VIDYASAGAR UNIVERSITY

**Curriculum for 3-Year BSc (HONOURS)
in**

Economics

**Under Choice Based Credit System (CBCS)
w.e.f 2017-2018**

VIDYASAGAR UNIVERSITY
B Sc (Honours) in Economics
[Choice Based Credit System]

Year	Semester	Course Type	Course Code	Course Title	Credit	L-T-P	CA	ESE	TOTAL
								Marks	
				Semester-I					
1	I	Core-1		CT1: Introductory Microeconomics	6	5-1-0	15	60	75
		Core-2		CT2: Mathematical Methods in Economics -I	6	5-1-0	15	60	75
		GE-1		TBD	6	4/5	15	60	75
						2/1			
		AECC-1		English/MIL	2	1-1-0	10	40	50
				Semester –I: total	**20**				**275**
				Semester-II					
	II	Core-3		CT3: Introductory Macroeconomics	6	5-1-0	15	60	75
		Core-4		CT4: Mathematical Methods in Economics - II	6	5-1-0	15	60	75
		GE-2		TBD	6	4/5	15	60	75
						2/1			
		AECC-2		ENVS	4		20	80	100
				Semester-II : total	**22**				**325**

Year	Semester	Course Type	Course Code	Course Title	Credit	L-T-P	Marks		
							CA	ESE	TOTAL
				Semester-III					
2	**III**	Core-5		CT5: Intermediate Microeconomics - I	6	5-1-0	15	60	75
		Core-6		CT6: Intermediate Macroeconomics - I	6	5-1-0	15	60	75
		Core-7		CT7: Statistical Methods for Economics	6	5-1-0	15	60	75
		GE-3		TBD	6	4/5	15	60	75
						2/1			
		SEC-1		SEC-1: Data Analysis **Or** SEC-1: Contemporary Economic Issues	2	1-1-0	10	40	50
				Semester – III : total	**26**				**350**
				Semester-IV					
	IV	Core-8		CT8: Intermediate Microeconomics - II	6	5-1-0	15	60	75
		Core-9		CT9: Intermediate Macroeconomics - II	6	5-1-0	15	60	75
		Core-10		CT10: Introductory Econometrics	6	5-1-0	15	60	75
		GE-4		TBD	6	4/5	15	60	75
						2/1			
		SEC-2		SEC-2: Financial Economics Or SEC-2: Research Methodology	2	1-1-0	10	40	50
				Semester – IV : total	**26**				**350**

Year	Semester	Course Type	Course Code	Course Title	Credit	L-T-P	Marks		
							CA	ESE	TOTAL
				Semester-V					
3	**V**	Core-11		CT11: International economics	6	5-1-0	15	60	75
		Core-12		CT12: Public Economics	6	5-1-0	15	60	75
		DSE-1		DSE-1: Economics of Health and Education **Or** DSE-1: Applied Econometrics **Or** DSE-1: Economic History of India (1857-1947)	6	5-1-0	15	60	75
		DSE-2		DSE-2: Political Economy – I **Or** DSE-2: Money and Financial Markets **Or** DSE-2: Financial Economics	6	5-1-0	15	60	75
				Semester –V : total	**24**				**300**
				Semester-VI					
	VI	Core-13		CT13: Indian Economy	6	5-1-0	15	60	75
		Core-14		CT14: Development Economics	6	5-1-0	15	60	75
		DSE-3		DSE-3: Political Economy – II **Or** DSE-3: Environmental Economics **Or** DSE-3: Topics in Microeconomics – I	6	5-1-0	15	60	75
		DSE-4		DSE-4: Comparative Economic Development (1850-1950) **Or** DSE-4: Topics in Microeconomics – II **Or** DSE-4: Project Work	6	5-1-0	15	60	75
				Semester – VI : total	**24**				**300**
				Total in all semester:	**142**				**1900**

CC = Core Course , **AECC** = Ability Enhancement Compulsory Course , **GE** = Generic Elective , **SEC** = Skill Enhancement Course , **DSE** = Discipline Specific Elective , **CA**= Continuous Assessment , **ESE**= End Semester Examination , **TBD**=To be decided , **CT** = Core Theory, **CP**=Core Practical , **L** = Lecture, **T** = Tutorial ,**P** = Practical , **MI**L = Modern Indian Language , **ENV**S = Environmental Studies ,

List of Core Course (CC)

CC-1:   Introductory Microeconomics
CC-2:   Mathematical Methods in Economics-I
CC-3:   Introductory Macroeconomics
CC-4:   Mathematical Methods in Economics-II
CC-5:   Intermediate Microeconomics – I
CC-6:   Intermediate Macroeconomics – I
CC-7:   Statistical Methods for Economics
CC-8:   Intermediate Microeconomics – II
CC-9:   Intermediate Macroeconomics – II
CC-10:   Introductory Econometrics
CC-11:   International Economics
CC-12:   Public Economics
CC-13:   Indian Economy
CC-14:   Development Economics

Discipline Specific Electives (DSE)

DSE-1: Economics of Health and Education
Or
DSE-1: Applied Econometrics
Or
DSE-1: Economic History of India (1857-1947)

DSE-2: Political Economy – I
Or
DSE-2: Money and Financial Markets
Or
DSE-2: Financial Economics

DSE-3: Political Economy – II
Or
DSE-3: Environmental Economics
Or
DSE-3: Topics in Microeconomics – I

DSE-4: Comparative Economic Development (1850-1950)
Or
DSE-4: Topics in Microeconomics – II
Or
DSE-4: Project Work

Skill Enhancement Course (SEC)

SEC-1:   Data Analysis
Or
SEC-1:   Contemporary Economic Issues

SEC-2: Financial Economics
Or
SEC-2: Research Methodology

GE- 1: Introductory Microeconomics

GE- 2: Introductory Macroeconomics

GE3: Environmental Economics
Or
GE3: Money and Banking

GE-4: Economic History of India (1857-1947)
Or
GE-4: Public Finance

Core Course

CC-1: Introductory Microeconomics   **Credits 06**

C1T: Introductory Microeconomics

Exploring the subject matter of Economics
Why study economics? Nature, scope and method of economics; the economic themes: scarcity and efficiency; thinking like an economist: the question of what to produce, how to produce and how to distribute output; production possibility curve, positive and normative economics, marginal benefits and marginal costs; opportunity cost (private and social); the basic competitive model; prices, property rights, the role of property rights in markets and profits; incentives and information; rationing; opportunity sets; economic systems; reading and working with graphs.

Supply and Demand: How Markets Work, Markets and Welfare
Elementary theory of demand: determinants of household demand, market demand, and shifts in the market demand curve
Elementary theory of supply: factors influencing supply, derivation of the supply curve, and shifts in the supply curve
The elementary theory of market price: determination of equilibrium price in a competitive market; the effect of shifts in demand and supply; the excess demand function: Existence, uniqueness, and stability of equilibrium; consumer surplus, producer surplus and efficiency of competitive markets (graphical approach); the idea of market failure; Elasticities and their applications.
Government intervention and their impact on market equilibrium and efficiency-: controls on prices (Price ceilings and price floors); indirect taxation.

The Households
Theory of consumer behaviour – cardinal and ordinal utility approach; Indifference curve and its properties; The consumption decision - budget constraint, consumption and income and price changes, demand for all other goods and price changes; description of preferences- most preferred bundle and its properties; consumer's optimum choice; income and substitution effects; Marshallian and compensated demand curves; Price

consumption curve, income consumption curve, and Engel curve; Homothetic tastes; labour supply and savings decision - choice between leisure and consumption.

The Firm and Perfect Market Structure
Defining a firm- firm's legal forms; profit maximization hypothesis; Contractual theories and organizational theories of firms (concepts only); Behaviour of profit maximizing firms and the production process; short run costs and output decisions; costs and output in the long run.

Imperfect Market Structure
Monopoly and anti-trust policy; measuring monopoly power; government policies towards competition; various types of imperfect competition.

Input Markets
Theory of rent-Ricardo, Marshall, and Modern theory of rent; 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; labour market and public policy.

Reference Books
- Karl E. Case and Ray C. Fair, Principles of Economics, Pearson Education Inc., 8th Edition, 2007.
- N. Gregory Mankiw, Economics: Principles and Applications, India edition by South Western, a part of Cengage Learning, Cengage Learning India Private Limited, 4th edition, 2007.
- Joseph E. Stiglitz and Carl E. Walsh, Economics, W.W. Norton & Company, Inc., New York, International Student Edition, 4th Edition, 2007.
- Samuelson and Nordhaus, Economics, Mc GrawHill
- S. P. S. Chauhan, Microeconomics: An Advanced Treatise, PHI Learning Private Ltd., New Delhi, 2009.
- Varian, H. R. *Intermediate Microeconomics; a modern approach,* Affiliated East West Press.1993.

CC-2: Mathematical Methods in Economics-I **Credits 06**

C2T: Mathematical Methods in Economics-I

Preliminaries
Logic and proof techniques; sets and set operations; relations; functions and their properties; number systems. 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; limit and continuity.

Functions of one real variable
Continuous functions of different types and their graphs- quadratic, polynomial, power, exponential, and logarithmic; Derivatives of first and second order and their properties; convex, concave and linear function. Application in economics- concept of marginal.

