BENGALURU CENTRAL UNIVERSITY, BENGALURU

MA Economics Syllabus
(CBCS)

With Effect from Academic Year
2018-19 Onwards

FIRST SEMESTER		
Hard Core		
I	1.1	Advanced Microeconomics I
I	1.2	Advanced Macroeconomics I
I	1.3	Mathematical Methods in Economics
Soft Core		
I	1.4.1	Indian Economics
I	1.4.2	Economic Thought
I	1.4.3	Institutional Economics
I	1.4.4	Regional Economics
SECOND SEMESTER		
II	2.1	Advanced Microeconomics II
II	2.2	Advanced Macroeconomics II
II	2.3	Statistical Methods in Economics
Electives		
II	2.4.1	Agricultural Economics
II	2.4.2	Urban Economics
Open Electives		
II	2.5.1	Indian Economics
THIRD SEMESTER		
III	3.1	Development Economics
III	3.2	International Economics
III	3.3	Econometrics-I
Electives		
III	3.4.1	Industrial Economics
III	3.4.2	Environmental Economics
Open Electives		
III	3.5.1	Globalization and Economy
FOURTH SEMESTER		
IV	4.1	Public Economics
IV	4.2	Econometrics-II
IV	4.3	Project Work
Electives		
IV	4.4.1	Financial Economics
IV	4.4.2	Economics of Infrastructure
IV	4.4.3	Economic Demography
IV	4.4.4	Economics and Law

Course: M.A. in Economics
Semester: I Semester
Title of paper: Microeconomics I
(Compulsory)

Credits: 4
Total hours: 60

Course Objectives

•To teach the microeconomic theory of consumers' behaviour and demand, firms' behaviour and production, and markets in partial equilibrium.
•To distinguish the market and optimising behaviour of microeconomic agents.
•To teach the basic tools and techniques for microeconomic analyses.

MODULE I: INTRODUCTORY (4 HOURS)

Nature and scope of micro economics: Determination of allocation of resources and relative prices - Positive and normative approaches, Static and dynamics, Partial and general equilibrium, Comparative statics

MODULE-II CONSUMER BEHAVIOUR AND DEMAND (15 HOURS)

Nature of consumer behaviour, consumer choice in the cardinal utility analysis, Ordinal theory-Indifference curve approach, representative consumer, assumptions on consumer's preference, representation of consumer's preference by indifference curves, properties of indifference curves, budget set and budget line- slope of indifference curve and Marginal rate of substitution - Consumer's equilibrium, utility maximization and expenditure minimization, Marshallian and Hicksian demand functions – Comparative statics: Price and income effects on equilibrium demand – Slutsky's equation – Duality in consumption: Indirect utility function and expenditure function ; Roy's Identity and Shepherd's Lemma – Consumer's welfare: Concept and measurement of consumer surplus

MODULE-III FIRM'S BEHAVIOUR AND PRODUCTION (10 HOURS)

Nature and types of cost of production and revenue to a firm – Fixed cost, variable cost, average variable cost, average cost, marginal cost – Total revenue, average revenue and marginal revenue – Production function - Returns to scale – Elasticity of substitution – Isoquants – Marginal rate of technical substitution -Profit function and cost function – Profit maximization and cost minimization —Input demand functions- Duality in production: Hotelling's Lemma - Functional form and properties of select production functions: Cobb-Douglas, Leontief and Constant Elasticity of substitution – Producer's welfare: Concept and measurement of producer surplus

MODULE-IV: THEORY OF MARKETS IN PARTIAL EQUILIBRIUM

Introduction to market structure and types of markets (2 HOURS)

Market structure - Factor and product markets – Spot, future and forward markets- Perishable and durable markets –Concept of market equilibrium and market disequilibrium.

Perfect competition (8 HOURS)

Conditions of perfect competition, demand and supply curve of a firm and industry- Profit maximization – Market equilibrium in short run and long run equilibrium - Properties of market equilibrium – stability and efficiency – Consumer surplus and producer surplus

Theory of monopoly(8 HOURS)

Types of monopoly - Price and output determination of a firm/industry – Comparison of price and output between monopoly and perfect competition - Monopoly power- Discriminatory monopoly: Market segmentation and multi-part pricing, degree of price discrimination - Bilateral monopoly – Consumer surplus and producer surplus - Monopsony

Theory of monopolistic competition (5 HOURS)

Imperfect competition and monopolistic competition - Importance of product differentiation – Market equilibrium in short and long term – Comparison of profit maximization conditions between perfect competition, monopoly and monopolistic competition- Problems of monopolistic industries: Selling costs, sunk costs and excess capacity

Theory of Oligopoly(8 hours)

Features of oligopolistic market – collusive and non-collusive oligopoly- models of non-collusive oligopoly with homogenous products: Price and output determinations under Cournot duopoly and Stackelberg equilibrium – Models of non-collusive oligopoly with heterogenous products - Kinked demand curve and Bertrand competition.

Reading List

RJD Allen. (1978). Theory of firms. Penguin

N. Gregory Mankiw. (2014). Principles of Microeconomics. Cengage Learning

Campbell McConell, Stanley Brue, and Sean Flynn. (2014). Microeconomics: Principles, Problems, & Policies. McGraw-Hill Series in Economics

Paul Krugman and Robin Wells. (2014). Microeconomics. Worth Publishers

Karl E. Case, Ray C. Fair and Sharon E. Oster. (2013). Principles of Microeconomics. Pearson India

Koutsoyiannis A. (1985). <u>Modern Microeconomics</u>. ELBS/Macmillan, Hong Kong.

Robert S. Pindych, Daniel L. Rubinfeld and Prem L. Mehta. (2009). <u>Miroeconomics</u>. Pearson International Edition

Felix Muñoz-Garcia. (2017). <u>Advanced Microeconomic Theory: An Intuitive Approach with Examples</u>. MIT Press

W. D. A. Bryant and William David. (2017). <u>Advanced Microeconomics: Theory, Applications and Tests</u>. World Scientific Publishing Company Pte Limited.

