

**CHRIST COLLEGE (AUTONOMOUS), IRINJALAKUDA**

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# **DEGREE OF M. A. Economics**

**MASTER OF ARTS IN ECONOMICS**

**(CHOICE BASED CREDIT AND SEMESTER SYSTEM FOR  
UNDERGRADUATE CURRICULUM)**

**UNDER THE FACULTY OF ARTS**

## **SYLLABUS**

**(FOR THE STUDENTS ADMITTED FROM THE ACADEMIC YEAR 2019 – '20 ONWARDS)**

**BOARD OF STUDIES IN ECONOMICS (PG)**

***CHRIST COLLEGE (AUTONOMOUS), IRINJALAKUDA - 680125, KERALA, INDIA***

**JUNE, 2019**

## **CONTENTS**

### **ELIGIBILITY CRITERIA WITHOUT ENTRANCE UNDER MARK SYSTEM**

BA degree of this university with Economics/Foreign Trade/Development Economics (Main) or equivalent degree with at least 45% marks for Part III (excluding subsidiaries) Or BSc degree of this University with Statistics/Mathematics (Main) or equivalent degree with at least 70% marks for Part III (excluding subsidiaries). OBC/OEC candidates are eligible to relaxation up to 5%. SC/ST candidates need only to get a pass.

### **UNDER GRADE SYSTEM**

BA degree of this university with Economics/Foreign Trade/Development Economics (Main) or equivalent degree with Overall CGPA, at least equivalent to 50% or BSc degree of this University with Statistics/Mathematics (Main) or equivalent degree with equivalent grade to 70%. OB/OEC candidates are eligible for relaxation up to 5%. SC/ST candidates need only to get a pass.

### **LANGUAGE OF EXAMINATION**

The language of writing the examination shall be English only.

**MA ECONOMICS (CBCSS) 2019-20 ADMISSION-SCHEME OF THE PROGRAMME**

Semester	Name of the Course	Credit	Hours/ Week	Total Weightage	
				External	Internal
<b>I</b>	ECO1 C01 Microeconomics: Theory and Applications I	5	7	30	5
	ECO1 C02 Macroeconomics: Theories and Policies I	5	6	30	5
	ECO1 C03 Indian Economy: Problems and Policies	5	6	30	5
	ECO1 C04 Quantitative Methods for Economic Analysis I	4	6	30	5
	ECO1 A01 Ability Enhancement Course	4*			
<b>II</b>	ECO2 C05 Microeconomics: Theory and Applications II	5	6	30	5
	ECO2 C06 Macroeconomics: Theories and Policies II	5	6	30	5
	ECO2 C07 Public Finance: Theory and Practice	5	7	30	5
	ECO2 C08 Quantitative Methods for Economic Analysis II	5	6	30	5
	ECO2 A02- Professional Competency Course	4*			
<b>III</b>	ECO3 C09 International Trade	5	6	30	5
	ECO3 C10 Growth and Development	5	6	30	5
	ECO3 C11 Basic Econometrics	5	7	30	5
	Elective I	4	6	30	5
<b>IV</b>	ECO4 C12 International Finance	3	6	30	5
	ECO4 C13 Financial Markets	3	6	30	5
	Elective II	4	6	30	5
	Elective III	4	6	30	5
	ECO4 P14 Project <b>OR</b> ECO4 C14 Research Methodology and Computer Applications ( Only for SDE/Private Registration)	4	1	4	1
	ECO4 V15 Comprehensive Viva Voce	4			
	<b>Total Credits</b>	<b>80</b>			

@ 1 elective course in Semester 3 and 2 elective courses (1 each from the two lists) in semester 4 are to be selected from the appended lists of elective courses.

\*The credits will not be counted for evaluating the overall SGPA & CGPA

**EVALUATION SCHEMES****COURSE EVALUATION (INTERNAL)**

COMPONENT	WEIGHTAGE
Assignment	1
Seminar	1
Attendance	1
Test Papers (2)	2
Total	5

**COURS EVALUATION (EXTERNAL)**

PART	COMPONENT	WEIGHTAGE
A	15 Questions x 1/5	3
B	5 Questions x 1	5
C	7 Questions x 2	14
D	2 Questions x 4	8

**Part A (Multiple Choice Questions)**

**Answer all 15 Questions**  
(15 x 1/5 Weightage = 3 Weightage)

**Part B (Very Short Answer Questions)**

**Answer any 5 questions out of 8 questions** (5 questions x 1 = 5 Weightage)

**Part C (Short Answer Questions)**

**Answer any 7 questions out of 10 questions** (7 questions x 2 = 14 Weightage)

**Part D (Essay Questions)**

**Answer any 2 questions out of 4 questions** (2 questions x 4 = 8 Weightage)

**Total = 30 Weightage**

**PROJECT EVALUATION (INTERNAL AND EXTERNAL)**

Sl. No.	Criteria	Weightage	Weightage External	Weightage Internal
1	Relevance of the Topic and Statement of the Problem	60 %	8	2
2	Methodology and Analysis		8	2
3	Quality of Report and Presentation		8	2
4	Viva - Voce	40 %	16	4
5	<b>Total Weightage</b>	<b>100%</b>	<b>40</b>	<b>10</b>

**EVALUATION OF AUDIT COURSES**

Evaluation and grading of students in audit courses may be done on the basis of a presentation made by the students about Ability Enhancement Course (AEC) and Professional Competency Course (PCC) undertaken. Minimum pass requirement in each audit course is 1.5 credits.

**LIST OF CORE COURSES**

1	Course I	ECO CO1- Microeconomics: Theory and Applications I
2	Course II	ECO1 C02- Macroeconomics: Theories and Policies I
3	Course III	ECO1 C03- Indian Economy: Problems and Policies
4	Course IV	ECO1 C04- Quantitative Methods for Economic Analysis-I
5	Course V	ECO2 C05- Microeconomics: Theory and Applications II

6	Course VI	ECO2 C06- Macroeconomics: Theories and Policies II
7	Course VII	ECO2 C07- Public Finance: Theory and Practice
8	Course VIII	ECO2 C08- Quantitative Methods for Economic Analysis-II
9	Course IX	ECO3 C09- International Trade
10	Course X	ECO3 C10- Growth and Development
11	Course XI	ECO3 C11- Basic Econometrics
12	Course XII	ECO4 C12- International Finance
13	Course XIII	ECO4 C13- Financial Markets
14	Course XIV	ECO4 P14- Project <b>OR</b> ECO4 C14-Research Methodology and Computer Applications (Only for SDE/Private Registration)
15	Course XV	ECO4 V15- Comprehensive Viva Voce

## **LIST OF ELECTIVE COURSES**

### **SEMESTER III**

1	Course I	ECO3 E01- Banking: Theory and Practice
2	Course II	ECO3 E02- Industrial Economics
3	Course III	ECO3 E03- Labour Economics
4	Course IV	ECO3 E04- Regional Economics

### **SEMESTER IV**

#### **List1**

5	Course V	ECO4 E01 - Advanced Econometrics
6	Course VI	ECO4 E02 - Business Economics
7	Course VII	ECO4 E03 - Demography
8	Course VIII	ECO4 E04 - Environmental Economics
9	Course IX	ECO4 E05 - Political Economy of Development

#### **List2**

10	Course X	ECO4 E06 - Agricultural Economics
11	Course XI	ECO4 E07 - Gender Economics
12	Course XII	ECO4 E08 - Health Economics
13	Course XIII	ECO4 E09 - Mathematical Economics

## **AUDIT COURSES**

The students will have to undergo two audit courses with 4 credits each. The credits will not be counted for evaluating the overall SGPA & CGPA. Audit courses are not part of the normal workload.

## **GENERAL GUIDELINES**

### **Semester I: Ability Enhancement Course (AEC) 4 Credits**

The student can attempt any one of the following for securing 4 credits.

1. An internship in an academic/research institution or in any related organization suitable to the topic under study, under a supervisor/teacher official.

2. One seminar presentation of 15 minutes duration, on a relevant topic.
3. One case study analysis approved by the Department Council.
4. Community Linkage Programme in a nearby Local Government.
5. Review of one recently published book related to Economics.

### **Semester II: Professional Competency Course (PCC) 4 Credits**

The student should acquire skill in at least one of the software such as SPSS/R/Econometrics/Python/Stata or any software relevant to Economics and use the software to do any one of the following with the help of a supervising teacher.

1. Calculation of descriptive measures in statistics.
2. Calculation of correlation and regression.
3. Fitting of normal curve and parabola.
4. Perform ANOVA.
5. Multiple regression models.
6. Calculation of growth rate, elasticity etc.
7. Perform  $t$ , chi square and F test.
8. Perform any non-parametric test.

