MAHAJANA EDUCATION SOCIETY ®

SBRR Mahajana First Grade College (Autonomous)

Affiliated to University of Mysore

Re-Accredited by NAAC with 'A' Grade, College with Potential for Excellence

Post Graduate Wing

PoojaBhagavathMahajana Education Centre

KRS Road, Metagalli, Mysore- 570016, Karnataka

DEPARTMENT OF STUDIES IN

ECONOMICS

STRUCTUE AND SYLLABUS

JULY 2019

MINIMUM CREDITS REQUIRED FOR MA ECONOMICS COURSE

Semesters	HARD CORE		SOFT CORE		SPECIAL ELECTIVE		TOTAL	
	Numbers	Credits	Numbers	Credits	Numbers	Credits	Numbers	Credits
I	04	15	01	0 3	01	03	06	21
II	04	14	01	03	01	03	06	20
III	03	10	02	06	01	03	06	19
IV	03	11	01+01*	03+03	01	03	06	20
TOTAL	**14**	**50**	**6**	**18**	**04**	**12**	**24**	**80**

*Special Course (SC): Project Work

FIRST SEMESTER **Foundations of Economics**

Sl. No	Title	W/L per week In hrs	Hard Core/ Soft Core/ Special Elective	Number of Credits			
				L	T	P	Total
1	**HARD CORE** Advanced Microeconomics	05	HC-01	3	1	0	4
2	Advanced Macroeconomics	05	HC-02	3	1	0	4
3	Mathematics for Economics	05	HC-03	3	1	0	4
4	Econometrics-1	04	HC-04	3	1	0	3
5	**SOFT CORE 1** Advanced Indian Economy	04	SC-01	2	1	0	3
6	**Special Elective1** Infrastructure Economics	04	SC-02	3	1	0	3
	Total	**27/35**					**21**

SECOND SEMESTER Core Economics I

Sl. No.	Title	W/L per week In Hrs	Hard Core/ Soft Core/ Open Elective	Number of Credits			
				L	T	P	Total
1	**HARD CORE** Economics for Development and Growth	05	HC-05	3	1	0	4
2	Statistics for Economics	05	HC-06	3	1	0	3
3	International Business	05	HC-07	3	1	0	4
4	Econometrics-II	04	HC-08	3	1	0	3
5	**SOFT CORE 2** Computer Applications for Economics	1Hours Theory + Work load of Two Practicals /Week (Each Batch has 10 students and the duration of each practicals is 2 hours)	SC-03	1	0	2	3
6	**Special Elective 2** Energy Economics	04	SE-02	2	1	0	3
	Total	**27/41**					**20**

THIRD SEMESTER: Core Economics II

Sl. No.	Title	W/L per week In Hrs	Hard Core/ Soft Core/ Open Elective	Number of Credits			
				L	T	P	Total
1	**HARD CORE** Public Economics	05	HC-09	3	1	0	4
2	Econometrics-III	05	HC-10	3	1	0	3
3	Research Methodology and Data Analysis	04	HC-11	3	1	0	3
4	**SOFT CORE 3** NanoEconomics	04	SC-04	3	1	0	3
5	**SOFT CORE 4** Natural Resource economics	04	SC-05	3	0	0	3
6	**Special Elective 3** Spatial Economics - Urban Economics	04	SE-03	3	1	0	3
	Total	26/35					**19**

Table 6 : FOURTH SEMESTER: Specialized Economics

Sl. No.	Title	W/L per week in Hrs	Hard Core/ Soft Core/ special Elective/special course	Number of Credits			
				L	T	P	Total
1	**HARD CORE** Welfare Economics	05	HC-11	4	1	0	4
2.	Econometrics-1V	04	HC-12	3	1	0	3
3.	International Finance & Monetary System	05	HC-13	3	1	0	4
4.	**SPECIAL COURSE** Minor Project Work*	As per regulations	SC-01	0	0	3	3
5.	**SOFT CORE 5** Indian Financial Institutions and Markets	04	SC-05	1	0	2	3
6.	**Special Elective 4** Urban Data Analytics	04	SE-04	2	1	0	3
	Total	21/25					**20**

***Work load for Project Work guidance is 2 hours per batch of 8 students per week**

I Semester

Foundations of Economics

CBCS M A Economics I Year
First Semester
Advanced Microeconomics

HC-01: Hard Core Paper-01 **Credit -4**

Course Objectives:

1. To develop analytical skills as applied in modern economics
2. To understand new principles and models in microeconomics and be able to critically appraise these models
3. To have the ability to critically evaluate empirical tests of theoretical models

MODULE 1: Theory of Demand and Consumer Behavior
Recent Developments in the Theory of Demand – Linear Expenditure System - Behaviour under the Conditions of Uncertainty and Risk -The Revealed Preference Hypothesis – The theory of uncertainty and risk- The theory of marginal preference-Lancaster's Theory

MODULE - 2: Production and Cost Analysis.
Empirical Production Function – Statistical Estimation of Production Function – Technology and International Competition - Economies of Scale and Economies of Scope – Learning Curves – Nature of Costs- short run cost function, long run cost curves- Economies of scale and economies of scope- Empirical Estimation of Cost Functions

MODULE - 3: Price and Output Determination under Different Markets
Perfect Competition- Monopoly- Monopolistic Competition: Product Differentiation – Resource Allocation and Utilization under Monopolistic Competition – Selling Cost. Oligopoly: Cournot Model – The Edgeworth Model – Chamberlin Model – The Kinked Demand Curve Model – The Centralized and Market Sharing Cartel Model – Price Leadership – Collusive Oligopoly – Oligopoly and Price Rigidity

MODULE -4: A Critique of the Neo - Classical Theory of Firm
The Marginalist Controversy – A Critique of Average-Cost Pricing – Baumol's Sales and Revenue Maximization Model – Williamsons' Model of Managerial Discretion – Morris's Model of Managerial Enterprise – Full Cost Pricing Rule – Bain's Limit Pricing Theory and its Recent Developments – Sylos – Labini's Model – Behavioural Model of The Firm – Game Theoretic Model.

Self-Study Component:

The Law of Demand- Elasticity of Demand –Demand Schedule -Supply Schedule- Equilibrium Supply and Demand.
Historical Development of the Consumer Theory - cardinal versus ordinal Utility theory.

Production Theory - Production Function with One Variable Input and Two Variable Inputs – Returns to Scale-nature and types of costs-theory of firm

Equilibrium of the firm and the industry- Characteristic features of Perfect competition, Monopoly, Monopolistic competition-Price and output determination under different market conditions

Reference Books:

1. Koutsoyiannis (1997), Modern Microeconomics, Macmillan, London.
2. Dominick Salvator, (2002) Theory and Problems of Microeconomic Theory, Schaum's Outline Series, McGraw-Hill Book Company, Singapore.
3. Pindyck Robert S., and Daniel L. Rubinfeld, (2006), Microeconomics, Pearson Prentice Hall, New Jersey.
4. Ahuja H.L. (2002) Advanced Economic Theory, S. Chand and Company, New

CBCS M A Economics I Year
First Semester
Advanced Macroeconomics

HC-02: Hard Core Paper-01 **Credit -4**

Course Objectives:

1. To provide as thorough a grounding as can be provided in a single semester to the models and tools macroeconomists use;
2. To teach developing positive models in order to understand the dynamics of key macroeconomic variables such as output, employment, unemployment, inflation, interest rates, etc.;
3. To understand the normative prescriptions for macroeconomic policymaking, in particular regarding the proper setting of fiscal and monetary policies

MODULE- 1: National Income Accounting

Key Macroeconomic variables 7 Functional relationship between them - Measurement of National Income and Macro Performance – National Income Accounts- Accounting Concepts & Identities measuring the cost of Living – GNP and Quality of life- Importance of National Income Analysis- Green Accounting.

MODULE 2: Equilibrium Models
Classical approach – Full employment equilibrium – Policy implications and critical evaluation – Keynesian Approach – Effective Demand – Consumption Function: Debate and Evidences – Investment Function- Equilibrium Income and output – Relevance and critique of Keynesian Policies

MODULE- 3: Disequilibrium Models
Time horizon – Fluctuations – Nominal and Real Rigidities and Fluctuations – Business cycle Theories – Fluctuations in the open Economy- the sticky wage Model – Sticky price Model – Imperfect Information- Inflation (Theoretical expositions) – Unemployment – Philips curve – Policy implications – Dynamic Disequilibrium: Explaining Fluctuations with the IS – LM Model.

MODULE 4.: Open Economy Macroeconomics
Meaning – Concepts – Identities – Mundell Fleming Model – Balance of Payments and Exchange Rate Regimes – Simultaneous Equilibrium- Automatic Adjustment and Adjustment Policies – Policy implications and critique.– Interest –rate & exchange rate interdependence

Module 5 Neo-classical models
Emergence of New Classical Macroeconomics: Rational Expectations Analysis - Policy Conclusions and Implications - Supply-Side Economics - Theoretical Propositions and Implications - Keynesian Counter Critique.

Self-Study Components

1. Central Themes of Macroeconomics
2. Functional relationships & Identities

3. Methods of National Income Estimation
4. Trends in India's National Income
5. Problems in the estimation of India's National Income
6. Says Law of Markets. OTM, Pigouvian Theory, Real Theory of Interest.
7. Determinants of the PC and Investment
8. MEC & its determinants
9. Investment Multiplier, Accelerator
10. Alternative theories of consumption behavior.
11. Causes & Consequences of economic fluctuations
12. Theories of inflation.