Single variable optimization
Local and global optima; Geometric characterizations; characterizations using calculus; Applications in Economics- profit maximization and cost minimization.

Integration of functions
Integration of different types of functions; Methods of Substitution and by parts; Applications in economics- obtaining total from the marginal.

Difference Equations
Finite difference; Equations of first and 2nd orders and their solutions; Application in Economics- Cobweb model.

Elementary Probability Theory
Sample space and events; Probability axioms and properties; counting techniques; conditional probability; Bayes' rule and independence of events; Random variable and probability distributions- Discrete and continuous. Expectation of a random variable.

Reference Books
- K. Sydsaeter and P. Hammond, Mathematics for Economic Analysis, Pearson Educational Asia: Delhi, 2002.
- A. Mukherji and S. Guha: Mathematical Methods and Economic Theory, Oxford University Press, 2011
- Apostol T.M. Calculus, Volume 1, One-variable calculus, with an introduction to linear algebra, (1967) Wiley, ISBN 0-536-00005-0, ISBN 978-0-471-00005-1
- K. G. Binmore, Mathematical analysis, Cambridge University Press, 1991.
- R.V. Hogg and A.T. Craig , An Introduction to Mathematical Statistics, Third Edition, Amerind, New York, London
- Kenny and Keeping, Mathematics of Statistics, Van Nostrand.
- Alpha C. Chiang and Kevin Wainwright, Fundamental Methods of Mathematical Economics, McGraw Hill Education, Fourth Edition, 2013
- Gun, A.M., Gupta, M. K., & Dasgupta, B. *Fundamental of Statistics,* Vol.1. World Press Private.

CC-3: Introductory Macroeconomics   **Credits 06**

C3 T : Introductory Macroeconomics

National income accounting, unemployment, and open economy issues
Macroeconomic data- National Income accounting and cost of living; Concept of Growth-role of savings, investment, and financial intermediation; Open Economy- Balance of Payments, exchange rates, and capital flow; Concept of unemployment- Types and their characteristics; Growth accounting and Solow residual.

Money and Inflation
Monetary system- definitions of money and determinants of money supply – money multiplier and central bank's role in controlling money supply; quantity theory of money; inflation and its costs.

The Closed Economy in the Short Run
Theory of aggregate demand- components and their interrelations - crowing out- Factors causing shift in the function; Theory of aggregate supply- determinants of supply and shift factors; Interaction of aggregate demand and supply.

Reference Books
➤ Dornbusch, Fischer and Startz, Macroeconomics, McGraw Hill, 11th edition, 2010.
➤ N. Gregory Mankiw. Principles of Macroeconomics, Indian Imprint of South Western by Cengage India, 6th edition, 2015.
➤ Richard T. Froyen, Macroeconomics, Pearson Education Asia, 2nd edition, 2005.
➤ Andrew B. Abel and Ben S. Bernanke, Macroeconomics, Pearson Education, Inc., 7th edition, 2011.
➤ J. R. Hicks. The Social Framework: An Introduction to Economics, Clarendon Press, 3rd edition, 1960
➤ Sikdar, Soumyen, Principles of Macroeconomics, Oxford University Press

CC-4 : Mathematical Methods in Economics-II   **Credits 06**

C4 T : Mathematical Methods in Economics-II

Matrix Algebra
Matrix: its elementary operations; different types of matrix; Rank of a matrix; Determinants and inverse of a square matrix; solution of system of linear equations; Eigen values and Eigen vectors. System of nonlinear equations- Jacobian determinant and existence of solution.

Function of several variables
Continuous and differentiable functions: partial derivatives and Hessian matrix. Homogeneous and homothetic functions. Euler's theorem, implicit function theorem and its application to comparative statics problems. Economic applications- theories of consumer behaviour and theory of production.

Multi-variable optimization
Optimization of nonlinear functions: Convex, concave, and quasi-concave functions; Unconstrained optimization; Constrained optimization with equality constraints-Lagrangian multiplier method; role of Hessian determinant; Inequality constraints and Kuhn-Tucker Conditions; Value function and Envelope theorem; Economic applications – consumer behaviour and theory of production.
Optimization of linear function: Linear programming; concept of slack and surplus variables (graphical solution only) concept of convex set.

Differential Equations
Solution of Differential equations of first order and second order; Economic application- price dynamics in a single market- multimarket supply demand model with two independent markets. Qualitative graphic solution to 2x2 linear simultaneous differential equation system- phase diagram, fixed point and stability.

Reference Books
- K. Sydsaeter and P. Hammond, Mathematics for Economic Analysis, Pearson Educational Asia: Delhi, 2002.
- Lawrence Blume and Carl Simon. Mathematics for Economists, W. W. Norton andCompany, 1994.
- Alpha Chiang and Kevin Wainwright, Fundamental Methods of Mathematical Economics, Fourth Edition, McGraw-Hill, 2005.

CC-5: Intermediate Microeconomics – I   **Credits 06**

C5T: Intermediate Microeconomics – I

Consumer Theory
Cardinal utility; Preference: ordering and properties of ordinal utility; existence of utility functions, different utility functions and their properties, compensating and equivalent variation, Slutsky equation; consumption-leisure choice and labour supply; choice under uncertainty (expected utility and risk aversion), inter- temporal choice and savings decision; revealed preference approach.

Production and Costs
Technology- general concept of production function; returns to factor and returns to scale, isoquants and diminishing rate of factor substitution – elasticity of substitution –some examples of technology (fixed proportion, perfect substitute, Cobb– Douglas Production Function, CES Production Function), General concept of homogenous and homothetic production function and their properties; production with one and more variable inputs; isocost line and firms equilibrium and expansion paths; short run and long run costs; cost curves in the short run and long run; relation between short run and long run costs.

Competitive Equilibrium
Short run and long run equilibrium; determination of the supply curve of the firm and the industry: with reference to external economies and diseconomies of scale.

Input market in perfect competition
Derived demand for input, marginal product and marginal revenue product, input demand for competitive firm and competitive industry, returns to scale and product exhaustion.

Suggested Readings:
- Hal R. Varian, Intermediate Microeconomics, a Modern Approach, W.W. Norton and Company/Affiliated East-West Press (India), 8th edition, 2010. The workbook by Varian and Bergstrom may be used for problems.
- C. Snyder and W. Nicholson, Fundamentals of Microeconomics, Cengage Learning (India), 2010.
- B. Douglas Bernheim and Michael D. Whinston, Microeconomics, Tata McGraw-Hill (India), 2009.
- Hugh Gravelle and Ray Rees. Microeconomics, Prentice Hall (UK); 3rd edition, 2004.
- Anindya Sen , Microeconomics: Theory and Applications, Oxford University Press
- Pindyck, Rubinfeld and Mehta, Microeconomics, Pearson

CC-6: Intermediate Macroeconomics – I   **Credits 06**

C6T: Intermediate Macroeconomics – I

Income Determination in the short-run
Simple Keynesian System: Multipliers; equilibrium in both closed and open economy and stability; autonomous expenditure, balanced budget, and net exports; paradox of thrift.
IS-LM Model - equilibrium, stability and comparative statics; effects of fiscal and monetary policies, real balance effects; IS-LM in the open economy under fixed and flexible exchange rate with perfect and imperfect capital mobility (Mundell-Fleming model).

Aggregate Demand and Aggregate Supply
Derivation of aggregate demand assuming price flexibility; Derivation of aggregate supply curves both in the presence and absence of wage rigidity; equilibrium, stability, and comparative statics-effects of monetary and fiscal policies; Unemployment and its causes-possible solutions, including real balance effect and wage cut policy.

Inflation, Unemployment and Expectations
Inflation and unemployment trade-off- Short run and long- run Phillips curve under adaptive expectations-outcome under rational expectations (non-rigorous).

Suggested Readings:
➢ Dornbusch, Fischer and Startz, Macroeconomics, McGraw Hill, 11th edition, 2010.
➢ N. Gregory Mankiw. Macroeconomics, Worth Publishers, 7th edition, 2010.
➢ Steven M. Sheffrin, Rational Expectations, Cambridge University Press, 2nd edition, 1996.
➢ Andrew B. Abel and Ben S. Bernanke, Macroeconomics, Pearson Education, Inc., 7th edition, 2011.
➢ Richard T. Froyen, Macroeconomics, Pearson Education Asia, 10th edition, 2016.
➢ William Branson. Macroeconomic Theory and Policy, Indian reprint, East West Press, 3rd edition, 2014.
➢ Sikdar Soumyen, Principles of Macroeconomics, Oxford University Press
➢ Acharyya Rajat, International Economics, OUP
➢ Krugman and Obstfeld, International Economics, Pearson

CC-7: Statistical Methods for Economics   **Credits 06**

C7T: Statistical Methods for Economics

Descriptive Statistics
Presentation of Data; Frequency Distribution; Measures of central tendency, Dispersion, Moments, Skewness and Kurtosis; Bivariate Frequency Distribution- correlation and regression.

Univariate Probability Distribution
Discrete distribution-Binomial, Poisson; Continuous Distributions-Uniform, Normal, Exponential (Properties of each distribution; mean and variance).

Jointly Distributed Random Variables
Density function of Bivariate normal distribution and obtaining means, variances, and correlation coefficients.