H L Ahuja. (2016). <u>Advanced Economic Theory-Microeconomic Analysis</u>. S. Chand Publishing

H.L. Ahuja. (2016). <u>Advanced Economic Theory-Microeconomic Analysis</u>. S. Chand Publishing

David M. Kreps. (2013). <u>Microeconomic Foundations I: Choice and Competitive Markets</u>. Princeton University Press, New Jersey USA

Credits: 4
Total hours: 60

Objective of the course

- To teach important concepts, measures and theories of Macroeconomics as they are related to the short term determination of National Income, investment, inflation, monetary and fiscal policies.
- Highlight the practical applications the concepts, measures and theories of macroeconomics.

Module I; Introduction to macroeconomics (12hours)

Nature and scope of macroeconomics – Review of basic concepts: Aggregate demand and aggregate supply; National income and general prices; savings and investment; full employment - Review of macroeconomics methodology – static and dynamics – short term and long macroeconomics – macroeconomic equilibrium and disequilibrium- deterministic and stochastic macro economics

Module II: Short term determination of national income: Demand-side equilibrium (8 hours)

Interest rate in product market; IS curve and determinants of shifts in IS curve – Interest rate in money market: LM curve and determinants of shifts in LM curve

Module III: Macro-Economic Theories of Investment (10 Hours)

The Keynesian, Post-Keynesian, New-Keynesian and the financial theory of investment determination. Lags in investment- Portfolio disequilibrium and the transmission mechanism.

Module IV: Theories of Inflation (10Hours)

Theories of Inflation- Structural and Monetarist Approaches to Inflation; Natural Rate of Unemployment hypothesis-The short & long run Phillips Curve. Imperfect Information and Inflation expectations

Module V: Money, monetary policy and macroeconomic stabilization (10 hours)

The Demand for Money; The classical, Keynesian and Post Keynesian theories of demand for money- Patinkin and Real Balance Effect; Baumol, Tobin; Friedman and the Modern Quantity Theory – Monetary policy: Objectives, instruments and stabilization

Module VI: Fiscal policy and macroeconomic stabilization (10 hours)

Nature and scope of fiscal policy – Concept and definition of fiscal stabilisation - Instrument of fiscal policy: Taxation, expenditure and debt – Fiscal stimulus and stabilisation – Fiscal deficit and stabilisation – Crowding-out effect – Ricardian Equivalence Theorem

Reading list

Ackley, G Macroeconomics: Theory and Policy, Macmillan, New York, 1978

Dornbusch, Fischer &Startz, Macroeconomics, Tata McGraw-Hill Publishing Co. Ltd, 2012

Willian H Branson , Macroeconomic Theory and Policy, (3rd Edition), Harper and Row, New York,1989

Shapiro, Edward., Macroeconomic Analysis , Golgotia Publications Pvt.Ltd., New Delhi, 2015

Blanchard Olivier & Fischer Stanley. Lectures on Macroeconomics. Cambridge: MIT Press, 2018

Mankiw, G &Romer D, "New Keynesian Economics" Vol-1 & 2. The MIT Press

Hejidra, B.J. and F.V. Ploeg, Foundations of Modern Macroeconomics, Oxford University Press, Oxford, 2001

Romer, D.L. Advanced Macroeconomics, McGraw Hill Company Ltd., New York, 2011

Course: M.A. in Economics
Semester: I Semester
Title of paper: Mathematical Methods in Economics
(Compulsory)

Credits: 4
Total hours: 60

Objectives

- Teach basic mathematical methods in economics by applications of analytic geometry, linear algebra, integral and differentia calculus, static and dynamic optimisation, and game theory.
- Develop computational skills by solving numerical problems.
- Contextualize the mathematical applications in general economics.

Teaching modules

Module 1: Introduction: Need for mathematical methods in economics (2 hours)

Need for mathematical approach in economics - Nature and scope of mathematical methods and economics –Role of economic theory in mathematical economics - Difference between mathematical, statistical and econometric methods

Module 2: Number system and analytic geometry (9 hours)

Number system: Integers, Real Numbers and Real Number Line – Functions: Continuous and discontinuous; Linear and non-linear - Cartesian coordinates: Plane, distance and angle - Area under a linear and non-linear curves: Calculation of triangle. Rectangle and trapezoid – Applications to measurement of consumer surplus, producer surplus, deadweight loss, profits and Lorenz curve

Module 3: Linear algebra (9 hours)

System of linear equations – Simple market equilibrium model and determination of equilibrium demand, supply and price – Introduction to matrix algebra: Types and properties matrices – Solution to system of linear equation using Cramer Rule – Application to determination of equilibrium output and stability in Leontief's Input-Output Model.

Module 4: Calculus (15 hours)

Derivative of a function: Total and partial derivatives – Rules of differentiation – Application to find the slope of a curve: utility, cost and revenue curves; price and income elasticity of demand; growth rate of a variable.

Static optimisation – Formulation of objective functions and constraints for maximization and minimization – Lagrangean function and multiplier method – First order and Second order conditions - Applications of optimization to determine utility and profit maximisation and expenditure and cost minimization.

Integral of a function – Types and rules of integration – Determination of area under a curve - Relationship between integration and differentiation - Application to measurement of consumer surplus, producer surplus and deadweight loss.

Linear approximations to a non-linear equation: Taylor Theorem

Module 5: Dynamic analysis (9)

Linear difference and differential equations – Types and properties of linear differential equations – Solution to a differential equation - Application to determination of the Marshallian and Walrasian stability.