References:

1. Froyen Richard T. *Macroeconomics-Theories and Policies,* Macmillan Pub., Company, NY.
2. Mankiw N. Gregory, *Macroeconomics,* Worth Publishers, New York.
3. Shapiro Edward (2004**) Macroeconomic Analysis**, Galgotia Publications Pvt Ltd, New Delhi.
4. Rudiger Dornbusch, Stanley Fisher and Richard Startz, **Macroeconomics**, Tata Mc graw-Hill Publishing Co.Ltd, New Delhi 2004.

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CBCS M A Economics I Year
First Semester

Mathematics for Economics

HC-03 Hard Core Paper-03 **Credit- 4**

Objectives:

1. To impart knowledge about the concepts and tools of mathematics
2. To make students apply these in building models

Module 1 Applications of Mathematics in Economics

Relationship between mathematics and Economics – Limitations for its applicability. Number system – Natural Numbers – Fractions – Imaginary Numbers – Rational and Irrational Numbers – Real and Complex number – Number scale. Set Theory

Module 2 Functions

Linear and Non-Linear Functions- Graphical Representation of Linear and Non-linear functions-Applications of Linear and Non-linear functions in Economics-Market Equilibrium – Effects of Tax and Subsidy in Market Equilibrium – Product Transformation Curves – Pareto's law of income distribution.

Module 3 Elementary Matrix Algebra

Basic Concepts - Types of Matrix - Matrix Operations - Transpose - Inverse Matrix - Determinants: Meaning, Properties, Rank of Matrix, Minor, Co-factor.
Functions of Several Variables - Cramer's Rule and its Applications in Economics.

Module 4 Calculus

Concepts of limits and continuity – Differentiation of a function using first principle – Rules of differentiation of algebraic functions – Application of differentiation in economics – Maxima and Minima : Elasticity of demand – Elasticity of supply – Cross elasticity – Revenue maximization and cost minimization
Homogenous Equation- Integration – Definite and Indefinite Integration – Consumers' and Producers' Surplus.

Module 5 Applications to Economic Analysis

Consumers Behavior: Elasticity of Demand, Relationship between Price Elasticity and TR, AR and MR, Consumers' Equilibrium and Utility Maximization Firm's Behaviour: Production Function - Cost Function - Revenue Function - Equilibrium of Firm and its Profit Maximization - Homogenous Function - Cobb-Douglas Production Function - CES Production Function - Euler's Theorem - Monopoly and Joint Production -Duopoly, Monopolistic Competition and Oligopoly. Integral Calculus: Techniques of Integration - Definite and Indefinite Integration. Applications to Economic Analysis: Consumer's Surplus - Producer's Surplus. Introduction to Frontier Analysis: Technical Efficiency - Technological Change and Total Productivity - Multi-Market Equilibrium.

Self-study

Applicability of mathematical and statistical tools to other disciplines - Inductive and Deductive reasoning - Axiom system - Logic meaning of necessary and sufficient conditions -Sets and relations - number system - Algebra –Function and limits -linear and nonlinear functions, exponential function - logarithmic function.-Analytical Geometry - Simultaneous equation and solutions for two variables.
Differentiation and Integration – Derivative, rules of differentiation, functions of several variables, partial derivatives, total derivative.

Reference

1. Allen, R.G.D (2002) Mathematics for Economics, Prentice – Hall of India Private Limited, New Delhi.
2. Bose D. (2003) an Introduction of Mathematical Economics, Himalaya Publishing House, Mumbai.
3. Monga G.S. (2002) Mathematics and Statistics for Economics, Vikas Publishing House, New Delhi.
4. Veerachami R (2002) Quantitative Methods for Economists, New Age International Publication, New Delhi.
5. Yamane Taro (2002) Mathematics for Economists – An Elementary Survey, Prentice – Hall of India Private Limited, New Delhi.

CBCS M A Economics I Year
First Semester
Econometrics-1

HC-04 Hardcore paper-04 **Credits -3**

Objectives:

1. To impart knowledge about the concepts and mathematical and statistical tools in building econometric models
2. To enable students to apply these in models for estimation and forecasting

MODULE 1: The Nature and Scope of Econometrics

Definition of Econometrics –Need for the study Econometrics - The Methodology of Econometrics – Creating a statement or Theory or Hypothesis – Collecting Data – Specifying the Mathematical Model Specifying the Statistical or Econometric Model – Checking for model adequacy and Model specification – Testing: Testing the hypothesis derived from the model – Using the Model for Prediction or Forecasting.

MODULE 2: A Review of Basic Statistical Concepts

The Summation Notation – Properties of the Summation Operator – Experiment: Sample space, sample point and Events – Random Variables – Probability – Probability of an Event: The Classical or A Priori Definition – Relative Frequency or Empirical definition of Probability of Random Variables – Random Variables and Probability Distribution Function – PDF of a Continuous Random Variable – Cumulative Distribution function – Multivariate probability Density Function – Conditional Probability Density Function – Statistical Independence – Characteristics of Probability Distributions – Expected value

MODULE 3 : Some Important Probability Distributions

The Normal Distribution-Properties of the Normal Distribution – The Standard Normal Distribution-Random Sampling from a Normal Population-Bootstrap Sampling – The Sampling or probability Distribution of the Sample Mean - The Central Limit Theorem – The Chi-Square (□2) Distribution – Properties of the Chi-Square Distribution – The 'F' Distribution – Properties of the F Distribution – The 'F' Distribution – Properties of the F Distribution – Relationship among the
t , F and χ^2 and the Normal Distributions.

MODULE 4: Linear Regression Model

The Meaning of Regression: Basic ideas of linear Regression: the two – variable Model – the Meaning of Regression – The Population Regression Function (PDF) – Stochastic Specification of the Population Regression Function (PDF) – the nature of the stochastic error term – the sample Regression. Function (SRF) –Meaning of the term Linear Regression – Linearity in the Variables – Linearity in the Parameters – two variables Versus Multiple Linear Regression – Estimation of parameters : The Method of Ordinary Least Squares (OLS) – A Numerical Example and Interpretation of the Estimated Function for Widgets

Reference:

1. Kmenta Elements of Econometrics
2. Koutsuyannis "Econometrics".
3. Damodar Gujarathi Fundamentals of Econometrics
4. Damodar Gujarathi, Don C Porter and Sangeetha Gunashekar, Basic Econometrics, Tata McGraw Hill Education Pvt. Ltd, 2012
5. Christopher Doughetry , Introduction to Econometrics, Fourth Edition, Oxford University Press,2011.
6. Jeffrey M Wooldradge, Econometrics, Cengage Learning, 2009
7. Dilip .M. Nachane , , Econometrics, , Oxford University Press,2011

CBCS M A Economics I Year
First Semester
Advanced Indian Economy

SC-01Soft Core -01 **Credits -3**

Objectives:
1. To familiarize the students with the issues of Indian Economy
2. To enable them get perspective on issues related to Indian Economy

MODULE-1 : Factors determining Growth, productivity and development.
Natural resources - Human resources / indices - Infrastructure – Institutional changes- Structural transformation - National Income Accounting- Saving-Investment- Capital-put Ratios – Five Year Plans and Productivity Growth- Poverty and unemployment – Gender and development.

MODULE 2.: Development Experience, Policy, Strategies.
State v/s Market – Market failures -The ideology of planning- Development policy - Development strategies - Public and private sector – Disinvestment -The raise of corporate sector and Foreign capital - Redefining the role of state - Reforms – New Industrial policy – Advance Policy initiatives: NITI Ayog

MODULE 3: Finance, Trade, Money and Capital market.
Monetary policy - supply and demand for money and inflation - Money and Capital Markets - Role of R.B.I. and SEBI - Fiscal policy- Financial sector Reforms - Trade and exchange Rate policy - Reforms - Trends in International trade -.

MODULE 4: India in the World Economy - Neo-Classical counter Revolution-
Market Fundamentalism - Free markets - public choice - Market Friendly approach - Structural adjustment programme - Globalization –need- the process of Globalization its impact on India-Privatization Wave in the world and its Impact - Flow of FDI and International Financial Capital and its volatility - W.T.O. and its Impact - ODA and India - The role of Multilateral Financial Institutions.

Lessons for self-study
1.Agricultural policy - Agricultural growth under five year plans- strategies to develop agriculture-Capital formation - Green revolution - Price policy - food security and Public distribution system - agricultural finance- marketing – market infrastructure.

2. Industrial development. Changing industrial policy regimes. Public v/s private sector – industrial finance and labour relations – Role of MNCs in industrial development – Regional disparities- Role and problems of micro, small and medium industrial enterprises – I T Industry.