Sampling
Concept of sampling and random sampling. Principal steps in a sample survey; methods of sampling;-SRSWR, SRSWOR, Stratified sampling. Sampling vs non-sampling error

Index Number
Price and quantity index number; Different formula; Tests for an ideal index application-Cost of living index; Real GDP

Estimation
Parameters and statistics; Point estimation-Properties of a good estimator; Maximum Likelihood Method and the method of moments; Estimation of population parameters using SRSWR and SRSWOR; Interval estimation.

Suggested Readings:
- Jay L. Devore, Probability and Statistics for Engineers, Cengage Learning, 2010.
- John E. Freund, Mathematical Statistics, Prentice Hall, 1992.
- Richard J. Larsen and Morris L. Marx, an Introduction to Mathematical Statistics and its applications, Prentice Hall, 2011.
- William G. Cochran, Sampling Techniques, John Wiley, 2007.R.V. Hogg . and A.T. Craig , An Introduction to Mathematical Statistics, Third Edition, Amerind, New York, London
- Mood, A.M., F.A.Greybill and D.C. Boes: Introduction to the theory of statistics, McGraw Hill, 1974

CC-8: Intermediate Microeconomics – II   **Credits 06**

C8T: Intermediate Microeconomics – II

General Equilibrium, Efficiency, and Welfare
   a) Exchange Economy, Consumption Allocation and Pareto Optimality; Edgeworth box and contract curve; Equilibrium and efficiency under pure exchange.
   b) Pareto efficiency with production: concepts of PPF, SIC, and resource allocation; Perfect competition, Pareto efficiency and market failure (externalities and public good); property right and Coase Theorem.

Market Structure and Game Theory
   a) Monopoly; pricing with market power; degree of monopoly; price discrimination-different degrees; multiplant monopoly; peak-load pricing; two-part tariff; monopolistic competition.
   b) Oligopoly and game theory (Cooperative and Non-cooperative static games; simultaneous move and sequential move games; non- cooperative games of perfect information; the Prisoner's dilemma, Nash equilibrium in pure and mixed strategies; Backward induction solutions and SPNE); Applications of game theory in oligopolistic markets (Cournot Equilibrium, Bertrand Equilibrium, StacklebergEquiibrium) ; concept of collusion and cartels; Solution by backward induction.

Input Market under Imperfect Competition
Monopsony, bilateral monopoly in labour market; Externalities; public goods and markets with asymmetric information.

Reference Books
   ➢ Hal Varian. Microeconomic Analysis, Third Edition, Selected chapters, W. W. Norton and Company, 2013.
   ➢ W.W. Norton and Company/Affiliated East-West Press (India), 2010.The workbook by Varian and Bergstrom could be used for problems.
   ➢ C. Snyder and W. Nicholson, Fundamentals of Microeconomics, Cengage Learning (India), 2010
   ➢ Jean Tirole. Theory of Industrial Organization, MIT Press, 1988
   ➢ Robert Gibbons. A Primer in Game Theory, Princeton University Press, 1992.
   ➢ Erik Rasmusen. Games and Information: An Introduction to Game Theory, Basil Blackwell, 1999.
   ➢ K. Binmore. Fun and Games: A Text on Game Theory, OUP, 1991
   ➢ AnindyaSen, Microeconomics: Theory and Applications, OUP, 1999
   ➢ Pindyck and Rubinfeld, Microeconomics, Prentice Hall
   ➢ Mascollel and Green, Microeconomic Theory,OUP

CC-9: Intermediate Macroeconomics – II   **Credits 06**

C9T: Intermediate Macroeconomics – II

Schools of Macroeconomic Thoughts
Classical System: Say's law and quantity theory; Friedman's restatement; classical dichotomy and neutrality of money; Keynesian vs classical system; basic tenets of New Classical and New Keynesian System.

Macroeconomic Foundations
Consumption: Keynesian consumption function; Fisher's theory of optimal intertemporal choice; life-cycle and permanent income hypotheses; Dusenberry's relative income hypothesis; rational expectations and random-walk of consumption expenditure.
Investment: MEC and MEI- Jorgenson's neo-classical theory- Acceleration principle-fixed and variable.
Demand for money: Regressive expectations and Tobin's portfolio choice models; Baumol's inventory theoretic money demand

Monetary Policy
Government debt and Ricardian equivalence; high-powered money; money multiplier analysis; monetary policy – OMO, Bank rate, variable reserve ratio, repo and reverse repo.

Economic Growth
Harrod- Domar model and Solow one sector growth models; golden rule; dynamic efficiency, technological progress and elements of endogenous growth theory.

Reference Books:
- Snowdon and Vane (ed), A Macroeconomics Reader, Routledge, Taylor and Francis Group.
- R. Barro. Macroeconomics, 5th edition, The MIT Press, 1989
- W.H.Branson. Macroeconomics, Haper and Row, 3rd edition, 1989
- A.K.Sen (ed). Growth Economics, Penguin, 1970
- Andrew B. Abel and Ben S. Bernanke, Macroeconomics, Pearson Education, Inc., 7th edition, 2011
- J.B Hall and R.E.Taylor. Macroeconomics, W.W.Nortan and Company, 5th revised edition, 1997
- Errol D'Souza. Macroeconomics, Pearson Education (New Delhi), 2009
- Dornbusch, Fischer and Startz, Macroeconomics, McGraw Hill, 11th edition, 2010

CC-10: Introductory Econometrics   **Credits 06**

C10T: Introductory Econometrics

Nature and Scope of Econometrics
Definition and Scope of Econometrics; Importance of Error Term.

Statistical Concepts
Sampling Distributions- χ^2, t- and F-distributions and their application in testing of hypothesis; Defining hypothesis; Distribution of test-statistics; testing hypotheses related to population parameters; Type I and Type II errors; power of a test.

Classical Linear Regression Model: Two Variable Case
The model and the role of disturbance term ; Estimation of model by method of ordinary least squares (OLS);Gauss-Markov theorem, Reverse Regression, properties of estimators; goodness of fit; testing of hypotheses and confidence intervals;scaling and units of measurement; prediction and forecasting, Problems in OLS Method

Multiple ClassicalLinearRegressionModel
Motivation for multiple regression, Estimation by OLS method; properties of OLS estimators; testing hypotheses – individual and joint; partial correlation and regression coefficients; goodness of fit –role of R^2 and adjusted R^2; Use of qualitative (dummy) independent variables**.**

Violationsof Classical Assumptions:Consequences, Detection and Remedies
Problems of Multi-collinearity, Heteroscedasticity**,** and Auto correlation; Consequences of applying OLS under Heteroscedasticity and Autocorrelation and **their** detection– Durbin-Watson Test, Glesjer Test, Goldfeld-Quandt Test.

Specification Problem
Omission of a relevant variable; inclusion of an irrelevant variable; tests of specification errors.

Reference Books
- ➤ Jay L. Devore, Probability and Statistics for Engineers, Cengage Learning, 2010.
- ➤ John E. Freund, Mathematical Statistics, Prentice Hall, 1992.
- ➤ Richard J. Larsen and Morris L. Marx, An Introduction to Mathematical Statistics and its Applications, Prentice Hall, 2011.
- ➤ D. N. Gujarati and D.C. Porter, Essentials of Econometrics, McGraw Hill, 4th edition, International Edition, 2009.
- ➤ Christopher Dougherty, Introduction to Econometrics, Oxford University Press, 3rd edition, Indian edition, 2007
- ➤ Jan Kmenta, Elements of Econometrics, Indian Reprint, Khosla Publishing House, 2nd edition, 2008
- ➤ Stock and Watson
- ➤ Maddala- Introduction to Econometrics, Wiley

CC-11: International Economics   **Credits 06**

C11T: International Economics

Basics of trade theory
Arbitrage as basis and direction of trade; fundamental sources of cross-country price differences and arbitrage; concept of comparative advantage; externalities, regulation and perverse comparative advantage; International equilibrium; offer curves, ToT and stability; Gains from Trade (GFT) Theorem; Concepts of Production possibility Frontier and Community Indifference curves; Illustration of GFT; Decomposition of GFT; Substitution possibilities and magnitude of GFT.

Technology and Trade (Ricardian Model):
Comparative versus Absolute Advantage, One-factor economy, production possibility frontier, relative demand and relative supply, terms of trade; Trade in Ricardian world, Determination of intermediate ToT, Complete specialization & GFT

Factor Endowment & Trade (Heckscher-Ohlin-Samuelson Model):
H-O theorem and physical vs. price definitions of factor abundance; Properties of the HO model: Factor intensity ranking, one-to-one correspondence between commodity price ratio & factor price ratio (Stolper-Samuelson theorem), One to one correspondence between endowment ratio and production proportion (Rybczysky's theorem); Proof of HO theorem; Taste bias and invalidation of HO theorem; Empirical studies- Leontief Paradox; Effects of trade on factor price and income distribution, factor price equalization, factor intensity reversal & factor price equalization.

Trade Policy:
Partial Equilibrium Analysis: Tariff - cost–benefit, Quota, Quota- Tariff equivalence & non-equivalence, effects of tariff, quota, subsidy and voluntary export restraint; General Equilibrium Analysis- distinction between large and small economy, welfare effects of a tariff on small country and large country, Offer curve and ToT, Tariff ridden offer curve, Tariff war, Optimum tariff for large economy, Metzler's Paradox.

