New York, NY: Routledge.
6. *Dhar P.K.* (2016).*Indian Economy- Its growing dimensions.* New Delhi: Kalyani Publishers.
7. Ramaswamy, V. S.,& Namakumari, S. (1999). *Strategic planning and formulation of corporate strategy- Text and cases*. New Delhi, India: MacMillan.

Further Readings:

1. *Economic and political weekly*.(Various issues). Mumbai, India: Sameeksha Trust.
2. Government of India, Ministry of Finance.(Various issues).*Economic survey*. New Delhi, India: Oxford University Press.
3. Rao, M. G. (2004). *Changing contours in fiscal federalism in India.* New Delhi, India: National Institute of Public Finance and Policy. Retrieved from http://www.econ.hit-u.ac.jp/~kokyo/APPPsympo04/PDF-papers-nov/Rao-Final2.pdf.

Syllabi of B.A. (Hons.) Semester V (under CBCS)
ECO-C11: INDIAN ECONOMY –I

Max. Marks: 80   **Time: 3 Hrs.**
                                                      Credits: 6

(5 Class Room Teaching + 1 Tutorial)

Objective: The objective of this paper is to acquaint the students with the strategy of economic development of the Indian Economy since Independence. The paper also aims at creating an awareness among the students regarding the contemporary issues pertaining to various sectors of the economy.

Instructions for Paper-setter and candidates:
• The maximum marks for the paper will be 100. The question paper will be of 80 marks and continuous evaluation 20 marks. Time allowed will be 3 hours.

The paper-setter must put a note in the question paper in this regard.

• There shall be **9** questions in all.

The first question **compulsory** comprising 15 short answer type questions spread over the whole syllabus. The candidates are required to attempt 10 questions. Each question shall be of **two** marks (10 x 2= 20).

Rest of the paper shall contain four units. Two questions shall be asked from each unit and the candidates shall be given internal choice. The candidates shall attempt one question from each unit. Each question will carry 15 marks (15x4=60).

UNIT – I
Economic Policy: Economic Policy–Definition. Types - Qualitative and Quantitative. Need for Economic Policy - Economic Institutions and Policies in India (only introduction). Problems in Policy making in India.

UNIT – II
Economic Development Strategy in India: Adoption of Planning in India: Objectives, Strategy and Assessment (Plan wise details to be excluded). Need for Economic Reforms - State of the Economy in 1991.NitiAyog- its Objectives and Functions.

UNIT-III
Demography and Economic Development: Theory of Demographic Transition. Demographic Features of India's Population. Population Growth in India - Promoting or Retarding Economic Growth. Urbanisation in India- Extent, Causes and Consequences of Rapid Urbanisation.

UNIT-IV
Structural Changes in India: Changes in Sector Income Distribution and Occupational Structure. Inter-State Disparities in the Pattern of Development - Causes, Indicators and Policy Measures to Remove Regional Imbalances.

Essential Readings:

1. Nayak, P. (Ed.) (2015) : Economic Development of India, Routledge London.
2. Jalan, Bimal (1992): The Indian Economics – Problems and Prospects, Viking, New Delhi.
3. Lucas, E B &Papanek,:The Indian Economy – Recent Development GF (eds) (1988) and Future Prospects, Oxford University Press.
4. Brahmananda, P R &: The Development Process of Indian Economy, Panchmukhi (Eds.) (1987) Himalaya Publishing House, Bombay.
5. Timbergen, J (1952) : North-Holland Publishing Company, Amsterdam
6. Ramaswamy, V S & Namakumari, S(1996) : Strategic Planning and Formulation of Corporate Strategy – Text and Cases, MacMillan, New Delhi.

http://www1.ximb.ac.in/users/fac/shambu/sprasad.nsf/0/e78490ff090249d06525730c0030abf9/$FILE/Public_Policy_Making_in_India_TV_SOMANATHAN.pdf

Further Readings:

Byres, T J (Ed.) (1998) : The Indian Economy: Major Debate Since Independence
Economic Survey : Government of India: Various Issues.
Economic and Political Weekly : Various Issue

ECO-C12: DEVELOPMENT ECONOMICS-I

Max. Marks: 80   **Time: 3 Hrs.**
Credits: 6
(5 Class Room Teaching + 1 Tutorial)

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

Instructions for Paper-setter and candidates:
• The maximum marks for the paper will be 100. The question paper will be of 80 marks and continuous evaluation 20 marks. Time allowed will be 3 hours.

The paper-setter must put a note in the question paper in this regard.

• There shall be **9** questions in all.