## **M. A. ECONOMICS PROJECT FORMAT**

### **STRUCTURE OF THE PROJECT**

#### **Cover Page and Front Page**

- a. Title of the project
- b. Degree for which project is submitted.
- c. Name of the Candidate & Roll Number
- d. Name of the College
- e. Month and year the project is presented

#### **Contents**

- a. Certificate of the supervising teacher.
- b. Certificate of the head of the department.
- c. Declaration by the student.
- d. Acknowledgement.
- e. Table of Contents
- f. List of Tables
- g. List of Figures
- h. Introductory Chapter
- i. Analyses Chapters

- j. Concluding Chapter
- k. Bibliography
- m. Appendix

**CONTENTS OF THE INTRODUCTORY CHAPTER**

- 1. Introduction
- 2. Statement of objectives
- 3. Hypotheses (optional)
- 4. Methodology
  - a. Data sources (primary/secondary)
  - b. Tools of analysis (statistical & mathematical)
- 5. Scope of the study (sample size & period of study)
- 6. Significance of the study
- 7. Limitations of the study
- 8. Conceptual framework-Optional (specification of terms and concepts)
- 9. Review of literature (references are to be given in footnotes)
- 10. Chapter outlines.

**STYLE OF PRESENTATION**

- 1. Report Length: 50 to 70 pages excluding Appendix and Certificates
- 2. Alignment: Justify
- 3. Font: Times New Roman
- 4. Font size: 12
- 5. Line spacing: 1.5

**SEMESTER I**

<b>Core Course</b>	<b>Title of Course</b>	<b>Hours/Week</b>	<b>Credit</b>
I	Microeconomics: Theory and Applications I	7	5
II	Macroeconomics: Theories and Policies I	6	5
III	Indian Economy: Problems and Policies	6	5
IV	Quantitative Methods for Economic Analysis I	6	4
	Ability Enhancement Course	0	4

**SEMESTER I**

**ECO1C01 – MICROECONOMICS: THEORY AND APPLICATIONS - I**

*Contact Hours per Week: 7 hrs*

*Number of Credits: 5*

**Course Outline**

## **Module I Consumer Behaviour under Uncertainty and Risk**

Choice under uncertainty- Representing uncertainty by Probability distributions- Expected Value and Variability- Maximising expected utility- Fair gambles and expected utility hypothesis- St. Petersburg paradox-Neumann-Morgenstern utility index- Friedman Savage hypothesis-Markowitz hypothesis- Utility functions and attitudes towards risk- risk neutrality, risk aversion, risk preference, certainty equivalent, demand for risky assets- reducing risks- diversification, insurance, flexibility, information- The state preference approach to choice under uncertainty.

## **Module II Market Demand for Commodities**

Deriving market demand- Network externalities- Bandwagon effect, Snob effect and Veblen effect- Empirical estimation of demand- Linear demand curve, Constant elasticity demand function- Dynamic versions of demand functions-Nerlove, Houthakker and Taylor-Linear expenditure system- Characteristic approach to demand function.

## **Module III Theory of Production and Costs**

Short run and long run production function- returns to scale- elasticity of substitution- Homogeneous production function- Linear homogeneous production function- Fixed proportion production function- Cobb Douglas production function and CES production function- Technological progress and production function- Cost function- Cost minimising input choices- properties of cost functions- Economies of scope- The Learning curve – Estimating and Predicting cost- Short run and long run distinction.

## **Module IV Theory of Imperfect Markets**

Oligopoly- Characteristics- Collusive versus non-collusive oligopoly- Non-collusive models- Cournot model- Bertrand model- Chamberlin's model-Kinked demand curve model of Sweezy- Stackelberg's model- Welfare properties of duopolistic markets- Collusive models- Cartels and Price leadership

## **Module V Theory of Games**

Basic concepts-Cooperative versus non-cooperative game- Zero sum versus non- zero-sum game- Prisoner's dilemma- Dominant strategies- Nash equilibrium- Prisoner's dilemma- Pure strategies- Mixed strategies- repeated games- Sequential games- Threats, commitments and credibility.

## **References**

1. Walter Nicholson and Christopher Snyder (2017): Microeconomic Theory- Basic Concepts and Extensions, 12<sup>th</sup> edition, Cengage Learning India Private Limited.
2. Andrew Schotter (2009): Microeconomics: A Modern Approach- 1<sup>st</sup> edition, South Western Cengage Learning.

3. Michael E Wetzstein (2013): Microeconomic Theory- Concepts and Connections, 2<sup>nd</sup> edition, Routledge.
4. Robert S Pindyck and Daniel L Rubinfeld (2017): Microeconomics- 8<sup>th</sup> edition, Pearson.
5. Thomas J Nechyba (2010): Microeconomics: An Intuitive Approach with Calculus 1<sup>st</sup> edition, South Western Cengage Learning.
6. Andreu Mas-Colell, Michael D Whinston and Jerry R Greene (1995): Microeconomic Theory- 1<sup>st</sup> edition, Oxford University Press.
7. Geoffrey A Jehle (2010): Advanced Microeconomic Theory- 3<sup>rd</sup> edition, Prentice Hall
8. Hall R Varian (2014): Intermediate Microeconomics- A Modern Approach, WW Norton and Co.
9. Jeffrey M Perloff (2019): Microeconomics - 7<sup>th</sup> edition, Pearson
10. Hugh Gravelle and Ray Rees (2007): Microeconomics- 3<sup>rd</sup> edition, Pearson Education
11. Edgar K Browning and Mark Zupan (2011): Microeconomics: Theory and Applications- 3<sup>rd</sup> edition.
12. Dominick Salvatore (2009): Microeconomics – 5<sup>th</sup> edition, Oxford University Press.
13. A Koutsoyiannis (1979): Modern Microeconomics- 2<sup>nd</sup> edition, Macmillan.
14. Robert Y Awh (1976): Microeconomics: Theory and Applications- John Wiley & Sons
15. Watson and Getz (2004): Price Theory and its Uses- 5<sup>th</sup> edition, AITBS Publishers and Distributors.
16. James H Henderson and Richard E Quandt (1980): Microeconomic Theory: A Mathematical Approach- 8<sup>th</sup> edition, McGraw-Hill
17. G S Madalla and Ellen Miller (1989): Microeconomics: Theory and Applications- 1<sup>st</sup> Edition, Tata McGraw-Hill.

## **ECO1C02 – MACROECONOMICS: THEORIES AND POLICIES - I**

*Contact Hours per Week: 6 hrs*

*Number of Credits: 5*

### **Course Outline**

#### **Module I: Aggregate Demand**

**Consumption Function:** Keynes' psychological law- Absolute income hypothesis- Kuznet's consumption puzzle - Relative income hypothesis - Fisher's inter-temporal choice model – Permanent income hypothesis- Life cycle hypothesis.

**Investment Function** - MEC and MEI approaches -user cost and Neo-classical theory of investment- Tobin's q-ratio- Accelerator theory of investment (simple and flexible acceleration models).

**Demand for Money-** Classical approach to demand for money- Quantity theory approaches, Fisher's equation, Cambridge quantity theory, Keynes's liquidity preference approach - Post- Keynesian approaches to

demand for money: Friedman's restatement of Quantity theory of money, Approaches of Baumol and Tobin.

**Supply of Money** - Measures of money supply (RBI definition) - The H theory of money supply- Money multiplier process-Behavioural and endogenous money supply models- Fisher effect.

### **Module II: Theories of Inflation and Unemployment**

Keynesian and monetarist approach to inflation- Structuralist theory of inflation- Inflation unemployment trade off-Phillips Curve- Short run and long run Phillips curve -The natural rate of unemployment hypothesis- Modified Phillips curve- Adaptive expectation hypothesis- Augmented Phillips curve- NAIRU- Okun's Law- The new microeconomics of the labour market and search theory-Rational expectations.

### **Module III: Theories of Business Cycles**

Business cycles- Monetary theory of Hawtrey- Over investment theory of Hayek- Innovation theory of Schumpeter-Models of Samuelson, Hicks and Kaldor-Keynesian theory of business cycle-The real business cycle theory- Political business cycle theory

### **Module IV: Neo-Classical and Keynesian Synthesis**

The IS-LM model-equilibrium in goods and money market - ISLM model with government sector; Relative effectiveness of monetary and fiscal policies; Extension of IS-LM models with labour market and flexible prices. The three sector macro model with Keynesian and Neoclassical versions.

### **Module V: Macroeconomic Policy**

Macroeconomic policies- Objectives of macroeconomic policies- Target variable and instrument variable- Monetary policy-Instruments- The issue of central bank autonomy-Rules versus discretion- The Taylor rule- Time inconsistency of policy- Fiscal policy- Instruments- Policy lags - Inside and outside lags- Fiscal policy and budget deficit- Crowding out effect and government budget- The Ricardian Equivalence- Income policy- Stabilization policy.

### **References**

1. Gregory Mankiw (2008): Macroeconomics- Worth Publishers NY, 6th ed.
2. Richard T Froyen (2005): Macroeconomics: Theories and Policies- Pearson (LPE), Seventh ed.
3. Rosalind Levacic and Alexander Rebman (1982): Macroeconomics: An Introduction to Keynesian- Neoclassical Controversies- 2nd ed. Macmillan.
4. Eric Pentacost: Macroeconomics-An Open Economy Approach-Macmillan.
5. Rudiger Dornbusch, Stanley Fisher and Richard Startz (2004): Macroeconomics- Tata McGraw Hill, 9th ed.
6. Errol D'Souza (2008): Macroeconomics- Pearson Education.
7. P.N Junankar (1972): Investment: Theories and Evidence-Macmillan.