Balance of Payments & Exchange Rate:
Balance of Payment accounts in an open economy; Determination of National Income, Transfer problem, Introduction of foreign Country & repercussion effect - open economy multiplier with & without repercussion effect; Fixed &Flexible Exchange Rate: adjustment of demand and supply of Foreign Exchange, Effect of devaluation, Effects of exchange rate on domestic prices and ToT, Marshall-Lerner Condition, J-Curve effect.

Reference Books:
  ➢ P. Krugman and M. Obstfeld- International Economics (8th Edition) ; Pearson Education
  ➢ R. Caves, J. Frankel and R.W. Jones – World Trades & Payments (9th Ed); Pearson Education..
  ➢ RajatAcharyya- International Economics; Oxford University Press
  ➢ Giancarlo Gandolfo, International Trade Theory and Policy, Springer, 2014

CC-12: Public Economics   Credits 06

C12T: Public Economics

Nature and Scope of Public Economics
Definition and Scope of Public Economics; Externalities, Market Failure and Government Intervention; Coase Theorem; Public Expenditure to finance Development.

Theory of Public Good
Overview of Public Good; Characteristics of Pure Public Good; Distinction between Pure Public Good and Private Good; Market Failure in case of Pure Public Good; Optimal provision of Public Goods; Private Provision and Public Provision of Public Goods; Lindahl Equilibrium, Voting Equilibrium.

Taxation:
Classification of Taxes; Canons of Taxation; Benefit Principle; Equal Sacrifice Principle; Ability to Pay Principle; Incidence and Burden of Taxes; Effects of taxation on income distribution, work efforts, and on savings; the Laffer curve; Optimal Taxation

Public Expenditure and Public Debt:
Meaning and Classification of Public Expenditure; government budget and its types; government expenditure and tax multiplier**s**, balanced budget multiplier; Fiscal Federalism in India; Meaning of Public Debt; Sources of Public Borrowings: internal and external borrowing; Effects of Public Debt.

Reference Books
- 1. A. B. Atkinson and J. E. Stiglitz, Lectures on Public Economics, McGraw-Hill Inc.,US, 1980.
- 2. C. V. Brown and P. M. Jackson. Public Sector Economics, Wiley-Blackwell; 4th Edition, 1991.
- 3. J. F. Due and A. F. Friedlander. Government Finance-Economics of Public Sector, AITBS Publishers and Distributors, 1994
- 4. J. Hindriks and G. D. Myles. Intermediate Public Economics, The MIT Press; Annotated Edition, 2006.
- R.A. Musgrave and P.B. Musgrave, Public Finance in Theory & Practice,
- McGraw Hill Publications, 5th edition, 1989.
- AmareshBagchi (ed), Readings in Public Finance, OUP
- 5. J. E. Stiglitz. Economics of Public Sector,W. W Norton and Company, 3rd Edition, 2000.
- R.J.Chelliah (ed), Towards Sustainable Growth, OUP, 2009
- A Ghosh and C. Ghosh, Public Finance,Prentice Hall India Learning Private Limited; 2nd Revised edition (2014)

CC-13: Indian Economy   Credits 06

C13T: Indian Economy

Economic Development since Independence
Major features of the economy at independence; Planning: Evolution of India's development goals and strategies -Structural constraints and Indian development strategy: Debates between Growth and distribution, Public sector vs. Private sector, Consumer goods vs. Capital goods, Import substitution vs. Export promotion ; growth and development under different policy regimes—goals, constraints, institutions and policy framework; an assessment of performance—sustainability and regional contrasts; structural changes, savings and investment including the saving-investment paradox.

Population and HumanDevelopment
Demographic trends and issues; education; health and malnutrition.

Growth and Distribution
Trends and policies in poverty including Sen's Entitlement Analysis; inequality and unemployment.

Economic Reforms in India
Monetary, Fiscal, and Trade Policy Reforms**.**

Reference Books
- Jean Dreze and AmartyaSen, 2013. An Uncertain Glory: India and its Contradictions, Princeton University Press.
- Jean Dreze and AmartyaSen: Economic Development and social opportunity, OUP
- Sukhomoy Chakraborty: Development Planning: The Indian Experience, OUP
- Uma Kapila: Indian Economy since independence, Academic Foundation
- Ahluwalia and Little (ed): India's Economic Reforms and Development, OUP
- Joshi and Little: India's Economic Reforms, OUP
- PulapreBalakrishnan, 2007, the Recovery of India: Economic Growth in the Nehru Era, Economic and Political Weekly, November.
- Rakesh Mohan, 2008, ―Growth Record of Indian Economy: 1950-2008. A Story of Sustained Savings and Investment, Economic and Political Weekly, May.
- S.L. Shetty, 2007, ―India's Savings Performance since the Advent of Planning, in
- K.L. Krishna and A. Vaidyanathan, editors, Institutions and Markets in India's Development.
- Himanshu, 2010, Towards New Poverty Lines for India, Economic and Political Weekly, January.
- Jean Dreze and Angus Deaton, 2009, Food and Nutrition in India: Facts and Intepretations, Economic and Political Weekly, February.
- Himanshu. 2011, ―Employment Trends in India: A Re-examination, Economic and Political Weekly, September.
- Rama Baru et al, 2010, ―Inequities in Access to Health Services in India: Caste, Class and Region, Economic and Political Weekly, September.
- Geeta G. Kingdon, 2007, ―The Progress of School Education in India, Oxford Review of Economic Policy

- J.B.G. Tilak, 2007, ―Post Elementary Education, Poverty and Development in India, International Journal of Educational Development.
- T. Dyson, 2008, ―India's Demographic Transition and its Consequences for Development‖ in Uma Kapila, editor, Indian Economy Since Independence, 19th edition, Academic Foundation.
- KaushikBasu, 2009, ―China and India: Idiosyncratic Paths to High Growth,
- Economic and Political Weekly, September.
- K. James, 2008, ―Glorifying Malthus: Current Debate on Demographic Dividend in India‖ Economic and Political Weekly, June.
- ReetikaKhera, 2011, ―India's Public Distribution System: Utilisation and Impact
- Journal of Development Studies.
- Aniruddha Krishna and DevendraBajpai, 2011, ―Lineal Spread and Radial Dissipation: Experiencing Growth in Rural India, 1992-2005, Economic and Political Weekly, September.
- KaushikBasu and A. Maertens, Eds, 2013, The New Oxford Companion to Economics, Oxford University Press.

CC-14: Development Economics   Credits 06

C14T: Development Economics

Meaning of Economic Development
Income Approach and Capability Approach, construction and interpretation of HDI; international variations in development measures; comparing development trajectories across nations and within them. Dependency school of development.

Economic Growth
An overview and policy implications of one sector growth models- Harrod- Domar, and Solow; Sources of economic growth, international comparisons.

Poverty and Inequality
Inequality axioms; a comparison of commonly used inequality measures; Gender Inequality, connections between inequality and development; poverty measurement, HPI; poverty traps and path dependence of growth processes.

Political Institutions and the State
Definition of institutions, Evolution of Political and Economic Institutions; The determinants of democracy; alternative institutional trajectories and their relationship with economic performance; within-country differences in the functioning of state institutions; state ownership and regulation; government failures and corruption.

Reference Books
- Debraj Ray, Development Economics, Oxford University Press, 2009.
- ParthaDasgupta, Economics, a Very Short Introduction, Oxford University Press, 2007.
- Abhijit Banerjee, Roland Benabou and DilipMookerjee, Understanding Poverty, Oxford University Press, 2006.
- KaushikBasu, The Oxford Companion to Economics in India, OUP, 2007.
- KaushikBasu, Analytical Development Economics, OUP

- AmartyaSen, Development as Freedom, OUP, 2000.
- DaronAcemoglu and James Robinson, Economic Origins of Dictatorship and Democracy, Cambridge University Press, 2006.
- Robert Putnam, Making Democracy Work: Civic Traditions in Modern Italy, Princeton University Press, 1994
- Meier and Rauch (ed)- Leading Issues in Development Economics, OUP
- Todaro and Smith: Economic Development, Pearson Education, 2009
- Hayami and Godo, Development Economics, OUP
- Bardhan and Udry, Development Microeconomics, OUP

Department Specific Electives (DSE)

DSE-1: Economics of Health and Education   **Credits 06**

DSE1T: Economics of Health and Education

Role of Health and Education in Human Development
Importance in poverty alleviation; health and education outcomes and their relationship with macroeconomic performance.

Microeconomic Foundations of Health Economics
Demand for health; uncertainty and health insurance market; alternative insurance mechanisms; market failure and rationale for public intervention; equity and inequality.

Evaluation of Health Programs
Costing, cost effectiveness and cost-benefit analysis; burden of disease.

Health Sector in India: An Overview
Health outcomes; health systems; health financing.

Education: InvestmentinHuman Capital
Rate of return to education: private and social; quality of education; signaling or human capital; theories of discrimination; gender and caste discrimination in India.

Education Sector in India:An Overview
Literacy rates, school participation, school quality measures.

