

DAV University, Jalandhar
Department of Economics



Scheme and Syllabus
for
Bachelor of Economics (Hons.)
[B.Sc (Hons) in Eco]
2014 Batch

(Program ID-183)

Scheme of B.SC (Hons.) in ECONOMICS

Semester 1

S. No	Course Code	Course Title	L	T	P	Cr	A	B	C	D	E
1	ECO105	Microeconomics-1	4	1	0	4	25	25	25	25	100
2	ECO106	Macroeconomics-1	4	1	0	4	25	25	25	25	100
3	ECO107	Mathematics for Economists-1	4	1	0	4	25	25	25	25	100
4	ECO108	Statistics-1	4	1	0	4	25	25	25	25	100
5	ENG151	Basic Communication Skill-1	4	0	0	3	25	25	25	25	75
6	ENG152	Basic Communication Skill Lab	0	0	2	1	0	0	50	50	25
7	SGS102	General Knowledge and Current Affairs	2	0	0	2	25	25	25	25	50
8	CSA101	Introduction to Computers and Information Technology	4	0	0	4	25	25	25	25	100
Credit 26											650

Semester 2

S. No	Course Code	Course Title	L	T	P	Cr	A	B	C	D	E
1	ECO109	Microeconomics-11	4	1	0	4	25	25	25	25	100
2	ECO110	Macroeconomics-11	4	1	0	4	25	25	25	25	100
3	ECO111	Mathematics for Economists-II	4	1	0	4	25	25	25	25	100
4	ECO112	Statistics-II	4	1	0	4	25	25	25	25	100
5	CSA157	Interaction with GUI	4	0	0	3	25	25	25	25	75
6	CSA158	Interaction with GUI Laboratory	0	0	2	1	25	25	25	25	25
7	SGS101	Human Values and Ethics	2	0	0	2	25	25	25	25	50
8	EVS101	Environment education, Road safety and legal awareness	4	0	0	4	25	25	25	25	100
Credit 26											650

Semester 3

S.No	Course Code	Course Title	L	T	P	Cr	A	B	C	D	E
1	ECO205	Microeconomics-III	4	1	0	4	25	25	25	25	100
2	ECO206	Macroeconomics-III	4	1	0	4	25	25	25	25	100
3	ECO207	Mathematics For Economists-III	4	1	0	4	25	25	25	25	100
4	ECO208	Statistics-III	4	1	0	4	25	25	25	25	100
5	ECO209	Labour Economics	4	0	0	4	25	25	25	25	100
6	ENG351	Business Communication	4	1	0	4	25	25	25	25	100
Credit 24											600

Semester 4

S. No	Course Code	Course Title	L	T	P	Cr	A	B	C	D	E	
1	ECO211	Development Economics-I	4	0	0	4	25	25	25	25	100	
2	ECO212	Econometrics-I	4	0	0	4	25	25	25	25	100	
3	ECO214	Money and Banking	4	0	0	4	25	25	25	25	100	
4	ECO215	Public Finance	4	0	0	4	25	25	25	25	100	
5	ECO217	Economics of Demography	4	0	0	4	25	25	25	25	100	
Credit						20						500

Semester 5

S. No	Course Code	Course Title	L	T	P	Cr	A	B	C	D	E	
1	ECO301	Development Economics-II	4	0	0	4	25	25	25	25	100	
2	ECO302	Agricultural Economics	4	0	0	4	25	25	25	25	100	
3	ECO303	Econometrics-II	4	0	0	4	25	25	25	25	100	
4	ECO304	Environmental Economics	4	0	0	4	25	25	25	25	100	
5	ECO305	Workshop on SPSS software	0	0	2	2	0	0	0	50	50	
6	ECO313	Punjab Economy	4	0	0	4	25	25	25	25	100	
Credit						22						550

Semester 6

S. No	Course Code	Course Title	L	T	P	Cr	A	B	C	D	E	
1	ECO306	International Economics	4	0	0	4	25	25	25	25	100	
2	ECO307	Indian Economy	4	0	0	4	25	25	25	25	100	
3	ECO308	Industrial Economics	4	0	0	4	25	25	25	25	100	
4	ECO309	Economics of Health & Education	4	0	0	4	25	25	25	25	100	
4	ECO310	Operational Research	4	0	0	4	25	25	25	25	100	
5	ECO311	Seminar on contemporary issues	0	0	2	2	0	0	0	50	50	
Credit						22						550

- A: Continuous Assessment: Based on Objective Type Tests
 B: Mid-Term Test-1: Based on Objective Type and Subjective Type Test
 C: Mid-Term Test-2: Based on Objective Type and Subjective Type Test
 D: End-Term Exam (Final): Based on Objective Type Tests
 E: Total Marks

Course Title: Microeconomics – I

Course Code: ECO105

Course Objectives:

L	T	P	Credits	Marks		
4	0	0	4	100		

This course develops the understanding of the students regarding the basic concepts of microeconomics which involves decision making at the individual economic agent level – consumer and producer.

Unit I

(15 Hours)

Introduction to Economics: Meaning, Definition, Scope, Importance and Basic problems of an economy. Demand and Supply functions, Market Equilibrium, Shift in market equilibrium due to change in demand and supply.

Elasticity of demand: Methods of calculating price, income and cross elasticities; Degrees and their interpretation, relationship among various types of elasticities.

Unit II

(15 Hours)

Consumer Choice: Cardinal theory, derivation of demand in case of one or more goods; Ordinal theory: Budget sets, Indifference curves: the rate and elasticity of substitution. Consumer equilibrium; effects of change in prices and income; Engels curve. Derivation of demand curve. Income and substitution effects: Hicks and Slutsky. Revealed preference theory: strong and weak axioms and the derivation of demand curve.

Unit III

(16 Hours)

Theory of production: Production function, isoquants, properties of isoquants, iso-cost lines, optimum input combination, Expansion Path, returns to a factor and returns to scale and their compatibility. Marginal rate of technical substitution, Principle of marginal rate of technical substitution, Law of variable proportion. Elasticity of technical substitution; economies of scale; general concept of Linear homogenous production function and its properties; Cobb-Douglas production function.

Unit IV

(14 Hours)

Theory of Cost: concept of economic cost; Short run and long run cost curves; increasing and decreasing cost industries; envelope curve; L-shaped cost curves;

Revenue analysis: concept of total revenue, marginal revenue and average revenue & their relationships,

Suggested Readings:

1. Bernheim, B. D., M. Whinston and A. Sen. *Microeconomics*. Tata McGraw-Hill Education.
2. Koutsoyiannis, A. *Modern Microeconomics*. Palgrave Macmillan, Second Edition, 2003
3. Lipsey, G. and K.A. Chrystal. *Economics*. Oxford University Press. 2004.
4. Mankiw, N.Gregory. *Principles of Economics*. Worth Publishers. 2007. Seventh Edition.
5. Salvatore, D. *Microeconomics: Theory and Applications*. Oxford University Press. 2008
6. Samuelson, P.A. and W. D. Nordhaus. *Economics*. Tata McGraw Hill. 2005.

Course Title: Macroeconomics – I

L	T	P	Credits	Marks
4	0	0	4	100

Paper Code: ECO106

Course Objectives:

- To understand the conceptual and practical framework of the economy as a whole.
- To understand the various methods used in national income accounting.

Unit I

(14 Hours)

Introduction to Macroeconomics; Meaning, Nature and scope, importance, Micro vs. Macroeconomics and its limitations. Circular flow of income in two, three and four sectors economies; Variables: Real and nominal; Induced and autonomous; Lagged and un-lagged; ex-ante and ex- post; Model and Equations; Equality & identity; stock and flow; Static, Equilibrium and Disequilibrium.

Unit II

(14 Hours)

National Income: Definition: Economic and Non- Economic Production: Productive Vs Non-productive, intermediate and final output; Concepts of national income. Measurement of National Income: National income: Concepts, components and methods of measurement; Income, Output and Expenditure methods, Difficulties in national income measurement. Nominal and Real GNP.

Unit III

(16 Hours)

National Accounts: Meaning, objectives and importance. Different methods of preparing national income accounts; Social Income Accounts, Fund Flow Accounting, Balance of Payment method and Input Output method.

GNP and Welfare; Inter temporal and international comparisons of National income.

Unit IV

(16 Hours)

Determination of Income and Employment: Classical View: Labour Market; Product Market and Money Market.

Say's Law of Markets (Barter and a monetized economy). Classical theory of income, output and income determination.

Suggested Readings:

1. Ackley, G. *Macro Economics: Theory and Policy*. Macmillan publishers. 1978.
2. Branson, William H. *Macro-Economic Theory and Policy*. Indian edition.
3. Dornbush, R., S. Fisher and R. Startz. *Macro Economics*. Tata Mc. Graw Hill. 2004.
4. Rana, K.C. and K.N. Verma. *Macro-Economic Analysis*. Vishal Publishing Co. 2014.
5. Shapiro, Edward. *Macroeconomic Analysis*. Galgotia Publications. 1999. Indian edition.

Course Title: Mathematics for Economists-I

L	T	P	Credits	Marks
4	0	0	4	100

Course Code: ECO107

Course Objectives:

- To understand the basic and advanced concepts of quantitative techniques.
- To make the students conversant with various quantitative techniques used in Economics for decisions making.
- To understand the concepts and theories underlying some applications of quantitative techniques in research issues.

Unit-I

(15 Hours)

The straight line, Mathematical modelling, Applications: Demand, Supply, Cost, and Revenue. Translations of linear Functions, elasticity of demand, Supply and Income, Budget and cost constraints, Excel for linear Functions.

Unit-II

(15 Hours)

Simultaneous equations: Solving simultaneous equations, Equilibrium and break even, Consumer and producer surplus, Non-linear functions and applications; Quadratic, Cubic and other polynomial functions. Exponential functions.

Unit-III

(15 Hours)

Arithmetic Progression; Definition nth term of an A.P, sum of n terms, Arithmetic mean, A.M. between two numbers, application of A.P. series, Geometric Progression; Definition, nth terms of G.P. series, sum of n terms, Geometric mean between two numbers, Application of G.P. series

Unit –IV

(15 Hours)

Financial Mathematics: Simple interest, compound interest and annual percentage rates, depreciation, net present value and internal rate of return, Annuities, debt repayments, Sinking funds, the relationship between interest rate and the prices of bonds.

Suggested Readings:

1. Bradley T. Paul Patton. *Essential Mathematics for Economics and Business*. Wiley Publication. 2014.
2. Chiang, A.C. *Fundamental Methods of Mathematics Economics*. McGraw Hill. 2005.
3. Kandoi, B. *Mathematics for Business and Economics with Applications*. Volume-1. Himalaya Publishing House. New Delhi. 2011.
4. Kandoi, B. *Mathematics for Business and Economics with Applications*. Volume-II. Himalaya Publishing House. New Delhi. 2011.
5. Yamane, T. *Mathematics for Economist*. Prentice Hall of India. New Delhi. 2001.