8. Fred R Glahe (1985): Macroeconomics: Theory and Policy- Harcourt Publishers, New Delhi.
9. Veneries and Sebold (1977): Macroeconomics: Models and Policies- John Wiley & Sons.
10. Gurley J and Shaw E S (1960): Money in a Theory of Finance- Washington: Brookings Institution.
11. Samuelson and Nordhaus (1998): Macroeconomics- 16th ed. Irwin McGrawHill.
12. Robert J Gordon: Macroeconomics- Eastern Economy Edition.
13. Edward Shapiro: Macroeconomics- Galgotia Publications, New Delhi.
14. Mervyn K.Lewis and Paul D Mizen (2000): Monetary Economics- Oxford University Press.
15. Jagdish Handa (2000): Monetary Economics-Routledge.

## **ECO1C03 – INDIAN ECONOMY: PROBLEMS AND POLICIES**

*Contact Hours per Week: 6 hrs*

*Number of Credits: 5*

### **Course Outline**

#### **Module I: Growth, Structural Changes and Challenges of the Indian Economy**

Economic growth in India- CSO and national income related aggregates- Contribution of different sectors to GVA, GDP and Employment- Trends in savings and investment since reforms- Migration, diaspora and remittance - Regional disparity in growth and development- Analysis of poverty, unemployment and inequality in India

#### **Module II: Review of Economic Development**

Assessment of Indian agriculture sector and recent initiatives by the government for its growth-Inter regional dimensions of industrial growth in India- Make in India initiative- Service sector: growth rate, share in exports and imports, software exports- Infrastructure at cross roads -Prices: Headline inflation-Inflation based on WPI and CPI combined, food inflation, core inflation- Monetary management in India prior to 1990 and position after 1990s-New initiatives of the government towards black money-Inclusive policies of the government-A global deal on climate change: possible role for India.

#### **Module III: Economic Planning in India**

Planning and economic development-Objectives of planning-Techniques of planning- Achievements of planning- Bottom up and Step down approaches in planning- Evaluation of Five Year Plans-NITI Aayog and its Vision Documents- Welfare programmes announced in the last two Union Budgets.

#### **Module IV: Economic Reforms Since 1991**

Background of economic reforms- Washington Consensus- Industrial policy reforms- Trade policy reforms- Fiscal policy reforms- Financial sector reforms- Foreign investment policy reforms- Second generation economic reforms-An appraisal of India's economic reforms- Post reform Infrastructure Investment Models- PPP- Cooperative federalism with special reference to GST.

#### **Module V: Kerala Economy**

Economic liberalization and economic growth in Kerala- Kerala model of development- Agricultural Performance-Industrial backwardness- Health and education - Migration of casual workers to Kerala- Decentralization-Achievements of decentralization-Poverty and unemployment in Kerala - State finances of Kerala- Causes of acute fiscal crisis of Kerala.

### ***References***

1. Vijay Joshi and IMD Little: India: Macroeconomics and Political Economy: 1964-1991- Oxford University Press, New Delhi 1994.
2. Uma Kapila (ed): Indian Economy Since Independence- Academic Foundation, New Delhi 2004.
3. Vijay Joshi and I. M.D Little: India's Economic Reforms: 1991- 2001- Oxford University Press, New Delhi, 1996.
4. VM Dandekar and Nilakant Rath: Poverty in India- Indian School of Political Economy, Pune, 1971.
5. Jagdish Bhagwati: India in Transition- Oxford University Press, Delhi, 1994.
6. Dr. S Murthy: Structural Reforms of Indian Economy- Atlantic Publishers, 1995.
7. H W Singer, Neelambar Hatti and Rameshwar Tandon (eds): Trade Liberalisation in the 1990's- Indus Publishing Company, New Delhi, 1990.
8. Jagdish Bhagwati and TN Srinivasn: Foreign Trade Regimes and Economic Development: India- NBER, New York, 1986.
9. Isher Judge Ahluwalia and IMD Little (ed): India's Economic Reforms and Development: Essays for Manmohan Singh- Oxford University Press, Delhi, 1998.
10. KR Gupta (Ed): Liberalization and Globalization of Indian Economy- Atlantic Publishers, New Delhi 1995.
11. Deepak Lal: India in the World Economy- Oxford University Press, 1999.
12. Datt. R. (2001): Second Generation Economic Reforms in India- Deep and Deep Publications, New Delhi.
13. Mahendra K Premi (2009): India's Changing Population Profile- National Book Trust, New Delhi.
14. B A Prakash (Ed): Indian Economy Since 1991-Pearson Education.
15. Shanker Acharya and Rakesh Mohan (Eds) (2011): India's Economy: Performance and Challenges- Oxford University Press, New Delhi.
16. Jayaraj D and Subramanian S (2010): Poverty, Inequality and Population- Oxford University Press, New Delhi.
17. Mahendradev S (2010): Inclusive Growth in India- Oxford University Press, New Delhi.
18. CT Kurien: Poverty, Planning and Social Transformation in India- Allied Publishers, Delhi, 1978.
19. BA Prakash (Ed): Kerala's Economic Development: Issues and Problems- Sage publishers, New Delhi, 1999.
20. ET Mathew (1997): Employment and Unemployment in Kerala- Sage publishers.
21. George K K (1999): Limits to Kerala Model of Development- CDS, Trivandrum.

22. Sunil Mani, Anjii Kochar, Arun M Kumar: Crouching Tiger Sacred Cows- D C Books, Kottayam.
23. K Rajan: Kerala Economy: Trends during the Post-reform Period-Serial Publishers, New Delhi.
24. CDS (1975): Poverty Unemployment and Development Policy: A Case Study of Selected Issues with Reference to Kerala- CDS, Trivandrum.
25. K.K. George and K.K. Krishnakumar (2012): Trends in Kerala State Finances-1991-92 to 2012-13: A Study in the Backdrop of Economic Reforms in India-Working Paper N0.28- Centre for Socio-economic & Environmental Studies-Kochi (available online).
26. K R Guptha, Indian Economy in 3 volumes: Atlantic Publishers.
27. BA Prakas and Jerry Alwin, Kerala's Economic Development: Emerging Issues and Challenges, Sage publishers,2018.
28. RBI Annual Reports.
29. Ministry of Finance: Economic Survey-Variou s Issues

## **ECO1C04 – QUANTITATIVE METHODS FOR ECONOMIC ANALYSIS**

*Contact Hours per Week: 6 hrs*

*Number of Credits: 4*

### **Course Outline**

#### **Module I: Linear Algebra**

Different types of functions and its graphs, Constant Linear, Quadratic, Cubic, Polynomial, Exponential and logarithmic functions. Applications of linear functions in Economics- Vectors and Matrices, determinants, solution of a system of equations - Inverse method and Cramer's rule- Rank of a matrix-characteristic equations and characteristic roots and vectors.

#### **Module II: Differential Calculus**

Functions, limit of a function, continuity of a function, Derivative of a function - Rules of Differentiation, Higher order derivatives, differentiation of logarithmic functions, exponential functions and implicit functions- Application of Derivatives- Meaning of a Derivative- rate of change- slope of a curve- Marginal concepts related to demand, supply, cost, revenue and production functions. Maxima and minima- Economic applications.

#### **Module III: Functions of Several Variables**

Functions of several variables - Partial differentiation- Optimisation of Multivariable functions- constrained optimization with Lagrangian multipliers-Consumers and producers equilibrium using constrained optimization Differentials- Total and Partial derivatives- Total derivatives- Rules of integration- Definite integral, area under a curve-estimation of producers and consumers surplus.

#### **Module IV: Differential and Difference Equations**

First order Differential equations -Definitions and concepts, general formula for Differential equations –

Economic Applications-Differential equations for limited and unlimited growth - First order Difference equations- Solution of first order difference equations - General formula for First order Linear Difference equations, applications - stability conditions, Cobb Web model.

### **Module V: Financial Mathematics**

Arithmetic and geometric sequence and series- Simple interest, compound interest and annual percentage rates- Depreciation- Net present value and internal rate of return- Annuities, debt repayments, sinking funds- The relationship between interest rates and the price of bonds.

### **References**

1. Essential Mathematics for Economics and Business, Teresa Bradley and Paul Patton, Revised by Teresa Bradley, Wiley Student Edition Chapter- 2 and Chapter-4.
2. Introduction to Mathematical Economics Edward T. Dowling Third Edition Chapter-8.
3. Taro Yamane: Statistics - An Introductory Analysis, Harper & Row, Edition 3.
4. Hoel PG: Introduction to Mathematical Statistics, John Wiley & Sons, Edition.
5. RGD Allen Mathematical Analysis for Economics.
6. Tulsian, P.C and Vishal Pandey: Quantitative Techniques, Pearson Education, New Delhi.
7. S.P. Gupta: Statistical Methods, Sultan Chand and Sons, New Delhi.
8. Hooda R.P. Statistics for Business and Economics, Macmillan, New Delhi.
9. Alpha C Chiang: Fundamental Methods of Mathematical Economics, 2nd Ed. Inter National Student Edition, McGraw Hill.
10. Edward T Dowling: Introduction to Mathematical Economics, Third Edition, Schaum's Outlines, Tata McGrawhill Publishing Co. Ltd, New Delhi.
11. Sreenath Baruah: Basic Mathematics and its Applications in Economics, Macmillan India Ltd.
12. Joseph K.X, Quantitative Techniques, CUCCS Ltd, Calicut University.