3. Service sector growth – changing trends and composition of service sector- Parallel economy - Centre State Financial Relations

Reference Books:

1. Ruddar Datt & K P M Sundaram (2010) – Indian Economy- S. Chand & co. Ltd New Delhi.
2. Mishra & Puri - Indian Economy- Himalaya Publication
3. Deepak Lal [1999] India in the world Economy, Oxford University press, New Delhi
4. Krueger [Ed] [2002] Economic Policy Reforms, Oxford University press New Delhi
5. Subramanianan S [ed] [2002]India's Development Experience, Oxford University press, New Delhi.
6. Uma Kapila(2003) Indian Economy since Independence, Academic Foundation, New Delhi.
7. I.C.Dhingra (2010) Indian Economy, Sulthan Chand & Son, Delhi.
   Dewett, Verma and Sharma (2009) Indian Economics.
8. A.N. Agarwal (2009), Indian Economy – Problems of Development and Planning, Vishwa Prakashan, New Delhi.
9. WDR (1997) "The state in a changing world" Oxford University press- Washington.D.C.
10 Dharm ghai (1993) Structural adjustment programme The social issues involved" Working paper United nations Institute for policy research Washington D.C.
11. Third international conference on globalization and development 2001 Havana

Reports:

1. Govt. of India, Ministry of Finance, Economic Surveys (of recent years)
2. The World Bank, World Development Report(of recent years)
3. The UNDP, Human Development Report (of recent years)
4. Govt. of India, Planning Commission, Drafts of 8^{th}, 9^{th}, 10^{th} and 11^{th} Five Year Plans
5. Govt. of India, Planning Commission, (2002) National Human Development Report
6. Indira -Gandhi Institute of Development Research(IGIDR), India Development Reports, Mumbai.
7. Todaro . M P . & S C Smith [2003] Economic Development - Pearson Education [Singapore] pvt. Ltd. Delhi- 92
8. C M I E reports on Indian Economy

CBCS M A Economics I Year
First Semester
Infrastructure Economics

SE-01 Special Elective -01 **Credits -3**

Objectives:

1. To provide the students with an essential idea on "Social Overhead Capital"
2. To enable them get perspective on issues related to Infrastructure Sector which is the fastest growing sectors of the modern economy

Module-1: Introduction

Infrastructure and Economic Development - Infrastructure as a Public Good - Social and Physical infrastructure - Special Characteristics of Infrastructural Facilities - Green Infrastructure Economies of Scale of Joint Supply - Marginal Cost Pricing versus Other Methods of Pricing in Public Utilities - Cross-Subsidization - Free Prices, Equity and Efficiency.

Module-2: Transport Economics

The Structure of Transport Costs and Location of Economic Activities - Demand for Transports - Modals of Freight and Passenger Demand - Modal Choice - Cost Functions in the Transport Sector, Principle of Pricing - Special Problems of individual Modals of Transport - Inter-Modal Condition in the Indian Situation - Urban and Metropolitan Transportation Planning.

Module-3: Communications

Structure of Telecommunication Sector - Price Determination - Principles of Decreasing Costs in Telephone Industry - Characteristics of Postal Services - Criteria for Fixation of Postal Rates - Measurement of Standards of Services in Telephone and Postal Utilities - Private Sector Participation in Telephones and Postal Utilities - Regulatory Framework and Institutions -TRAI.

Module-4: Water Supply Economics

Irrigation - Financing Water Utilities - Urban and Rural Water Supply - Pricing of Drinking Water Supply and Sanitation - investments - Public Sector and Community Collaboration.

MODULE 5: Issues in Infrastructure Financing and Management

FDI and Infrastructure Finance, Private Financing of Infrastructure- trends and opportunities- Risk analysis and Risk management- PPP, Models- Legal and Regulation Issues- Resource use Efficiency- Reforms in Management- Imperatives- Systems and Functions- Evaluation.

References: [Please refer to the Latest Editions]

1. World Development Report 1994, "Infrastructure for Development, , Oxford University Press, New York..
2. Parikh K.S. (Ed) India Development Reports, Oxford University Press, New Delhi.
3. Indian Council of Social Science Research (ICSSR) 1976, Economics of Infrastructure, vol. IV, New Delhi.
4. Paul Stevens (Ed) (2000) The Economics of Energy Vol I & II.
5. Sankar U (1992) Pricing in Public Sector: Theory and Applications, Indian Economic Association Trust for Research and Development, New Delhi.
6. Nosten H.S (1971) Modern Transport Economics, C.E. Merrill, London.

7. Kessides Christiue, “The Contributions of Infrastructure to Economic Development : A Review of Experience and Policy Implications, World Bank Discussion Paper 213, 1993.
10. India Infrastructure Report

II Semester

Core Economics I

CBCS M A Economics I Year
Second Semester
Economics of Growth and Development

HC-05 Hardcore paper-05 **Credits - 4**

Objectives:
1. To study the critical issues pertaining to various sectors and discuss the development policy initiatives.
2. To understand that the crucial importance of institutional factors in economic development has been taken care of by incorporating social, state and market forces in the context of development.
3. To evaluate the development prospects in the context of the development goals of the 21 st century

MODULE 1: Introduction to Development Economics
Concept of Development Economics- Evolution of Development Economics –Definitions & meaning of Economic development - Measuring Economic Development,– Goals of Economic Development - capability Approach to Development – Emerging Challenges in Development – Development Debate – Development vs Displacement – Development Ethics – Inclusive Development– Development as Freedom – Changing paradigms of Development Economics – Sustainable development – Institutions for Development, State & Market.

MODULE 2: Theoretical foundation of Development Economics & their policy Implications
Development theory concept – classical model, assumptions & features of classical approach to growth – Distinct features of prominent classical Economics & their policy implications – Neo-Classical model, assumptions & features – Distinct features of prominent neo-classical economics & its policy implications – Modern approach to development (human capital approach), assumptions & features – Lucas, Romer, Becker - Distinct features of prominent Human Resource Development economists and their policy implications.

MODULE 3: Growth, Poverty & distributive Justice
Growth Controversy – Growth & Distributive Justice - Inequalities in Growth & Development – Measuring income distribution, Lorenz curve, Gini Co-efficient & functional distribution of income – Redefining Development Goals in terms of growth with improved income distribution- Poverty concept, measurement, salient features of poverty in LDCs – Poverty alleviation measures– Development distance between nations, measurement & trends – Measures to reduce development distance between Nations.

MODULE 4: Sectoral Development in LDCs
Leading issues & policy imperatives, Agricultural growth – Major issues & policy approach , Industrial Development – Essentials & policy approach, Trade & Economic Growth - Challenges & issues - Service Sector Growth– Trends & issues

References: [Please refer to the Latest Editions]

1. Thirlwall A.P, (2000) **Growth & Development**, 6th Edition , Wesr press pvt. Ltd. New Delhi
2. Todaro M.P & Smith (2007), **Economic Development in the 3th World**, Orient & Longman, London.
3. Ray Debraj (1998), **Development Economics**. Princeton university press New Jersey
4. Meier M Gerald, (2004), **Leading Issues in Economic Deveoplment**, oxford New York.
5. Higgins Benjamin (1999) **Economic Development – Theory Principles & History** , W.W Norton, New York.
6. Srivastava O.S (1996) **Economics of Growth, Development & Planning** , Vikas publication, new Delhi .
7. G.M Meier & josephs E. Stiglitz (2002), **Frontiers of Development Economics**, Oxford University press, New York.
8. Rajanikanth ( ), **Paradigm of Development Economics.**
9. Stuart R. Lynn(2003), **Economic Development – Theory & Practice for a divided World**, Printice hall, New jersy.
10. Robert J. Barro & Xavier Sale I Martin ( ) , **Economics Growth,** McGraw Hill, New York

CBCS M A Economics I Year
Second Semester
Statistics for Economics

HC-06 Hardcore paper-05 **Credits - 3**

Objectives:
1. To impart knowledge about the concepts and statistical tools for economic analysis.
2. To make students apply these for estimation and forecasting

Module-1: Introduction to Statistics
Types of Data - Nominal, Ordinal & Ratio-Scale Data, Qualitative and Quantitative Data, Individual, Discrete and Continuous Data - Cross Section, Time Series and Pooled Data - Sources of Data - Population and Samples - Descriptive Statistics and Inferential Statistics.

Module-2: Measures of Average and Dispersion
Measurement of Average - Arithmetic Mean, Weighted Arithmetic Mean, Geometric Mean, Harmonic Mean, Median, Quartile, Percentiles, and Mode. Measures of Variability - Range, Inter-quartile Range, Quartile Deviation, Percentiles Deviation - Mean Deviation, Standard Deviation, and Coefficient Variation.

Module-3: Probability and Distribution
Probability Theory - Concepts and Approaches to Estimate Probability - Probability Distribution Functions - Theoretical Distribution: Normal, t, Chi-Square & F Distribution.

Module-4: Theory of Estimation and Hypothesis Testing
Concept of Estimator - Sampling Distribution of Estimator - Point and Interval Estimation - Properties of Good Estimator for Small and Large Samples. Hypothesis Testing: Approaches to Hypothesis Testing - Confidence Interval Approach -Test of Significance Approach and P-Value Approach- Formulation of Hypothesis - Null and Alternative - Level of Significance - One Sided and Two Sided Hypothesis - Type-I and Type-II Error - Test Statistic- Critical Value - Parametric and Non-Parametric Tests.

Module-5: Correlation and Regression
Correlation: Meaning and Types of Correlation - Measurement of Correlation - Scatter Diagram - Karl Pearson's Coefficient of Correlation - Spearman's Rank Correlation - Testing of Correlation Coefficients. Regression: Simple Regression Model - Estimation - Least Squares Method - Goodness of Fit - Introduction to Multiple Regression.

Module-5: Time Series Analysis

Nature and Decomposition of Time Series - Analysis of Trend - Polynomial Trend - Moving Average Method, Exponential Smoothening, Least-Square Method, Seasonal Component - Forecasts and their Accuracy - Root Mean Square Error.

Module-6: Index Numbers

Nature and Purpose of Index Numbers - Types of Index Numbers: Price Index - Retail Price Index - Quantity Index, Link and Chain Index - Simple and Aggregate Index Numbers: Laspeyre's Index, Paasche's Index, Marshall and Edgeworth's Index - Fisher's Index - Time Reversal and Factor Reversal Tests - Deflation and Splicing of Index Numbers - Problems of Construction of Index Numbers - Limitation of Index Numbers.

Practical Component:

Graphical Presentation of Data: Tabular and Graphical Methods - Relative Frequency and Percentage - Frequency Distribution - Bar Graphs, Line Graph, Pie Charts, Histogram, Cumulative Distribution and Ogives.