Course Title: Statistics -I

Course Code: ECO108

Course Objectives:

L	T	P	Credits	Marks
4	0	0	4	100

The main objective of this course is to acquaint students with some basic concepts in Statistics. They will be introduced to some elementary statistical methods of analysis of data.

UNIT-I

(15 Hours)

Definition: Scope, Importance and limitation of statistics. Classification and Tabulation of data: discrete and continuous one – way and two – way frequency distribution. Diagrammatic and graphic presentation of Data.

UNIT-II

(17 Hours)

Measures of Central Tendency; Mean, Median, Mode, GM and HM, properties, merits and demerits. Measure of Dispersion: Absolute and Relative measures of dispersion-Range, Quartile Deviation, Mean Deviation, Standard Deviation and Variance.

UNIT-III

(12 Hours)

Index Numbers: Meaning scope and limitation of index numbers, problems in construction of index numbers. Tests of Index numbers (time reversal and factor reversal tests), Weighted price and quantity index numbers using aggregate method: Laspeyre's, Paasche's, Fisher's Formulae, cost of living index numbers. Tests for the consistency of index numbers. Use the index numbers to various fields.

UNIT-IV

(16 Hours)

Correlation: meaning, Types, importance, Methods to measure – Scatter Diagram, Karl Pearson's product moment and spearman's rank correlation.

Regression: Meaning, simple regression, least squares principle, properties of correlation and regression coefficients.

Suggested Readings:

1. Nagar A.L. and R.K. Das. *Basic Statistics*. Oxford University Press. 1976
2. Gupta, S.C. *Fundamentals of Statistics*. Himalaya Publishing House. New Delhi. 2013.
3. Gupta, S.P. *Statistical Methods*. Sultan Chand and Sons. New Delhi. 2012.
4. Gupta C.B. *An Introduction to Statistical Methods*. Vikas Publishing House. New Delhi. 2009.
5. Spiegel, M.R. *Theory & Problems of Statistics*. McGraw Hill. 2009.

Course Title: Basic Communication Skills

Course Code: ENG151A

L	T	P	Credits	Marks
4	0	0	3	75

Course Objective:

- To enhance students' vocabulary and comprehensive skills through prescribed texts.
- To hone students' writing skills.

Learning Outcomes: Students will be able to improve their writing skills as well as will enrich their word power.

Unit – A Applied Grammar (Socio-Cultural Context)

- Parts of Speech: Noun, Pronoun, Adjective, Verb, Adverb, Preposition, Conjunction, Interjection **4 hours**
- Tenses (Rules and Usages in Socio-cultural contexts) **5 hour**
- Modals: Can, Could, May, Might, Will, Would, Shall, Should, Must, Ought to **4 hours**
- Passives **3 hours**
- Reported/Reporting Speech **3 hour**

Unit – B Reading (Communicative Approach to be Followed)

- J M Synge: Riders to the Sea (One Act Play) 5 hours
- Anton Chekhov : Joy (Short Story) 4 hours
- Swami Vivekanand : The Secret of Work (Prose) 5 hours

Unit – C Writing

- Paragraph and Essay Writing 4 Hours
- Letter Writing: Formal and Informal 4 hours
- Notice and Email 4 hours

References:

a. Books

1. Kumar, Sanjay and PushpLata. *Communication Skills*. India: OUP, 2012.
2. Vandana, R. Singh. *The Written Word* by. New Delhi: Oxford University Press, 2008.

b. Websites

1. www.youtube.com (to download videos for panel discussions)
2. www.letterwritingguide.com
3. www.teach-nology.com
4. www.englishforeveryone.org

5. www.dailywritingtips.com
6. www.englishworksheets.com
7. www.mindtools.com

Course Title: Basic Communication Skills

L	T	P	Credits	Marks
0	0	2	1	25

Course Code: ENG152

Course Objective:

- To improve fluency in speaking English.
- To promote interactive skills through Group Discussions and role plays.

Learning Outcome: Students will get exposure to speaking through the above mentioned interactive exercises. In addition, they will develop a technical understanding of language learning software, which will further improve their communicative skills.

Unit – A Speaking/Listening		
• Movie-Clippings		10 hours
• Role Plays		10 hours
• Group Discussions		10 hours

Instructions:

1. Each student will prepare a scrap file on any of the topics given by class teacher. Student should be able to justify the contents of his/her Scrap file, which carries the weightage of 10 marks. Marks will be given for originality, creativity and presentation of thoughts.
2. In the end of semester, viva exam will be conducted. Viva will be for 10 marks. Spoken English will be the focus of exam. Examiner will ask questions related to scrap file and other general (non-technical) topics.
3. In the End-term exam, lab activity will carry the weightage of 10 marks.
4. Acknowledge all the sources of information in your scrap file.

References:

Books

1. Gangal, J. K. *A Practical Course In Spoken English*. India: PHI Private Limited, 2012.
2. Kumar, Sanjay and Pushp Lata. *Communication Skills*. India: OUP, 2012.

Websites

1. www.youtube.com (to download videos for panel discussions)
2. www.englishforeveryone.org
3. www.talkenglish.com
4. www.mindtools.com

Course Title: General Knowledge and Current Affairs
Course Code: SGS102

L	T	P	Credits	Marks
2	0	0	2	50

Course Objectives:

- To introduce students with the course and contents of various competitive examinations
- To prepare a foundation for appearing in various competitive examinations
- To sensitize the students about the current issues and events of national and international importance
- To provide opportunity to the students to study inter disciplinary subjects like Geography, Science, Economy, Polity, History, International Relations etc.

Learning Outcomes:

- Students would get an opportunity to aspire, plan and prepare for various competitive examinations in advance.
- It would polish their personalities and sharpen the skills of debates, group discussions, communication, interview etc.
- Students would acquire general awareness of National and International Events.

Unit — A (General Geography)

World Geography:

The Universe, The Solar System, The Earth, Atmosphere, The World we live in, Countries rich in Minerals, People of the World, Wonders of the World, Biggest and Smallest.

Indian Geography:

Location, Area and Dimensions, Physical Presence, River Systems, Climate, Forests, Agriculture, Indian States and Union Territories, Important sites and Monuments, Largest-Longest and Highest in India.

General History:

Glimpses of India History, Ancient Indian, Medieval India, Modern India, Various Phases of Indian National Movement, Prominent Personalities.

Glimpses of World History:

Important Events of World History, Revolutions and Wars of Independence, The World Wars, Political Philosophies like Nazism, Fascism, Communism, Capitalism, Liberalism etc.

Unit — B (General Polity)

World Politics:

Major Actors and their political relations, International Organisations: UNO and other organizations viz: WTO, EU, SAARC, ASEAN, BRICS, WTO, OIC, OAU, OPEC, GCC etc.

Indian Polity : Constitution of India :

Important Provisions, Basic Structure, Union Government, Union Legislature and Executive, State Government: State Legislature and Executive, Indian Judiciary, The Election Commission, Panchayati Raj System, RTI etc.

General Economy :

The process of liberalization, privatization, globalization and Major World Issues. Indian Economy, Planning in India, Indian Financial System, Agriculture, Industries, Major Economic Issues, Economic Terminology.

Unit — C (General Science)

General appreciation and understandings of science including the matters of everyday observation and experience. Inventions and Discoveries, Scientific concepts and Theories.

Environmental Science

- Environment
- Global Warming
- Pollution
- Major Disasters

Sports and Recreation:

The World of Sports and recreation. Who's Who in sports, Major Events, Awards and Honours. Famous personalities, Festivals. Arts and Artists.

Current Affairs:

National and International Issues and Events in News. Governments Schemes, Policy Decisions, Bilateral, Regional and International Assessments.

India and Neighbours:

Current phase relations with China, Pakistan, Bangladesh, Nepal, Sri Lanka and Afghanistan

Unit — D (Miscellaneous Information)

Who is who?

Books and Authors, Persons in News, Awards and Honours, Abbreviations and Sports

SUGGESTED READINGS :

Books

1. General Knowledge Manual 2013-14, Mukhtikanta Mohanty, Macmillan Publishers India Ltd., Delhi.
2. General Knowledge Manual 2013-14, Edgar Thorpe and Showick Thorpe, The Pearson, Delhi.
3. Spectrum's Handbook of General Studies – 2013-14, Spectrum Books (P) Ltd., New Delhi
4. NCERT Books.
5. Unique Quintessence of General Studies – 2013-14, Unique Publishers, New Delhi – 110024.

CURRENT AFFAIRS

Magazines

Economic and Political Weekly, Yojna, the Week, India Today, Frontline, Spectrum.

Competition Success Review, Competition Master, Civil Services Chronicle, Current Affairs, World Atlas Book

Newspapers

The Hindu, Times of India, The Hindustan Times, The Tribune

Course Title: Introduction to Computers and Information Technology
Course Code: CSA101

L	T	P	Credits	Marks
4	0	0	4	100

Course Duration: 45-60 Hours

Course Objective: This course will enable the student to gain an understanding of the core concepts and technologies which constitute Information Technology. The intention is for the student to be able to articulate and demonstrate a basic understanding of the fundamental concepts of Information Technology.

UNIT-A

Computer Fundamentals

12 Hours

- Block Structure of a Computer, Characteristics of Computers
- Problem Solving With Computers, Generations of Computers
- Classification of Computers on the Basis of Capacity,
- Purpose and Generation, Applications of Computers.

Number System

- Bit, byte, binary, decimal, hexadecimal, and octal systems, conversion from one system to the other, representation of characters, integers and fractions.

Binary Arithmetic

- Addition, subtraction and multiplication

UNIT-B

12 Hours

Memory Types

- Magnetic core, RAM, ROM, Secondary, Cache, Bubble Memory.

Input and Output UNITS

- Keyboard, Mouse (Mechanical, Optical, Wireless), Monitor (CRT, LCD, LED, and 3D), Light pen, Joystick, Mouse, Touch screen; OCR, OMR, MICR.

Overview of storage devices

- Floppy disk, tape, hard disk, compact disk, DVD, flash drive, (memory card).

Printers

- Impact, nonimpact, working mechanism of Drum printer, Dot Matrix printer, Inkjet printer and Laser printer.

System Configuration

UNIT-C

8 Hours

Computer languages

- Machine language, assembly language, higher level language, 4GL.
- Introduction to Compiler, Interpreter, Assembler, Assembling, System Software, Application Software.

Applications of Information Technology and Trends

- IT in Business and Industry, IT in Education & training, IT in Science and Technology
- IT and Entertainment, Current Trends in IT Application AI
- Virtual Reports, voice recognition, Robots, Multimedia Technology

UNIT-D

13 Hours

Operating system

- Batch, multiprogramming, time sharing, network operating system, online and real time operating system,
- Distributed operating system, multiprocessor, Multitasking, ANDROID.

Computer Network and Communication

- Network types, network topologies, network communication devices, physical communication media.