Introduction to dynamic optimisation – Overview of methods of Calculation of Variation and Optimal Control –Euler Equation - Broad areas of application of dynamic optimisation

Module 6: Game theory (9 hours)

Strategic behaviour and game theory in economics – Basic concepts: Cooperative and non-cooperative games, pure strategy and mixed strategies, extensive and normal form games, two-person and n-Person games - Zero-sum, Two-Person game - Maximin and Minimax strategies – Equilibrium (saddle) points – Concept of Core - Application of basic game theory to duopoly theory: Nash equilibrium.

Module 7: Linear programming (7 hours)

Scope of linear programming – optimisation of a linear function with inequality constraints - Primal and dual problem – Importance of Simplex Method – Data Envelope Analysis and its application in production

Reading List

Baumol, Willinm J. (1977). Economic Theory and Operational Analysis. Prentice-Hall (New York).

Chiang, Alpha C. (1984). Fundamental Methods of Mathematical Economics. McGraw-hill International Book Company (New Delhi).

Intriligator, Michael D. (1971). Mathematical Optimization and Economic Theory. Prentice-Hall (New York).

Kamien, Morton I., and Nancy L. Schwartz. (1991). Dynamic Optimization: The Calculus of Variations and Optimal Control in Economics and Management. Elsevier (San Diego).

Kreps, David M. (1990). A Course in Microeconomic Theory, Princeton University Press (New Jersey).

Ray, S.C. (2004). Data Envelopment Analysis: Theory and Techniques for Economics and Operations Research. Cambridge University Press (New York).

Silberberg, Eugene., and Suen, Wing. (2000). The Structure of Economics: A Mathematical Analysis. McGraw-Hill Companies (New York).

Veerachamy, R. (2008). Quantitative Methods for Economists. New Age International Publishers (New Delhi).

Weber, Jean E. (1976). Mathematical Analysis: Business and Economic Applications. Harper & Row Publishers (New York).

Course: M.A. in Economics
Semester: I Semester
Title of paper: Indian Economics
(Soft Core/Elective)

Credits: 4
Total hours: 60

Course Objectives
1. To provide understanding of the various phases of growth of the Indian economy.
2. To familiarize with various plans and initiatives towards development of the economy.
3. To introduce macro level trends, status, issues and policies of the various sectors of Indian Economy

Module 1: Changes in the Indian Economy: Overview (8 Hours)
Indian economy on the eve of India's independence – Historical trends in Indian economy - Recent transformation and performance of the economy since 1991. Trends in GDP by aggregate and sectors- agriculture, industry, and services. Development strategy after independence - Five year Plans and National Economic Reforms- Planning Commission and Niti Aayog - Objectives, strategy, achievements and failures.

Module 2: Growth of Indian agriculture (10 Hours)
Indian Agriculture sector- growth in agriculture and Index of Agricultural Production - Changes in the land system, land tenure system and land reforms in the post-independence era, - Green revolution and capital formation in agriculture, Food security and Public distribution system, Indian agriculture and WTO.

Module 3: Distributional issues in Indian economy (10 Hours)

Challenges of development: : Trends in poverty, and inequality – Education and unemployment Poverty alleviation and Employment Generation Programs, MGNREGP Health and Nutrition policies, Education policy- financing of health and education in India.

Module 4; Industrial sector (10Hours)

Industrial policy reforms – New Industrial Policy 1991, MSMEs, SSIs and Cottage industries and their importance, Public and Private Sector and their performance, Privatization and disinvestments; recent trends of growth and maturing of Indian industry. Rise in Service Sector-IT sector in India. Role of FDI and MNC's in industrial development, Globalization of Indian economy.

Module 5; Infrastructure (12 Hours)

Infrastructural development – reforms: restructuring, pricing and regulation, changing trends in Rural and Urban Infrastructure. Promotion strategy towards investment in infrastructure – public – private partnership Model (Build-Operate-Transfer (BOT), Build-Own-Operate-Transfer (BOOT), Design-Build-Finance-Operate (DBFO) and Build-Own-Operate (BOO)),Inter-sectoral issues –energy, transport, telecom, Environmental Protection policies in infrastructural development.

Module 6: India's achievements in global economy (10 Hours)
India's ranking in UNDP HDI, Global Competitiveness Index – India's position in World Bank's classification of countries by income levels – India's position in attainment of MDG (Millennium development goals) & SDG (Sustainable development goals).

Reading List:

- Kaushik Basu , Annemie Maertens , The New Oxford Companion to Economics in India, Oxford University Press, USA, 2012
- Uma Kapila, Indian Economy: Performance and Policies, Academic Foundation, 2009
- Bimal Jalan(2012) Emerging India: Economics, Politics and Reforms , Viking (India)
- Datt Ruddar, KPM Sundharam , Indian Economy, S Chand, 2018
- Mishra and Puri , Indian Economy, Himalaya Publishing House, 2018
- Economic Survey, Government of India, (Annual), Ministry of Finance, New Delhi.
- India Development Report, Oxford University Press, Various Issues

Additional readings:
- Dipak Mazumdar and Sandip Sarkar. Globalization, Labour Markets and Inequality in India. Routledge (New York),2008
- Vijay Joshi and IMD Little, India's Economic Reforms, 1991-2001. Clarendon Press (Oxford), 1996
- Vijay Joshi and IMD Little **India** - Macroeconomics and Political Economy 1964-1991. Oxford University Press (New Delhi), 1994
- Nilanjan Banik, The Indian Economy: A macroeconomic Perspective. Sage Publications India Pvt Ltd (New Delhi), 2015
- Anne O. Krueger, Economic Policy Reforms and the Indian Economy. The University of Chicago Press (Chicago), 2011

Course: M.A. in Economics
Semester: I Semester
Title of paper: Economic Thought
(Soft Core/Elective)

Credits: 4
Total hours: 60

Objectives

•To describe the chronological, thematic and systematic progress progression of economic ideas •To provide historical background to modern economic analysis and its implications for current debates in economics

MODULE I- EARLY ECONOMIC THOUGHT (10 Hours)

Nature and significance of the history of economic thought. Early thought, mercantilism, the Physiocrates and social philosophy, Natural order and the circulation of wealth, Laissez Faire.