Reference Books
- William, Jack, Principles of Health Economics for Developing Countries, World Bank Institute Development Studies, 1999.
- World Development Report, Investing in Health, The World Bank, 1993.
- Ronald G., Ehrenberg and Robert S., Smith, Modern Labor Economics: Theory and Public Policy, Addison Wesley, 2005.

<div align="center">Or</div>

DSE-1: Applied Econometrics   **Credits 06**

DSE1T: Applied Econometrics

Stages in Empirical Econometric Research
Linear Diophantine equation, prime counting function, statement of prime number theorem, Goldbach conjecture, linear congruences, complete set of residues, Chinese Remainder theorem, Fermat's Little theorem, Wilson's theorem.

Regression Diagnostics and Specification
Misspecification; functional forms; model selection.

Advanced Topics in Regression Analysis
Selected Topics: Dynamic Econometric Models: distributed lag models; autoregressive models; instrumental variable estimation; simultaneous equation models.

Panel Data Models
Methods of estimation; fixed effects model; random effects model.

Introduction to Econometric Software Package
GRETL; E-VIEWS; STATA (any one).

Reference Books
- Jeffrey M. Wooldridge, Econometrics, CENGAGE learning, India Edition, 2009.
- DimitriosAsteriou and Stephen Hall, Applied Econometrics: A Modern Approach, Palgrave Macmillan, 2007.
- Damodar Gujarati, Econometrics by Example, Palgrave Macmillan, 2011.

Or

DSE-1: Economic History of India (1857-1947)   **Credits 06**

DSE1T: Economic History of India (1857-1947)

Introduction: Colonial India: Background and Introduction
Overview of the colonial economy

Macro Trends
National Income; population; occupational structure.

Agriculture
Agrarian structure and land relations; agricultural markets and institutions – credit, commerce and technology; trends in performance and productivity; famines, commercialization of agriculture.

Railways and Industry
Railways; the de-industrialisation debate; evolution of entrepreneurial and industrial structure; nature of industrialisation in the interwar period; constraints to industrial breakthrough; labor relations.

Economy and Statein the ImperialContext
The imperial priorities and the Indian economy; drain of wealth; Emergence of Economic Nationalism, Laissez Faire; international trade policies, capital flows and the colonial economy – changes and continuities; government and fiscal policy, , Managing Agency System.

Reference Books
- Chandra B. (2010): Rise and Growth of Economic Nationalism in India, HarAnand Publications, 2010

- Lakshmi Subramanian, "History of India 1707-1857", Orient Blackswan, 2010, Chapter 4.
- SumitGuha, 1991, Mortality decline in early 20th century India', Indian Economic and Social History Review (IESHR), pp 371-74 and 385-87.
- Tirthankar Roy, The Economic History of India 1857-1947, Oxford University Press, 3rd edition, 2011.
- J. Krishnamurty, Occupational Structure, Dharma Kumar (editor), The Cambridge Economic History of India, Vol. II, (henceforth referred to as CEHI), 2005, Chapter 6.
- IrfanHabib, Indian Economy 1858-1914, A People's History of India, Vol.28, Tulika, 2006.
- Ira Klein, 1984, ―When Rains Fail: Famine relief and mortality in British India‖,
- IESHR 21.
- Jean Dreze, Famine Prevention in India in Dreze and Sen (eds.) Political Economy of Hunger, WIDER Studies in Development Economics, 1990, pp.13- 35.
- John Hurd, Railways, CEHI, Chapter 8, pp.737-761.
- Rajat Ray (ed.), Entrepreneurship and Industry in India, 1994.
- AK Bagchi, ―Deindustrialization in India in the nineteenth century: Some theoretical implications Journal of Development Studies, 1976.
- MD Morris, Emergence of an Industrial Labour Force in India, OUP 1965, Chapter 11, Summary and Conclusions.
- K.N. Chaudhuri, Foreign Trade and Balance of Payments, CEHI, Chapter 10.
- B.R. Tomlison, 1975, India and the British Empire 1880-1935, IESHR, Vol.XII.
- Dharma Kumar, The Fiscal System, CEHI, Chapter 12.
- BasudevChatterjee, Trade, Tariffs and Empire, OUP 1992, Epilogue.
- IrfanHabib, Indian Economy 1858-1914 (A People's History of India), Vol.28, Tulika 2006.
- Daniel Thorner, Agrarian Prospect in India, 1977.
- Visaria and P. Visaria, Population. CEHI, Chapter

DSE-2: Political Economy – I   **Credits 06**

DSE2T: Political Economy – I

Introduction and Historical Overview
Introduction (States-markets and society) -Emergence of Private property rights-Perspective on political economy with a historical overview: capitalist development in the pre-second world war period, the golden age and later.

Changing Dynamics of Capitalist Production, Organisational Form and Labour Process
Fordist and post-fordist production; changing dynamics of organisation of production, markets and labour process; the changing nature of job security and labour rights.

The State intheEra ofGlobalisation:Welfare,Development andAutonomy
Globalisation and the limits of the welfare state, development and state autonomy.

The Changing Role of Finance

The changing role of finance in capital accumulation and corporate structure; finance and globalisation - financialisation, financial liberalisation and financial crisis.

The Social Dimension

Globalisation and uneven development – growth, inequality, poverty and exclusion.

New Perspective

Gender in work, accumulation and globalisation; issues in environment and sustainability; alternatives ahead.

Reference Books

- Alfred Saad-Filho and Ben Fine. Marx's Capital, Fifth Edition, Pluto Press, 2010
- Michel Beaud, A History of Capitalism, 1500-2000, trans. by Tom Dickman and Anny Lefebvre, New York: Monthly Review Press, 2001.
- Ash Amin (ed.), Post-Fordism: A Reader, Blackwell, 1994.
- Fran Tonkiss, Contemporary Economic Sociology: Globalisation, Production, Inequality, Chapter 4 (Fordism and After), Routledge India 2008 reprint, 2006.
- S. Hymer, "The Multinational Corporation and the Law of Uneven Development", in H. Radice (ed.) International Firms and Modern Imperialism, Penguin Books, 1975.
- G. Gereffi, J. Humphrey and T. Sturgeon, 2005, ―The Governance of Global Value Chains‖, Review of International Political Economy, Volume 12: 78–104.
- Narasimha Reddy, ―Economic Globalisation, Past and Present – The Challenges to Labour‖ in Jomo K.S. &KhooKhay Jin (ed.) Globalization and Its Discontents, Revisited, Sephis -Tulika Books, 2003.
- David Harvey, A Brief History of Neoliberalism, OUP, 2005.
- Andrew Glyn, ―Challenges to Capital‖, in Capitalism Unleashed: Finance, Globalization and Welfare, Oxford: Oxford University Press, (Ch. One, pp. 1-24), 2006.
- G Dumenil and D Levy, The Crisis of Neoliberalism, Harvard University Press, 2011.
- K.S. Jomo (ed.), The Long Twentieth Century: The Great Divergence: Hegemony, Uneven Development and Global Inequality, OUP, 2006.
- Gary Dymsky, 2005, ―Financial Globalization, Social Exclusion and Financial Crisis‖, International Review of Applied Economics, Vol. 19: 439–457.
- E. Stockhammer, ―Financialization and the Global Economy, in G. Epstein and
- M.H. Wolfson (ed.) The Political Economy of Financial Crises, Oxford University Press, 2010. [Also in Working Paper Series, No. 240, Political Economy Research Institute, University of Massachusetts Amherst]
- J.P. Smith and M.P. Ward, 1989, ―Women in the Labour Market and in the Family, Journal of Economic Perspectives, Volume 3: 9-23.
- Marilyn Power, 2004, ―Social Provisioning as a Starting Point for Feminist Economics, Feminist Economics, Volume 10: 3-19.
- John Bellamy Foster, Ecology against Capitalism, Monthly Review Press, 2002

Or

DSE-2: Money and Financial Markets   **Credits 06**

DSE2T: Money and Financial Markets

Introduction to money and BankingMoney
Concept, functions, measurement; theories of money supply determination.

FinancialInstitutions,Markets, Instruments and Financial Innovations
1. Role of financial markets and institutions; problem of asymmetric information – adverse selection and moral hazard; financial crises.
2. Money and capital markets: organization, structure and reforms in India; role of financial derivatives and other innovations.

Financial Markets and Interest Rates Behaviour
Determination; sources of interest rate differentials; theories of term structure of interest rates; interest rates in India.

Banking System
1. Balance sheet and portfolio management; Multiple Deposit Creation, Determinants of the Money Supply.
2. Indian banking system: Changing role and structure; banking sector reforms.

Central Banking and Monetary Policy
Functions, balance sheet;goals, targets, indicators and instruments of monetary control; monetary management in an open economy; current monetary policy of India.

Reference Books
- F. S. Mishkin and S. G. Eakins, Financial Markets and Institutions, Pearson Education, 6th edition, 2009.
- F. J. Fabozzi, F. Modigliani, F. J. Jones, M. G. Ferri, Foundations of Financial Markets and Institutions, Pearson Education, 3rd edition, 2009.
- M. R. Baye and D. W. Jansen, Money, Banking and Financial Markets, AITBS, 1996.
- Rakesh Mohan, Growth with Financial Stability- Central Banking in an Emerging Market, Oxford University Press, 2011.
- L. M. Bhole and J. Mahukud, Financial Institutions and Markets, Tata McGraw Hill, 5th edition, 2011.
- M. Y. Khan, Indian Financial System, Tata McGraw Hill, 7th edition, 2011.
- N. Jadhav, Monetary Policy, Financial Stability and Central Banking in India,
- Macmillan, 2006.
- R.B.I. – Report of the Working Group: Money Supply Analytics and Methodology of Compilation, 1998.
- R.B.I. Bulletin, Annual Report and Report on Currency and Finance (latest).