Security management tools

- PC tools, Norton Utilities, Virus, worms, threats
Virus detection, prevention and cure utilities, Firewalls, Proxy servers.

Reference Books

1. Sinha, P.K. and Sinha, P., *Foundations of Computing*. New Delhi: BPB First Edition, 2002.
2. Norton Peter , *Introduction to Computers*, McGraw Hill.
3. Rajaraman V, *Fundamentals of Computers*, New Delhi: Prentice Hall of India, Second Edition, 1996.
4. Subramanian N, *Introduction to Computers*, [Noida, UP, India](#) : Tata McGraw-Hill, 1989
5. Cyganski D, Orr J A, *Information Technology Inside and Outside*, [New Jersey](#) USA : Pearson Education 2002.

Course Title: Microeconomics-II

L	T	P	Credits	Marks
4	0	0	4	100

Course Code: ECO109**Course Objectives:**

This course aims to acquaint students with the different market forms and introduces them to the concepts of game theory which would enable them to grasp the strategic behaviour of the firms.

Unit-I**(15 Hours)**

Perfect competition: its features, price determination, equilibrium of firm and industry in market period, short run and long run; Shut down point, short period and long period supply curves.

Monopoly: Meaning, Assumptions, equilibrium of the monopolist in short and long run, monopoly power, supply curve, Price discrimination: meaning, degrees, conditions and equilibrium in discriminating monopoly, monopoly control and regulation.

Unit-II**(14 Hours)**

Monopolistic competition: meaning, assumptions, product differentiation and demand curve, firm and group equilibrium; Selling costs, excess capacity, Dumping.

Price determination under monopsony and bilateral monopoly.

Unit-III**(15 Hours)**

Oligopoly: meaning, features, causes for the existence of oligopoly, approaches to the determination of price and output under oligopoly; Non-Collusive Oligopoly: Cournot, Bertrand, and Kinked demand curve model. Collusive Oligopoly: Cartels and price leadership models; Baumol's sales maximization model of oligopoly firm.

Unit IV**(16 Hours)**

Firm's Managerial Theories - Williamson's model, Marris model; Limit pricing theory.

Game Theory: basic concepts; Prisoner's Dilemma; competitive strategy: dominant strategies and Nash equilibrium, repeated games, threats, commitments and credibility.

Suggested Readings:

1. Bernheim, B. D., M. Whinston and A. Sen. *Microeconomics*. Tata McGraw-Hill Education.
2. Koutsoyiannis, A. *Modern Microeconomics*. Palgrave Macmillan, Second Edition, 2003.
3. Lipsey, G. and K.A. Chrysal. *Economics*. Oxford University Press. 2004.
4. Mankiw, N.Gregory. *Principles of Economics*. Worth Publishers. 2007. Seventh Edition.
5. Salvatore, D. *Microeconomics: Theory and Applications*. Oxford University Press. 2008.
6. Samuelson, P.A. and W.D. Nordhaus. *Economics*. Tata McGraw Hill. 2005.

Course Title: Macroeconomics – II
Course Code: ECO110

L	T	P	Credits	Marks
4	0	0	4	100

Course Objectives: The course aims to make the students understand, the main problems found in economy in different periods of time and to analyze how government expenditures and taxation can be used to stimulate or slow the market economy and the possible consequences of such acts.

Unit-I

(12 Hours)

Basic Concepts: Full employment and various types of unemployment. Aggregate demand and aggregate supply functions. Effective demand: Determinants of effective demand, determination of effective demand, importance of effective demand.

Unit-II

(16 Hours)

Keynesian Economics: Keynes consumption function; saving and investment functions. Psychological law of consumption. Determination of income, employment and output in Keynesian frame work in a two sector, three sector and four sector economy. Paradox of thrift.

Unit-III

(16 Hours)

Multiplier: Static and Dynamic analysis. Balanced – budget multiplier. Foreign trade multiplier. The principle of acceleration and Super Multiplier.
Theories of Consumption: Absolute Income Hypothesis; Relative Income Hypothesis; Permanent Income Hypothesis and Life Cycle Hypothesis.

Unit-IV

(16 Hours)

The Marginal Efficiency of Investment, Relationship between the MEC and MEI, Factor affecting inducement to investment; Classical theory of investment; Keynesian theory of investment; Accelerator theory of investment; Neo-classical theory of investment.

Suggested Readings:

1. Ackley, G. *Macro Economics Theory and Policy*. Macmillan publishers. 1978.
2. Branson, William H. *Macro-Economic Theory and Policy*. Indian edition.
3. Dornbush, R., S. Fisher and R. Startz. *Macro Economics*. Tata McGraw Hill. 2004.
4. Rana, K.C. and K.N. Verma. *Macro-Economic Analysis*. Vishal Publishing Co. 2014.
5. Shapiro, Edward. *Macroeconomic Analysis*. Galgotia Publications. 1999. Indian edition.

Course Title: Mathematics for Economists –II

L	T	P	Credits	Marks
4	0	0	4	100

Course Code: ECO111

Course Objectives: The students are to develop skills in mathematical techniques that are required for a meaningful study of both theoretical and applied economics.

UNIT-I (14 Hours)

Sets and Relations: Functions-types of function and its application in economics, System of equations and Inequalities in Market Equilibrium

Unit II (15 Hours)

Differentiation: Rules of differentiation, Economic Applications; Marginal revenue, average revenue, total revenue, marginal cost, average cost and total cost. Partial differentiation.

Unit III (16 Hours)

Maxima and Minima, profit maximisation. Integration: rules of integration. Consumer and producers surplus.

Unit IV (15 Hours)

Linear Algebra: Matrices, types, products of matrices, inverse of matrix, rank of a matrix, determinants, simultaneous linear equations (Cramer's rule). Rank method

Suggested Readings:

1. Bradley T. Paul Patton. *Essential Mathematics for Economics and Business*. Wiley Publication. 2014
2. Chiang, A.C. *Fundamental Methods of Mathematics Economics*. McGraw Hill. 2005
3. Kandoi, B. *Mathematics for Business and Economics with Applications*. Volume-I, Himalaya Publishing House. New Delhi. 2011.
4. Kandoi, B. *Mathematics for Business and Economics with Applications*. Volume-II, Himalaya Publishing House. New Delhi. 2011.
5. Monga, G.S. *Mathematics and Statistics for Economics*. Vikas Publication. New Delhi. 2005.
6. Yamane, T. *Mathematics for Economist*. Prentice Hall of India. New Delhi. 2001.

Course Title: Statistics –II

Course Code: ECO112

L	T	P	Credits	Marks
4	0	0	4	100

Course Objectives:

- To enable students to acquire the basic knowledge of statistical tools as required for their understanding of economic issues.
- To enable the students to apply statistical analysis to a range of economic policy problems

Unit-I

(13 Hours)

Correlation and Regression Analysis: Partial and multiple correlation coefficients: Derivations, application and properties. Fitting of multiple regression by least squares technique stress on numerical examples.

Unit-II

(15 Hours)

Skewness, Moments and Kurtosis: Introduction, Difference between dispersion and Skewness Tests of Skewness, Absolute measure of Skewness, Karl Pearson's coefficient of Skewness, Bowley's coefficient of Skewness Kelly's coefficient of Skewness. Moments about arbitrary origin, Central Moments, Moments about zero. Measures of Kurtosis.

Unit-III

(14 Hours)

Time Series Analysis: Meaning, Components: Models, economic significance of time series, methods of estimating trend and seasonal variations. Growth Curves: Properties, methods of estimation and applications of parabolic, geometric, exponential, modified exponential, Gompertz and logistic growth curves.

Unit IV

(16 Hours)

Probability: Definition (classical and empirical only), laws of probability, conditional probability and independence of events (applications only) concept of random variables, probability density and mass function, expectation, moments, moment generating function, properties (without proof).

Suggested Readings:

1. Nagar A.L. and R.K. Das. *Basic Statistics*. Oxford University Press. 1976.
2. Gupta, S.C. *Fundamentals of Statistics*, Himalaya Publishing House. New Delhi. 2013.
3. Gupta, S.P. *Statistical Methods*. Sultan Chand and Sons. New Delhi. 2012.
4. Gupta C.B. *An Introduction to Statistical Methods*. Vikas Publishing House. New Delhi. 2009.
5. Spiegel, M.R. *Theory & Problems of Statistics*. McGraw Hill. 2009.

Course Title: Interaction with GUI

L	T	P	Credits	Marks
4	0	0	3	75

Course Code: CSA157

Course Duration: 45-60 Hours

Course Objective: To familiarize the students with computers and their use, and make them proficient in the use of computer applications such as word, excel, access, presentation slides relevant to their upcoming project and their reports.

UNIT-A

Concept of an Office

12 Hours

- Purpose of an Office, Activities in an Office, Structure of an Office,
- Office System, Office Manual, Document Flow Management in an Office.

Office Automation

- Introduction, Today's Office, Need for Office Automation, Its Advantages, Disadvantages and Office Automation Tools.

Office Automation Technology

- Office Equipment, Workstation Communication and Convergence of Technologies

UNIT-B

DOS

- DOS – History, Files and Directories, Internal and External Commands, Batch Files 12 Hours

Windows

- Installing WINDOWS with Setup, Starting and Quitting WINDOWS
- Basic Elements of WINDOWS, Working with Menus Dialogue Boxes,
- Window Applications, Program Manager, File Manager, Print Manager,
- Control Panel, Write, Paint Brush, Accessories Including Calculator, Calendar, Clock, Card File, Note Pad, Recorder Etc.

UNIT-C

10 Hours

MS Word

- Salient Features Of MS WORD, File, Edit, View, Insert, Format, Tools, Tables, Window, Help Options and all of their Features, Options and Sub Options etc.
- Transfer of Files between MS WORD and other Word Processors and Software Packages.

Excel

- Excel Worksheet, Data Entry, Editing, Cell Addressing Ranges, Commands, Menus
- Copying & Moving Cell Content, Inserting and Deleting Rows and Column, Column Formats, Cell Protection, Printing, Creating, displaying and Printing Graphs, Statistical Functions.

UNIT-D

11 Hours

MS Access

- Getting Familiar with Microsoft Access 2007 for Windows, Creating Microsoft Access Tables
- Working with Microsoft Access Tables, Sorting, Filtering, and Creating Relationships, Creating Microsoft Access Queries
- Creating Forms, Creating Reports.

MS–Power Point

- Presentation overview, entering information, Presentation creation, opening and saving presentation, inserting audio and video

Internet

- Search engine, email, Google scholar, social networking, edrive, gmap, Internet chat

Reference Books

1. Jain Satish , *MSOffice 2010 Training Guide*, Delhi : BPB Publications, 2010
2. Shelly G. B , Cashman Thomas J., and Vermaat Misty E., *Microsoft Office Word 2007: Complete Concepts and Techniques*, New Delhi:Cengage Learning, 2007
3. Chopra R.K.,*Office Organization and Management*. New Delhi :Himalaya Publishing house, 2013

L	T	P	Credits	Marks
0	0	2	1	25

Course Title: Interaction with GUI Laboratory

Course Code: CSA158

- Familiarizing with PC and WINDOWS commands
- File creation
- Editing
- Directory creation
- Mastery of DOS internal & external commands
- Learning to use MS Office: MS WORD, MS EXCEL & MS PowerPoint
- Use of Internet browsers, email, search, etc.