The first question **compulsory** comprising 15 short answer type questions spread over the whole syllabus. The candidates are required to attempt 10 questions. Each question shall be of **two** marks (10 x 2= 20).

Rest of the paper shall contain four units. Two questions shall be asked from each unit and the candidates shall be given internal choice. The candidates shall attempt one question from each unit. Each question will carry 15 marks (15x4=60).

UNIT-I
1. Conceptions of Development and Growth
Development in historical perspective: Origin of development in economic thought. Alternative measures of development (Per capital income, GDP, PQLI and HDI), Documenting the international variation in these measures, Comparing development trajectories across nations and within them.

UNIT-II
2. Development and Underdevelopment
Imperialism and colonialism, new imperialism, neo-colonialism and dependency: its forms and effects
Harrod-Domer Model; Solow model of steady state growth; Endogenous growth theories: Romer and Lucas.

UNIT-III
3. Poverty and Inequality: Definitions, Measures and Mechanisms
Inequality axioms; a comparison of commonly used inequality measures; connections between inequality and development: Kuznets' Inverted U – shaped Curve and Augmented Kuznets' Curve; poverty measurement; characteristics of the poor; mechanisms that generate poverty traps and path dependence of growth processes.

UNIT-IV
4. Political Institutions and the Functioning of the State
The determinants of democracy; Alternative institutional trajectories and their relationship with economic performance; Within country differences in the functioning of the state institutions; State ownership and regulation; government failure and corruption.
State and planning, planning by direction, planning by market, planning in backward areas.

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

ECO-DSE1: ECONOMICS OF PUBLIC FINANCE

Max. Marks: 80   **Time: 3 Hrs.**
                                                                     Credits: 6
                                                   (5 Class Room Teaching + 1 Tutorial)

Course Description

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

Instructions for Paper-setter and candidates:

- The maximum marks for the paper will be 100. The question paper will be of 80 marks and continuous evaluation 20 marks. Time allowed will be 3 hours.

The paper-setter must put a note in the question paper in this regard.

- There shall be **9** questions in all.

The first question **compulsory** comprising 15 short answer type questions spread over the whole syllabus. The candidates are required to attempt 10 questions. Each question shall be of **two** marks (10 x 2= 20).

Rest of the paper shall contain four units. Two questions shall be asked from each unit and the candidates shall be given internal choice. The candidates shall attempt one question from each unit. Each question will carry 15 marks (15x4=60).

UNIT – I

Theory of Maximum Social Advantage. Private Goods, Public Goods, mixed goods and Merit Goods. Optimal Provision of Public Goods: partial equilibrium approach; free riding problem. Externalities: Pigouvian and Coarse solutions. Overview of Different Role of Government: Allocation, Stabilization and Distribution.

UNIT – II

Regressive, Progressive and Proportional Taxes. Direct and Indirect Taxes. Incidence of Indirect Taxes. Effects of Taxation: concepts of Deadweight losses and Exeess Burden.

UNIT – III

Types of Government Budgets. Different Concepts of Budgetary Deficits in the Indian Context. Economic and Functional Classification of Central Govt. Budgets.

UNIT- IV

Changing Trends and Pattern of Direct and Indirect Taxes in India. Changing Trends and Pattern of Government Expenditure in India. Recent Tax and Expenditure Reforms in India. Issues Need and objectives of fiscal federalism in India.

Readings:

1. John Cullis and Philip Jones, *Public Finance and Public Choice*, Oxford University Press, 1st edition, 1998.
2. Kaushik Basu and A. Maertens (ed.), *The New Oxford Companion to Economics in India*, Oxford University Press, 2013.
3. M.M. Sury, (1990).*Government Budgeting in India*.
4. Ulbrich, H. (2003), *Pubic Finance in Theory and Practice*. Thomson.
5. Parikh, S. (1999). *Indian Development Report 1999-2000*. New Delhi. Oxford University Press.
6. Datt. R & Sundaram, K.P.M. (2003). *Indian Economy*. New Delhi. S. Chand & Company.
7. Aronson,J.R.(1985). *Public Finance*. New York: McGraw-Hill International.
8. Houghton, R. W. (1973). Public finance. London: Penguin Education.
9. Musgrave, R.A., & Musgrave, P.B. (1989). Public Finance in Theory and Practice. New York. McGraw-Hill International.