References: [Please refer to the Latest Editions]

1. Anderson, Sweeney & Williams, Statistics for Business & Economics, Thomson South-Western, Bangalore.
2. Gupta S P. Statistical Methods, S. Chand and Company, New Delhi.
3. Veerachami R. Quantitative Methods for Economists, New Age International Publication, New Delhi.
4. Yamane Toro, Statistics - An Introductory Analysis, Harper and Row Publishers, New York.

CBCS M A Economics I Year
Second Semester
International Business

HC-07 Hardcore paper-07 **Credits – 4**

Objectives

1. To demonstrates how international business variables affect the trade process.
2. To highlight the realities of international business; some of its advantages and its problems that come when business is conducted on the international stage
3. To study the impact of regulations on international business and how strategies are developed and how foreign legislation is considered.

Module-1: Global and National Business Environment
Global Business Environment: Globalization - Forces Driving Globalization - Untangling the Globalization Debate: Impact on Labour, Environmental Regulation, Income Inequality, National Sovereignty and influence on Cultures - Key Players in International Business: Multinational Corporations, Entrepreneurs and Small Businesses - Global Business Environment.
National Business Environments: Cross-Culture Business - Components and Classifications.

Module-2: Politics and Law in Business
Political Systems - Political Risks - Legal Systems - Global Legal and Ethical Issues - Economic System and Development: Economic Systems: Centrally Planned Economy, Mixed Economy, Market Economy - Development of Nations - Human Development - Economic Transition.

Module-3: International Trade
Overview of International Trade - Benefits, Volume, Composition, Direction and Trends - Theories of International Trade: Mercantilism, Absolute Advantage, Comparative Advantage, Factor Proportions Theory, International Product Life Cycle, New Trade Theory - National Competitive Advantage. Political, Economic and Cultural Motives behind Government Intervention - Methods of Promoting and Restricting Trade - Global Trading System: General Agreement on Tariffs and Trade (GATT) and World Trade Organization (WTO).

Module-4: Foreign Direct Investment
Patterns of Foreign Direct Investment - Explanations for Foreign Direct Investment - Management Issues in FDI Decisions - Government Intervention in FDI - Government Policy Instruments and FDI - Composition, Direction and Trends in FDI.

Module-5: Regional Economic Integration
Meaning of Regional Economic Integration - Effects of Regional Economic Integration - Integration in Europe: European Union - Integration in Americas: North American Free Trade Agreement (NAFTA) Latin American Integration Association (ALADI) Southern Common Market (MERCOSUR) Free Trade Area of the Americas (FTAA) and Transatlantic Economic Partnership (TEP) - Integration in Asia: Association of Southeast Asian Nations (ASEAN) Asia Pacific Economic Cooperation(APEC) - Integration in Middle East: Gulf Cooperation Council (GCC) - Integration in Africa: Economic Community of West African States (ECOWAS).

Module-6: International Business Management

International Strategy - International Organizational Structure - International Opportunities: Screening International Opportunities - Conducting International Research - Selecting and Managing Entry Modes: Contractual, Investment Entry and Strategic Factors - Developing and Marketing Products Managing International Operations - Hiring and Managing Employees.

References: [Please refer to the Latest Editions]

1. Hill Charles W.L., (2013) International Business-Competing in the Global Marketplace, McGraw Hill Irwin, New York, USA.
2. Wild John J, Kenneth L Wild and Jerry C.Y. Han, (2007) International Business: The Challenges of Globalization, Pearson Prentice Hall. New Jersey.

CBCS M A Economics I Year
Second Semester
Econometrics-II

HC-08 Hardcore paper-08 **Credits – 3**

Objectives:

1. To impart knowledge about the building two variable and multi variable regression Models
2. To make students trained in parameter estimation using OLSE

MODULE 1: The Classical Linear Regression Model

Variances and standard Errors of ordinary least squares (OLS) Estimators – Variances and standard Errors– why ordinary least squares? (OLS) –Assumptions of OLS estimators - Properties of OLS Estimators – Monte Carlo Experiment – the Sampling Or Probability Distributions of OLS Estimators – Hypothesis Testing – Testing H_0: $B_2 = 0$ Verses $H_1 : B_2 \neq 0$: The Confident Interval Approach – The test of Significance Approach to Hypothesis Testing — the χ^2 test of significance –: the Coefficient of Determination r^2 – Formulas to Compute r^2,– The Coefficient of Correlation (r) - Reporting the Results of Regression Analysis – Normality Tests – histograms of Residuals – Normal Probability Plot

MODULE 2 : Multiple Regressions

The three – Variable Linear Regression Model – The meaning of partial Regression Coefficient – Assumption of Multiple Linear Regression Model – Estimation of parameters of Multiple Regression – Ordinary Least squares (OLS) Estimators – Variances and Standard Errors of OLS Estimators – Properties of OLS Estimators of Multiple Regression - an illustrative example – Regression Results – Interpretation of Regression Results – Goodness of fit of Estimated Multiple Regression: Multiple Coefficient of Determination, R^2 – Hypothesis Testing in a Multiple Regression :– Testing of Hypotheses about Individual Partial Regression Coefficients – The test of Significance Approach – The Confidence Interval Approach to Hypothesis Testing – Testing the joint Hypothesis that $\beta_2 = \beta_3 = 0$ or $r^2 = 0$ – Important Relationship between F and R^2, two-Variable Regression in the Context of Multiple Regression: Introduction to specification bias – Comparing two R^2 values: the adjusted R^2 – When to add an additional explanatory Variable to the model – testing for structural Regression Model : the Chow test – Illustrative examples – Discussion of Regression Results

Module-3: Practical Problems of Regression

Multicollinearity: Nature - Causes -Consequences - Detection - Remedial Measures - Heteroscedasticity: Nature - Causes -Consequences - Detection - Remedial Measures - Auto-Correlation: Nature - Causes -Consequences - Detection - Remedial Measures.

MODULE 4: Functional Forms of Regression Models

How to Measure Elasticity: the Log linear Regression Model – Hypothesis testing in log-linear Models. Comparing linear and log-linear Regression models – Multiple log linear Regression models – How to measure the growth rate: the semi log model – Instantaneous Versus Compound Rate of Growth – Linear Trend Model – The Lin-Log Model -Reciprocal Models – Polynomial Regression Models.

MODULE 5: MODEL SELECTION

Criteria: The Attributes of a Good model –types of specification errors – omitting a relevant variable – under fitting a model – inclusion of irrelevant variables: over fitting a model – incorrect functional form – detecting specification errors – tests of specification errors – detecting the presence of unnecessary variables – tests for omitted variables ,incorrect functional forms .

References: [Please refer to the Latest Editions]

1. Gujarathi Damodar; Fundamentals of Econometrics
2. Kmenta Elements of Econometrics
3. Koutsuyannis "Econometrics".
4. Damodar Gujarathi Fundamentals of Econometrics
5. Damodar Gujarathi, Don C Porter and Sangeetha Gunashekar, Basic Econometrics, Tata McGraw Hill Education Pvt. Ltd, 2012
6. Christopher Doughetry , Introduction to Econometrics, Fourth Edition, Oxford University Press,2011.
7. Jeffrey M Wooldradge, Econometrics, Cengage Learning, 2009
8. Dilip .M. Nachane , , Econometrics, , Oxford University Press,2011

CBCS M A Economics I Year
Second Semester
Computer Applications for Economics

SC-02 Soft core paper-02 **Credits – 3**

Objectives

1. To familiarize student with aspect of Computer Applications to Economics
2. To develop skills to design and implement Tally and SPSS software for financial accounting and research in economics

MODULE-1 Introduction to computers

Credits: 1

History of computers, Generations, Evolution of Computers, Hardware, Software, firmware, Assembler, Compiler and Interpreters, Types of computers, Computer applications-Business, Scientific, Types of Computer. Basic components of a computer: Input devices, Output devices, Memory devices: Primary memory and Secondary. Program, software – system software, application software, Machine, Assembly language and High Level languages, translator: compiler, interpreter, assembler

MODULE-2 **SPSS**
Credi
ts: 1

Introduction to Groups, Ledger Creation, Stock Groups and Items, Vouchers- Receipts and Payments, Contra, Journal, Sales and Purchase Vouchers, Finalization of accounts using accounting software- Preparation of Trial Balance and Final Accounts. Starting an SPSS Session, SPSS main Menus-Creating a New Dataset-Using an Existing Dataset-Importing and Exporting Data. Basic Concepts-Measures of Central Tendency and Dispersion-Mean Median, Mode, Variance, Standard deviation-Measures of Variability-Percentile, Quartile and Inter quartile range-Skewness and Kurtosis-Using SPSS-Descriptive Statistics-Frequencies Tables.

Practical
Credits: 1
Part A

1. Creating a merge document containing invitation for a college function to be sent to invitees through a created address book.
2. Create salary slip using a spread sheet.
3. Create student's details of a class with register number, name, subjects, IA marks and sort it in ascending order using a spread sheet and generate different types of relevant graphs.
4. Create slides for a topic of your choice with animations using any presentation software.
5. Draw company creation screen along with your company information.
6. Create different groups and ledger
7. By using some imaginary figures prepare p/l a/c (Profit and Loss Account) , b/s(Balance Sheet) and Trial Balance in your company name

Part-B
Credit: 1

1. Solve all statistical methods using SPSS
2. Build charts, scatter plots, and box plots
3. Calculate descriptive statistics such as means and standard deviations
4. Use inferential statistics such as t-tests and chi-squares
5. Enter and read data
6. Create new variables and cross tabulations
7. Model associations with correlations, contingency tables, and multiple-regression analysis
8. Format and export presentations to share your data

References: [Please refer to the Latest Editions]

1. Microsoft Office 2000 complete, BPB publications, New Delhi-110001
2. Rajashekara K.S. and Vani, 'Computer Application and Basic', Shiva publication, Mysore(2002)
3. V.Rajaraman, 'Fundamentals of Computers, Second Edition', Prentice Hall of India, Pvt. Ltd, New Delhi110 001, 1998.
4. Shinha PK, 'Computer Fundamentals' BPB publications
5. ICAR & D Team Tally 7.2, A practical Hands on Self Study Approach, Vikas Publications ,New-Delhi-2006
6. Discovering Statistics using SPSS -III Edition ,Author: Andy Field
7. SPSS Guide to data Analysis ,Author : Marija Norusis
8. SPSS for Dummies - II Edition ,Author: Arthur Griffith.