Course Title: Human Values and Ethics

Course Code: SGS101

L	T	P	Credits	Marks
2	0	0	2	50

Course Objectives:

- To sensitize students about the role and importance of human values and ethics in personal, social and professional life.
- To encourage students to read and realize the values of enlightened human beings.
- To enable students to understand and appreciate ethical concerns relevant to modern lives.

Learning Outcomes:

Students becoming responsible citizens and better professionals who practise Values and Ethics in every sphere of life.

Unit – A (Human Values)

7 Hours

1. Concept of Human Values: Meaning, Types and Importance of Values.
2. Human Values : Lessons from the lives and teachings of great leaders, reformers and holy persons.
3. Value Education : The content of value education
4. Value crisis and its redressal.

Unit – B (Being Good and Responsible)

8 Hours

1. Self Exploration and Self Evaluation
2. Acquiring Core Values for Self Development
3. Living in Harmony with Self, Family, Society and Nature
4. Values enshrined in the Constitution: Liberty, Equality Fraternity and Fundamental Duties.

Unit – C (Value – based Living)

8 Hours

1. Vedic values of life
2. Karma Yoga and Jnana Yoga
3. Ashta Marga and Tri-Ratna
4. Truth, Contentment and Wisdom

Unit – D (Ethical Living)

7 Hours

1. Personal Ethics
2. Professional Ethics
3. Ethics in Governance
4. Ethics in Education

Suggested Readings:

1. Restoring Values (ed.) E. Sreedharan and Bharat Wakhlu, Sage Publications Ltd., New Delhi 2010.
2. Indian Ethos and Values by Nagarajan K, Tata McGraw Hill, 2011
3. Human Values, A N Tripathi, New Age International Publishers, New Delhi, Third Edition, 2009
4. Indian Ethos and Values in Management, 1st Edition by Sankar, Tata McGraw Hill Education Pvt. Ltd.
5. Values and Ethics, Osula, Asian Books, 2001.
6. Professional Ethics, R. Surbhiramanian, Oxford University Press, New Delhi, 2013.
7. Human Values and Professional Ethics, Rishabh Anand, Satya Prakashan, New Delhi, 2012
8. Human Values and Professional Ethics, Sanjeev Bhalla, Satya Prakashan, New Delhi, 2012.
9. Human Values and Professional Ethics, Ritu Soryan Dhanpat Rai & Co. Pvt. Ltd., First Edition, 2010.
10. Human Values and Professional Ethics by Suresh Jayshree, Raghavan B S, S Chand & Co. Ltd. , 2007.
11. Human Values and Professional Ethics, Dr. R K Shukla, Anuranjan Misra, A B Publication 2010.
12. Human Values and Professional Ethics, Sharma, Vayu Education of India Language publishers, 2012.
13. Human Values and Professional Ethics, S. Kannan, K. Srilakshmi, Taxmann Publication, Pvt. Ltd., 2009
14. Human Values and Professional Ethics, Smriti Srivastava, S K Kataria & Sons, 2001
15. Human Values and Professional Ethics, Yogendra Singh, Ankur Garg, Aitbs publishers, 2011.
16. Human Values and Professional Ethics, Vrinder Kumar, Kalyani Publishers, Ludhiana, 2013.
17. Human Values and Professional Ethics, R R Gaur, R. Sangal, GP Bagaria, Excel Books, New Delhi 2010.
18. Values and Ethics, Dr. Bramwell Osula, Dr. Saroj Upadhyay, Asian Books Pvt. Ltd., 2011.
19. Complete works of Swami Vivekanand, Advaita Ashram, Calcutta – 1931.
20. Indian Philosophy, S. Radhakrishnan, George Allen & Unwin Ltd., New York: Humanities Press INC, 1929.
21. Essentials of Hinduism, Jainism and Buddhism, A N Dwivedi, Books Today, New Delhi – 1979
22. Light of Truth : Satyarth Parkash, Maharishi Dayanand Saraswati, Arya Swadhyay Kendra, New Delhi, 1975.
23. Dayanand : His life and work, Suraj Bhan, DAVCMC, New Delhi – 2001.

24. Moral and Political Thoughts of Mahatma Gandhi, V. Raghavan, N Iyer, Oxford University Press India, New Delhi, 2000.
25. Guru Nanak Dev's view of life, Amplified by Narain Singh, Published by Bhagat Puran Singh All India Pingalwara Society, Amritsar 2010.
26. Esence of Vedas, Kapil Dev Dwivedi, Katyayan Vedic Sahitya Prakashan, Hoshiarpur, 1990.
27. Vedic Concepts, Prof. B B Chaubey, Katyayan Vedic Sahitya Prakashan, Hoshiarpur, 1990.
28. Mahatma Gandhi : Essays and Reflections on his life and work by Saravapalli Radhakrishnan, Zaico Publication, Mumbai, 1977.
29. Lala Har Dayal, Hints for Self Culture, Jaico Publishing House, Mumbai, 1961.
30. Maharishi Swami Dayanand Saraswati, The Light of Truth (The Satyartha Prakashan), available at URL :
www.aryasamajjamnagar.org/download/satyarth_prakash_eng.pdf
31. Krishnamurti J, The First and Last Freedom, available at URL :
<http://www.jiddu-krishnamurti.net/en/th-first-and-last-freedom/>
32. Sri Raman Maharishi, Who Am I, available at URL :
http://www.sriramanamaharshi.org/resource_centre/publicatins/who-am-i-books/
33. Ramesh S Balsekar, Peace and Harmony in Daily Living, Yogi Impressions; 1st edition

Course Title: Environment Education, Road Safety and Legal Awareness
Course Code: EVS101

L	T	P	Credits	Marks
4	0	0	4	100

Course Objective: This course aims at understanding the students in aspects of environmental problems, its potential impacts on global ecosystem and its inhabitants, solutions for these problems as well as environmental ethics which they should adopt to attain sustainable development.

Unit 1

The multidisciplinary nature of environmental studies (2 Hours)

Definition, scope and importance, Need for public awareness

Natural Resources: Renewable and non-renewable resources: (8 Hours)

Natural resources and associated problems.

(a) **Forest resources:** Use and over-exploitation, deforestation, case studies. Timber extraction, mining, dams and their effects on forests and tribal people.

(b) **Water resources:** Use and over-utilization of surface and ground water, floods, drought, conflicts over water, dams-benefits and problems.

(c) **Mineral resources:** Use and exploitation, environmental effects of extracting and using mineral resources, case studies.

(d) **Food resources:** World food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity, case studies.

(e) **Energy resources:** Growing energy needs, renewable and non-renewable energy sources, use of alternate energy sources, case studies.

(f) **Land resources:** Land as a resource, land degradation, man induced landslides, soil erosion and desertification.

- Role of an individual in conservation of natural resources.
- Equitable use of resources for sustainable lifestyles.

Ecosystem: (4 Hours)

- Concept of an ecosystem
- Structure and function of an ecosystem
- Producers, consumers and decomposers
- Energy flow in the ecosystem
- Ecological succession
- Food chains, food webs and ecological pyramids
- Introduction, types, characteristic features, structure and function of the following ecosystem:

- a. Forest ecosystem
- b. Grassland ecosystem

- c. Desert ecosystem
- d. Aquatic ecosystems (ponds, streams, lakes, rivers, ocean estuaries)

Unit II

Biodiversity and its conservation

4 Hours

- Introduction – Definition: Genetic, Species and Ecosystem Diversity
- Bio-geographical classification of India
- Value of biodiversity: Consumptive use, Productive use, Social, Ethical, Aesthetic and Option values
- Biodiversity at global, national and local levels
- India as a mega-diversity nation
- Hot-spots of biodiversity
- Threats to biodiversity: habitat loss, poaching of wildlife, man wildlife conflicts
- Endangered and endemic species of India
- Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity, global and national efforts.
- Genetically modified crops
- Cartagena Protocol
- Biodiversity Act

Environmental Pollution

8 Hours

- Definition, causes, effects and control measures of:
 - a. Air pollution
 - b. Water pollution
 - c. Soil pollution
 - d. Marine pollution
 - e. Noise pollution
 - f. Thermal pollution
 - g. Nuclear pollution
 - Solid waste management: Causes, effects and control measures of urban and industrial wastes.
 - Role of an individual in prevention of pollution
 - Pollution case studies
 - Disaster management: floods, earthquake, cyclone and landslides

Indoor Pollution:

2 Hours

- Practical tips on how to save the self from self-inflicted pollution.
- Basics of toxicity.
- Problems of lifestyle based diseases.
- Solutions needed for safety.

Unit III

Social Issues and the Environment

7 Hours

- Population growth, variation among nations, Population explosion – Family Welfare Programmes.

- Environment and human health,
- From unsustainable to sustainable development
- Urban problems and related to energy
- Water conservation, rain water harvesting, watershed management
- Resettlement and rehabilitation of people; its problems and concerns. Case studies.
- Environmental ethics: Issues and possible solutions
- Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust. Case studies.
- Wasteland reclamation
- Consumerism and waste products
- Environmental Laws: The Environment Protection Act, 1986; The Air (Prevention and Control of Pollution) Act, 1981; The Water (Prevention and control of Pollution) Act 1974; The Wildlife Protection Act, 1972; Forest Conservation Act, 1980.
- Issues involved in enforcement of environmental legislation
- Public Awareness

Human Population and Environment

5 Hours

- Population Growth and Variations among Nations
- Population Explosion
- Human Rights
- Value Education
- HIV / AIDS
- Women and Child Welfare
- Role of Information Technology in Environment and Human Health
- Case Studies

Global environmental issues

5 Hours

- Stockholm Conference
- Brundtland Commission
- Montreal Protocol
- Kyoto protocol
- Earth Summit
- World Summit

Unit IV

Road Safety

6 Hours

- Road safety: Concept and its importance.
- Attitude of people towards road safety
- Role of traffic police in road safety
- Traffic rules, Traffic signs, How to obtain driving license, Traffic offences, penalties and procedures,
- Common driving mistakes, Significance of first-aid in road safety
- Role of civil society in road safety and Traffic police-public relationship

- Motor Vehicle Act 1998 (2010)

Legal Awareness

4 Hours

- Legal literacy
- Child labour
- Domestic Violence
- Right to Education

Field Work

5 Hours

- Visit to a local area to document environmental assets river/ forest/ grassland/hill/mountain
- Visit to a local polluted site – Urban / Rural / Industrial / Agricultural
- Study of common plants, insects, birds
- Study of simple ecosystems-Pond, river, hill slopes, etc (Field work equal to 5 lecture hours)

Suggested Readings:

1. Odum, E.P. (1983). Basic Ecology. Holt Saunders, International Edition, Japan.
2. Botkin, D.B. and Kodler, E.A. (2000). Environmental Studies: The Earth as a living planet. John Wiley and Sons Inc., New York.
3. Singh, J.S., Singh, S.P and Gupta S.R., (2006). Ecology, Environment and Resource Conservation, Anamaya Publishers, New Delhi.
4. De, A.K. (1990). Environmental Chemistry. Wiley Eastern Ltd. New Delhi.
5. Sharma, P.D. (2004). Ecology and Environment. Rastogi Publications, Meerut.
6. Uberoi, N.K.: Environmental Management, Excel Books, 2nd Edition, New Delhi.