MODULE II-CLASSICAL POLITICAL PHILOSOPHY (10 Hours)

Smith- naturalism, optimism, Theory of moral sentiments, value and distribution. The pessimists- Malthus and Ricardo- Theory of diminishing returns and rent - Theory of exchange value and relative prices - Distribution of income. Economic ideas of Jean-Baptiste Say, John Stuart Mill and Nassau William Senior.

MODULE III-THE SOCIALISTS OF THE EARLY NINETEENTH CENTURY (15 Hours)

Critique of capitalism- The antagonists thought - Charles Fourier - Simonde De Sismondi - Robert Owen -.Origin of German Historical School .Rise of socialist thought- economic ideas, the Utopians- State socialism, revolutionary socialism-Marx's, assessment of Marx's Economics.

MODULE IV -RECONSTRUCTION OF ECONOMIC SCIENCE (15 Hours)

Subjectivism and marginalism. Developments in the marginal utility concept. Fully developed subjectivism-economic ideas of the Austrian school, Hedonist school, Loussane mathematical school, Swedish school. Neo classical Orthodoxy Marshall- competition and equilibrium.

MODULE V-NEW ECONOMIC THOUGHT (10Hours)

Keynes-General theory- Keynesian revolution and the monetarist counter revolution. Heterodoxy economics - feminist economics and ecological economics.

READING LIST

Agnar Sandmo, Economics Evolving: A History of Economic Thought, Princeton University Press (2011)

Gide Charles and Rist Charles (2007) A History Of Economic Doctrines – From the Time of the Physiocrats to the Present Day, (1stIndian Reprint), Surjeet Publications, New Delhi.

Hunt E. K and M Lautzenheiser (2011) History of Economic Thought: A Critical Perspective,3rd Edition, PHI

Roll Eric (1986) A History of Economic Thought, Oxford University Press.

Screpanti, Ernesto and Zamagni, Stefano (2006) An Outline Of The History Of Economic Thought (2nd Edition), Oxford University Press.

Course: M.A. in Economics
Semester: I Semester
Title of paper: Institutional Economics
(Soft Core/Elective)

Credits: 4
Total hours: 60

COURSE OBJECTIVES

- To introduce concepts and theories of institutional economics to the working of political economy.
- To examine the role of institutions in development process.

MODULE I -INTRODUCTION TO INSTITUTIONAL ECONOMICS (5 Hours)

Institutions – Old and new institutional economics. Nature and scope of institutional economics-Social, economic, political and legal institutions- their functions - Formal and informal institutions. Institutions and Structural macro economics – Institutional economics and behavioural economics.

MODULE II- PROBLEMS OF INFORMATION ASYMMETRY (15 Hours)

Social vis-à-vis Individual Choices, Neo-classical Maximisation vis-à-vis Methodological Individualism. Perfect information, imperfect information and asymmetric information. Asymmetric information and opportunistic behaviour- Market for lemons, Prisoner's dilemma and Nash equilibrium. Principal-Agent problem. Problem of adverse selection – methods to overcome -Signalling, screening and self-selection. Problem of Moral Hazard. Controlling and preventing moral hazard-controlling the agent, incentive contracts and bonding.

MODULE III- ECONOMIC THEORY OF PROPERTY RIGHTS (10 Hours)

Concepts of property, defining property rights, problems of ill-defined property rights, Externalities-market failure and property rights, Internalization of externalities. Alternative property rights regimes- common property -open access and tragedy of the commons. Collective action and assurance problem.

MODULE IV -TRANSACTION COSTS AND BOUNDED RATIONALITY (15 Hours)

The concept of transaction, Types of market transaction costs and means of transaction costs. Issues relating to transaction costs, Transaction costs and transformation costs. Social cost vis-à-vis individual costs, Identification and measurements of transaction costs. Bounded Rationality. comparative advantages and shortcomings of the legal enforcement mechanism- Coase theorem.

MODULE V–DEVELOPMENT AND INSTITUTIONAL ECONOMICS (15 Hours)

Role of state in the process of institutional change. Social Capital and Economic Development-State in development -governance for development. Economics of corruption-principal-agent framework-incentive structures-the threat system and authority; collusion, preemptive collusion and ex-post collusion; Rent-seeking behavior, and free-riding. Welfare implications of corruption.

READING LIST

Geoffrey M Hodgson (Ed).Recent Developments in Institutional Economics, Edward Elgar Publishing (2003)

Groenewegen John et. Al Institutional Economics: An Introduction Palgave Macmillan(2010)

Geoffrey M Hodgson (Ed.) The Economics of Institutions, Edward Elgar(1993).

Kapp William, The Foundations Of Institutional Economics, Routeledge (2011)

North, D. C. Understanding the Process of Economic Change. Princeton University Press (2005).

Credits: 4
Total hours: 60

Objectives
- To equip the students with the analytical skills required to analyse the regional economic issues
- To understand theory of regional, inter-regional and multi-regional economic growth and empirical measurement of regional growth and development at State and sub-State level in India

Unit 1: Introduction to Regional Economics (5 Hours)
Nature and scope of regional economics – Regional economics and regional science – Regional and Urban Economics: Need for a separate study of regional economics – Concept and types of regions: Administrative, Planning, Agro-climatic, Economic and Functional regions.