CBCS M A Economics I Year
Second Semester
Energy Economics

SE-02 Special Elective 02 **Credits – 3**

Objectives

1. To apply general principles of standard economic theory into the study of energy sector in a modern economy.
2. To understand and assess the significance of the sector, production, supply, demand and pricing determinants.

Module-1: An Overview of Energy Concepts and Energy sub-sectors
Concepts - Definitions - Sources and Categories of Energy - Energy Balance Tables - Energy Data Sources - Energy System - Energy - Economy Linkages - Green Energy -Forms of Energy - Electricity, Coal, Oil and Renewable Sources - Availability and Features - Management of Energy Resources - Energy and Environmental Sustainability.

Module-2: Energy Supply and Demand Analysis
Energy Supply Analysis: Availability and Supply of Different Sources of Energy - Supply Constraints - Role of Renewable Sources of Energy - Institutional Framework for Energy Supply in India - Supply Scenario and Investment Requirements - Alternative Energy Sources - Energy Imports - Trends and Issues - Policies of the Government.

Energy Demand Analysis: Determinants of Energy Demand - Estimating Energy Demand - Methods of Estimation - Price and Income Elasticity - Demand Estimation under Administered Price Regimes - Demand - Supply Gap - Energy Shortage and Crisis - Need for Energy Demand Management - Renewable Energy Options.

Module-3: Energy Pricing
Need - Methods and Principles of Energy Pricing - Economic Efficiency and Equity Considerations - Pricing Under Supply Constrained Framework - Energy Markets - Regulation - Issues and Challenges.

Module-4: Energy Efficiency and Conservation
Need - Principles and Methods - Energy Supply Side and Demand Side Management and Efficiency - Institutional Machinery and Community Engagement - Estimation of Benefits - Energy Audit - Policy Alternatives.

Module-5: Energy Planning and Policy
Approaches to Energy Planning - Principles and Components - Implementation Machinery - Decentaralised Approach to Energy Planning - Planning for Energy Security - Integrated Energy Policy - Issues and Challenges.
Alternative Energy Sources: Wind Energy - Solar Energy - Bio Mass Power - Waste-to-Power Small Hydro Power - Availability and Utilization - Government Policies.

References: [Please refer to the Latest Editions]

1. Kneese, A. V. and Sweeny, J L, Handbook of Natural Resource and Energy Economics. North Holland.
2. Munasinghe M & Meier P, Energy Policy Analysis and Modeling, Cambridge University Press, U K.
3. Paul Stevens (ed), The Economics of Energy Vol -I and Vol -II Edward Elgar.
4. Sankar U., Public Sector Pricing: Theory and Applications, Indian Economic Association Trust for Research and

III Semester

Core Economics II

CBCS M A Economics II Year
Third Semester
Public Economics -Theory and Policy

HC-09 Hardcore paper-09 **Credits – 4**

Objectives

1. To impart a thorough understanding of the role and functions of the government in a modern economy.
2. To understand the functions of the government in today's world which are different from those of earlier societies.

Module-1: Overview of the Public Sector
Economics of Public Sector: The Field of Public Finance - Private and Public Interests: Individual Rights versus Social Responsibility - Adam Smith's Role of Government - Musgrave's Economic Role of Government. Principle of Maximum Social Advantage: Musgrave's Views on Principle of Maximum Social Advantage -Fundamental Theorems of Welfare Economics.

Public Goods and the Need for Government: Public and Private Goods - Rivalry and Exclusion. Allocation of Public and Private Goods - Efficiency in Public Goods Provision - A Game Theoretical Motivation for Government - Market Failure and Potential Roles for Government - Modes of State Intervention.

Module-3: Social Choice in a Democratic Society
Collective Decision Making: Individual Preferences and Collective Decision Making - Optimal and Sub-optimal Inter-Sectoral Allocation - The Societal Production Possibility Curve - Alternative Public Sector Allocation Instruments - Problem of Revealing Preferences and their Aggregation - Reconciliation of Conflicting Preferences - Representative Democracy - The Theory of Second Best.

Module-4: Public Expenditure
Theories of Public Expenditure - Structure and Growth of Public Expenditure - Budgeting in the Public Sector: Forecasting, Cost-Benefit Analysis and Debt Management - Public Education - Infrastructure, Capital Spending, and Public Sector Borrowing - Welfare, Social Security, and the Social Safety Net - Health Care - Control and Accountability - Expenditure Evaluation - Reforms in Expenditure Budgeting - Zero Base Budgeting.

Module-5: Sources of Public Revenue
Meaning and Significance - Sources of Public Revenue: Taxes, Commercial Revenues and Administrative Revenues.
Taxation: Theories of Taxation - Structure and Principles of Taxation: Efficiency and Equity Issues - Benefit and Ability to Pay Approaches - Theory of Optional Taxation: Ramsey Rule - Trade off between Equity and Efficiency -Tax Policy Analysis.

Classification: Taxes on Income, Corporate Income Tax - Sales and Excise Taxes - Property Taxes - Wealth Tax - Fees and Charges as a Revenue Source - Intergovernmental Grants in Theory and Practice.

Efficiency and Equity Effects of Taxes and Subsidies: Defining the Tax Base - Excess Burdens of Taxes and Subsidies - The Incidence of Taxes - Equity Concepts.- Optimal Taxation - Incentive Effect of Taxation: Taxation and Saving/Borrowing - Tax Evasion.

Module-6: Government Budgets, Borrowing, Deficit Financing and Fiscal Policy
Government Accounting, Budgets and Budget Processes - Determinants of the Size of Federal Deficit - Government Debt: Sources and Burden of Public Debt: Theories - Principles of Debt Management and Repayment - Deficit Financing of the Government.
Fiscal Policy: Objectives - Fiscal Policy and Price Stability - Full Employment, Economic Growth and Equity Interdependence between Fiscal and Monetary Policies - Fiscal Policy for Stabilization - Automatic versus Discretionary Stabilization.

Text Books: [Please refer to the Latest Editions]

1. Anderson John E, Public Finance Principles and Policy, Houghton Mifflin Company, Boston, USA.
2. Hyman David N, Public Finance - A Contemporary Application of Theory to Policy, Thomson SouthWestern, Ohio, USA.
3. Ulbrich Holley, Public Finance - In Theory and Practice, Thomson South-Western, Ohio, United States of America.

References: [Please refer to the Latest Editions]

1. Buchanan J.M, The Public Finance, Richard D. Irwin, Homewood.
2. Musgrave R.A and P.A. Musgrave Public Finance in Theory and Practice, McGraw-Hill Kogakusha, Tokyo.
3. Stiglitz J.E, Economics of Public Sector, Norton, New York.
4. Tyagi B.P, Public Finance, Jaiprakashnath and Company, Meerut, India.

CBCS M A Economics II Year
Third Semester
Econometrics-III

HC-10 Hardcore paper-10 Credits – 3

Objectives

1. To expose the students to the advanced concepts of econometrics.
2. To develop a meaningful interface between theory and application - the emphasis being more on empirical analysis rather than theoretical rigor.

Module 1: Dummy Variable and Dynamic Regression Models

Dummy Variable Model: Meaning - Nature - Dummy Variable Trap - Dummy Variable Model with Single Qualitative Variable - Two Qualitative Variables - Dummy Variable Model with Mixture of Qualitative and Quantitative Variables.
Autoregressive and Dynamic Models: Role of Lag in Economics - Estimation Methods: Koyck's: Adaptive Adjustment and Partial Expectation Models - Almon Approach to Distributed Lag Models.

Module 2 Simultaneous Equation Models
Nature - Simultaneous Equation Bias - Identification: Under - Exact - Over Identification - Rules of Identification - Order and Rank Condition of Identification - Estimation of Simultaneous Equations Models: ILS, 2SLS, 3SLS, LIMLE, FIMLE.

Module 3 Qualitative Dependent Variable Models
Nature of Qualitative Variables - Linear Probability Model - Logit Model - Probit Model - Tobit Model for Grouped and Ungrouped Data - Their Application in Economics.

Module 4 Panel Data Models
Need for Panel Data - Estimation - Fixed Effects Method - All Coefficient Constant across Time and Individuals - Slope Coefficients Constant but Intercept Varies across Individuals - Slope Coefficients Constant but Intercept Varies Over Individuals as Well as Time - All Coefficients Vary across Individuals - Random Effects Method - Fixed Effects v/s Random Effects Model - Hausman Test - Their Application in Economics.