L	T	P	Credits	Marks
4	0	0	4	100

Course Title: Microeconomics-III
Paper Code: ECO205

Course Objectives:

The course acquaints the students about the price determination of various factors of production so as to decide the price of the product. It also helps the students to use microeconomic techniques to study how allocation of resources affects welfare at the economy-wide level.

Unit-1

(16 Hours)

Factor Pricing: Marginal productivity theory of distribution and determination of factor prices under different market forms; Euler's Theorem.

Economic Rent: concepts (such as quasi rent etc.) and theories of rent determination - Ricardian and Modern theory.

Unit-II

(16 Hours)

Edgeworth box: 2 good, 2 factor, 2 consumer analysis and Pareto optimality conditions; market trade; Walras Law; Relative prices; Equilibrium and efficiency; Grand Utility possibility frontier. Implication of first and second welfare theorem

Unit-III

(16 Hours)

Welfare Economics: Concepts, Compensation Principle (Kaldor-Hicks, Scitovsky criteria), Social Welfare Function, Theory of Second best, Arrow's impossibility, First and Second theorem of welfare;

Unit-IV

(13 Hours)

Market Failures: concept of externality - production, consumption and pecuniary, public goods.

Suggested Readings:

1. Bernheim, B. D., M. Whinston and A. Sen. *Microeconomics*. Tata McGraw-Hill Education.
2. Koutsoyiannis, A. *Modern Microeconomics*. Palgrave Macmillan, Second Edition, 2003
3. Lipsey, G. and K.A. Chrystal. *Economics*. Oxford University Press. 2004.
4. Mankiw, N.Gregory. *Principles of Economics*. Worth Publishers. 2007. Seventh Edition.
5. Salvatore, D. *Microeconomics: Theory and Applications*. Oxford University Press. 2008
6. Samuelson, P.A. and W.D. Nordhaus. *Economics*. Tata McGraw Hill. 2005.

Course Title: Macroeconomics-III
Paper Code: ECO 206

L	T	P	Credits	Marks
4	0	0	4	100

Course Objectives:

The aim of the course is to analyse the process of economic growth, reviewing alternative approaches with a view to attaining a greater understanding of the diverse experiences of different economies, and suggesting policy implications. In addition to it, the IS-LM analysis of monetary and fiscal policy will be extended to confront problems of policy design.

Unit 1

(16 Hours)

The IS Curve and Goods Market Equilibrium: Derivation and Interpretation of Slope, the IS Curve and Fiscal Policy, Alternative Formulation of Goods Market Equilibrium, Savings-Investment Equality

The Money Market: The bond price and interest rate - inverse relation, Money Supply Control by RBI (preliminary), The Demand for Money: The Liquidity Preference Theory - Speculative Demand, Determination of Interest Rate, and Transaction Demand for Money, The Liquidity Trap.

Money Market and LM Curve - Derivation and Shifts, IS-LM Model Combined / Interaction, Fiscal Policy in IS-LM Model: Changes in G, Changes in Taxes, the Crowding-out effect, Monetary Policy: Expansionary & Contractionary, Monetary Transmission Mechanism.

Unit-II

(16 Hours)

Trade Cycles: Features, Keynes' view on trade cycle, Schumpeter, Kaldor Samuelson, Hicks models, control of trade cycle.

Inflation: Causes, consequences and cures, theories of inflation: Classical, Neo-Classical, Keynesian, Monetarist view, Modern theory of Inflation (demand Pull and Cost push inflation) Inflation – unemployment trade off. Natural rate of unemployment.

Unit-III

(14 Hours)

Open Economy: Trade Balance and Exchange Rates: Nominal Exchange Rate and Real Exchange Rate, PPP: Absolute and Relative Purchasing Power Parity; Devaluation and Revaluation; J-Curve ; Exchange Rate Regime: Perfect Capital Mobility under Fixed Exchange Rate; Perfect Capital Mobility under Flexible Exchange Rate; The effectiveness of Fiscal Policy and Monetary Policy in Mundell-Fleming model under different exchange rate regimes; Policy mix as optimal tool for internal and external balance under perfect capital mobility

Unit-IV

(14 Hours)

Monetary Policy: Instruments, objectives and effectiveness in recession and boom.
Fiscal Policy: Instruments and full employment; budget surplus; problems of stabilization policy.
Recent Developments in Macro Economics

Suggested Readings:

1. Ackley, G. *Macro Economics Theory and Policy*. Macmillan publishers. 1978.
2. Branson, William H. *Macro-Economic Theory and Policy*. Indian edition.
3. Dornbush, R., S. Fisher and R. Startz. *Macro Economics*. Tata McGraw Hill. 2004.
4. Rana, K.C. and K.N. Verma. *Macro-Economic Analysis*. Vishal Publishing Co. 2014.
5. Shapiro, Edward. *Macroeconomic Analysis*. Galgotia Publications. 1999. Indian edition.

Course Title: Mathematics for Economists -III
Course Code: ECO207

L	T	P	Credits	Marks
4	0	0	4	100

Course Objectives: This course enhance the skills of students by introducing mathematical tools which develop their potential for undertaking economic decisions.

Unit I (13 Hours)

Difference equations and their applications; Linear Homogenous Difference Equation of First order. Non-Linear differential equation of First Order.

Unit II (16 Hours)

Simple Integration and Applications; Rules of Integration, Methods of Integration, Integration by Parts, Economic Applications: Cost, Revenue, Demand Function, Consumer surplus.

Unit III (15 Hours)

Input – Output Analysis: Assumptions; Transaction matrix: Technical coefficients, Hawkin – Simon Conditions, Metzler condition, open and close input-output systems; Dynamic input output analysis (an introduction).

Unit IV (16 Hours)

Linear Programming: Formulation of linear programming problem. Graphical method, Simplex method, Two-phase simplex method, unbounded solution, infeasible solution, degeneracy and cycling problem. Duality theorem, Solution of primal and dual by simplex method. Dual simplex method.

Suggested Readings:

1. Bradley T. Paul Patton. *Essential Mathematics for Economics and Business*. Wiley Publication. 2014.
2. Chiang, A.C. *Fundamental Methods of Mathematics Economics*. McGraw Hill. 2005.
3. Kandoi, B. *Mathematics for Business and Economics with Applications*. Volume-1, Himalaya Publishing House. New Delhi. 2011.
4. Kandoi, B. *Mathematics for Business and Economics with Applications*. Volume-II, Himalaya Publishing House. New Delhi. 2011.
5. Monga, G.S. *Mathematics and Statistics for Economics*. Vikas Publication. New Delhi. 2005.
6. Yamane, T. *Mathematics for Economist*. Prentice Hall of India. New Delhi. 2001.

Course Title: Statistics -III
Course Code: ECO208

L	T	P	Credits	Marks
4	0	0	4	100

Course Objectives:

- To enable students to acquire the basic knowledge of statistical tools as required for their use in economics-based issues
- To enable the students to apply statistical analysis to a range of economic policy problems

UNIT-I

(15 Hours)

Theoretical Distribution; binomial, poisson and normal distributions, Derivation with numerical examples based upon these distributions and their fitting.

UNIT-II

(15 Hours)

Sampling: Concepts used in sampling: methods of sampling simple random, systematic and stratified. Point estimation: Concept of random sampling, meaning of an estimator; properties of a good estimator; methods of estimation.

UNIT III

(15 Hours)

Theories of estimation; Point Estimation, Interval Estimation. Concepts of null and alternative hypothesis; types of errors; some elementary tests based on above sampling distributions.

UNIT IV

(15 Hours)

Testing of Hypothesis; Large sample test; Sampling of attributes, Test of significance for difference of proportion, Single mean, Differences of means. t- test, chi square and F-test.

Suggested Readings:

1. Gupta, S.C. and V.K. Kapoor. *Fundamental of Applied Statistics*. Sultan Chand and Sons. New Delhi. 2010
2. Kapur, J.N. and H.C. Saxena. *Mathematical Statistics*. S. Chand and Company. New Delhi. 1995.
3. Mood, A.M. and F.A. Gray Bill. *Introduction to the Theory of Statistics*. McGraw Hill Company, New York. 1963.

Course Title: Labour Economics

Course Code: ECO209

L	T	P	Credits	Marks
4	0	0	4	100

Course Objectives:

This is an applied economics course which aims to develop the understanding of the students regarding the functioning of the labour market and related issues, with special focus on developing economies like India.

Unit I (15 Hours)

Introduction to Labour Economics: Meaning, Scope and Importance,

Labour Demand: Nature, Marginal Productivity Theory and demand for labour under different market forms, Short run and Long run labour demand curve for firm and industry; elasticity of substitution; Marshall's rules of derived demand.

Unit II (16 Hours)

Labour Supply: Neoclassical Model of labour-leisure choice; Effects of changes in non-labour income and wage rate on individual equilibrium; role of income and substitution effect, backward bending supply curve; Individual and market labour supply curve.

Equilibrium in Labour Market: Analysis of equilibrium under the competitive and non-competitive market forms.

Unit III (16 Hours)

Unemployment: History of Economic Thought – classical theory, Keynesian, New Classical, Philips curve, Monetarism; various concepts of unemployment; work participation, labour absorption.

Labour Unions: concepts, models of union behaviour and public policies.

Unit IV (14 Hours)

Rural and Urban Labour Market: Labour Market Reforms in India; Labour Laws in India; Subsistence wage and Minimum Wage Act in India; Contemporary issues (post liberalization era); Welfare programmes, government wage employment and self-employment programmes.

Human Capital; Labour Mobility; Child Labour issues; Issues in developing and transition economies.

Suggested Readings:

1. Borjas, George J. *Labour Economics*. McGraw-Hill Irwin. 2013.
2. Gould, J. P. and P. Edward Lazear. *Microeconomic Theory*. AITBS Publishers and Distributors Delhi. 2001.
3. Government of India. *Indian Labour Yearbooks (various issues)*, GOI
4. Kar, Saibal and Debabratta, Datta. *Industrial and Labor Economics: Issues in Developing and Transition Countries*. Springer India. 2015.
5. Smith, Stephen. *Labour Economics*. Routledge. 2003

Course Title: Development Economics-1

L	T	P	Credits	Marks
4	0	0	4	100

Course Code: ECO211**Course Objectives:**

This course acquaints the students with the various theories and models explaining the process of economic growth and development. In addition, the course highlights the contemporary development challenges faced by the developing countries.