Unit 2: Approaches to regional growth (10 Hours)
Approaches to regional growth: Models of regional, inter-regional and multi-regional models; Export base models – Location Theory - Gravity models – Shift-share analysis

Unit 3: Theories of regional economic growth (15 Hours)
Neoclassical models – Dualistic models: Social dualism – Labour surplus model of Arthur Lewis- Migration and development: Harris-Todaro – Core-Periphery models: Myrdal's Cumulative Casuation Hypothesis – Regional Input-output models - New Economic Geography models: Paul Krugman's model of industrial location and development

Unit 4: Concept, definition and measurement of regional economic growth in India (10 hours)
Administrative regions in India: State, District, Taluk and Village; Urban and Rural regions - Concept, definition and measure of State Income (GSDP) – Rural and urban GDP – Differences in estimation of national income (GDP) and State Income (GSDP) - Measurement of inter-regional economic growth at State level – Measurement of intra-state disparities in Karnataka

Unit 5: Approaches to measurement of regional income distribution in India (10 hours)
Measurement of poverty at State level – Measurement of income inequality at State level – Regional disparities in poverty and inequality at State level – Trends in poverty and inequality in Karnataka

Unit 6: Infrastructure and Regional development (10 Hours)

Importance of social and economic infrastructure as a determinant of regional economic growth and development. Inter-state disparity in energy, transport and telecommunication infrastructure – Composite Index of regional economic development – Statistical techniques for construction of the composite index – Applications composite index for measurement inter-regional disparities in India

Reading list

1. B. B. Bhattacharya and S. Sakthivel (2004): Regional Growth and Disparity in India: Comparison of Pre- and Post-Reform Decades, *Economic and Political Weekly*, 39(10), pp. 1071-1077.
2. Capello Roberta. (2016). *Regional Economics*. Routledge (New York).
3. Edgar M. Hoover and Frank Giarratani. (2016). *An Introduction to Regional Economics*. Web-book of Regional Science, Regional Research Institute, West Virginia University. Freely downloadable at: http://www.rri.wvu.edu/WebBook/Giarratani/contents.htm
4. Harry W Richardson (1973): *Regional Growth Theory*, Macmillan.
5. Harry W. Richardson. (1970). *Elements of Regional Economics*. Penguin Books (New York).
6. Harry W Richardson (1969): *Regional Economics: Location theory, Urban structure and regional change*. Weidenfeld & Nicolson (London)
7. MacKay, R. (2003): Twenty Five Years of Regional Development, *Regional Studies*, 37(3), pp. 303-17.
8. Hudson, R. (2007): Regions and Regional Uneven Development Forever? Some reflective Comments upon Theory and Practice, *Regional Studies*, 41(9), pp. 1149-1160.
9. Keshab Das (2004): Uneven Development and Regionalism: A Critique of Received Theories, *Economic and Political Weekly,* 39(45), pp. 4917-4925.
10. Peter Nijkamp, Edwin S. Mills, P. C. Cheshire, J. Vernon Henderson, Jacques François Thisse. *Handbook of Urban and Regional Economics. Vol.I. Regional Economics*. North-Holland (Amsterdam). 2007
11. Phillips McCann. (2013). *Modern Urban and Regional Economics*. Oxford University Press (New York).
12. Walter Isard. (1960). *Methods of regional analysis: an introduction to regional science*. Cambridge University Press (Mass).

Credits: 4
Total hours: 60

Objectives

- Teach the advanced microeconomic theory comprising topics in welfare economics, Walrasian and non-Walrasian general equilibrium, risk and uncertainty and economics of information.
- Develop skills on measurement issues by solving numerical problems.
- Contextualize the applications of the above microeconomic theory in economic policy.

Module 1: Welfare Economics (15 hours)

Nature and scope of welfare economics — Measurement of individual welfare: Consumer surplus, Compensating Variation and Equivalent Variation – Contingent valuation method for welfare measurement - Measurement of social welfare – Arrow's Impossibility Theorem - Social welfare functions: Samuelson-Bergson, Utilitarian/ Benthamite and Rawlsian social welfare functions: Functional forms and properties of social welfare functions.

Module 2: General equilibrium (15 hours)

Walrasian general equilibrium – Determination of relative prices – Walras Law - Properties of equilibrium: Efficiency and Stability – Efficient allocation and Pareto optimality in a pure exchange economy – Fundamental theorems of welfare economics -Breakdown of efficiency allocation conditions: Externality, public goods and theory of second best – Walrasian, Marshallian and Hicksian stability conditions - Introduction to non-Walrasian general equilibrium - Role of non-market clearing conditions – Comparison between Walrasian and Non-Walrasian equilibria – Implications for Reappraisal models in macroeconomics.

Module 3: Risk and uncertainty (15 hours)

Concept of risk and uncertainty –Relationship between risk and uncertainty – Degree of risk and its determination – Consumer behaviour under uncertainty – method of expected utility – Risk behaviour of consumers: Risk aversion and risk premium, risk preference and risk neutrality-Neumann and Morgenstern theory of expected utility maximization - Investment behaviour under uncertainty – Expected net present value criterion – Discount rate

Module 4: Economics of information (10 hours)

Information structure in microeconomic models: Perfect, Imperfect and Asymmetric information - Theory of asymmetric quality information and adverse selection: The Market for Lemons – Asymmetric information and signals – Asymmetric information and moral hazard - Theory of auctions - Types of auctions – Price determination by types of auctions

Reading list

Boadway, Robin W. and Bruce, Neil. (1984). Welfare Economics. Basic Blackwell (London).

Deaton, Angus and JognMuellbauer. (1980). Economics and Consumer Behaviour, Cambridge University Press (Cambridge). .

Cornes, Richard., and Sandler, Todd. (1986). The Theory of Externalities, Public Goods, and Club Goods, Cambridge University Press (London).

Henderson, J.M. and R. E. Quandt. (1980). Microeconomic Theory: A Mathematical Approach, McGraw Hill (New York).

Hicks, J.R. (1972). Value and Capital, Oxford University Press (Oxford).

Kreps, David M. (1990). A Course in Microeconomic Theory, Princeton University Press (New Jersey).

Kreps, David M. (2013). Microeconomic Foundations: Choice and Competitive Markets. Princeton University Press (New Jersey).