<div align="center">**Or**</div>

DSE-2: Financial Economics   **Credits 06**

DSE2T: Financial Economics

Introduction: Evolution of limited liability companies; Time value of money and concepts of security markets

Investment Theory and Portfolio Analysis
1. Deterministic cash-flow streams: Basic theory of interest; discounting and present value; internal rate of return; evaluation criteria; fixed-income securities; bond prices and yields; interest rate sensitivity and duration; immunisation; the term structure of interest rates; yield curves; spot rates and forward rates.
2. Single-period random cash flows: Random asset returns; portfolios of assets; portfolio mean and variance; feasible combinations of mean and variance; mean-variance portfolio analysis: the Markowitz model and the two-fund theorem; risk-free assets and the one-fund theorem.
3. CAPM: The capital market line; the capital asset pricing model; the beta of an asset and of a portfolio; security market line; use of the CAPM model in investment analysis and as a pricing formula.

Options and Derivatives
Introduction to derivatives and options; forward and futures contracts; options; other derivatives; forward and future prices; stock index futures; interest rate futures; the use of futures for hedging; duration-based hedging strategies; option markets; call and put options; factors affecting option prices; put-call parity; option trading strategies: spreads; straddles; strips and straps; strangles; the principle of arbitrage; discrete processes and the binomial tree model; risk-neutral valuation.

Corporate Finance
Patterns of corporate financing: common stock; debt; preferences; convertibles; Capital structure and the cost of capital; corporate debt and dividend policy; the Modigliani-Miller theorem.

Reference Books
➢ David G. Luenberger, Investment Science, Oxford University Press, USA, 1997.
➢ Hull, John C., Options, Futures and Other Derivatives, Pearson Education, 6th edition, 2005.
➢ Thomas E. Copeland, J. Fred Weston and KuldeepShastri, Financial Theory and Corporate Policy, Prentice Hall, 4th edition, 2003.
➢ Richard A. Brealey and Stewart C. Myers, Principles of Corporate Finance, McGraw-Hill, 7th edition, 2002.
➢ Stephen A. Ross, Randolph W. Westerfield and   Bradford   D. Jordan,Fundamentals of Corporate Finance. McGraw-Hill, 7th edition, 2005.
➢ Burton G. Malkiel, A Random Walk Down Wall Street, W.W. Norton & Company, 2003.
➢ William Sharpe, Gordon Alexander and Jeffery Bailey, Investments, Prentice Hall of India, 6th edition, 2003.

DSE-3: Political Economy – II   **Credits 06**

DSE3T: Political Economy – II

Analysing Social Change in Historical Perspective
The method of historical materialism; the transition from feudalism to capitalism; capitalism as a historical process – alternative perspectives; Emergence of socialism: social mode of extraction of surplus and socialist planning.

Capitalism as an Evolving Economic System
Basic features; Functioning of the Capitalist System- a) Classical Political Approach of Smith, Ricardo and Marx and b) (b) Neoclassical Economics and Capitalism accumulation and crisis; the modern corporation; monopoly capitalism— alternative perspectives.

The State in Capitalism
The state and the economy – contestation and mutual interdependence; the state as an arena of conflict; imperialism – the basic foundations.

Reference Books
- J. Gurley, "The Materialist Conception of History", Ch.2.1 in R. Edwards, M. Reich and T. Weisskop (ed.), The Capitalist System, 2nd edition, 1978.
- O. Lange, Political Economy, vol. 1, 1963, Chapters 1 and 2.
- E.K. Hunt, History of Economic Thought, M.E. Sharpe, Indian edn, Shilpi Publications, 2004.
- IrfanHabib, 1995, "Capitalism in History", Social Scientist, Vol. 23: 15-31.
- R.L. Heilbroner, "Capitalism", in the New Palgrave Dictionary of Modern Economics, Macmillan, 1987. Also reprinted as Chapter 2 in Behind the Veil of Economics by R.L. Heilbroner, W.W. Norton, 1988.
- P. Sweezy, The Theory of Capitalist Development, Monthly Review Press, 1942,chapters 2, 4, 5, 6, 8 and 10.
- Anwar Shaikh, Entries on "Economic Crises" and "Falling Rate of Profit" in T. Bottomore et al (eds.), The Dictionary of Marxist Thought, OUP, Indian edition, Maya Blackwell, 2000.
- VamsiVakulabharanam, 2009, ―The Recent Crisis in Global Capitalism: Towards a Marxian Understanding, Economic and Political Weekly, March 28, Vol. 44: 144-150.
- J. Schumpeter, Capitalism, Socialism and Democracy, George Allen and Unwin 1976, Chapters 6, 7 and 8.
- P. Baran (1957), The Political Economy of Growth, Chapter 3, Pelican edition, 1973.
- R. Heilbroner, ―The Role of the State, Ch.4 in The Nature and Logic of Capitalism, 1985.
- M. Kalecki, ―Political Aspects of Full Employment, in E.K. Hunt and J.G. Schwarz (eds.), A Critique of Economic Theory, Penguin Books, 1972.

- AmitBhaduri, ―Nationalism and Economic Policy in the Era of Globalization, Ch. 2 in Deepak Nayyar (ed), Governing Globalization: Issues and Institutions, OUP, 2002 [also WIDER Working Paper no.188, WIDER website (2000)].
- PrabhatPatnaik, ―"Lenin's Theory of Imperialism Today", in K.S. Jomo (ed.) The Long Twentieth Century: The Great Divergence: Hegemony, Uneven Development and Global Inequality, OUP.
- James O'Connor, "The Meaning of Economic Imperialism," in Robert Rhodes, ed., Imperialism and Underdevelopment, New York: Monthly Review Press, 1970, pages 101 to 111

Or

DSE-3: Environmental Economics   **Credits 06**

DSE3T: Environmental Economics

Introduction
What is environmental economics; review of microeconomics and welfare economics.

The Theoryof Externalities
Pareto optimality and market failure in the presence of externalities; property rights and the coase theorem.

The Design and ImplementationofEnvironmentalPolicy
Overview; pigouvian taxes and effluent fees; tradable permits; choice between taxes and quotas under uncertainty; implementation of environmental policy.

International Environmental Problems
Trans-boundary environmental problems; economics of climate change; trade and environment.

MeasuringtheBenefitsofEnvironmentalImprovements
Non-Market values and measurement methods; risk assessment and perception.

Sustainable Development
Concepts; measurement.

Reference Books
- Charles Kolstad, Intermediate Environmental Economics, Oxford University Press, 2nd edition, 2010.
- Robert N. Stavins (ed.), Economics of the Environment: Selected Readings, W.W. Norton, 5th edition, 2005.
- Roger Perman, Yue Ma, James McGilvray and Michael Common, Natural Resource and Environmental Economics, Pearson Education/Addison Wesley, 3rd edition, 2003.
- Maureen L. Cropper and Wallace E. Oates, 1992, ―Environmental Economics: A Survey Journal of Economic Literature, Volume 30:675-740

<div align="center">**Or**</div>

DSE-3: Topics in Microeconomics – I   **Credits 06**

DSE3T: Topics in Microeconomics – I

Introduction: Game Theory Basics: What is a game; games and decisions; different kinds of games; Zero-sum games: secure strategy, min-max theorem, value of a game.

Normal form games
The normal form; dominant and dominated strategies; dominance solvability; iterated dominance; mixed strategies and mixed strategy equilibrium; symmetric single population games; n-person games in normal form; Nash equilibrium; applications.

Extensive form games with perfect information
The game tree; strategies; sub game perfection; backward induction; sequential equilibrium; bargaining; Rubinstein bargaining, and Nash bargaining.

Reference Books
- Martin J. Osborne, An Introduction to Game Theory, Oxford University Press, New Delhi, 2004.
- Robert Gibbons. A Primer in Game Theory, Princeton University Press, 1992
- Prajit K. Dutta. Strategies and Game: Theory and Practice, MIT Press, 1999.