### **SEMESTER II**

<b>Core Course</b>	<b>Title of Course</b>	<b>Hours/Week</b>	<b>Credit</b>
V	Microeconomics: Theory and Applications II	6	5
VI	Macroeconomics: Theories and Policies II	6	5
VII	Public Finance: Theory and Practice	7	5
VIII	Quantitative Methods for Economic Analysis II	6	5
	Professional Competency Course	0	4

## SEMESTER II

### ECO2C05 – MICROECONOMICS: THEORY AND APPLICATIONS-II

Contact Hours per Week: 6 hrs

Number of Credits: 5

#### Course Outline

##### Module I: Intertemporal Choice and Capital Decisions

Capital and the rate of return- Determining the rate of return- Demand for future goods- Utility maximisation- Effects of changes in  $r$ - Supply of future goods- Equilibrium price of future goods- Rate of return- Real interest rates and nominal interest rates- Pricing of risky assets- The firm's demand for capital- The net present value criterion for capital investment decisions- Adjustment for risks- Diversification versus non-diversifiable risks- The capital assets pricing model.

##### Module II: General Equilibrium and Welfare Economics

Elements of general equilibrium analysis-General equilibrium of exchange- General equilibrium of production- Efficiency of competitive markets- Welfare economics- Criteria of social welfare-Pareto optimality-Kaldor-Hicks compensation criterion- Scitovsky criterion- Deriving a Social welfare function- Theory of second best- Arrow's impossibility theorem- Rawls theory of justice- First Theorem of welfare economics- Second Theorem of welfare economics.

##### Module III: Externalities and Public Goods

Externalities-Negative externalities in consumption and production-Positive externalities in consumption and production-Externalities and inefficiency-Ways of correcting market failure- Externalities and property rights-Coase theorem- Common property resources- Tragedy of commons-Public goods-Characteristics- Public goods and market failure- Provision of public goods- Free rider problem- Lindahl pricing.

##### Module IV: Asymmetric information

Asymmetric information- Implications of asymmetric information- The lemons problem- Adverse selection- Hidden information- Moral hazard (hidden action)- Insurance markets- Market signalling- Principal-agent problem- The efficiency wage theory.

##### Module V: Behavioural Economics

Behavioural economics- Reference points and consumer preferences- Rules of thumb and biases in decision making.

#### References

1. Walter Nicholson and Christopher Snyder (2017): Microeconomic Theory- Basic Concepts and Extensions, 12<sup>th</sup> edition, Cengage Learning India Private Limited.
2. Andrew Schotter (2009): Microeconomics: A Modern Approach- 1<sup>st</sup> edition, South Western Cengage Learning.

3. Michael E Wetzstein (2013): Micro economic Theory- Concepts and Connections, 2<sup>nd</sup> edition, Routledge.
4. Robert S Pindyck and Daniel L Rubinfeld (2017): Microeconomics- 8<sup>th</sup> edition, Pearson.
5. Thomas J Nechyba (2010): Microeconomics: An Intuitive Approach with Calculus - 1<sup>st</sup> edition, South Western Cengage Learning.
6. Andreu Mas-Colell, Michael D Whinston and Jerry R Greene (1995): Microeconomic Theory- 1<sup>st</sup> edition, Oxford University Press.
7. Geoffrey A Jehle (2010): Advanced Microeconomic Theory- 3<sup>rd</sup> edition, Prentice Hall
8. Hall R Varian (2014): Intermediate Microeconomics- A Modern Approach, WW Norton and Co.
9. Jeffrey M Perloff (2019): Microeconomics -7<sup>th</sup> edition, Pearson
10. Hugh Gravelle and Ray Rees (2007): Microeconomics- 3<sup>rd</sup> edition, Pearson Education
11. Edgar K Browning and Mark Zupan (2011): Microeconomics: Theory and Applications- 3<sup>rd</sup> edition.
12. Dominick Salvatore (2009): Principles of Microeconomics – 5<sup>th</sup> edition, Oxford University Press.
13. A Koutsoyiannis (1979): Modern Microeconomics- 2<sup>nd</sup> edition, Macmillan.
14. Robert Y Awh (1976): Microeconomics: Theory and Applications- John Wiley & Sons
15. Watson and Getz (2004): Price Theory and its Uses- 5<sup>th</sup> edition, AITBS Publishers and Distributors.
16. James H Henderson and Richard E Quandt (1980): Microeconomic Theory: A Mathematical Approach- 8<sup>th</sup> edition, McGraw-Hill
17. G S Madalla and Ellen Miller (1989): Microeconomics: Theory and Applications- 1<sup>st</sup> edition, Tata McGraw-Hill.

## **ECO2C06 – MACROECONOMICS: THEORIES AND POLICIES II**

*Contact Hours per Week: 6 hrs*

*Number of Credits: 5*

### **Course Outline**

#### **Module I: Classical vs Keynes**

Classical Macroeconomics -Classical revolution, production, employment, equilibrium output and employment, quantity theory of money, classical aggregate demand curve, classical theory of interest rate, policy implications of the classical equilibrium model. Classical model of output and employment Keynes's General Theory: Keynes' main propositions, Keynes's analysis of the labour market, Keynes's rejection of Say's Law, Keynes and the quantity theory of money, Keynesian aggregate demand and supply schedules, Keynes and international macroeconomics- How to pay for the war, Causes and consequences of the Great Depression, Keynesian policy conclusions.

## **Module II: Monetarism**

The quantity theory of money approach, The expectations-augmented Phillips curve analysis, The monetary approach to balance of payments theory and exchange rate determination, The monetarist view of great depression, fiscal and monetary policy effectiveness.

## **Module III: New Classical Macroeconomics, Real Business Cycle School and Supply Side Economics**

The new classical macroeconomics: Rational expectations hypothesis, Lucas' surprise supply function, The inter-temporal substitution model, Policy ineffectiveness argument, The Lucas critique- Real business cycle school: central features of real business cycle models, a simple real business cycle model, macroeconomic policy in a real business cycle model - Supply-side macroeconomics: Supply shocks and stagflation, Laffer curve, Policy implications

## **Module IV: New Keynesian Economics**

The fall and rise of Keynesian economics- A Keynesian resurgence, New Keynesian economics, Core propositions and features of new Keynesian economics, Nominal rigidities, Real rigidities, Small menu cost model, Implicit wage contract model- Efficiency wage theories-Insider-outsider model, New Keynesian business cycle theory, Hysteresis and the NAIRU, Policy implications

## **Module V: The New Political Macroeconomics**

Political distortions and macroeconomic performance, Political influences on policy choice, The role of government, Politicians and stabilization policy, Alternative approaches to the political business cycle, The Nordhaus opportunistic model, The Hibbs partisan model, The decline and renaissance of opportunistic and partisan models, Rational political business cycles, Policy implications of politico-economic models: an independent central bank?, The political economy of debt and deficits, Political and economic instability.

## ***References***

1. Gregory Mankiw (2008): Macroeconomics- Worth Publishers NY, 6th ed.
2. Richard T Froyen (2008): Macroeconomics: Theories and Policies- Pearson (LPE), Seventh ed.
3. Brian Snowdown and Howard Vane (2005): Modern Macroeconomics: Its Origin, Development and Current State- Edward Elgar Cheltenham, UK. Northampton, USA.
4. Levacic, Rosalind and Rebman, Alexander (1982): Macroeconomics: An Introduction to Keynesian- Neoclassical Controversies- 2nd ed. Macmillan.
5. Eric Pentacost: Macroeconomics-An Open Economy Approach- Macmillan.
6. Rudiger Dornbusch: Stanley Fisher and Richard Startz (2004) Macroeconomics- Tata Mc Graw Hill, 9th ed.
7. Hargreaves Heap S.P (1992): The New Keynesian Macroeconomics: Time, Belief and Social Independence Edward Elgar Publishing.
8. D'Souza, Errol (2008): Macroeconomics- Pearson Education.
9. Fred R Glahe, (1985): Macroeconomics: Theory and Policy- Harcourt Publishers, New Delhi.

10. Veneries and Sebold, (1977): Macroeconomics: Models and Policies- John Wiley & Sons.
11. Samuelson and Nordhaus (1998): Macroeconomics- 16th ed. Irwin McGraw Hill.
12. Robert J Gordon: Macroeconomics- Eastern Economy Edition.
13. Edward Shapiro: Macroeconomics- Golgotha Publications, New Delhi.
14. Brian Showdown, Howard Vane and Peter Wynarczyk (2001): A Modern Guide to Macroeconomics: An Introduction to Competing Schools of Thought- Edward Elgar.
15. Mervyn K. Lewis and Paul D Mizen (2000): Monetary Economics- Oxford University Press.
16. Jagdish Handa (2000): Monetary Economics- Routledge

## **ECO2C07 – PUBLIC FINANCE: THEORY AND PRACTICE**

*Contact Hours per Week: 7 hrs*

*Number of Credits: 5*

### **Course Outline**

#### **Module I: The Case for Public Sector**

The role of government in the national economy-Concepts of club goods, public goods- Tiebout hypothesis, merit goods, externalities, Pigovian tax.