Mukherjee, Anjan. (1990). Walrasian and Non-WalrasianEquilibria: An Introduction to General Equilibrium Analysis, Clarendon Press (Oxford).

Perloff, Jeffrey M. (2001). Microeconomics. Pearson Education Asia (Delhi).

Sen, A. (1999). Microeconomics – Theory and Applications, Oxford University Press (Delhi).

Shone, Ronald. (1997). Economic Dynamics, Cambridge University Press (Cambridge).

Starr, Ross M., (1997). General Equilibrium Theory: An Introduction, Cambridge University Press (Cambridge).

Varian, Hal R. (1992). Microeconomic Analysis, 3rd edition, Norton & Company (London)

Credits: 4
Total hours: 60

Objectives

- Teach the advanced macroeconomic theory comprising models and theories in open macroeconomics, new classical revolution and models, new Keynesian models and theory of growth.
- Highlight macroeconomic theory from Classical, Neoclassical, Keynesian, New Classical and Counter Keynesian revolution perspectives.
- Develop skills on model building and solving measurement issues.
- Contextualize the relevance of the macroeconomic theory in economic policy.

Teaching modules

Module 1: Open Macroeconomic Models (10 hours)

Features of an open macro economy: Trade, capital mobility and exchange rates– Fixed and flexible exchange rates - Balance of payments: Current and capital account – Open economy and IS-LM framework – Trade and IS curve - Capital mobility and LM curve - Mundell-Fleming Model with perfect capital mobility under fixed and flexible exchange rates; Monetary expansion and exchange rates; Beggar-Thy Neighbour policy and competitive depreciation

Module 2: New Classical Revolution

Introduction (1 hour)

Nature and scope of New Classical Revolution in macroeconomics – Difference between New Classical Revolution and Keynesian approach to aggregate supply and demand analyses

Rational Expectations Model (*10 hours*)

Nature and scope of Rational Expectations – Early contributions: John Muth, Thomas Sargent, Neil Wallace and Robert Barro - Robert E.Lucas model – A simple aggregate supply-demand model with exogenous expectations: Forecasting and Lucas critique – A perfect foresight model with endogenous expectations – A rational expectations model – Equilibrium and forecast errors under rational expectations – Imperfect Information Model of Aggregate Supply Curve – Comparison of equilibrium price and output under different models

Random Walk Theory (5 *hours*)

Random Walk of macroeconomic variables – Trend or secular component and cyclical component of output changes – Detrending data and Stationary process – Random Walk Theory of GDP – Trends and shocks – Effects of shocks: Permanent and transitory – Concepts of trend stationary, difference stationary and trend stationary with breaks – Random Walk of Stock Prices

Real Business Cycle Theory (*5 hours*)

Nature and scope of real business cycle theory – Formulation of equilibrium real business cycle model – specification of parameters, calibrations and propagation mechanisms – Microeconomic foundations for macroeconomic real business cycle theory

Model 3: New Keynesian Models of Price Stickiness (9 hours)

Main features of New Keynesian counterrevolution – Unique differences between New Keynesian and New Classists approach to aggregate demand and supply analyses – Concept of sticky prices under imperfect competition - Mankiw's model of price stickiness

Module 4: Theory of Economic Growth (20 hours)

Concept, definition and measurement of economic growth - Nature and scope of growth theory: Aggregate and disaggregate; Static and dynamic; Equilibrium and disequilibrium

Approaches to growth theory: Keynesian (Kaldor), Structural macroeconomics (Lance Taylor) and Neoclassical

Harrod-Domar Model: Multiplier-accelerator and production function versions; Determinants of long run equilibrium growth of national income; Natural growth rate and warranted growth rate

Solow's model: Basic model: Neoclassical production function and its properties: Output per worker and capital-output ratio – Solution to the basic model: Long run determinants of capital-output ratio and output per worker – Equilibrium growth – Steady state – Transitional dynamics – Covergence debate: Absolute and conditional convergence; Speed of covergence - Technical progress - Golden Rule of Capital Accumulation – Growth Accounting – Solow's residual and total factor productivity

Endogenous growth model: Source of endogenous growth – Need for sources of endogenous growth – Types of endogenous growth models – AK Model of endogenous growth – Comparison between Solow's model and AK Model of endogenous growth in terms of determinants of growth.

Reading list

Allen, RGD. (1968). Macroeconomic Theory: A Mathematical Treatment. McMillan (New York)

Branson, William H. (1983). Macroeconomic Theory and Policy. Harper & Row (London).

Barro, Robert J., and Sala-I-Martin, Xavier. (1999). Economic Growth, The MIT Press (Mass).

Barro, Robert, J. (1997). Macroeconomics, MIT Press (Mass).

Dornbusch, Rudiger., Fischer, Stanley., and Startz, Richard. (2004). Macroeconomics. Tata McGraw Hill (New Delhi).

Goyal, Ashima. (2017). Macroeconomics and Markets in Developing and Emerging Economies. Routledge (New York).

Mankiw, Gregory, N. (1997), Macroeconomics, Worth Publishers (New York).

Philippe Aghion and Steven Durlauf (eds). (2014).Handbook of Economic Growth, Volume 1A, North-Holland (Amsterdam).

Romer, David. (2006). Advanced Macroeconomics, McGraw Hill (New York).

Stiglitz, Joseph., and Walsh, Carl E. (2002). Principles of Macroeconomics, WW Norton and Company (New York).

Course: M.A. in Economics
Semester: II Semester
Title of paper: Statistical Methods in Economics
(Compulsory)

Credits: 4
Total hours: 60

Objectives

- Teach statistical methods in economics by applications of descriptive statistics, sampling and statistics, classical statistical inference and Bayesian methods.
- Develop computational skills by solving numerical problems and by using actual data.
- Contextualize the statistical applications in empirical economics by using statistical packages.
- Provide statistical foundations for study of econometrics

Teaching modules

Module 1: Introduction (2 lectures)

Nature and scope of statistics in economics – Economic statistics and computational statistics – Statistical methods and econometrics - Types of variables: Univariate and multivariate; random and non-random; continuous and discrete – Types of data: cross section, time series and panel data; sample survey and census data.