DSE-4: Comparative Economic Development (1850-1950)   **Credits 06**

DSE4T: Comparative Economic Development (1850-1950)

Theory and Concepts
1. Introduction and Perspectives on Comparative Economic Development
2. An Overview of Economic Development of the countries selected for case studies

3. Agriculture
    a. Agrarian surplus and the role of the peasantry in economic development.
4. Industry
    a. The industrial revolution in Britain; Industrialisation in late industrialisers.
5. The Factory System and Making of the Industrial Working Class
    a. Division of labour, structure of industrial authority, organisation of work and industrial production, relationship between workers and managers.
6. The Role of the State in Industrial and Developmental Transition

Reference Books

- E.J. Hobsbawm, World of Labour: Further studies in the history of labour, London Weidenfeld& Nicholson, 1984.
- E.J. Hobsbawm, Industry and Empire: An Economic History of Britain since 1750, Weidenfeld& Nicholson, 1968.
- Peter Mathias, the First Industrial Nation, an Economic History of Britain, 1700-1914. 2nd edition Methuen, 1983.
- T. Nakamura, Economic Growth in Pre-War Japan, Tr. by Robert A Feldman, Yale University Press, 1983.
- Okochi, Karsh and Levine, Workers and Employees in Japan, The Japanese Employment Relations System, University of Tokyo, 1965.
- Y. Hayami, A Century of Agricultural Growth in Pre-War Japan: Its Relevance to Asian Development, University of Minnesota Press, 1975.
- Chalmers Johnson, MITI and the Japanese Miracle: The Growth of Industrial Policy 1925-1975, Stanford University Press, 1982.
- W.W. Lockwood, Economic Development of Japan, Expanded edition, Princeton University Press, 1966.
- Dobb M., Soviet Economic Development since 1917, Universal Book Stall, New Delhi, 1995.
- Paul R. Gregory and Robert C. Stuart, Soviet Economic Structure and Performance, Harper & Row, 3rd edition, 1986.
- Timothy W. Guinnane, 2002, ―Delegated Monitors, Large and Small: Germany's banking System, 1800 –1914‖, Journal of Economic Literature, Volume XL: 73-124.
- Richard A. Easterlin, Davis and Parker, American Economic Growth: An economist's History of the United States, Harper & Row, 1972.
- Hughes and Cain, American Economic History, HarperCollins College Publishers, 4[th]edition, 1994.
- Angus Maddison, Dynamic Forces in Capitalist Development, a Long-Run Comparative View, Oxford University Press, 1991.
- P.K.O'Brien, 1986, ―Do we have a Typology for the Study of European Industrialization in the XIXthCentury, Journal of European Economic History, XV 3:291-333.

Or

DSE-4: Topics in Microeconomics – II   **Credits 06**

DSE4T: Topics in Microeconomics – II

Repeated Games with complete information
Repeated games: Folk theorem and repeated prisoner's dilemma; Finitely repeated games and backward induction; infinitely repeated games; credibility and sub game perfect Nash equilibrium, one-step deviation property;

Simultaneousmove games with incomplete information (Bayesian games)
Strategies; Bayesian Nash equilibrium; higher order beliefs.

Extensive form games with imperfect information
Strategies; beliefs and sequential equilibrium; applications.

Uncertainty and Information

Expected utility Theory; measures of risk aversion, applications- investment in risky assets, insurance, the principal agent problem: adverse selection and moral hazard, signalling, introduction to auction and mechanism design, VCR mechanisms.

Reference Books
- Martin J. Osborne, An Introduction to Game Theory, Oxford University Press, New Delhi, 2004.
- R. Gibbons. Game Theory for Applied Economists, Princeton University Press, 1992
- Eric. Rasmusen, Games and Information: An Introduction to Game Theory, Wiley-Blackwell, 2006

Or

DSE-4: Project Work   **Credits 06**

Skill Enhancement Course (SEC)

SEC-1 – Data Analysis   **Credits 02**

SEC1T: Data Analysis

Unit 1
1. Sources of data. Population census versus sample surveys. Random sampling.
2. Frequency distribution and summary Statistics.

Unit 2
Analysis of Indian Data: Economic Survey, RBI Bulletin on currency and finance, ASI DATA, Foreign Trade Statistics, NSS Consumer surveys.

Suggested Readings:
- P.H. Karmel and M. Polasek (1978), Applied Statistics for Economists, 4th edition, Pitman.
- M.R. Spiegel (2003), Theory and Problems of Probability and Statistics (Schaum Series).
- Official websites of RBI, Government of India, NSS, ASI.

OR

SEC-1 – Contemporary Economic Issues   **2 Credits**

SEC1T : Contemporary Economic Issues

Concepts

Fiscal Policy, need for government spending, area of government spending in India.
Capital Expenditure, revenue expenditure, plan expenditure, non-plan expenditure.
Deficits (fiscal, primary, revenue), impact of fiscal deficits on economy, need to control fiscal deficits.

Capital receipts, revenue receipts, tax and non-tax revenue, direct and indirect taxes, need to rationalize tax structure. Goods and Services Tax (GST).
Actuals, Revised Estimates, Budget Estimates,Zero-base budgeting, Gender budgeting
Fiscal devolution and centre-state financial relations in India
Index Numbers: Laspeyres, Paasche and Ideal index numbers, WPI, CPI and implicit deflators

Economic Survey

Understanding Economic Survey

Understanding Union Budget

Need for the budget, Understanding the process of budget making in India, Analysis of budget in terms of various parameters such as:
   a. Deficits: trends in fiscal deficit and revenue deficit
   b. Receipts: proposed sources of revenue and expected growth in revenue; steps taken to increase revenue such as tax simplification, improvement in tax administration, expansion of tax net;
   c. Expenditure: expenditure pattern and expected growth in expenditure;
       The thrust areas of the budget; areas/ sectors which have received higher or lower share of expenditure, reasons and consequences thereof; steps proposed to ensure effective spending

Suggested Readings:
   ➤ Economic Survey (latest), Government of India, Ministry of Finance. Full chapter (excluding boxed items) on 'Economic Outlook, Prospects, and Policy Challenges' and 'Fiscal Framework'. Other selections to be determined each year.
   ➤ 'Understanding the Budget Concepts and Terminologies', Centre for Budget and Governance Accountability
         http://www.cbgaindia.org/files/documents/Understanding%20the%20Budg et%20Concepts%20and%20Terminologies.pdf
   ➤ The Key to Budget Documents, Budget At A Glance, Macroeconomic Framework Statement, Medium Term Fiscal Policy Statement and Fiscal Policy Strategy Statement , all available at indiabudget.nic.in.
   ➤ Economic and Social Classification of the Budget, available at http://finmin.nic.in/reports/FunClass201415.pdf.
   ➤ http://www.unionbudget.nic.in/ub2016-17/bh/bh1.pdf (For Budget 2016-17 highlights)
   ➤ Pranab Mukherjee (2012), "Budget Making", in K. Basu and A. Maertens (eds), The New Oxford Companion to Economics in India, OUP.
   ➤ DipakDasgupta and Supriyo De (2012), "Fiscal Deficit", in Basu and Maertens.

- Uma Kapila (2016), "Fiscal and Budgetary Developments", in Indian Economy Since Independence, Academic Foundation, latest edition.
- Y V Reddy (2015), "Continuity, Change and The Way Forward: Fourteenth Finance Commission", EPW Vol. 50, Issue No. 21, 23 May, 2015
- 14th Finance Commission Report http: //finmin.nic.in/14fincomm/14th Finance Commission.htm

SEC-2: Financial Economics   Credits 02

SEC2T: Financial Economics

Deterministic cash-flow streams
Basic theory of interest; discounting and present value; internal rate of return; evaluation criteria; fixed-income securities; bond prices and yields; interest rate sensitivity and duration; immunisation; the term structure of interest rates; yield curves; spot rates and forward rates.

Single-period random cash flows
Random asset returns; portfolios of assets; portfolio mean and variance; feasible combinations of mean and variance; mean-variance portfolio analysis: the Markowitz model and the two-fund theorem; risk-free assets and the one-fund theorem.

Capital Asset Pricing Model (CAPM)
The capital market line; the capital asset pricing model; the beta of an asset and of a portfolio;security market line; use of the CAPM model in investment analysis and as a pricing formula.

Reference Books

- David G. Luenberger, Investment Science, Oxford University Press, USA, 1997.
- Richard A. Brealey and Stewart C. Myers, Principles of Corporate Finance, McGraw- Hill, 7th edition, 2002.
- Burton G. Malkiel, A Random Walk Down Wall Street, W.W. Norton & Company, 2003.
- Simon Benninga, Financial Modeling, MIT Press, USA, 1997.

Or

SEC-2: Research Methodology   Credits 02

SEC2T: Research Methodology
Unit 1
Understanding the nature of research.
Formulating the research topic
Review of Literature

Unit 2

Approaches to research and research strategy
Research Ethics
Using Secondary data
Using Primary data- collecting data through observations/ interviews/ questionnaire

Unit 3
Sample Selection Methods
Analyzing Data
Writing Project Report – Referencing Styles

Reference Books
- Ranjit Kumar (2014), Research Methodology: A Step by Step Guide for beginners, 4th Edition, Sage Publications.
- Uwe Flick (2012), Introducing Research Methodology: A Beginner's Guide to Doing a Research Project, Sage Publications.
- Bethlehem, J.(2009), Applied Survey Methods: A Statistical Perspective, Wiley.
- Cochran, William G. (2008), Sampling Techniques, Third Edition, Wiley India, ISBN 978-81-265-1524-0. Reprint: 2008.
- Groves, R. M., Fowler, F.J., Couper, M.P., Lepkowski, J.M., Singer, E. and Tourangeau, R. (2009). Survey Methodology, Wiley.

Generic Elective (GE)

[Interdisciplinary for other department]

GE- 1: Introductory Microeconomics   Credits 06

GE1T: Introductory Microeconomics

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; science of economics; the basic competitive model; prices, property rights and profits; incentives and information; rationing; opportunity sets; economic systems; reading and working with graphs.