#### **Module II: Public Revenue and Policy**

Theory of tax- Partial and general equilibrium analysis- Shifting and incidence of tax- Theory of optimal taxation- Distributional considerations in public finance- Fiscal and monetary policies -Comparative analysis- Balanced budget multiplier- Zero based budgeting.

#### **Module III: Public Expenditure and Debt**

Pure theory of public expenditure-Pricing of public utilities-Public choice theory-The Median Voter theorem- Concept of subsidy-Macroeconomic impacts of deficits- Debt burden and inter-generational equity- Sustainability of public debt and Domar stability condition.

#### **Module IV: Fiscal Federalism**

Theory of fiscal federalism- Theory of inter-governmental transfers- fiscal decentralisation- Problems of centre-state financial relations in India-Vertical and horizontal imbalance in inter-governmental transfers in India.

#### **Module V: Indian Public Finance**

Trend and sources of revenue in the union, states and local bodies in India-Trends in public expenditure and public debt in India- VAT and GST in federal set-up- The FRBM Act- Federalism and issues of Centrally Sponsored Schemes- Finance Commissions and the changing centre- state relations during the reform period- Analysis of the latest union budget.

### **References**

1. Harvey, Rosen, and Ted Gayer. Public Finance (2013)- McGraw-Hill Higher Education,

2. Dalton, Hugh. Principles of Public Finance (2003) - Vol. 1. Psychology Press,
3. Pen, Jan. Income Distribution (1974)-Penguin (Non-Classics).
4. Musgrave, RA and Musgrave, PB (1989)- Public Finance in Theory and Practice, McGraw Hill, New York
5. Boadway, R. W. (1979) - Public sector economics Winthrop, Cambridge, MA.
6. Due, John F and Friedlaender, Ann F (1973)- Government Finance: Economics of the Public Sector, Richard Irwin
7. Brown, Charles Victor, and Peter McLeod Jackson (1990) Public Sector Economics. Vol. 76. Oxford: Basil Blackwell,
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9. Browning, Edgar K., and Jacqueline M. Browning (1979) Public Finance and the Price System. Macmillan,
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11. Dwivedi, D. N., ed. Readings in Indian Public Finance (1981) Chanakya Publications,
12. Laffont, Jean-Jacques. Fundamentals of Public Economics (1988) -MIT Press Books 1
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15. Alan T. Peacock, (1979) The Economic Analysis of Governments, and Related Themes, St Martin Press, New York.
16. Amaresh Bagchi, (2005) Readings in Public Finance, Oxford University Press, USA.
17. Jha, Raghendra (1998)-Modern Public Economics- Routledge, London.
18. Cullis, John, and Philip R. Jones (2009) - Public Finance and Public Choice: Analytical Perspectives- Oxford University Press.

## **ECO2C08 – QUANTITATIVE METHODS FOR ECONOMIC ANALYSIS II**

*Contact Hours per Week: 6 hrs*

*Number of Credits: 5*

### **Course Outline**

#### **Module I: Probability and Probability Distributions**

Concepts- Set theory- Permutations and Combinations, Definitions of Probability - classical, empirical and axiomatic approaches- Addition and multiplication laws, conditional probability- Bay's theorem, Random variables- probability distribution- Mathematical expectation- moments- Two random variables, joint, Marginal and conditional probability functions, expectation of two random variables.

#### **Module II: Discrete and Continuous Probability Distribution**

Probability Distributions - Discrete Probability Distributions, Binomial, Poisson, Uniform - simple

applications-Continuous probability distributions- Normal, Lognormal and Exponential Distributions (Derivations are not expected), concept of law of large numbers and Central limit theorem.

### **Module III: Theory of Estimation**

Statistical Inference, Concept of population, sample- Sampling distributions- Standard error- Distributions of sample mean, Sample variance - chi square Student's t, and F distributions- Small and large sample properties of Z, t, Chi Square and F- Estimations of populations parameters- point and interval estimation- Fisher's properties of estimators-Confidence interval for Mean and Proportion and variance- Methods of estimation- Methods of least squares, Method of maximum likelihood.

### **Module IV: Testing of Hypothesis**

Parametric and Non-parametric tests of Hypothesis - Testing of hypothesis- simple and composite hypothesis- Null and alternative hypothesis- Type I and Type II error, Critical region- Level of significance, Power of a test- Test procedure - Test of significance in respect of Mean, Proportion, Variance and Correlation coefficient and their differences -Chi Square test of goodness of fit, and test for independence of attributes. Non parametric tests, sign test, Wilcoxon- Mann Whitney U Test, Signed rank test, Kruskal Wallis test, Wald-Wolfowitz test.

### **Module V: Analysis of Variance**

Analysis of Variance- Meaning, assumptions-One way classification and Two way classifications, simple applications.

### ***References***

1. Taro Yamane, Statistics: An Introductory Analysis, Harper & Row, Edition 3, 1973
2. Hoel PG: Introduction to Mathematical Statistics, John Wiley & Sons, Edition 4, 1971
3. YP Agarwal: Statistical Methods: Concepts, Application and Computation, Sterling Publishers 1986
4. Sidney Siegal, N. John Castellan: Non parametric Statistics for Behaviour Sciences, Edition 2, 1988, Mc Graw-Hill
5. Tulsian, P.C and Vishal Pandey: Quantitative Techniques, Pearson Education, New Delhi
6. S.P. Gupta: Statistical Methods, Sulthan Chand and Sons, New Delhi.
7. Hooda R.P: Statistics for Business and Economics, Mac Million, New Delhi
8. Alpha C Chiang: Fundamental Methods of Mathematical Economics, 2<sup>nd</sup> Ed. -Inter National Student Edition, Mc Grawhill
9. Edward T Dowling: Introduction to Mathematical Economics, Third Edition, Shaum's Outlines, Tata Mc Grawhill Publishing Co. Ltd, New Delhi.
- 10.Sreenath Baruah: Basic Mathematics and its applications in Economics, Macmillan India Ltd.
- 11.Joseph K.X, Quantitative Techniques, CUCCS Ltd, Calicut University.

### SEMESTER III

Core Course	Title of Course	Hours/Week	Credits
IX	International Trade	6	5
X	Growth and Development	6	5
XI	Basic Econometrics	7	5
Elective	Elective I	6	4

### SEMESTER III

## ECO3C09 – INTERNATIONAL TRADE

*Contact Hours per Week: 6 hrs*

*Number of Credits: 5*

### Course Outline

#### Module I: International Trade and Economic Development

Importance of trade to development-Trade as an engine of growth-Contributions of trade to development-Terms of trade-Types.

#### Module II: Developments in Trade Theories

Offer Curves- Reciprocal demand theory- Opportunity cost analysis- Factor intensity-Factor abundance- Heckscher-Ohlin Theory- Leontief Paradox- Factor intensity reversal-Factor Price Equalization Theorem- Stolper Samuelson theorem- Metzler Paradox - Economies of scale and international trade- Imperfect competition and international trade-Product differentiation and international trade- Posner's Imitation gap- Vernon's Product Cycle Theory -Leamer's and Trefler's Theorem - Kravis theory of Availability- Linder's theory of Volume of Trade and Demand pattern- Transportation cost and international trade - Foreign trade multiplier.

#### Module III: Economic Growth and International Trade

Growth of labour and capital- Rybczynski theorem- The effect of growth on trade- Immiserising growth- Dutch disease- Prebisch - Singer Thesis-Myrdal's views-

#### Module IV: International Trade Policies

Import substitution versus export orientation - Trade restrictions-Tariffs- Effects of Tariffs - Partial and general equilibrium analysis-Optimum tariff-Effective rate of protection-Non tariff barriers -Import quotas- Effects of an import quota - New Protectionism - Exchange control- Export subsidies- Countervailing tariff- Voluntary export restraints- Technical standards- Administrative and other regulations- Dumping and anti-dumping duties- International Cartels -Trade in Wastes.

#### Module V: Economic Integration

Economic Integration - Theories of customs union- Trade creating customs union-Trade diverting customs union-Static welfare effects of customs union-Dynamic benefits from customs union - Emerging issues in

SAFTA, ASEAN and EU-Problems and prospects of WTO Agreement in present Global trading.

## ***References***

1. Dominick Salvatore: International Economics-11th Edition John Wiley & Sons (2014).
2. Bo Sodersten and Geoffrey Reed: International Economics- Macmillan (2008).
3. Paul. R. Krugman and Maurice Obstfeld: International Economics- Pearson Education.
4. Kindleberger, C.P: International Economics- R.D. Irwin, Homewood.
5. Bhagwati, J.N(Ed): International Trade: Selected Readings- MIT Press, 1987.
6. Robert J Carbaugh (2011): Global Economics- Cengage Learning.
7. Giancarlo Gandolfo: International Trade- Springer International Edition- 2006.
8. Dennis R Appleyard and Alfred J Field: International Economics- McGraw Hill.
9. Appleyard and Field: International Trade: Theory and Policy.
10. Richard E. Caves and Harry G. Johnson: Readings in International Economics.
11. Corden W.M: Recent Developments in the Theory of International Trade- Princeton University Press.
12. Thomas A. Pugel: International Economics-McGraw Hill.
13. James C Ingram and Robert M Dunn: International Economics-John Wiley and Sons.
14. Richard Caves, Jeffrey Frankel and Ronald Jones: World Trade and Payments-Pearson Education.
15. Theo Eicher, John Mutti and Michelle Turnovsky (2009): International Economics- Routledge.
16. Jagdish Bhagwati, Arvind Panagariya and T.N. Srinivasan (1998) Lectures on International Trade, MIT Press, 2nd edition.
17. Robert C. Feenstra (2004) Advanced International Trade: Theory and Evidence, Princeton University Press, (Indian edition 2007).