Module 2: Descriptive statistics (6 hours)

Objectives of data descriptions – Graphical methods - Measures of central tendency (mean, median and mode) – Measures of dispersion (range, standard deviation, variance, coefficient of variation, interquartile range, mean deviation, skewness and kurtosis) – Measures of linear association between variables (covariance; simple, partial and multiple correlation coefficient; rank correlation coefficient)

Module 3: Probability and random variables (12 hours)

Concept of probability – Theorems on probability – Conditional probability and its theorems – Random variable: Continuous and discrete - Probability distribution of random variables: Mean, variance, covariance and correlation coefficient of random variables – Joint distribution of random variables and independence of random variables- Conditional distribution of random variables - Select probability density and distribution functions of discrete random variables: Binomial and Poisson distributions – Select probability density and distribution functions of continuous random variables: Normal, Bivariate Normal, Uniform, Chi-square, Student's t, and F distributions – Central Limit Theorem

Module 4: Sampling theory (10 hours)

Concept of population and sample **–** Population parameters and sample statistics **–** Statistical inference **-** Definition of sampling - Sampling with and without replacement – Random and non-random sampling- Types of random sampling: Simple, systematic and stratified - Sampling distributions of mean and variance – Sampling from normally and non-normally distributed populations– Standard error of sample statistics - Frequency distributions: relative frequency distributions and empirical probability distributions

Module 5: Theory of estimation and tests of hypotheses (15 hours)

Statistical estimation: Estimate, estimator and estimation– Biased and unbiased estimator – Point estimate and interval estimates – Confidence intervals - Confidence interval for means and variances in small and large samples

Statistical hypotheses - Null and alternative hypotheses – Type I and Type II errors – Power of a test - Tests of hypotheses and significance — Level of significance - Tests based on sampling from Normal distribution – One-tailed and two-tailed tests – Tests for sampling distribution of means and variances in small and large samples

Module 6: Techniques of multivariate analysis (15 hours)

Nature of multivariate data in economics –Organisation of multivariate data using matrix methods – Techniques of multivariate analysis – (a) Discriminant analysis: Two groups analysis; Fisher's Discriminant Function; Mahalanobis's D^2; Significance testing: Hotelling's R^2 statistic – (b) Canonical correlation analysis: Calculation of correlation matrix; Stewart and Love's Redundancy Measure. (c) Factor analysis and Principal Component Analysis: Components from correlation matrix; Components scores and loadings; Bartiett's Sphericity Test; Factor rotation. (d) Cluster analysis.

Reading list

Agresti, Alan., and Finlay, Babara. (2014). Statistical Methods for Social Sciences. Pearson Education Limitted (Essex).

Larsen, Richard J., and Morris L. Marx. (2001). *An Introduction to Mathematical Statistics and its Applications*. Prentice Hall (New Jersey).

Mood, Alexander M., Graybill, Franklin., and Boes, Duane C. (1974). Introduction to the Theory of Statistics. McGraw Hill International Book Company (New Delhi).

Green, Paul E. (1978). Analyzing Multivariate Data. Dryden Press (Michigan).

**Course: M.A. in Economics
Semester: II Semester
Title of paper: Agricultural Economics
(Soft Core/Elective)**

Credits: 4
Total hours: 60

Objectives

- To analyse the role and importance of agriculture in the growth and development; theories of agricultural growth and development; empirical models of labour productivity and total factor productivity in agriculture; and determination of agricultural prices
- To explain the changes in agriculture sector in global economy with special reference to WTO

Module 1: Nature and scope of agricultural economics (10 Hours)

Definition and scope of agricultural economics - Need for special techniques of economic analysis to deal with unique problems of agricultural economy - Seasonality, perishability and heterogeneity of output – Role of agriculture in economic growth and development - Structural changes and agriculture – Changes in share of agricultural employment and GDP, Organisation of agricultural production – Role of Land, Labour, Capital and entrepreneurship – Farm Management concept and its significance in modern farming.

Module 2: Theory of agricultural growth and development (16 Hours)

Transformation of traditional agriculture – Contribution of Mellor, Dale Jorgenson and Schultz. Models of agricultural location - Backward bending supply curve and Cobweb model – Malthusian and Boserup theories - Inter-sectoral growth models and agriculture – Dual economy models - Fei-Ranis, Arthur Lewis - Leontief's input-ouput model and agriculture: Backward and forward linkages – Construction of Index of Agricultural Production

Module 3: Yield and productivity in agriculture (12 Hours)

Measures of agricultural yield – Productivity: Wages and labour productivity and total factor productivity- Relationship between farm size, yield and productivity - Empirical models of labour productivity and total factor productivity in agriculture

Module 4: Determination of agricultural prices (10 Hours)

Cost of production or input-based approach - Wholesale and retail prices – Risk and uncertainty in agricultural output and prices: Types and measures of instability in agriculture – Need and instruments of price stabilization: Minimum Support Prices and procurements and Buffer Stocks

Module 5: Agriculture and global economy (12 Hours)

Share of agricultural products in global trade – Terms of trade of agriculture products – Competitiveness of agricultural exports - WTO and agriculture; Agreement on Agriculture, issues of subsidies-trade distorting and nontrade distorting subsidies – Globalization of agricultural trade

Reading list

Subba Reddy, Raghuram, Neelakanta Sastry and Bhavani Devi, Agricultural Economics, Oxford & IBH, New Delhi, 2010

Sadhu and Singh, Fundamentals of Agricultural Economics, Himalaya Publishing House, Mumbai, 2017