References: [Please refer to the Latest Editions]

1. Damodar Guajarati: Basic Econometrics McGraw Hill, International Student Edition, 1995.
2. Theory of Econometrics (Second Edition) by A Koutsoyiannis (2001) Palgrane Publication.
3. An Introduction to Applied Econometrics A Time Series Approach by Kerry Patterson Macmillan Press Ltd., London.
4. Introduction Econometrics with Application by Ramu Ramanathan, Thomson – South Western, Fifteenth Edition, Bangalore 2002.
5. Business Statistics by Sonia Taylor Palgave Publisher 2001.
6. Gujarathi Damodar; Fundamentals of Econometrics

CBCS M A Economics II Year
Third Semester
Research Methodology and Data Analysis

HC-11 Hardcore paper-11 Credits – 3

Objectives:

1. To familiarize students with concepts and techniques of research methodology
2. To enable students to do a research / consultancy project

MODULE 1: Introduction

Research: Meaning and Characteristics- Objectives –Research in Social Sciences–Types of Research: –Experimental Research and Non-Experimental Research- Pure and Applied Research —Survey – Case Study – Field Study-— Review of Literature

MODULE 2: Research Plan-Sampling Design

Steps in Research- Research Plan- Scaling and Measurement- Attitude Measurement- Sampling Techniques –Sample Design and Choice of Sampling Techniques – Selection of Sample Size. Identification of Research problem- Hypothesis Testing.

MODULE 3: Methods of Data Collection and Data Analysis

Primary and Secondary sources–Observation, Interview– Construction of Schedule and Questionnaire- Data processing- Editing, Classification, transcription, Coding and tabulation- Data Analysis- Univariate and multivariate data analysis - Estimation of mean and variance – test of single sample mean. two independent means test- testing for means of paired data – test of single sample variance – two sample variance test – non-parametric tests.

MODULE 4: Interpretation and Report Writing

Types of Reports – Research Report- Format – Interpretations of Results - Research Findings and Suggested Recommendations - Limitations of the Study - Documentation- References – Footnotes and Bibliography – Writing the Report – Presentation.

Self- study

Types of Sample Design: Probability Sampling Techniques - Non-Probability Sampling Techniques - Errors in Sampling.

Testing for the Equality of 'K' Population Means - Assumptions for Analysis of Variance - Between Treatments Estimate of Population Variance - Within Treatments Estimate of Population Variance - Comparing the Variance of Estimates - The F Test - Multiple Comparison Procedures.

References: [Please refer to the Latest Editions]

1. Krishnamurthy O.R. (2002) Research Methodology in Social Science, Himalaya Publishing House, Bombay.
2. Kothari, 2004, Research Methodology, Himalaya Publishing House, Bombay.
3. Kurian C.T. (1984) Research Methodologies in Economics, Institute of Development Studies, Madras.
4. ICFAI Centre for Management Research,"Business Research Method", Hyderabad-500 034

CBCS M A Economics II Year
Third Semester
Nano-economics

SC-03 Soft Core paper-03 **Credits – 3**

Objectives:

1. To familiarize students with concepts of Nanotechnology and its impact on nanoeconomic activities
2. To enable students to map the emerging nanomarket and nanoeconomic

MODULE-1 Introduction

Nanotechnology - Mile stone in the development of Nanotechnology–Four Generations- Nanoscale Visualization and Measurement- Molecular Nanotechnology for mass production- Nano particles and Nanomaterials – Increasing nanoeconomic activities- - the need for Nanoeconomics.

MODULE 2 Molecular Nanotechnology and Second Industrial Revolution

Molecular nanotechnology-– Bottom up Approach -Impact of Nanotechnology on production function-The Growth of Nanofactories -Nanoproducts portfolio- Second industrial revolution.

MODULE 3 The Emerging Nanomarket and Nanoeconomy

The System of Abundance- - Nanomarket: Flow of nanoproducts and the Emerging nanomarket and Nanoeconomy.

MODULE- 4:Some Issues of Nanotechnology

Economic, Ethical and Societal Issues of Nanotechnology- Nano-Community and the need for dissemination of knowledge.

References: [Please refer to the Latest Editions]

1. Wright, C.D., Science and Economics. Science, 1904. 20(522)
2. Sample, I., Technology: Fastest supercomputer in the world proves one in a million billion. The Guardian, UK., 2008.
3. Sala-i-Martin, X., Fifteen Years OF New Growth Economics: What Have We Learned? Economic Growth: Sources, Trends, and Cycles, 2002
4. Nanotechnology &Society,**Editor»Allhoff, Fritz (et al.)**
5. **Nanotech: good or bad?Nick Pidgeon, Barbara Harthornand Terre Satterfield**discuss public attitudes towards nanotechnologies in the chemical engineer (**www.tcetoday.com),** issue 822/3, december 2009/january 2010.
6. Nanotechnology: Risk, Ethics and Law Edited by: Geoffrey Hunt and Michael Mehta
7. Discovering the Nanoscale Edited by: Davis Baird, Alfred Nordmann, and Joachim Schummer.
8. Our Molecular Future: How Nanotechnology, Robotics, Genetics, and Artificial Intelligence Will Transform Our World. Douglas Mulhall, March 2002. Read review

9. Nanosystems: Molecular Machinery, Manufacturing, and Computation. K. Eric Drexler 1992 reviews
10. The Investor's Guide to Nanotechnology and Micromachines. Glenn Fishbine January 2002
11. Nanotechnology: A Gentle Introduction to the Next Big Idea. Mark Ratner & Daniel Ratner. November 2002 Read reviews
12. The Global Technology Revolution: Bio/Nano/Materials Trends and Their Synergies with Information Technology by 2015

CBCS M A Economics II Year
Third Semester
Natural Resource Economics

SC-04 Soft Core-04 **Credits – 3**

Objectives

1. To give a good understanding of both theoretical and practical aspects of natural resources availability and utilization which is necessary for sustainable policy formulation**.**
2. To discusses and analyse resources availability, its use and misuse in India.

Module-1: Introduction to Natural Resources Economics
Introduction - Concept - Importance of Resource Economics - Decision Making Over Time: Discounting - Types and Classification Natural Resources - Malthusian Approach - Stationary State of the Classical Economists - Club of Rome Approach - Scarcity of Natural Resources - Measuring Resource Scarcity: Unit Cost Measure, Real Prices, and Economic Rent.

Module-2: Economics of Exhaustible Resources
Resource Taxonomy - Efficient Inter temporal Allocations - The Two-Period Model Revisited - The *N*-Period Constant-Cost Case - Transition to a Renewable Substitute - Increasing Marginal Extraction Cost - Exploration and Technological Progress - *Historical Example of Technological Progress in the Iron Ore Industry* - Market Allocations of Depletable Resources - Appropriate Property Rights Structures - Environmental Costs - Harold Hotelling Theory of Exhaustible Resources - Petroleum Conservation in Theory and Practice

Module-3: Economics of Renewable Resources
Biological Mechanics - Bionomic Equilibrium - Harvesting under Open Sources - Socially Optimal Harvests under Private Property Rights - Regulation of Harvesting - Sole Ownership - Forests - The Economics of Forest Harvesting - Extending the Basic Model - Water as resource- The Potential for Water Scarcity - The Efficient Allocation of Scarce Water - Surface Water - Groundwater - Water Transfers and Water Markets - Examples - Water Market Assessment: Australia - Water Prices - Water Pricing in Canada

Module-4: Recyclable Resources: Minerals, Paper, Bottles, and E-Waste
Introduction- An Efficient Allocation of Recyclable Resources - Extraction and Disposal Cost - Recycling: A Closer Look - Recycling and Ore Depletion - Factors Mitigating Resource Scarcity -
Exploration and Discovery - *Lead Recycling* - Technological Progress - Substitution - Market Imperfections - Disposal Cost and Efficiency - The Disposal Decision - Disposal Costs and the Scrap Market - Subsidies on Raw Materials - Corrective Public Policies - Markets for Recycled Materials - E-Waste - Pollution Damage

Module-5: Natural Resources Accounting
Natural Resources Accounting - Environmentalists' Criticism of National Accounts - Integrating National Accounting with Environmental Concerns - Valuation of Natural

Resources - A Comparison between the System of National Accounts and the System of Integrated Environmental and Economic Accounting (SEEA).

Module-6: Resource Availability: Use and Misuse in India

Land Use and Land Degradation, Water Pollution - Energy Resources - Livestock Resources - Forest Resources and Deforestation - Fisheries and Aquatic Resources - Mineral Resources.

References: [Please refer to the Latest Editions]

1. Bernet H.J and Morse C, *Scarcity and Growth, the Economics of Natural Resource Activity,* John Hopkins, Baltimore.
2. Conard J.M and Clark C.W., *Natural Resource Economics: Notes and Problems,* Oxford University Press, Oxford.
3. Institute, *World Resources,* Annual Publications.
4. John M Kerr, *Natural Resource Economics,* Oxford and IBH, New Delhi.
5. Nalin K Shastree, *Environmental Resource Management,* Anmol Pub., Pvt, Ltd. New Delhi.
6. Perman, R., Ma, Y., McGillivray, J and Common, M., *Natural Resource and Environmental Economics*. 3rd edition, Pearson Education Limited, Edinburgh Gate.
7. Randall Alan, *Resource Economics,* Grid Publishing, Columbus, Ohio.
8. Tietenberg, T. and L. Lewis., *Environmental & Natural Resource Economics,* Pearson Education

CBCS M A Economics II Year
Third Semester

Spatial Economics –Urban Economics

SE-03 Special Elective -03 **Credits – 3**

Objectives

1. To understand the functional role that the Cities which play an important role in the hierarchy of human settlement of different size and classes
2. To analyze the various economic issues pertaining to urbanization and other aspects associated with it.

Module-1: Introduction

Definition and Scope of Urban Economics - An Overview of the Emergence and Growth of Cities - Globalization and Urbanization -Urban Centers as the Engine of Economic Growth.