## **ECO3C10 – GROWTH AND DEVELOPMENT**

*Contact Hours per Week: 6 hrs*

*Number of Credits: 5*

### **Course Outline**

#### **Module I: Concepts and Measurements of Economic Growth and Development**

Concepts of growth and development-Indicators of Economic Development: National Income, Per capita Income, PQLI, Human Development Index, Gender Development Index, Human Poverty Index and Deprivation Index. Measures of Inequality: Kuznets Inverted U hypothesis, Lorenz Curve and Gini-coefficient, Atkinson, Theil, Palma ratio.

#### **Module II: Theories of Economic Growth**

Harrod-Domar Growth Model- Contributions of Kaldor-Mirrlees and Joan Robinson, Hirofumi Uzawa model, Solow's Growth Model and the Convergence Hypothesis, Endogenous Growth Theory and the role of Human Capital; Indian Plan Models of Mahalanobis and Wage-goods model.

### **Module III: Partial Theories of Economic Growth and Development**

Basic Features of Underdeveloped Countries, Population Growth and the Theory of Low- Level Equilibrium Trap, Critical Minimum Effort Thesis, Theory of Big-Push; Balanced Versus Unbalanced Growth Theories- Concepts of linkages.

### **Module IV: Stage Theories**

Marxian Stage theory, Rostow's Stage Theory. Theory of Growth and Structural Change. Concept of Dualism: Technological, Social, Geographical and Financial. Myrdal and Circular Causation, Backwash and Spread Effect. Institutions and Economic Growth.

### **Module V: Financing Economic Development**

Domestic Resource Mobilisation: Prior-Savings Approach, The Keynesian and Quantity Theory Approaches to the Financing of Economic Development. Foreign Resource: Dual Gap Analysis.

### ***References***

1. Adelman, Irma (1961): 'Theories of Economic Growth and Development', Stanford University Press
2. Ahluwalia and I.M.D Little: India's Economic Reforms and Development: Essays for Manmohan Singh
3. Hollis, Chenery, and T. N. Srinivasan: "Handbook of Development Economics, Vol. 1." (1988).
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5. Ghatak, Subrata: Introduction to Development Economics. Routledge (4<sup>th</sup> edn.)
6. Gill, Richard T: Economic Development: Past and Present. No. HD82 G52. 1963.
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9. Jones, Hywel G: An Introduction to Modern Theories of Economic Growth. London: Nelson, 1975.
10. Kindleberger, C.P (1958): Economic Development, Tata McGraw-Hill, NY
11. Kuznets S (1972): Modern Economic Growth, Oxford and IBH, New Delhi.
12. Little, Ian Malcolm David: Economic Development: Theory, Policy, and International Relations. (1982).
13. Meier, Gerald M., and James E. Rauch: Leading Issues in Economic Development. 5th ed. New York: Oxford University Press, 1989.
14. Ray, Debraj (2003): 'Development Economics', Oxford India Paperbacks, OUP
15. Sen, A. K: Introduction in Growth Economics: Selected Readings." (1970).
16. Skarstein, Rune. Development Theory: A Guide to Some Unfashionable Perspectives. Oxford University Press, USA, 1997.
17. Stiglitz, Joseph E., and Hirofumi Uzawa, eds: Readings in the Modern Theory of Economic Growth. Mit Press, 1969.
18. Thirlwall, A. P: Growth and Development: With Special Reference to Developing Economies: Palgrave Macmillan." (2003).

# ECO3C11 – BASIC ECONOMETRICS

*Contact Hours per Week: 7 hrs*

*Number of Credits: 5*

## **Course Outline**

### **Module I: Simple Linear Regression Model**

Nature and scope of Econometrics-Economic theory and mathematical economics- Methodology of econometrics-Uses of econometrics-The concept of PRF -Significance of stochastic error term-The SRF- Problem of estimation- Method of ordinary least squares- Assumptions underlying the method of least squares-Properties of estimators- Gauss Markov theorem-Coefficient of determination,  $r^2$  -Normality assumption-Hypothesis testing- t and F

tests-P value- Practical versus statistical significance-Prediction-Method of maximum likelihood-Maximum likelihood estimation of two variables model.

### **Module II: Multiple Regression Analysis**

The three variable model-OLS estimation of partial regression coefficients-Multiple coefficient of determination  $R^2$  and adjusted  $R^2$ -Hypothesis testing-Testing the overall significance of the regression model-F test-Testing the equality of two regression coefficients-Restricted least squares-Chow test-General k variable regression model- Matrix approach to estimation and derivation of the properties of OLS estimators.

### **Module III: Econometric Problems**

Multicollinearity-Nature, consequences, detection and remedial measures-Autocorrelation- Nature, consequences, detection, and remedial measures- Heteroskedasticity-Nature, consequences, detection and remedial measures.

### **Module IV: Extensions of Two Variables and Dummy Variable Regression Model**

Regression through the origin-Functional forms of regression models, log-log, log-lin, lin-log and reciprocal models- Dummy variable-ANOVA models-ANCOVA models-Dummy variable trap-Dummy variables and seasonal analysis-Structural Analysis-Piecewise linear regression.

### **Module V: Model Specification and Diagnostic Testing**

Types of specification errors-Detection and consequences-RESET-Errors of measurement- Consequences, remedies-Qualitative response regression models-Linear probability model, Logit and Probit.

## **References**

1. Damodar N Gujarati and Dawn C Porter (2009): Basic Econometrics, Fifth Edition, McGraw Hill International Edition.
2. Damodar N Gujarati (2011): Econometrics by Example, First Edition, Palgrave, MacMillan.
3. James H Stock and Mark W Watson (2017): Introduction to Econometrics, Third Edition, Pearson, Addison Wesley.

4. Carter Hill, William Griffiths and Guay Lim (2011): Principles of Econometrics, 4<sup>th</sup> Edition, John Wiley & Sons.
5. Jeffrey M Wooldridge (2018): Introductory Econometrics: A Modern Approach, 7<sup>th</sup> Edition, Thomson South Western.
6. Robert S Pindyck and Daniel L Rubinfeld (1998): Econometric Models and Economic Forecasts, Fourth Edition, McGraw Hill International Edition.
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8. Walter Enders (2010): Applied Econometric Time Series, Third Edition, Wiley India Edition.
9. Richard Harris and Robert Sollis (2006): Applied Time Series Modeling and Forecasting, First Edition, Wiley Student Edition.
10. Dimitrios Asteriou and Robert Hall (2015): Applied Econometrics, 3rd Edition, Oxford University Press.
11. Jack Johnston and John Dinardo (1998): Econometrics Methods, Fourth Edition, The McGraw Hill Companies.
12. William H Greene (2018): Econometric Analysis, 8th Edition, Pearson Education.
13. Christopher Dougherty (2007): Introduction to Econometrics, Third Edition, Oxford University Press.
14. Chris Brooks (2012): Introductory Econometrics for Finance, 3rd Edition, Cambridge.
15. Hamid R Seddighi (2012): Introductory Econometrics- A Practical Approach, Routledge.
16. Chandan Mukherjee, Howard White and Marc Wuyts (1998)-Econometric and Data Analysis for Developing Countries, First Edition, Routledge.
17. Peter Kennedy (2013): A Guide to Econometrics, 6th Edition, Wiley- Blackwell.
18. A H Studenmund: Using Econometrics: A Practical Guide, Fifth Edition, Pearson Education.

#### SEMESTER IV

Core Course	Title of Course	Hours/Week	Credits
XII	International Finance	6	3
XIII	Financial Markets	6	3
Elective	Elective II	6	4
Elective	Elective III	6	4
Core XIV	Project	1	4
Core XV	Comprehensive Viva Voce		4

### ECO4C12 – INTERNATIONAL FINANCE

*Contact Hours per Week: 7 hrs*

*Number of Credits: 5*

#### **Course Outline**

#### **Module I: Balance of Payments**

Balance of payments- Components- Equilibrium and disequilibrium in BOP- Methods of correcting BOP deficit-Adjustment Mechanisms-Automatic, price and income adjustments- Elasticity approach- Marshall-Lerner condition- Absorption Approach-Monetary approach- J curve effect- Currency convertibility- Current and capital account convertibility-The Indian experience-FEMA.

### **Module II: Exchange Rate and Theories of Exchange Rate**

Exchange rate-Nominal, Real, Effective, NEER, REER- Exchange rate systems- Relative merits and demerits of fixed and flexible exchange rates- Hybrid exchange rates- Purchasing power parity theory-Monetary approach- Asset market (portfolio balance) model- Exchange rate overshooting - Exchange rate in India- Indian Rupee and its fluctuations in international currency market.