Unit 1**(15 Hours)**

Economic Development: Meaning and its evolution, Amartya Sen's Approach, The Millennium and sustainable development Goals. Growth vs Development - their significance, objectives and core values. Characteristics of Underdevelopment.

Unit II**(14 Hours)**

Indicators of Development: GDP as a measure of welfare and its criticism. Indicators of Development; Social and Economic Indicators, Physical Quality of Life Index (PQLI), the Human Development Index (HDI). Indicators of Sustainability.

**Unit III
Hours)****(15**

Poverty, Inequality, and Development: Measuring Inequality, Lorenz Curves and Ginni coefficient Kuznets' Inverted - U Hypothesis, Measuring Poverty- Extent and Magnitude, Characteristics of Poverty Groups, The Functional Impact of Poverty.

Unit IV**(16 Hours)**

Approaches to development (Part 1): Development as growth and the linear stage theories- Rostow's stages of growth, the Harrod – Domar model, criticisms of stages model; Structural Change models- Lewis model of development, Structural changes and pattern of development.

Suggested Readings:

1. Chew, S.C. and R.A. Denmark. *The Underdevelopment of Development*. Sage Publications. New Delhi. 1999.
2. Debraj, Ray. *Development Economics*. Oxford University Press. 1998.
3. Meier, G.M. & J.E. Rauch. *Leading Issues in Economic Development*. Oxford University Press. 2000.
4. Taneja, M.L & R.M. Myer. *Economics of Development and Planning*. Vishal Publications. 2014
5. Thirwall. A.P. *Growth and Development*. Palgrave Macmillan Publishers. 7th edition.
6. Todaro, M.P. and Stephen C. Smith. *Economic Development*. Pearson Publications. 2011.

Course Title: Econometrics I

L	T	P	Credits	Marks
4	0	0	4	100

Course Code: ECO212

Course Objective:

The main objective of the course is to introduce students to basic econometrics techniques and develop their potential for application to economic decision making.

Unit-I (14 Hours)

Nature, Meaning and Scope of econometric; Difference between mathematical economics, statistics and econometrics; Methodology of Econometrics .Difference between correlation and regression.

Simple linear regression model (Two variables): Sources of disturbance terms, assumptions, least squares estimators and their properties; Gauss Markov's theorem.

Unit-II (13 Hours)

Multiple regression Model: Definition, assumptions, least-squares estimation. Testing significance of regression coefficients, concepts of R^2 and R^{-2} . Functional forms: Estimation of quadratic, semi-log and double log functions; simple and compound rates of growth (applications).

Unit-III (16 Hours)

Econometric Modeling: Specification of regression model, Model selection criterion and Diagnostic testing. Multicollinearity: Problem consequences, test to detect Multicollinearity, remedies.

Unit-IV (17 Hours)

Autocorrelation and Heteroscedasticity: Nature, Consequences tests and remedies (elementary treatment).

Suggested Readings:

1. Christopher Dougherty. *Introductory Econometrics*. Oxford University Press. 2012.
2. Gujarati, D. N. *Basic Econometrics*. Tata McGraw Hill. 2004.
3. Koutsoyiannis, A. *Theory of Econometrics*. Palgrave Macmillan. 2005.

Course Title: Money and Banking
Course Code: ECO 214

L	T	P	Credits	Marks
4	0	0	4	100

Course Objectives: This course acquaints the students with the functioning of money market by providing theoretical foundations of money demand and money supply. It also introduces the students to the functioning of banking and financial institutions.

Unit-I (15 Hours)

Money: Introduction, Nature and functions; money and near money;
Demand for money: Fisher, Cambridge, Keynesian and Friedman theories.
Supply of money: mechanics of money supply creation; measures of money supply in India.

Unit-II (14 Hours)

Rate of Interest: Meaning and Classification of Interest, Determination; Factors affecting the level and structure of interest rates.
Theories of interest: Classical theory of interest, Neo classical theory of interest and Keynesian theory of interest.

Unit-III (15 Hours)

Commercial Banking: Meaning, Types, Functions, Theories; credit creation process. Commercial banking in India; Structure; nationalization: objectives, performance and evaluation.
Central Banking: Meaning and functions, techniques of credit control with special reference to India, credit policy in India.

Unit IV (16 Hours)

Monetary Policy: Targets and indicators; macroeconomic objectives. Monetary policy in less developed countries. Inflation in India.
Indian Monetary and Credit System: System of note-issue; computation of money supply by the RBI. Problems and working of money and capital markets.
International Monetary System: Problem of International liquidity. IMF: Its working and role in international financial system. IBRD: Its Working and role.

Suggested Readings:

1. F. S. Mishkin and S. G. Eakins. *Financial Markets and Institutions*. Pearson Education. 2009.
2. Gupta, S.B. *Monetary Economics-Institutions, Theory and Policy*. S. Chand & Co. Ltd. New Delhi. 1995.
3. L. M. Bhole and J. Mahukud. *Financial Institutions and Markets*. Tata McGraw Hill. 2011.
4. Misra, S. Puri. *Indian Economy*. Himalaya Publishing House. 2015.
5. Pathak, Bharati V. *The Indian Financial System, Market, Institutions & Services*. Pearson. 2008.
6. Paul, R.R. *Monetary Economics*. Kalyani Publishers. 2005.
7. Sundram, K.P.M. *Money, Banking, Trade and Finance*. Sultan Chand & Sons. New Delhi. 2014.
8. Vaish, M.C. *Money, Banking and International Trade*. Vikas Publishing House. 2005.

Course Title: Public Finance
Paper Code: ECO215

L	T	P	Credits	Marks
4	0	0	4	100

Course Objectives:

The course aims to equip students with the understanding of public sector with emphasis on the role of government in terms of its key fiscal functions. It provides a comprehensive overview of issues involved in the domain of public finance with the application of basic principles of economics.

Unit 1 (14 Hours)

Introduction: Nature and scope of public finance, categories of revenue, fiscal functions (allocation, distribution and stability), meaning of public sector and public expenditure.

Market Performance: meaning of efficiency, externalities, private versus public good – their efficient provision, merit goods.

Unit-II (14 Hours)

Taxation: requirements for a good tax structure; benefit principle, ability to pay principle, equity (horizontal and vertical); tax base (income, consumption and wealth); direct vs. indirect taxes, proportional vs. progressive taxes; tax incidence (Concept and measurement).

Excess Burden: Meaning, its measures, administration and compliance cost, tax distortions (partial and general equilibrium analysis).

Unit-III (16 Hours)

Optimal Taxation: normative versus positive, commodity tax, income tax, analysis of normative and positive optimal tax.

Public Debt: Concept, objectives and significances of public debt, sources of public borrowings; distinction between internal and external debt.

Unit-IV (16 Hours)

Issues in Indian Public Finance: current issues of India's tax system, fiscal federalism in India, state and local finances

International issues: global public goods, taxation of international trade, government revenue and smuggling

Suggested Readings:

1. Musgrave, R. A and P. B Musgrave. *Public Finance in Theory and Practices*, McGraw-Hill International Editions, 1989.
2. Cullis, John and Philip Jones, *Public Finance and Public Choice*, Oxford University Press, Third Edition (Indian), 2010.
3. Rao, M Govind and Mihir, Rakshit. *Public Economics: Theory and Policy Essays in Honor of Amaresh Bagchi*, Sage Publications, 2011.
4. Srivastava, D K and U, Shankar (ed.). *Development and Public Finance: Essays in Honour of Raja J. Chelliah*, Sage Publications, 2012.

L	T	P	Credits	Marks
4	0	0	4	100

Course Title: Economics of Demography
Paper Code: ECO217

Course Objectives:

The course aims to equip students with the understanding of demography which is the branch of social sciences concerned with the study of human populations, their structure and change (through births, deaths, and migration), and their relationship with the natural environment and with social and economic change.

Unit 1

(16 Hours)

Introduction: Population study; its relation with other disciplines; Theories of population-Malthus, Optimum Theory, Demographic transition; historical evidence of population growth in developed and developing countries.

Sources of demographic data and census: Definition, features, organising census and enumeration methods. Sources of demographic data in India. Census-civil registration system and demographic surveys.

Unit-II

(14 Hours)

Study of fertility and technique of analysis: Meaning- crude birth rate, age, specific fertility rate, total fertility, relation between total fertility and fertility rate and crude birth rate and death rate, age specific birth and death rates. Techniques of analysis of crude birth and death rates, age specific birth and death rates, standardized birth and death rates.

Unit-III

(16 Hours)

Marital status, population and growth: Definitions, crude marriage, relation between marital age and fertility age. Meaning and uses of life tables. Concept of stationary, stable and quasi stable population. Techniques of population projection and common measures of growth.

Unit-IV

(14 Hours)

Migration and population policy: Kinds of migration, estimation of migration rate. Reproductive and child health in India, aging of population.

Population policy in India. Evolution, objectives and its evaluation.

Suggested Readings:

1. Agarwal, S.N. *India's Population Problems*. Tata McGraw Hill. 1985.
2. Agarwal U.D. *Population projections, and Their Accuracy*. B.R. Publishing Corporation. 1999.
3. Government of India. *Census Reports*. various Issues.
4. Gulati, S.C. *Fertility in India: An Econometric Analysis of a Metropolis*. Sage Publications. 1988
5. Mishra, B.D. *An Introduction to Study of Population*. South Asian Publishers. 1980.
6. Srinivasan, K. *Basic Demographic Techniques and Applications*. Sage Publications. 1998.

Course Title: Development Economics-II

L	T	P	Credits	Marks
4	0	0	4	100

Course Code: ECO301**Course Objectives:**

This course acquaints the students with the various theories and models explaining the process of economic growth and development. In addition, the course highlights the contemporary development challenges faced by the developing countries.

Unit 1

Approaches to Development (Part II): **(15 Hours)**

The international-Dependence Revolution - The Neo-classical Dependence Model, the False-Paradigm Model, The Dualistic-Development Thesis; Market Fundamentalism – Neo classical Growth Theory.

Unit II (15 Hours)

Balanced and Unbalanced Growth: Meaning, Explanation, Basic Elements, Essential Conditions for Balanced Growth, Advantages and Critical Appraisal.
Unbalanced Growth: Meaning, Explanation, Linkage Effects, Advantages, Critical Appraisal of Unbalanced Growth, Balanced versus Unbalanced Growth, Reconciliation. Theory of big push and critical minimum effort thesis.

Unit III (16 Hours)

Models of Growth: Classical model: the Marxian model; Schumpeter's model; Kaldor's growth model; Mrs. Joan Robinson's growth model; Solow Growth Model, Convergence and divergence hypothesis. Endogenous growth model.