ECO-DSE2: INTERNATIONAL ECONOMICS

Max. Marks: 80   **Time: 3 Hrs.**
                                                                      Credits: 6
                                            (5 Class Room Teaching + 1 Tutorial)

Course Description
This course develops a systematic exposition of models that try to explain the composition, direction, and consequences of international trade, and the determinants and effects of trade policy. It then builds on the models of open economy macroeconomics, focusing on national policies as well as international monetary systems. It concludes with an analytical account of the causes and consequences of the rapid expansion of international financial flows in recent years. Although the course is based on abstract theoretical models, students will also be exposed to real-world examples and case studies.

Instructions for Paper-setter and candidates:
• The maximum marks for the paper will be 100. The question paper will be of 80 marks and continuous evaluation 20 marks. Time allowed will be 3 hours.

The paper-setter must put a note in the question paper in this regard.
• There shall be **9** questions in all.

The first question **compulsory** comprising 15 short answer type questions spread over the whole syllabus. The candidates are required to attempt 10 questions. Each question shall be of **two** marks (10 x 2= 20).

Rest of the paper shall contain four units. Two questions shall be asked from each unit and the candidates shall be given internal choice. The candidates shall attempt one question from each unit. Each question will carry 15 marks (15x4=60)

UNIT- I

What is international economics about? Theories of Absolute Advantage, Comparative Advantage and Opportunity Costs.

Heckscher-Ohlin Theory of Trade – Its main Features, Assumptions and Limitations.

New Approaches to Trade Theory: The Product Cycle Theory, Technology Gap Theory, Intra-industry trade.

UNIT- II

Concept and types of Terms of trade.

Effects of Tariff under Partial Equilibrium Analysis. Non tariff Barriers. Political economy of Non-tariff Barriers.

Economic Integration: Concept and Forms of Regional Integration; Static and Dynamic Effects of Custom Union.

UNIT-III

Foreign Exchange Market: Fixed versus flexible exchange rates, Concept, Role and Types of Foreign Exchange Transactions: Speculation, Arbitrage and Hedging

The Process of Adjustment in the Balance of Payments under Fixed and Flexible Exchange Rate Systems.

UNIT-IV

International monetary systems: International Monetary Fund; Eurocurrency Market.

Financial Globalization and Financial crises : Causes and case studies.

Readings:
1. Paul Krugman, Maurice Obstfeld, and Marc Melitz, *International Economics: Theory andPolicy*, Addison-Wesley (Pearson Education Indian Edition), 9th edition, 2012.
2. Dominick Salvatore, *International Economics: Trade and Finance*, John Wiley International Student Edition, 10th edition, 2011.

Syllabi of B.A. (Hons.) Semester VI (under CBCS)

ECO-C13 : INDIAN ECONOMY- II

Max. Marks: 80   **Time: 3 Hrs.**
Credits: 6
(5 Class Room Teaching + 1 Tutorial)

Objective: The objective of this paper is to acquaint the students with the strategy of economic development of the Indian economy since Independence. The paper also aims at creating an awareness among the students regarding the contemporary issues pertaining to various sectors of the economy.

Instructions for Paper-setter and candidates:
• The maximum marks for the paper will be 100. The question paper will be of 80 marks and continuous evaluation 20 marks. Time allowed will be 3 hours.

The paper-setter must put a note in the question paper in this regard.

• There shall be **9** questions in all.

The first question **compulsory** comprising 15 short answer type questions spread over the whole syllabus. The candidates are required to attempt 10 questions. Each question shall be of **two** marks (10 x 2= 20).

Rest of the paper shall contain four units. Two questions shall be asked from each unit and the candidates shall be given internal choice. The candidates shall attempt one question from each unit. Each question will carry 15 marks (15x4=60).

UNIT – I
Agricultural Development: Pattern of Growth of Indian Agriculture since 1950 – Role of Green Revolution, Deceleration in the 1990s – Causes and Future Challenges.

UNIT – II
Industrial Development Strategy: Trends in Growth and Structure of Indian Industry. Critique of Regulatory Industrial Policy Regime (1947-1991). Deregulation and Liberalization of the Private Sector. Privatization – Nature and Extent in India.

UNIT – III
External Sector: Trade Policy during Pre-Reform Period. Globalisation–Meaning and Trade Policy during Post-Reform Period. Liberalized Exchange Rate Management System.

UNIT – IV
Some Contemporary Issues: Service Sector Growth –Sustainability of Services Led Growth in India. Impact of New Economic Policy on Indian Economy. Consumer Protection Act. Competition Policy of India.