### **Module III: Foreign Exchange Market**

Foreign exchange market-Functions-Participants- Stability of foreign exchange markets-Spot and forward market- Currency futures and options- Swap market- Foreign exchange risk- Hedging- Speculation- Stabilizing and de-stabilizing- Currency arbitrage- Internal and external balance- Policy adjustments- Expenditure changing and expenditure switching policies-Assignment problem- Swan diagram- Mundell-Fleming model.

### **Module IV International Capital Flows**

Portfolio investment and direct investments- Motives for capital flows- Effects of international capital flows- Multinational corporations- Advantages and disadvantages of MNCs- Foreign investment in India since 1991.

### **Module V International Monetary System**

International monetary system-The gold standard and its breakdown-Bretton Woods system and its breakdown- Present international monetary system- European monetary union-Euro- Optimum currency areas- Currency boards- Dollarization- Brexit.

### ***References***

1. Dominick Salvatore: International Economics- JohnWiley and Sons.
2. Keith Pilbeam: International Finance-Macmillan.
3. Bo Sodersten and Geoffrey Reed: International Economics- Macmillan, London.
4. Paul R Krugman and Maurice Obstfeld: International Economics: Theory and Practice- Pearson Education, Singapore.
5. Thomas A. Pugel: International Economics- TMH.
6. Michael Melvin: International Money and Finance- Pearson Education.
7. James C Ingram and Robert M Dunn: International Economics- JohnWiley and Sons.
8. Keith Pilbeam: Finance and Financial Markets- Palgrave.
9. Dennis R Appleyard and Alfred J Field: International Economics-McGraw Hill.
- 10.Robert J Carbaugh (2011): Global Economics- Cengage Learning.
- 11.Giancarlo Gandolfo: International Finance and Open Economy Macroeconomics- Springer.

12. Van den Berg: International Finance and Open Economy Macroeconomics- World Scientific.
13. Lawrence Copeland: Exchange Rates and International Finance-Pearson Education.
14. M Levi: International Finance-McGraw Hill.
15. Richard Caves, Jeffrey Frankel and Ronald Jones: World Trade and Payments- Pearson.
16. Sumati Varma: Currency Convertibility: Indian and Global Experiences-New Century.
17. Theo Eicher, John Mutti and Michelle Turnovsky (2009): International Economics- Routledge.

## **ECO4C13 – FINANCIAL MARKETS**

*Contact Hours per Week: 6 hrs*

*Number of Credits: 3*

### **Course Outline**

#### **Module I: Financial Markets**

Functions of financial markets-Types of financial markets- Participants in financial markets- Role of financial intermediaries-Financial Innovation-Financial inclusion and inclusive growth.

#### **Module II: Money Market**

Functions of money market-Instruments of the money market-Call money-Bill of exchange- Commercial bills-Treasury bills- Commercial paper-Interbank market-Federal funds- Negotiable certificate of deposits- Banker's acceptance-Repurchase agreements-Money market mutual funds- Features of a developed money market-Structure of Indian money market- Money market reforms in India since 1991.

#### **Module III: Capital Market**

Functions of capital market-Primary market-Instruments of the primary market- Secondary market-Functions- Instruments of the secondary market-Demutualisation of stock exchanges- Trading mechanism of the stock exchanges- Liquidity products (margin trading, short sales, securities lending and borrowing)-Foreign institutional investment-Participatory notes (P- notes)-Insider trading-Investor protection- Credit rating-Capital market institutions- Depositories-Discuss and Finance House of India-Stock Holding Corporation of India- Securities Trading Corporation of India-SEBI-Functions and powers- Capital market reforms in India since 1991.

#### **Module IV: Derivatives Market**

Types of derivatives-Participants in the derivative markets-Uses of derivatives- Options- Types of options- Uses of options-Platforms for options trade-Trading mechanics-Option premium-Profits and losses with options-Stock options and stock index options in India- Futures- Types of futures (stock index futures-foreign currency futures-interest rate futures- commodity futures)-Uses of futures-Market mechanics-Market participants- The clearing process- Stock futures and stock index futures in India-Difference between options and futures-Swaps-Interest rate swaps-Foreign currency swaps.

#### **Module V: Global Financial Markets**

Instruments- American Depository Receipts (ADR)-Global Depository Receipts (GDR)- Foreign Currency Convertible Bonds (FCCB)-External commercial borrowings-International bonds-Eurobonds-Euronotes-Euro commercial papers-Eurodollars-Eurocurrency market- Reasons for the growth-Features-Effects of the eurocurrency market.

### ***References***

1. Anthony Santomero and David Babbel (2001): Financial Markets, Instruments and Institutions- McGraw Hill Higher Education.
2. Keith Pilbeam (1998): Finance and Financial Markets- Palgrave.
3. Anthony Saunders and Marcia Millon Cornett (2007): Financial Markets and Institutions: A Modern Perspective- TATA McGraw Hill.
4. Fabozzi, Modigliani, Jones and Ferri (2002): Foundations of Financial Markets and Institutions- Pearson Education.
5. Jeff Madura (2008): Financial Markets and Institutions-Cengage Learning.
6. Stephen Valdez and Julian Wood (2003): An Introduction to Global Financial Markets- Palgrave Macmillan.
7. Robert A Strong (2002): Derivatives: An Introduction- Thomson South-Western.
8. John C Hull (1995): Introduction to Futures and Options Markets -Prentice Hall India.
9. Sunil K Parameswaran (2003): Futures Markets- Tata McGraw Hill.
10. Michael Durbin (2006): All About Derivatives -Tata McGraw Hill.
11. Giancarlo Gandolfo: International Finance and Open Economy Macroeconomics- Springer.
12. Rajesh Chakrabarti and Sankar De (2010): Capital Markets in India-Response Sage New Delhi.
13. S Gurusamy (2009): Financial Markets and Institutions-McGraw Hill Higher Education.
14. H R Machiraju (2010): Indian Financial System- Vikas Publishing House New Delhi.
15. Y.V. Reddy: Monetary and Financial Sector Reforms in India- UBSPD, New Delhi.
16. Bharati V Pathak (2011): The Indian Financial System- Pearson Education.
17. National Stock Exchange of India (NSE): Indian Securities Market: A Review- Various Issues.

### **LIST OF ELECTIVE COURSES**

#### **SEMESTER III**

<b>Elective Course</b>	<b>Title of Course</b>	<b>Hours/Week</b>	<b>Credit</b>
1	Banking: Theory and Practice	6	4
2	Industrial Economics	6	4
3	Labour Economics	6	4
4	Regional Economics	6	4

## SEMESTER III

### ELECTIVE 1

## ECO3E01 – BANKING: THEORY AND PRACTICE

*Contact Hours per Week: 6 hrs*

*Number of Credits: 4*

### Course Outline

#### Module I Central Banking

Structure and functions of central banks-Federal Reserve System-Bank of England- European Central Bank- Reserve Bank of India- Monetary policy- Objectives and instruments- Liquidity management- Autonomy of the RBI-Monetary sector reforms in India since 1991- Recent monetary and credit policy of RBI-Impact of RBI's monetary policy on economic growth and inflation.

#### Module II Commercial Banks and Specialised Financial Institutions

Structure of commercial banks-Public sector banks-Private sector banks-New generation banks-Foreign banks-Functions of commercial banks-Commercial banks and credit creation- Branch expansion programme and policy-Deposit mobilization and sectoral allocation of bank credits- Priority sector lending- Social banking-Lead bank scheme- Land development banks- Regional rural banks-Development financial institutions (IFCI, IDBI, IIBI, SIDBI) - Specialized financial institutions (EXIM Bank-National Housing Bank-NABARD-MUDRA bank)-Specialized investment institutions (Pension funds-Hedge funds-Mutual funds-UTI)- Non Banking Financial Companies-Investment banks-Merchant banks.

#### Module III Innovations in Banking Transactions

Mail transfer-Telegraphic transfer-MICR clearing-Automated clearing system-Electronic funds transfer-Digital payment system-E-banking-Virtual payments systems-Internet banking- Mobile Banking-Home Banking-Tele-Banking-Core banking.

#### Module IV Banking Sector Reforms in India

Banking sector reforms since 1991- Context, need and objectives-Implementations of the Narsimham Committee recommendations- Issues in banking sector reforms-Priority sector lending-Asset Classification- Non-performing assets-Capital adequacy norms-Regulation of the banking sector-Board for Financial Supervision-Credit Information Bureau of India Limited (CIBIL)-Banking Ombudsman-SARFAESI Act.

#### Module V International Banking

International banking-Reasons for the growth of international banking-Offshore banking- Multinational Banking-Bank for International Settlements (BIS)-World Bank-Asian Development Bank-New Development Bank (BRICS bank).