Supply and Demand: How Markets Work, Markets and Welfare
Markets and competition; 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; elasticity and its application; controls on prices; taxes and the costs of taxation; consumer surplus; producer surplus and the efficiency of the markets.

The Households
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; consumer's optimum choice; income and substitution effects; labour supply and savings decision - choice between leisure and consumption.

The Firm and Perfect Market Structure
Behaviour of profit maximizing firms and the production process; short run costs and output decisions; costs and output in the long run.

Imperfect Market Structure
Monopoly and anti-trust policy; government policies towards competition; imperfect competition.

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 labour markets and public policy.

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

GE- 2: Introductory Macroeconomics   Credits 06

GE2T: Introductory Macroeconomics

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

Money
Functions of money; quantity theory of money; determination of money supply and demand; credit creation; tools of monetary policy.

Inflation
Inflation and its social costs; hyperinflation.

The Closed Economy in the Short Run

Classical and Keynesian systems; simple Keynesian model of income determination; IS-LM model; fiscal and monetary multipliers.

Reference Books

- 1. Dornbusch, Fischer and Startz, Macroeconomics, McGraw Hill, 11th edition, 2010.
- 2. N. Gregory Mankiw. Macroeconomics, Worth Publishers, 7th edition, 2010.
- 3. Olivier Blanchard, Macroeconomics, Pearson Education, Inc., 5th edition, 2009.
- 4. Richard T. Froyen, Macroeconomics, Pearson Education Asia, 2nd edition, 2005.
- 5. Andrew B. Abel and Ben S. Bernanke, Macroeconomics, Pearson Education, Inc., 7th edition, 2011.
- 6. Errol D'Souza, Macroeconomics, Pearson Education, 2009.
- Paul R. Krugman, Maurice Obstfeld and Marc Melitz, International Economics, Pearson Education Asia, 9th edition, 2012.

GE3: Environmental Economics   **Credits 06**

GE3T: Environmental Economics

Introduction
Key environmental issues and problems, economic way of thinking about these problems, basic concepts from economics; Pareto optimality and market failure in the presence of externalities; property rights and other approaches.

The Design and Implementation of Environmental Policy
Overview, Pigouvian taxes and effluent fees, tradable permits, implementation of environmental policies in India and international experience; transboundary environmental problems; economics of climate change.

Environmental Valuation Methods and Applications
Valuation of non-market goods and services--theory and practice; measurement methods; cost-benefit analysis of environmental policies and regulations.

Sustainable Development
Concepts; measurement, perspectives from Indian experience

Suggested Readings:
- Roger Perman, Yue Ma, Michael Common, David Maddison and James McGilvray, "Natural Resource and Environmental Economics", Pearson Education/Addison Wesley, 4th edition, 2011.
- Charles Kolstad, "Intermediate Environmental Economics", Oxford University Press, 2nd edition, 2010.
- Robert N. Stavins (ed.), "Economics of the Environment: Selected Readings", W.W. Norton, 6th edition, 2012.
- Robert Solow, "An Almost Practical Step toward Sustainability," Resources for the Future 40th anniversary lecture, 1992.
- Kenneth Arrow et al., "Are We Consuming Too Much?" Journal of Economic Perspectives, 18(3): 147-172, 2004.
- IPCC (Intergovernmental Panel on Climate Change), Fifth Assessment Report (forthcoming 2014).

<div align="center">**OR**</div>

GE3: Money and Banking   **Credits 06**

GE3T: Money and Banking

Money and Banking

Money
Concept, functions, measurement; theories of money supply determination.

Financial Institutions, Markets, Instruments and Financial Innovations
1. Role of financial markets and institutions; problem of asymmetric information – adverse selection and moral hazard; financial crises.
2. Money and capital markets: organization, structure and reforms in India; role of financial derivatives and other innovations.

Interest Rates
Determination; sources of interest rate differentials; theories of term structure of interest rates; interest rates in India.

Banking System
1. Balance sheet and portfolio management.
2. Indian banking system: Changing role and structure; banking sector reforms.

Central Banking and Monetary Policy
Functions, balance sheet; goals, targets, indicators and instruments of monetary control; monetary management in an open economy; current monetary policy of India.

Suggested Readings:
- F. S. Mishkin and S. G. Eakins, Financial Markets and Institutions, Pearson Education, 6th edition, 2009.
- F. J. Fabozzi, F. Modigliani, F. J. Jones, M. G. Ferri, Foundations of Financial Markets and Institutions, Pearson Education, 3rd edition, 2009.
- M. R. Baye and D. W. Jansen, Money, Banking and Financial Markets, AITBS, 1996.
- Rakesh Mohan, Growth with Financial Stability- Central Banking in an Emerging Market, Oxford University Press, 2011.
- L. M. Bhole and J. Mahukud, Financial Institutions and Markets, Tata McGraw Hill, 5th edition, 2011.
- M. Y. Khan, Indian Financial System, Tata McGraw Hill, 7th edition, 2011.
- N. Jadhav, Monetary Policy, Financial Stability and Central Banking in India,
- Macmillan, 2006.
- R.B.I. – Report of the Working Group: Money Supply Analytics and Methodology of Compilation, 1998.
- R.B.I. Bulletin, Annual Report and Report on Currency and Finance (latest).

GE-4: Economic History of India (1857-1947)   Credits 06

GE4T: Economic History of India (1857-1947)

Introduction: Colonial India: Background and Introduction
Overview of the colonial economy

Macro Trends
National Income; population; occupational structure.

Agriculture
Agrarian structure and land relations; agricultural markets and institutions – credit, commerce and technology; trends in performance and productivity; famines.

Railways and Industry
Railways; the de-industrialisation debate; evolution of entrepreneurial and industrial structure; nature of industrialisation in the interwar period; constraints to industrial breakthrough; labor relations.

Economy and Statein the ImperialContext
The imperial priorities and the Indian economy; drain of wealth; international trade, capital flows and the colonial economy – changes and continuities; government and fiscal policy.

Reference Books
- Lakshmi Subramanian, "History of India 1707-1857", Orient Blackswan, 2010, Chapter 4.
- SumitGuha, 1991, ‗Mortality decline in early 20th century India', Indian
- Economic and Social History Review (IESHR), pp 371-74 and 385- 87.
- Tirthankar Roy, The Economic History of India 1857-1947, Oxford University Press, 3rd edition, 2011.
- J. Krishnamurty, Occupational Structure, Dharma Kumar (editor), The Cambridge Economic History of India, Vol. II, (henceforth referred to as CEHI), 2005, Chapter 6.
- IrfanHabib, Indian Economy 1858-1914, A People's History of India, Vol.28, Tulika, 2006.
- Ira Klein, 1984, ―When Rains Fail: Famine relief and mortality in British India‖, IESHR 21.
- Jean Dreze, Famine Prevention in India in Dreze and Sen (eds.) Political Economy of Hunger, WIDER Studies in Development Economics, 1990, pp.13- 35.
- John Hurd, Railways, CEHI, Chapter 8, pp.737-761.
- Rajat Ray (ed.), Entrepreneurship and Industry in India, 1994.
- AK Bagchi, ―Deindustrialization in India in the nineteenth century: Some theoretical implications, Journal of Development Studies, 1976.
- MD Morris, Emergence of an Industrial Labour Force in India, OUP 1965, Chapter 11, Summary and Conclusions.
- K.N. Chaudhuri, Foreign Trade and Balance of Payments, CEHI, Chapter 10.

- B.R. Tomlison, 1975, India and the British Empire 1880-1935, IESHR, Vol.XII.
- Dharma Kumar, the Fiscal System, CEHI, Chapter 12.
- BasudevChatterjee, Trade, Tariffs and Empire, OUP 1992, Epilogue.
- IrfanHabib, Indian Economy 1858-1914 (A People's History of India), Vol.28, Tulika 2006.
- Daniel Thorner, Agrarian Prospect in India, 1977

Or

GE-4: Public Finance   **Credits 06**

GE4T: Public Finance

Combinatorial Mathematics

Theory
1. Overview of Fiscal Functions, Tools of Normative Analysis, Pareto Efficiency, Equity and the Social Welfare.
2. Market Failure, Public Good and Externalities.
3. Elementary Theories of Product and Factor Taxation (Excess Burden and Incidence).

Issues from Indian Public Finance
1. Current Issues of India's Tax System.
2. Working of Monetary and Fiscal Policies.
3. Analysis of Budget and Deficits
4. Fiscal Federalism in India
5. State and Local Finances

Reference Books
- Musgrave, R.A. and P.B. Musgrave, Public Finance in Theory and Practice, Mc-Graw
- Hill, 1989.
- Mahesh Purohit , "Value Added Tax: Experience of India and Other Countries", Gayatri
- Publications, 2007.
- KaushikBasu, and A. Maertens (ed.), The Oxford Companion to Economics in India,
- Oxford University Press, 2007.
- M.M Sury, Government Budgeting in India, Commonwealth Publishers, 1990.
- Shankar Acharya, "Thirty years of tax reform" in India, Economic and Political Weekly,
- May 2005.
- Government of India, Report of the 13th   Finance Commission.
- Economic Survey, Government of India (latest).
- State Finances: A Study of Budgets, Reserve Bank of India (latest).