Bishop and Toussaint, Introduction to Agricultural Economic analysis, John Wiley &Sons, 1958

Goodwin, Charles, Agricultural Economics, Reston, Va. : Reston Pub. Co., 1982

Singh, I.J., Elements of Farm Management Economics, East-West Press Pvt. Ltd, New Delhi. Acharya and Agarwal, Agricultural Marketing in India, Oxford & IBH, New Delhi, 1988

Joseph A McMohan., Melaku Geboye Desta., Research Hand Book on the WTO Agreement on Agriculture: New and Emerging Issues, Edgar Elgar, 2012

R.K. Lekhi & Joginder Singh. Agricultural Economics An Indian Perspective, Kalyani Publishers, 2015

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Course: M.A. in Economics
Semester: II Semester
Title of paper: Urban Economics
(Soft Core/Elective)

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Credits: 4
Total hours: 60

Objectives

- To equip with theory and measurement of urban economic growth and development, spatial structure of cities and urbanization.
- To familiarize the current policy issues and programmes on urban economic growth, development and urbanization in India.

Module-I: Introduction (10 hours)

Definition and Scope of Urban Economics - Emergence and Growth of Cities, Sources of Urban Growth – Demographic sources: Natural Increase, Net migration, International migration, Trends in growth of urban population in the world- Geographical sources: Urban reclassification and physical expansion of urban boundaries – Economic sources: Cluster of people and activities -Urbanization and agglomeration economies, industrialization, services sector growth – Estimation of urban GDP- Urbanization and urban economic growth – Urbanization and globalization

Module-II: Economics of Urbanization (10 hours)
The Process of urbanization: Nature and dimensions, factors initiating and perpetuating urbanization process-Characteristics of an economy passing through different stages of urbanization - Classification of urban areas by demographic, geographical and economic criteria- Process of sub-urbanization

Module-III: Theories of Urban Growth (10 hours)
Christaller's Central Place Theory - Urban Economic Base and Urban Growth - The Human Ecological Approach to Urban Growth - City Size and Urban Growth – Linear and Circular cities - Urban Size: Ratchet-Rank Size Rule - The Cost and Benefits of City Size - Optimum City Size – Migration and urban economic growth: Harris-Todoro Model – Urban externalities and growth.

Module-IV: Theories of Urban Spatial Structure (10 hours)
Urban Spatial Structure: Features - Concepts of City Structure - The Minimization of Costs of Friction Hypothesis -Location Equilibrium of an Urban Firm - Retail Establishments - Market Areas - Consumers and Residents - The Concentric Zone Hypothesis - Urban Residential Land Use Models: Alonso, Muth, Siegel, Park Burgess.

Module V Urbanization and Labour Market (8 hours)
Urbanisation and Labour Market Pull and Push Factors for Urbanisation in India, High Wages, Improved Infrastructure, Employment Opportunities, Educational facilities, Growth of formal and Informal economic activities, Labour Force Participation and Distribution of Workers, Street Children and Street Vendors.

Module-VI: Urban Problems and Urban Planning (12 hours)

Over Population and congestion; Urban housing problem and increase in slums; Urban transport and peak load pricing; Urban environment: Air, Water and Noise Pollution; Urban poverty and inequality; Urban Infrastructure: Water Supply, Sanitation and Solid waste management.

Introduction to urban public sector – Composition of urban public sector – Urban local bodies - Sources of revenue and pattern of expenditure of urban local bodies.

Need for Urban Planning: Objectives and Techniques, Review of Existing Methods and Practices - Emerging Planning Process - Strategies and Issues – Comprehensive Development Plan – Master Plan – Jawaharlal Nehru National Urban Renewal Mission - Smart Cities
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Reading List

1. Bidyut Mohanty (1993) *Urbanization in Developing Countries Basic Services and Community Participation*, Institute of Social Science, Concept Publishing House
2. Briance A and Ravinder Singh, (edited) (1995) *Housing the Urban Poor, Policy and Practice in Developing Countries*, Sage Publications (New Delhi).
3. Edwin S. Mills. (1987). *Handbook on Regional and Urban Economics, Volume 2: Urban Economics*. North-Holland (Amsterdam).
4. Fred Durr (1971), *The Urban Economy.* London, Index Educational Publishers (London)
5. Harris E. Hondon (1973), *Introduction to Urban Economic Analysis and Policy* Appleton-Century-Crofts (New York)
6. Harry W Richardson (1972), *Urban Economics, Penguin Group (New York).*
7. Hirsch W.E. (1973), *Urban Economic Analysis,* McGraw-Hill Book Company (New York).
8. J Vernon Henderson. (1985). *Economic Theory and Cities*. Academic Press (New York).
9. V. Henderson J.F. Thisse. (2004). *Handbook on Regional and Urban Economics, Volume 4: Cities and Geography*. North-Holland (Amsterdam).
10. James Heilbrun (1974), *Urban Economics and Public Policy,* St Martin's Press (New York).
11. Lloyd Rodwin and Associates (1969). *Planning Urban Growth and Regional Development*, MIT Press (Mass).
12. Mark Garrett, (1996), *Transportation Planning,* Sage Publications (New Delhi)
13. Michael P. Todaro and Stephen C. Smith. (2015). *Economic Development*. Pearson (New Delhi). Chapter 7: Urbanisation and Rural-Urban Migration.
14. O' Sullivan (2012), *Urban Economics,* McGraw Hill Higher Education (Boston).
15. Paul Cheshire and Edwin S. Mills. (1999). *Handbook on Regional and Urban Economics, Volume 3: Applied Urban Economics.* North-Holland (Amsterdam).
16. Robert L Bish and Hugh O Nourse (1975), *Urban Economics and Policy Analysis,* McGraw Hill Kogakusha Ltd (Tokyo).
17. Shukla, V. (1996) *Urbanization and Economic Growth*, Himalaya Publishers Pvt. Ltd (New Delhi).