Unit IV (14 Hours)

Economic Planning: Meaning, need, Objectives and Process for Planning, Requisites for Successful Planning. Types of Planning - Structural and Functional Planning, Planning by Inducement and Direction, Democratic and Socialist Planning, Indicative and Imperative Planning, Perspective and Short-term Planning, National and Regional (Micro level) Planning, and Centralized and Decentralized Planning. Limitations of Planning.

Suggested Readings:

1. Chew, S.C. and R.A. Denmark. *The Underdevelopment of Development*. Sage Publications. New Delhi. 1999.
2. Debraj, Ray. *Development Economics*. Oxford University Press.1998.
3. Meier, G.M. & J.E. Rauch. *Leading Issues in Economic Development*. Oxford University Press. 2000.
4. Taneja, M.L & R.M. Myer. *Economics of Development and Planning*. Vishal Publications. 2014
5. Thirwall. A.P. *Growth and Development*. Palgrave Macmillan Publishers. 7th edition.
6. Todaro, M.P. and Stephen C. Smith. *Economic Development*. Pearson Publications. 2011.

Course Title: Agriculture Economics
Course Code: ECO302

L	T	P	Credits	Marks
4	0	0	4	100

Course Objectives:

The objective of this course is to provide students with an understanding of the motivations for agricultural policies and the instruments that governments use to pursue policy goals.

UNIT-I

(12 Hours)

Nature, scope and its importance Agriculture Economics in the economy. Role of agriculture in economic development. Reasons for backwardness of Indian agriculture. Transforming traditional agriculture.

Farming Systems: Family farming, co-operative farming, collective farming and state farming. Farm size and productivity.

UNIT-II

(16 Hours)

Agricultural credit: Need, role of co-operative and commercial banks.

Institutional changes and agricultural development: Land reforms- consolidation of holdings, abolition of intermediaries, ceiling on land holdings and tenurial reforms - need, nature and evaluation with special reference to India.

UNIT-III

(16 Hours)

New agricultural technology – Its impact on production, income distribution and labour absorption. Negative consequences of new agricultural technology in the context of Punjab.

Crop diversification – Need, progress and problems.

UNIT-IV

(16 Hours)

Agricultural Marketing in India: Structure, types, defects, marketing functions, marketing margins, marketed surplus and marketable surplus. Factors affecting marketed surplus.

Agricultural Price Policy: Need and objectives. Mobilization of agricultural surpluses, Terms of trade between agriculture and industry, Agricultural taxation in India.

Suggested Readings:

1. *Economic Survey*, Government of India. Various Issues.
2. *Handbook of Agriculture Economics*.
3. H Drummond, John Goodwin. *Agriculture Economics*. Pearson Publication. 2013.
4. Sadhu, A.N. and Amarjit Singh. *Fundamentals of Agricultural Economics*. Himalaya Publishers. New Delhi. 2012.

Course Title: Econometrics -II

L	T	P	Credits	Marks
4	0	0	4	100

Course Code: ECO303

Course Objectives: Students of Economics must have knowledge in Econometrics, because the theoretical application of economics had undergone changes in giving priority to understand Economics and Econometrics joined together will provide strong mathematical foundation in Economics

Unit I (14 hours)

Dummy Variables; Regression on qualitative and quantitative variables, dummy variable trap, structural stability of regression models, Chow test, piecewise linear regression model

Unit II (16 Hours)

Simultaneous Equation Models; Simultaneous bias, structural versus reduced form, Identification: rank versus order condition, exact and over identifications, triangular model, methods of estimation including indirect least squares, two-stage least squares and three-stage least squares model.

Unit III (16 Hours)

Distributed Lag Models; Formation of expectations, naïve expectation versus adaptive expectations models, partial adjustment models, distributed lag models; Koyck's model, Almon lag, polynomial distributed lag models.

Unit IV (14 Hours)

Basic Characteristics of Time Series Data; Random Walk, Testing for Nonstationarity and Stationarity, Unit Root Tests

Suggested Readings:

1. Gujarati, Damodar N. *Basic Econometrics*. New York: McGraw-Hill. 2007. Print.
2. Wooldridge, Jeffrey M. *Introductory Econometrics: A Modern Approach*. Peking: Cengage Learning. 2009. Print.
3. Brooks, C. *Introductory Econometrics for Finance*. Cambridge University Press. 2003. First edition.

Course Title: Environmental Economics

L	T	P	Credits	Marks
4	0	0	4	100

Course Code: ECO304**Course Objectives:**

This is an applied economics course which aims to acquaint the students with the range of environmental issues and develop their skills for addressing such environmental problems with the help of suitable tools and techniques for decision making.

Unit I**(15 Hours)**

Introduction to Environmental Economics: Meaning, Scope and Importance; Positive and Normative Economics; Welfare and Markets: Pareto Optimality, Efficiency and Competitive Markets, First and Second Theorem of Welfare Economics, Social Welfare Function and Arrow Impossibility Theorem.

Type of Environmental Goods – Use value and Nonuse value (existence, altruistic and bequest value), Public goods, Private goods, Club goods, Open access resources.

Unit II**(16 Hours)**

Market Failure and Externalities; Theory of Environmental Regulation and Policy: Assignment of Property Rights and Coase Theorem, Government Interventions - Command & Control Measures and Marketable Instruments.

Unit III**(16 Hours)**

Valuation of Environmental Goods and Services: Indirect method (revealed preference); household production function – travel cost, hedonic pricing, statistical value of life and health; direct/stated preference method – contingent valuation.

Unit IV**(14 Hours)**

Economic Growth and the Natural Environment: Rise and fall of Environmental Kuznets Curve, Climate Change; Sustainable Development: Meaning of sustainability – weak or strong, goals and indicators.

National Accounting and the Natural Environment: Green National Income Accounting with special reference to India

Suggested Readings:

1. GOI, *Green National Accounts for India – A Framework*. Government of India, 2013.
2. Kolstad, Charles D. *Intermediate Environmental Economics*. Oxford University Press. 2011.
3. Koutsoyiannis, A., *Modern Microeconomics*. Palgrave Macmillan. Second Edition. 2003.
4. Maureen L. Cropper and Wallace E. Oates. *Environmental Economics: A Survey*. Journal of Economic Literature Volume 30, pp. 675-740.1992
5. Partha Dasgupta. *Measuring Sustainable Development: Theory and Application*. Asian Development Review Volume 24(1), pp: 1-10. 2007.
6. Roger Perman, Yue Ma, James McGilvray and Michael Common. *Natural Resource and Environmental Economics*. Pearson Education/Addison Wesley. 3rd edition. 2003.

Course Title: Punjab Economy
Course Code: ECO313

L	T	P	Credits	Marks
4	0	0	4	100

Course Objectives: The course acquaints the students with the features and problems of Punjab Economy. It will make the students aware about various emerging issues relating to agriculture, industry and finances faced by the Punjab economy.

Unit I (14 Hours)

Economic structure: Agro Climatic Regions. Changing Patterns of Sectoral Division of State Income since 1966. Demographic Developments. Land- use Pattern and changes therein. Nature and extent of urbanization.

Unit II (15 Hours)

Structural Changes in Punjab Economy: Agriculture in Punjab, Growth & productivity, cropping pattern, Inter-district Variations, Green Revolution; role, performance & implications; Agricultural diversification, rationale, constraints and prospectus; agriculture credit & marketing; W.T.O and Punjab agriculture.

Unit III (15 Hours)

Industry in Punjab: Pattern and progress. Inter-district Industrial Disparities. Role of State & Financial Institutions. Industrial Labour and Employment Pattern, Problems and Potentials of Industrialization of Punjab.

Unit IV (16 Hours)

Transport and Banking: Development of transport and banking in Punjab.

State Finance: Finances of Punjab State; Sources of revenue and heads of expenditure, Problems of resource mobilization & fiscal crisis in Punjab.

Suggested Readings:

1. Bawa, R.S. and P.S. Raikhy (eds.). Punjab Economy, Emerging Issues, 2000.
2. Bawa, R.S. and P.S. Singh, Gopal (ed.). Punjab Today. Intellectual Publishing House. New Delhi
3. Chadha, G.K. The State and Rural Economic Transformation: The Case of Punjab 1950-85. Sage Publication.1986.
4. Johl S.S. Economic Development and Structural Change in Punjab: Some Polity Issues, Iqbal Singh Memorial Trust, Ludhiana, 1994.
5. Johl S.S. and S.K. Ray. Future of Agriculture in Punjab. CRRID. 2002.
6. Singh, Balwinder: Agricultural Credit, Sources, Problems and Emerging Issues. New Delhi: Deep & Deep Publishers Pvt. Ltd. 2000.
7. Singh, Himmat: Green Revolution Reconsidered: The Rural World of Contemporary Punjab. 2000.

Course Title: Workshop on SPSS Software

Course Code: ECO305

L	T	P	Credits	Marks
0	0	2	2	50

Course Objectives:

The course is designed to provide students with transferable skill, to understand the uses of SPSS, as a tool to summarize and aid in the interpretation of research findings.

Unit-I (8 Hours)

Introduction to SPSS: Launching SPSS, Entering Data into the data editor, Saving a Data file, creating a bar chart, saving a output chart, Tables and Graphs of One Variables and two variables

Unit II (7 Hours)

One variable descriptive statistics, two variables descriptive statistics. Elementary Probability, Discrete probability distribution.

Unit III (7 Hours)

Sampling distributions: Sampling from normal population, Central limit theorem, Sampling distribution of the proportion. One sample Hypothesis Tests. Two sample Hypothesis tests.

Unit IV (8 Hours)

Linear regression, Multiple regression, Chi Square Test, Z test and small sample test.

Suggested Readings:

1. Carver, Robert. H. and Nash J. Gradwohl. *Doing Data Analysis with SPSS Version 14*. Cengage Learning. 2006.
2. Darren G. *IBM SPSS Statistics 21 Step by Step: A Simple Guide*. Pearson Publication. 2014.

Course Title: International Economics**Course Code: ECO306**

L	T	P	Credits	Marks
4	0	0	4	100

Course Objectives: The objective of the paper is to make the students aware about the important linkages between domestic economy and its external sector and to provide comprehensive, up-to-date, and clear exposition of the theory and principles of international economics and trade.

Unit-I**(16 Hours)**

Trade Theories and Commercial Policy: Theories of absolute advantage, comparative advantage and opportunity cost; Heckscher-Ohlin theory of trade- its main features, assumptions and limitations; Terms of trade (concepts and secular deterioration in terms of trade); Doctrine of reciprocal demand; Gains from trade- their measurement and distribution.

Unit-II**(14 Hours)**

Instruments of Trade Policy: Rationale of protection; Tariff and non-tariff barriers to trade (quota, voluntary export restraints, export subsidies, dumping and international cartel); Tariff and quota (partial equilibrium analysis).