Essential Readings:

1. Nayak, P. (Ed.) (2015) Economic Development of India, Routledge, London.
2. Nagaraj, R (2006) : Aspects of India's Economic Growth and Reforms, Academic Foundation, New Delhi.
3. Krueger, A O (Ed.) (2003): Economic Policy Reforms and the Indian Economy, Oxford University Press, New Delhi.
4. Ahluwalia, I J &Liittle, IMD (Eds.) (1998) : India's Economic Reforms and Development,(1998) (Essays in Honour of Manmohan Singh), OUP, New Delhi.

Further Readings:

1. Rosen, George, (1988) : Industrial Change in India 1970-2000 Allied Publishers, New Delhi.
2. Economic Survey : Government of India: Various Issues.
3. Economic and Political Weekly: Various Issues.

ECO-C14: DEVELOPMENT ECONOMICS-II

Max. Marks: 80   **Time: 3 Hrs.**
Credits: 6
(5 Class Room Teaching + 1 Tutorial)

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

Instructions for Paper-setter and candidates:
• The maximum marks for the paper will be 100. The question paper will be of 80 marks and continuous evaluation 20 marks. Time allowed will be 3 hours.
The paper-setter must put a note in the question paper in this regard.
• There shall be **9** questions in all.

The first question **compulsory** comprising 15 short answer type questions spread over the whole syllabus. The candidates are required to attempt 10 questions. Each question shall be of **two** marks (10 x 2= 20).

Rest of the paper shall contain four units. Two questions shall be asked from each unit and the candidates shall be given internal choice. The candidates shall attempt one question from each unit. Each question will carry 15 marks (15x4=60).

Demography and Development
Demographic concepts; Demographic transitions during the process of development: Theory of Demographic Transition. Gender bias in preferences and outcomes and evidence on unequal treatment within households; migration.

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

UNIT- III
Environment and Sustainable Development
Defining sustainability for renewable resources; a brief history of environmental change; common-pool resources; environmental externalities and state regulation of the environment; economic activity and climate change.

UNIT- IV
Globalization
Globalization in historical perspective; The economics and politics of multilateral agreements; trade, Production patterns and world inequality; Financial instability in a globalized world

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

ECO-DSE3: HISTORY OF ECONOMIC THOUGHT

Max. Marks: 80   **Time: 3 Hrs.**
                                                                Credits: 6
                                    (5 Class Room Teaching + 1 Tutorials)

Objective:

Evolution of economic ideas is both a response to contemporary economic problems and a self-conscious attempt to refine earlier ideas to integrate them as a part of current social thought. The objective of this course is to familiarize the students with the historical evolution of economic ideas into the contemporary economics. The students would be evaluated at the end of each semester through subjective type questions/answers (both short and essay type). The scripts would be evaluated by the examiners having adequate teaching experience in the paper/options concerned.

Instructions for Paper-setter and candidates:
- sThe maximum marks for the paper will be 100. The question paper will be of 80 marks and continuous evaluation 20 marks. Time allowed will be 3 hours.

The paper-setter must put a note in the question paper in this regard.

- There shall be **9** questions in all.

The first question **compulsory** comprising 15 short answer type questions spread over the whole syllabus. The candidates are required to attempt 10 questions. Each question shall be of **two** marks (10 x 2= 20).

Rest of the paper shall contain four units. Two questions shall be asked from each unit and the candidates shall be given internal choice. The candidates shall attempt one question from each unit. Each question will carry 15 marks (15x4=60).

UNIT – I
Introduction: The Economic Revolution, Scope and Significance of the Study of History of Economic Thought.
Methodology of Economics: Economics as a Scientific Discipline; Techniques of Economic Analysis; Sociology of Economics; Relativist and Absolutism; Deductive and Inductive Methods.

UNIT – II
Mercantilism: Factors Responsible for the Rise of Mercantilism; Views on Trade, Money, Finance and Nation State.
Physiocracy: Rise of Physiocracy; The concept of Natural Order; Net Product and Circulation of Wealth.

UNIT-III
Adam Smith: Theories of Value, Distribution and Growth.
Ricardian Economics: Value Analysis; Theories of Trade and Distribution;Views on Machinery and Employment.
Malthus: Theory of Glut and Glut Controversy.

UNIT – IV

Marxian Economics: Dialectical Materialism and Laws of Dialectics; Mode of Production and its Fundamentals; Historical Materialism and Pre Capitalistic Economic Formations (Primitive Communism, Slavery and Feudalism); Labour Theory of Value; Development and Decay of Capitalism (commodity production, Accumulation, Surplus value and Organic Composition of Capital).