Module-2: Economics of Urbanization

The Process of Urbanization: Nature and Dimensions - Factors Initiating and Perpetuating - The Urbanization Process-Characteristics of an Economy Passing through Different Stages of Urbanization - Clusters and Agglomeration - Sub-urbanization.

Module-3: Theories of Urban Growth

Christaller's Central Place Theory - Urban Economic Base and Urban Growth - The Human Ecological Approach to Urban Growth - City Size and Urban Growth - Urban Size: Ratchet-Rank Size Rule - The Cost and Benefits of City Size - Optimum City Size.

Module-4: Theories of Urban Spatial Structure

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: Von Thunen, Alonso, Muth, Siegel, Park Burgess Etc.,

Module-5: Urban Public Economy

Urban Local Administration - Role and Functions - The Developmental Role of Urban Local Bodies - Local Public Finance and Fiscal Problems - Methods of Financing - Urban Government Expenditure.

Module-6: Urban Problems and Urban Planning

Urban Housing Problem and Slum Upgradation - Urban Transport - Urban Environment - Urban Poverty and Unemployment - Urban Infrastructure Management - Water Supply and Sanitation - Need for Urban Planning: Objectives and Techniques - Existing Methods and Practices - Emerging Planning Process - Strategies and Issues.

References: [Please refer to the Latest Editions]

1. Harry W Richardson, *Urban Economics,* The Dryden Press, Italians.
2. Hirsch W.E., *Urban Economic Analysis,* McGraw-Hill Book Company, New York.
3. James Heilbruch, *Urban Economics and Public Policy,* St Martic's Press, New York.

4. O' Sullivan, *Urban Economics*, McGraw Hill Higher Education, Boston.
5. Robert L Bish and Hugh O Nourse, *Urban Economics and Policy Analysis*, McGraw Hill Kogakusha Ltd. Tokyo.

IV Semester

Specialized Economics

CBCS M A Economics II Year
Fourth Semester
Welfare Economics
Applied Welfare Economics and Public Policy

HC-12 Hardcore paper-12 Credits – 4

Objectives

1. To equip students with a "language" with which they may critically evaluate the public policy
2. To study various market failures as a justification for public action, and analyze how government policies can improve market outcomes.
3. To evaluate Cost-benefit analysis of public projects and policy evaluation analysis as instruments of evidence-based policy making.

Module 1 Pre-Paretian Welfare Economics

Benthamite Approach to Aggregate Welfare; Optimum Resource Allocation and Welfare Maximization, Assumption of Uniform Income – Utility function of Individuals; Question of Income Distribution; Issue of Interpersonal Comparisons of Utility; Marshallian Welfare Economics: Consumer's Surplus; Measurement of Consumer's Surplus – Difficulties involved, Criticism; Principles of compensating Variation; Hick's Four Consumer's surpluses; Concept of Consumer's Surplus; consumer's Surplus and Tax-Bounty Analysis.

Module 2 Paretian Welfare Economics

Pareto optimality – Optimum exchange conditions, The production optimum, The consumption optimum; Concept of contract curve; Top level optimum; Infinitenumber of non-comparable optima vs. unique social optimum; Compensation criteria– Contributions of Barone, Kaldor and Hicks; The Scitovsky double criterion;Concept of community indifference map, Samuelson's utility possibility curve; Valuejudgments and welfare economics; Bergson's social welfare function, Arrow'spossibility theorem.

Module-3 Externalities

Economics of Externalities: Categories and Examples - Externalities and the Absence of Markets - Public Goods as a Special Case of Externalities.

Negative Externalities: Analysis of Marginal Damages - Extent of the Damages - Pollution Abatement. Positive Externalities: Analysis of Marginal External Benefits.

Remedies for Externalities: A Private Solution: The Coase Theorem - Emissions Permit Trading - A Public Solution: Regulations and Controls - Pigouvian Taxes and Subsidies.

Module 4 Choice Theory

Theory of Public Choice and Policy implications of Public Choice Theory

Divergence between private and social costs; Problems of non-market interdependence; Externalities of production and consumption; External economies and diseconomies; Problem of public goods; Pigovian welfare economics; Second best optima; Marginal cost pricing; Cost-benefit analysis; Interdependent utilities; Attempts to develop dynamic welfare analysis.

– Sen's Contributions to Welfare Economics – Collective Choice and Social Welfare-Social Choice and Political decision Making.

Self study Component:

Interdependence in the Economy – Partial and General Equilibrium Analyses , ; Marshallian Welfare Economics: Consumer's Surplus; Measurement of Consumer's Surplus – Difficulties involved, Criticism;

References: [Please refer to the Latest Editions]

1. Arrow, K. J. (1951), Social choice and Individual Values, Yale University Press,New Haven.
2. Baumol, W. J. (1965), Welfare Economics and the Theory of the State (SecondEdition) Longmans, London.
3. Baumol, W. J. (Ed.) (2001), Welfare Economics, Edward Elgar Publishing Ltd. U.K.
4. Broadway, R. W. and N. Bruce (1984), Welfare Economics, Basil Blackwell,Oxford.
5. Duesenberry, J. S. 91949), Income, Saving and the Theory of consumer Behaviour, Harvard University Press, Cambridge, Mass
6. Feldman, A. M. (1980), Welfare Economics and Social Choice theory MartinusNijhoff, Boston.
7. Graaff J. de V. (1957), Theoretical Welfare Economics, Cambridge UniversityPress, Cambridge.
8. Little, I. M. D. 9139), A. Critique of Welfare Economics (2nd Edition), OxfordUniversity press, Oxford.
9. Marshall, A. (1946), Principles of Economics, Macmillan, London
10. Myint, H. (1948), Welfare Economics, Macmillan, London.
11. Nicholas, B. (Ed.) (2001), Economic Theory and the Welfare state, Edward ElgarPublishing Ltd., U. K.
12. Pigou, A. C. (1962), The Economics of Welfare (4th Edition) Macmillan.
13. Quirk, J. and R. Saposnik (1968), Introduction to General Equilibrium theory andWelfare Economics, McGraw Hill, New York.
14. Samuelson, P. A. (1947), Foundations of Economic Analysis, Harvard UniversityPress, Cambridge, Mass.

CBCS M A Economics II Year
Fourth Semester
Econometrics-1V
Applied Econometrics

HC-13 Hardcore paper-13 Credits – 3

Objectives

1. To teach advanced econometric methods, estimation methods and related econometric theories
2. To help students to apply these methods to data or econometric modeling techniques
3. To enable the students to interpret econometric estimates, analyze the results and critically evaluate published econometric research.

Module I Nonlinear Regression Models
Intrinsically linear and intrinsically nonlinear regression models -estimation of linear and nonlinear regression models -estimating nonlinear regression models: the trial-and-error method approaches to estimating nonlinear regression models direct search or trial-and-error or derivative-free method direct optimization iterative linearization method illustrative examples summary and conclusions exercises

Module II Time Series Econometrics Basic Concepts
Introduction - Stationary and Non-Stationary Series - Random Walk Model - Testing of Unit Root - Co-integration - Test for Co-integration - Engel-Granger Test - Johansen Test - Error Correction Model - - Their Application in Economics.

Module III Time series |Econometrics forecasting
Approaches to economic forecasting AR, MA, And ARIMA Modelling of time series data, the Box Jenkins Methodolgy Identification, Estimation of ARIMA model, Diagnostic checking, Forecasting, further aspects of BJ Methodology, Vector Autoregression Model(VAR), Measuring Volatality in financial Time Series: ARCH and GARCH models.

Module IV Empirical Demand, Production and Investment Analysis
Static Single Equations - Demand Analysis - Theoretical Foundations of Demand Analysis - Utility Theory - Tobin's Study- Static Multiple Equations - Production Function - Neoclassical Production Function - Cobb-Douglas Production Function - CES Production Function - Dynamic Single Equation Model - Investment Behaviour Models - Meyer and Kuh Model - Kuh Model

Econometric Applications in India
Econometric Applications in Indian Demand Analysis - Indian Agriculture - Indian Industry - International Trade.

Module V Maximum Likelihood Estimation (MLE)
Regression on Dummy Explanatory Variables: The Nature of Dummy Variables-Regression with one quantitative Variable and one qualitative Variable–Structural Stability of Regression Models: The Dummy Variable Approach – The use of Dummy variable in Seasonal analysis-Method of Maximum Likelihood Estimation.

References: [Please refer to the Latest Editions]

1. Introductory Econometries for Finance by Chris Brooks, Cambridege University Press – 2002.
2. An Introduction to Applied Econometries A Time Series Approach by Kerry Patterson Macmillan Press Ltd. London.
3. KL Krishna:P Indian Econometrics Models
4. Koutsoyiannis: Theory of Econometrics ch.17,18
5. Applied Econometries : by Meghand Desai, Mehra Hill Publication Company Ltd., 1997
6. Introduction Econometrics With Application by RamuRamanathan, Thomson – South-Western Fifteen Edition, Bangaloer-2002
7. Studenumund. A.H: Using Econometrics.ch 15.Gujarathi Damodar- Fundamentals of Econometric

CBCS M A Economics II Year
Fourth Semester
International Finance & Monetary System

HC-14 Hardcore paper-14 Credits – 4

Objectives

1. To provide a solid understanding of international finance within a complex capital markets context with an emphasizes the managerial perspective of finance for a multinational corporation (MNC).
2. To understand how based on macroeconomic and institutional foundations, advanced techniques and instruments for managing the foreign exchange exposure and risk of MNCs are developed.
3. To prepare and provide the students with the skills required for, international investment management, cross-border acquisitions, international capital budgeting, and multinational cash management and trade financing.