Unit-III**(15 Hours)**

Balance of Payments: Concepts and components of balance of payments; Equilibrium and disequilibrium in balance of payments; various measures to correct deficit in the balance of payment; Foreign trade multiplier.

Unit-IV**(15 Hours)**

Exchange Rate: Meaning, concept of equilibrium exchange rate and determination; Fixed versus flexible exchange rates: Managed floating exchange rate; Purchasing Power Parity (absolute, relative); Brettonwood systems and its breakdown; Reserve currency standard and the gold standard; Open economy trilemma; the theory of optimum currency areas and economic integration.

Contemporary Issues: Financial Globalisation, Global Financial Crises (2007-2009), Regulating international banking; China's exchange rate policy; International trade and macroeconomic policy coordination.

Suggested Readings:

1. Krugman, Paul, M. Obstfeld and Marc J. Melitz. *International Economics: Theory and Policy*. Addison Wesley Longman. Ninth Edition, 2012.
2. Salvatore, D.K. *International Economics*. John Wiley and Sons. 2013.
3. Soderston, Bo and G. Reed. *International Economics*. Macmillan Publishing House. 1994.

Course Title: Indian Economy
Course Code: ECO307

L	T	P	Credits	Marks
4	0	0	4	100

Course Objectives:

The course acquaints the students with the features and problems of Indian Economy. Students will understand the national planning system, foreign trade, problems of Indian agriculture and industry in addition to the emerging issues faced by the Indian economy.

Unit 1:

Structure of Indian Economy: National Income and Trends, Sectorial contribution, Inter-state variation of National income in India. Capital Formation and Economic Development in India.

Human resources and economic development in India: Size and growth rate of population in India, Demographic features of India's Population, Population Policy in India, Family Planning and welfare programme in India.

Poverty Line and various measures to control Poverty.

Unit II

Economic Planning in India: Review of first ten Five Year Plans in India, Resources mobilization during different plans. Eleventh five year plan: objectives, target and achievement and its critical analysis. Twelfth five year plan: objectives, target and achievement, issues for approach to the twelfth plan, Financing for various sector under 12th plan.

Unit III

Basic Issues in Agriculture: Role, nature and Emerging trends; Trends in agricultural production and productivity; Factors determining productivity; Remedies measures to raise agriculture productivity in India, Agriculture sustainability and development during plan period.

Issues in Industrial Development: Industrial development during planning period; Review of Industrial policy of 1948, 1956, 1977 and new industrial policy 1991; Industrial policy reforms 1992-93 onwards. Small scale and Cottage industries in India and MSME ; Public sector in India-its role, growth, performance, problems; Issue of privatization.

Unit IV

External Sector: India's foreign trade- features, composition and direction; India's balance of payments position in India, Foreign Trade policy in India. Current Global slowdown and financial turmoil and its impact on Indian economy.

Suggested Readings:

1. Kapila, Uma, Indian Economy: Programme and Policies, Academic Foundation, New Delhi, 2015.
2. Dutt, Ruddra and, K.P.M. Sundharam. *Indian Economy*. New Delhi: S. Chand and Company Ltd. 2015.
3. Misra, S.K. & V.K. Puri. Indian Economy. Himalayan Publishing House. 2015.
4. Wadhawa, C.D. *Some Problems of India's Economic Policy*, New Delhi: Tata McGraw Hill Publishing P. Ltd.

Course Title: Industrial Economics
Course Code: ECO308

L	T	P	Credits	Marks
4	0	0	4	100

Course Objectives:

- This course provides an introduction to current theory and empirical work in Industrial economics.
- It aims to develop the understanding of students regarding the internal structure of firms, their strategic interaction and decision making.

Unit-I (14 Hours)

Definition: Nature and scope of Industrial Economics. History and development of industrial Economics.
Basic Concepts: Firm, industry, Market, Market structure, Market power, passive and active behaviour of the firm.

Unit-II (15 Hours)

Conceptual framework for the study of Industrial Economics. Organizational form and alternative motives of the firm. Industrial efficiency and technical efficiency. Optimum size of the firm.

Unit-III (15 Hours)

Growth of the firm: Acquisition, diversification, merger constraints on Growth: demand, managerial and financial.

Market Structure: Seller's concentration; product differentiation; entry conditions and economics of scale.

Unit-IV (16 Hours)

Theories of Industrial Location: Factors affecting location; contributions of weber and Sargent Florence. Location policy in India since Independence. Industrial concentration and dispersal in India. Industrial growth under planning in India. Industrial policy and licensing policy, MRTP Act and FERA Act in India.

Suggested Readings:

1. Barthwal, R. R. 2007. *Industrial Economics: An Introductory Text Book*. New Age International. New Delhi.
2. Ferguson, P. R. 1998. *Industrial Economics: Issues and Prospectus*. New York University Press.
3. Seth, R. 2010, *Industrial Economics*. Ane Book. New Delhi.

Course Title: Economics of Health and Education**Paper Code: ECO 309**

L	T	P	Credits	Marks
4	0	0	4	100

Course Objectives:

This course deals with the economic issues regarding the provision of, and demand for, health and education services. Moreover, this paper is about the economic analysis of the health and education sectors, with particular emphasis on government policy concerning them.

Unit I**Introduction to Health Economics:**

Meaning, Importance and Essential Features of Health Economics.

Concepts: Health, Health Care, Birth rate, Fertility rate, Death rate, IMR, CMR, MMR, Morbidity rate (Acute and Chronic), Disability Adjusted Life Year (DALY), Quality Adjusted Life Year (QUALY), Sex Ratio.

Unit II**Demand and Supply of Health Care:**

Demand for Health Care – Case of Health Care Accessibility – Socio Economic and Cultural Features, Determining Health Status – Supply of Health, Health Care Delivery System – Pricing of Health Care.

Unit III**Health Financing & Policy:**

Health Expenditure – Public & Private – Direct and Indirect – Health Insurance – Concept of User Cost – Health Policy of WHO, National Health Policy – NRHM, Health as a State Subject.

Unit IV**Education: Investment in Human Capital:**

Rate of Return to Education: Private and Social; Quality of Education; Signalling or Human Capital; Theories of Discrimination; Gender and Caste Discrimination in India. Literacy Rates, School anticipation, School Quality Measures with special reference to India.

Suggested Readings:

1. Henderson J.W. *Health Economics and Policy*. Thomson learning. Latest Edition.
2. Ramankutty. *A Premier of Health System Economics*. Allied publications. New Delhi. 2007
3. Ronald G., Ehrenberg and S. Robert and Smith. *Modern Labor Economics: Theory and Public Policy*. Addison Wesley. 2005.
4. William, Jack. *Principles of Health Economics for Developing Countries*. World Bank Institute Development Studies. 1999.
5. World Development Report. *Investing in Health*. The World Bank, 2014.

Course Title: Operational Research

Course Code: ECO310

L	T	P	Credits	Marks
4	1	0	4	100

Course Objective: The course is designed to introduce the students with various quantitative techniques which are of great importance for quantitative decision-making.

Learning Outcomes: At the end of the course a student should be able to handle the application of scientific methods, techniques and tools to problems involving the operations of a system so as to provide those in control of the system with optimum solution to the problem.

Unit – I

(15 Hour)

Introduction to OR: Operations research in India, Nature, scope and feature of Operations research, OR & management decision making, Limitation of OR, Types of OR models, Principles of OR modeling, Typical applications of OR/scope of OR, Phases and processes of OR study/ methodology of, operation research and Techniques/ tools of operations research

Unit –II

(15 Hour)

Duality- Concept of duality in LPP, Formulation of the dual problem, Rules for constructing the dual problem, Primal-Dual relationship, Interpreting the Primal-Dual relationship, -Dual of the Dual is Primal, - Dual Simplex, Steps in Dual Simplex

Sensitivity Analysis- Sensitivity analysis, Limitations of Sensitivity analysis

Transportation Models- Introduction, Terminology used in Transportation model, Basic assumptions of model, Tabular presentation of model, Optimal solution of Transportation problem, Methods for initial basic feasible solutions- NWCM, LCM, VAM, Optimality Tests- Stepping stone method,, Modified distribution method, Degeneracy in Transportation problem, Profit maximization in Transportation problem, Unbalanced Transportation problems, **Trans-shipment Problem**

Unit –III

(15 Hour)

Assignment Models- Introduction, Mathematical Formulation, Hungarian method [Minimization case]/HAM, Steps to follow, Maximization case in Assignment Problems, **Travelling salesman Problems**, Un-balanced Assignment Problem, Air Crew assignment, Prohibited assignment/ Constrained assignment problem, LPP formulation of Assignment Problem

Queuing Theory- Introduction, Features of Queuing system, Service system, Basic Notations, Queuing models- Probabilistic, Deterministic, Mixed

Inventory control- Meaning, Inventory decisions, Types of Inventory, Factors affecting IC policy, Objectives of IC, Scope of IC, IC systems- P& Q, Inventory Models-Deterministic models (EOQ), Price break approach, Safety stocks- factors & methods, Approaches to IC- ABC, VED.

Unit – IV

(15 Hour)

Game Theory- Introduction, Significance of Game theory, Essential features of Game theory, Limitations Game theory, Strategy & Types of strategy, The Maximin-Minimax principle, Saddle point, Types of problems-Games with pure strategies, Games with mixed strategies (8 methods), Limitations of Game theory

Network Analysis- PERT and CPM- Introduction, History of PERT & CPM analysis, Objectives of Network Analysis, Applications of Network Model, Terminology or Concepts used, Errors in Network Logic, Rules to frame a Network, Fulkerson's Rule to numbering of events, Stages of project management, Activity Times & Critical Path Computation of Critical Path Slack & Float, PERT- Steps & computing

variance, Merits & demerits of PERT, CPM- Time estimating & Limitations, Comparison between PERT & CPM, Project Cost analysis- Direct & indirect costs, The lowest cost schedule, Crashing of jobs, Allocation & Leveling of resources (through CPM)

Decision Theory- Introduction, Components- Act, Event & Outcome, Types of decision making- Certainty, Risk, Uncertainty, Decision making under Risk, Decision making under Uncertainty, Decision Tree Diagram, Standard Symbol

Suggested Readings

1. Kalavathy, S. *Operations Research*. Vikas Publishing House. New Delhi.
2. Kapoor, V.K. *Operations Research*. Sultan Chand & Sons. New Delhi.
3. Paneerselvam, R. *Operations Research*. Prentice Hall of India. New Delhi.
4. Sharma, J.K. *Operations Research: Theory and Applications*. Macmillan India Ltd., New Delhi.
5. Taha, H.A. *Operations Research: An Introduction*. Prentice Hall of India. New Delhi.
6. Vohra, N.D. *Quantitative Techniques in Management*. Tata McGraw Hill Publishing Company Ltd.
7. Chawla, Gupta and Sharma. *Operations Research*. Kalyani Publishers. New Delhi. 14th edition