RECOMMENDED READINGS

1. Schumpter, J A. (1954): History of Economic Analysis, Oxford University Press.

2. Blaug, M. (1983): Economic Theory in Retrospect, Cambridge University Press.

3. Dobb, M. (1975): Theories of Value and Distribution since Adam Smith, Cambridge University Press.

4. Helbroner, R. L. (1953): The Worldly Philosophers, Touchstone Books.

5. Hunt. E.K. and M. Lautzenheiser (2011): History of Economic Thought: A Critical Reader, PHI Publication.

6. Roll, E. (1992): History of Economic Thought, Faber and Faber Publication.

7. Gide, C and Rist, C (1948): A History of Economic Doctrines, George G Harap & Co.

8. Ekelund, R. B. Jr and R. F. Hebert (1990), A History of Economic Theory and Method, McGraw Hill Publication.

9. Sweezy, P. (1945): Theory of Capitalist Development, Monthly Review Press.

10. Bottomore, T. (1985): Dictionary of Marxist Thought, Basic Black Well.

ECO-DSE4: ECONOMICS OF INDUSTRY

Max. Marks: 80   **Time: 3 Hrs.**
                                                                         Credits: 6
                                            (5 Class Room Teaching + 1 Tutorial)

Objective: In the Contemporary world with globalization and liberalization more and more attention is being given to industry. Since industry performance critically depends on firms' behavior allowing equilibrium outcome, the course intends to provide a rigorous knowledge of different long-run equilibrium outcome of firms under different conditions from the point of view of public policy. The students are also equipped to deal with debates involved in the industrial development in a cogent and analytical manner, particularly in the Indian context.

However, it should be noted that Game Theoretic approach to any topic/problem is outside the scope of the present syllabus.

The time-tested method of in parting verbal instructions through lectures would be used. Examples, in so far as possible, would be selected from everyday life/experience. The feedback would be sought through the students writing assignments, tutorials and seminars.

The students would be evaluated at the end of each semester through subjective type questions/answers (both short and essay type).

Instructions for Paper-setter and candidates:
- The maximum marks for the paper will be 100. The question paper will be of 80 marks and continuous evaluation 20 marks. Time allowed will be 3 hours.

The paper-setter must put a note in the question paper in this regard.

- There shall be **9** questions in all.

The first question **compulsory** comprising 15 short answer type questions spread over the whole syllabus. The candidates are required to attempt 10 questions. Each question shall be of **two** marks (10 x 2= 20).

Rest of the paper shall contain four units. Two questions shall be asked from each unit and the candidates shall be given internal choice. The candidates shall attempt one question from each unit. Each question will carry 15 marks (15x4=60).

UNIT – I
Basic Concepts of Firm, Industry and Market; Organizational Forms. Separation of Ownership from Management and Control. Alternative Goals of Firm: Contributions of R Marris and Williamson.

UNIT – II
Elements of Market Structure: 'Sellers and Buyers' Concentration, Product Differentiation, Conditions of Entry. Measurement of Sellers's Concentration. Determinants: Economies of Scale and Barriers to Entry.

Growth of Firms: Vertical Integration, Diversification; Concepts of Mergers and Acquisitions.

UNIT – III
Oligopolisitic Conduct: Evolution of Market Structure –Conduct – Performance Paradigm, Economics of Advertisement: Concepts, Market Structure and Advertisement: Dorfman –Steiner condition Economics of R & D: Concepts, Measurement and Market Structure and Innovation: incentive and ability issues.

UNIT – IV
Market Structure and Profitability. Issues of Allocative and Productive Efficiency: Degree of Sub Optimal Capacity.

Essential Readings:

Martin, Stephen (1989)	:	Industrial Economics : Economic Analysis and Public Policy. McMillan Publishing Co., New Delhi
Clark, R (1985)	:	Industrial Economics, Blackwell Publishers, Oxford.
Shephered, Wiliam, G	:	The Economics of Industrial Organization Analysis, Market Policies. (Prentice Hall International, 4th Edition).
Scherer, F M & Ross David (1990)	:	Industrial Market Structure and Economic Performance (Boston Houghton Mifflin Company, 3rd Edn.).
Koutsonyiannis (1979)	:	Modern Micro-economics. MacMillan, London.
Bains, J S (1959)	:	Industrial Organization. University of California.

Further Readings:

Waldman, Don E & Jensen, Elizabeth J (2005)	:	Industrial Organization: Theory and Practice. (2nd Edition) Pearson Education, Inc.
Hay, D A & Morris, D J (1998)	:	Industrial Economics and Organization (New York, Oxford University Press).

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