Module-1 International Finance and Resource Movements

International Money and Finance - Circular Flow of Income and Product - International Transactions and how they affect Balance of Payments (an example).

International Resource Movements and Multinational Corporations: International Capital Flows -

Motives and Effects of International Capital Flows - Multinational Corporations - Labour Migration - Motives and Effects of International Labour Migration.

Module-2 Foreign Exchange Markets

Functions of Foreign Exchange Markets - Exchange Rates and the Markets for Foreign Exchange -

Foreign Exchange Risks - Interest Arbitrage and the Efficient and Effective Exchange Rates - Composite Currencies: Special Drawing Rights and European Currency Unit - Foreign Exchange

Arbitrage - Demand and Supply of Currencies - Introduction to Foreign Exchange Rate Theories -

International Money Markets.

Exchange Rate Arrangements and Systems: Gold Standard - Bretton Woods System - Flexible

Exchange Rate System - Other Forms of Exchange Rate Arrangements Today - Fixed or Floating

Exchange Rates?

Module-3 International Financial Instruments, Markets and Institutions

Forward Currency Market and International Financial Arbitrage: Foreign Exchange Risk - Forward Exchange Market - International Financial Arbitrage - Uncovered Interest Parity - Eurocurrency Market.

Interest Yield, Interest Rate Risk, and Derivative Securities: Hedging, Speculation and Derivative

Securities and their Risk.

International Financial Market Integration: International Capital Markets - International Money

Markets - Vehicle Currencies - Capital Market Integration - International Banking and Payment

System.

Module-4 Central Banks, Exchange Rates, and Balance of Payments Determination

Role of the Central Banks: Managed Exchange Rates - Foreign Exchange Interventions - Do Interventions Accomplish Anything?

Traditional Approaches to Exchange-Rate and Balance of Payments Determination: Exports, Imports and the Demand for and Supply of Foreign Exchange - Elasticity Approach - Absorption

Approach - Monetary and Portfolio Approaches to Exchange Rate and Balance of Payment Determination.

Module-5 Open Economy Macroeconomics and Policy Analysis

An Open Economy Framework - Economic Policy with Fixed Exchange Rates - Economic Policy

with Floating Exchange Rates - Policy Co-ordination, Monetary Union and Target Zones - Monetary and Fiscal Policy under Fixed Exchange and Floating Exchange Rates.

Module-6: International Financial Market Integration

International Monetary System: Gold Standard and Inter-War Experience - Bretton Woods System

and its Operation, Evolution and its Collapse - Present International Monetary System - Economic

Policy and Status of the World Economy - Current International Economic Problems.

Text Books: [Please refer to the Latest Editions]

1. Daniels Joseph and David Van Hoose, (2012) *International Monetary and Financial Economics*, South-Western College Publishing, Cincinnati.
2. Melvin Michael, (2012) *International Money and Finance*, Addison Wesley Longman, Massachusetts.
3. Salvatore Dominick, (2009) *International Economics*, Macmillan Publishing Co., New York.

Additional References: [Please refer to the Latest Editions]

1. Francisco L River-Batiz and Luis River-Batiz, (2000)International Finance and Open Macro Economy,
2. Macmillan Publishing Company.
3. International Monetary Fund and World Bank, Annual Reports, Washington. D.C., USA.

CBCS M A Economics II Year
Fourth Semester
Indian Financial Institutions and Markets

SC-05 Soft Core -5 Credits – 3

Objectives

1. To study the financial markets and their regulation and to appreciate their key role in an economy,
2. To acquaint the students fully with the changing role of financial institutions in the process of growth and development

Module-1 Introduction to Money and Banking System

Introduction - Definition - Evolution of Money - Nature and Significance of Money - Kinds of Money - Demand and Supply of Money - Monetary Standards.

Banking System: Evolution of Modern Banking System - Types of Banking - Structure of Banking System. *Central Banking System*: Objectives - Functions.

Money Market: Importance - London Money Market - New York Money Market - Indian Money Market. Introduction - Functions - Money Market Instruments - Primary Market - Resource Mobilization - Mutual Funds. **Secondary Market**: Introduction - Stock Exchanges

Module-2 Financial and Banking System in India

Financial Systems in India: Introduction - Historical Background - Banking Prior to 1950 - Development of Banking since 1950 - An Overview of Money and Capital Markets - State Control over Banks - Nationalization of Banks - Banking Commission.

Reserve Bank of India: Introduction - Origin and Development - Structure and Management - Functions and Working - Instruments of Monetary Control - Role of Reserve Bank of India in the Economy - Objectives of Monetary Policy - RBI and Financial Sectors Reforms.

Module-3 Commercial Banks, Cooperative Banks, & Development Banking in India

Commercial Banks: Evolution - Nature of Commercial Banks - Role and Functions - Credit Creation - Bank Borrowings - Problem of Non-Performing Assets.

Cooperative Banks Introduction - Organization Structure and Development of Cooperatives - Role of RBI in Cooperative Banks - Reforms in Cooperative Credit.

Development Banking - National Bank for Agriculture and Rural Development (NABARD).184

Module-4 NBFIs, Insurance, Mutual Funds & Foreign Exchange Market in India

NBFIs: Significance - Structure and Growth of NBFIs in India - Financial Sector Reforms - Liberalization Measures (1996) - Size & Assets of NBFIs - Regulation of NBFIs and the RBI.

Insurance: Growth and Structure of Insurance Companies - Life Insurance Corporation and its Progress - General Insurance Companies and their Functions.

Mutual Funds: Introduction - Types - SEBIs Directives - Private Mutual Funds - Asset Management Company - Unit Trust of India - RBI Guidelines.

Foreign Exchange Market: Trading in Foreign Exchange Markets - Speculation - Foreign Exchange Rates - Liberalized Exchange Rate Management System:1992 - Capital Account Convertibility - Currency Arbitrage - Hedging with Options.

Module-5 Derivatives Market, Debt Market and Financial Services

Derivatives Market: Introduction - Forwards and Futures - Futures Trading Strategies - Options - Trading Strategies - Derivatives Market in India - Derivatives Trading in India.

Debt Market: Introduction - Private Corporate Debt Market - Public Sector Undertaking - Bond Market - Government Securities Market.

Financial Services: Investment Banking - Introduction, Functions, Types - Investment Banking Services - Merchant Banking Services - SEBI - Pre-Issue & Post-Issue Obligations - Changing Scenario of Investment Banking - Depositories and Custodians - Credit Rating.

Credit Rating Agencies in India: Factoring and Forfeiting - Housing Finance - Leasing and Hire Purchase.

References: [Please refer to the Latest Editions]

1. Desai Vasant, *Development Banking and Financial Intermediaries*, Himalaya Pub., House.
2. Khan, M. Y, *Indian Financial System*, Tata McGraw-Hill Education, New Delhi.
3. Machiraju H.R. *Indian Financial System*, Vikas Publishing House PVT Ltd., New Delhi.
4. Madaiah M, *Financial Intermediaries, Monetary Policy and Economic Development***,** Prasaranga, Mysore.
5. Mithani and Gordon, Banking *Theory and Practice***,** Himalaya Pub., House, Mumbai.
6. Nirmala Prasad and Chandradass J, *Banking and Financial System*, Himalaya Pub., House, Mumbai. Pathak, Bharati V. *The Indian Financial System: Markets, Institutions and Services*, Pearson Education India.
7. Reddy P. V. and H R Appannaiah, *Banking Theory and Practice*, Himalaya Pub., House, Mumbai.
8. Reserve Bank of India, *Trends and Progress of Banking in India* (latest edition), Mumbai.
9. Shekhar & Shekhar, *Banking Theory and Practice*, Vikas Publishing House, New Delhi.
10. Vasant Desai, *Indian Financial System*, Himalaya Publishing House,

CBCS M A Economics II Year
Fourth Semester
Urban data Analytics

SE 05 Soft Core -5 Credits – 3

Module 1 Introduction to Data Science for Planners

Introduction to Smart Cities - Data Fundamentals for Planners - Metadata: Understanding the Indian Census - Using Census Data - Introduction to Economic Data and the Longitudinal Household - Employment Data - Static Data Visualization - Neighborhood Data and Indicators

Practical:

Excel Basics - Formulas and Generating Charts- Accessing Census Data via Fact Finder - Accessing Census and Economic Data via Social Explorer - Accessing Local Employment - Household Dynamics Data

Module 2 Mapping the City

Spatial Data & GIS Fundamentals - Volunteered Geographic Information (VGI) - Introduction to Story Mapping - Participatory Mapping – Power ,Place and Mapping

Practical:

Story Mapping with Social Explorer

Module 3 Big Data and Smart Cities

Introduction to Big Data - Big Data and Ethics for Planners - Complex Urban Modeling Part I: Machine Learning

Module 4 Presenting Data

Defining Smart Cities in Theory and Practice - Smart Institutions & e-Governance - Civic Hacking and Equity - Inclusive Smart City

Practical

Accessing and Using Open Data Portals and Big Data

References

1. Townsend, Anthony M. 2013. Smart Cities: Big Data, Civic Hackers, and the Quest for a New Utopia. W. W. Norton & Company.
2. Wheelan, Charles. 2013. Naked Statistics: Stripping the Dread from the Data . W. W. Norton & Company
3. Ratti, Carlo, and Matthew Claudel. 2016 The City of Tomorrow: Sensors, Networks, Hackers, and the Future of Urban Life . Yale University Press.
4. Dolores Hayden. Part I -Chapter 2 and Chapter 10, The Power of Place: Urban Landscapes as Public History, MIT Press, 1995.