### References

1. M H de Kock: Central Banking-Universal Book Stall, New Delhi.

2. Meir Kohn (1996): Financial Institutions and Markets-Tata McGraw Hill.
3. Roger LeRoy Miller and David VanHoose (1993): Modern Money and Banking-McGraw- Hill International.
4. Jawed Akhtar and Shabbir Alam: Banking System in India: Reforms and Performance Evaluation- New Century Publications, New Delhi.
5. Y.V. Reddy: Monetary and Financial Sector Reforms in India- UBSPD, New Delhi.
6. Suraj.B. Gupta: Monetary Planning for India.
7. K. Rao: Management of Commercial Banks.
8. Harendra Badhav (ed): Challenges to Indian Banking: Competition, Globalisation and Financial Markets- Macmillan.
9. N.S. Kher: Non-Performing Advances in Banks, Skylark, New Delhi.
10. Hansen and Kathuria (ed.) A Financial Sector for the 21st Century OUP.
11. Muraleedharan (2009) Modern Banking: Theory and Practice- PHI Learning Pvt Ltd.
12. Shekhar and Shekhar: Banking Theory and Practice-Vikas Publishing House Limited.
13. Bharati V Pathak (2011): The Indian Financial System- Pearson Education.
14. RBI: Report on Trend and Progress of Banking in India.
15. Report of the Committee (Narsimham) on the Financial System Nov., 1991.
16. Raghuram Rajan Committee Report on Financial Sector Reforms- Planning Commission.

## ELECTIVE 2

### ECO3E02 – INDUSTRIAL ECONOMICS

*Contact Hours per Week: 6 hrs*

*Number of Credits: 4*

#### **Course Outline**

##### **Module I: A Prelude to Industrial Economics**

Market structure-conduct-performance paradigm-Alternative schools of thought- Market concentration and monopoly power-Causes and measurement-Market concentration and performance-Extent of market concentration in India-Recent Trends-Vertical integration, diversification and merger (motives and measurement).

##### **Module II: Location Analysis**

Factors determining location-Approaches to industrial location analysis-Theoretical (geographical and economic theories) and operational approaches-Industrial location pattern in India.

##### **Module III: Industrial Finance**

Sources (internal and external)-Financial Statements- Analysis of financial ratios and their interrelatedness- Standards for comparison of financial ratios-Problems of financial analysis.

#### **Module IV: Technological Change and Industrial Efficiency**

Measurement-Trend and impact of technological change in Indian industries- Problems related to R & D and innovation- Trends in total factor productivity- Determinants of productive and economic efficiency- Measurement of the efficiency level.

#### **Module V: Industrial Development Government Regulation of Industries**

Pattern of industrialization since independence-Changing structure of industries- Debates on industrial stagnation-Issues in industrial development in the context of globalization- Evolution of industrial policy- Performance of licensing policy-Rationale of delicensing- Regulation of monopolies.

#### ***References***

1. Roger Clarke: Industrial Economics- Basil Blackwell, New York, 1985.
2. Hay D A and Morns D J: Industrial Economics: Theory and Evidence- Oxford, 1979.
3. Barthwal R R: Industrial Economics- New Age International Pvt. Ltd., New Delhi, 1995.
4. Smith D M: Industrial Location: An Economic and Geographic Analysis- John Wiley, New York, 1971.
5. Lave L B: Technological Change: Its Conception and Measurement- Wiley, 1966.
6. CDS: Balakrishnan P and Pushpangadan K: Total Factor Productivity Growth in Indian Manufacturing: A Fresh Look- Working Paper No. 259, Thiruvananthapuram, 1994.
7. Ahluwalia I J: Industrial Growth in India- Oxford University Press, 1985.
8. Prasanna Chandra: Financial Management-Theory and Practice- Tata McGraw Hill, New Delhi, 1995.
9. Harvey Leibenstein: Allocative Efficiency vs. X-Efficiency- American Economic Review, 1966, pp. 392-415
10. Uma Kapila: Indian Economy Since Independence- Academic Foundation, New Delhi,
11. Buleshkar A V, Mithani D M (Ed.): Structural Changes and Issues of Indian Economy- Himala Publishing House, New Delhi, 1990.
12. Sach S J and Varshney A (Eds.): India in the Era of Economic Reforms: A Political Economy- Oxford University Press, 2000.
13. Ahluwalia I J and Little I M D (Eds.): India's Economic Reforms and Development- Oxford University Press, 2000.

### **ELECTIVE 3**

### **ECO3E03 – LABOUR ECONOMICS**

*Contact Hours per Week: 6 hrs*

*Number of Credits: 4*

#### **Course Outline**

##### **Module I: Labour Market**

Nature and characteristics of labour markets in developing countries like India- Paradigms of labour market-

Classical, neo-classical and dualistic- Analysis of demand and supply forces- Demand for labour relating to size and pattern of investment, choice of technology and government labour policies and their orientation- Supply of labour in relation to growth of labour force- Labour market process.

### **Module II: Employment**

Employment and development relationship-Importance of employment in the context of poverty in the developing countries- Concept and measurement of unemployment- Causes- Issues relating to employment, rationalization, technological, change and modernization- Rural unemployment and educated unemployment- Employment policy under the five-year plans- Evaluation of employment policy in India.

### **Module III: Wage Determination: Theory and Practice**

Classical, neo-classical and bargaining theories of wage determination- Concepts of wages- Fair living- Minimum wages- Problems of implementation of minimum wages –Wage determination by sectors- Urban and rural organized and unorganized sectors- Wage and nonwage components of labour remuneration-Wage and productivity and wage and inflation relationship-Productivity and profit sharing schemes- Wage differentials in terms of firm, industry, occupation, region, sex and skills-Wage standardization - Wage policy in India.

### **Module IV: Industrial Relations and Trade Unions**

Growth of industrialization and emergence of unionism- Theories of labour movement- Growth, structure and pattern of trade unions in India- Achievements and failures of trade union movements- Determinants of industrial disputes- Steps to achieve peace- Methods of present and settle industrial disputes-Collective bargaining, conciliation, arbitration adjudication- Grievance settlement- Labour participation in management.

### **Module V: State and Labour**

Increasing role of state in the determination of labour matters- Labour policy of the government in the past- Social security and labour welfare measures adopted by governments- Important labour legislation in India and their implications- Impact of ILO- Government policy towards labour and trade unions- Agricultural labour-Child labour- Labour in the unorganized sector-VRS policy.

### ***References***

1. Hunter and Mulvey: Economics of Labour- Macmillan, 1983.
2. A Freeman: Labour Economics- 1982.
3. R A Lester: Economics of Labour- Macmillan, 1964.
4. C R Mc Connell and S L Brue: Contemporary Labour Economics- McGraw Hill, 1986.
5. B Mc Cormic and Smith (Ed): The Labour Market- Penguin, 1968.
6. L Reynolds: The Structure of Labour Markets- Harper, 1951.
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8. A Rees: Economics of Work and Pay- 1978.
9. N Das: Unemployment, Full Employment and India- Asia, 1960.

- 10.L K Deshpande, P R Brahmanand and E A G Robinson (Ed.): Employment Policy in Developing Economy- Macmillan, 1983.
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- 12.S Kannappan: Employment Problems and Urban Labour Markets in Developing Nations- University of Michigan, 1983.
- 13.A K Sen: Employment, Technology and Development- Oxford University Press, 1975.
- 14.L K Deshpande and J C Jandesara (Ed): Wage Policy and Wage Determination in India- Bombay University, 1970.
- 15.J T Dunlop (Ed): Theory of Wage Determination- Macmillan, 1957.
- 16.J R Hicks: The Theory of Wages- Oxford, 1932.
- 17.Subrahmaniam: Wages in India- Tata McGraw Hill, 1977.
- 18.T S Papola: Principles of Wages Determination- 1975.
- 19.B K Madan- The Real Wages of Industrial Labour in India- Management Development Institute, New Delhi, 1977.
- 20.Sandesara and Deshpande: Wage Policy and Wage Determination in India
- 21.S Palekar: Wage Policy and Economic Development- Asia, 1978.
- 22.C A Myers: Industrial Relations in India- Asia, 1958.
- 23.S D Punekar: Labour Welfare, Trade Unionism and Industrial Relations- Himalaya, 1978.
- 24.E A Ramaswamy and U Ramaswamy: Industrial and Labour- Oxford University Press, 1981.
- 25.A Rees: Economics of Trade Unionism- Nisbet, 1962.
- 26.H A Turner: Wage Trends, Wage Policies and Collective Bargaining- Cambridge, 1965.
- 27.C B Mamoria: Labour Problems and Social Welfare in India- Kitab Mahal, 1966.
- 28.E A Ramaswamy and U Ramaswamy: Industrial Relations in India- Macmillan, 1978.
- 29.V B Singh (Ed): Industrial Labour in India- Popular Prakasham, 1970.
- 30.K N Vaid: Labour Welfare in India- Centre for Industrial Relations, Delhi, 1970.
- 31.E Boserup: Women's Role in Economic Development- 1971.
- 32.Ray Marshall and Richards (Ed): An Anthology of Labour Economics: Readings and Commentaries- Wiley, 1972.

## **ELECTIVE 4**

### **ECO3E04 – REGIONAL ECONOMICS**

*Contact Hours per Week: 6 hrs*

*Number of Credits: 4*

#### **Course Outline**

#### **Module I: Regional and Spatial Microeconomic Theory**

Concept of region- Time and space as variables in economic analysis of a region –Spatial microeconomic theory- Theory of location- Price equilibrium in geographically separated and interlinked markets- Spatial monopolistic competitions-Spatial price discrimination- Alternative objectives of the firm with regard to locational choice- Locational interdependence- Hotelling's formulation and its critique- Economies and diseconomies of agglomeration- Transport cost on location- Views of Weber, Sargent Florence, E M Hoover, Colin Clark.

### **Module II: Spatial Macroeconomic Theory**

Spatial macroeconomics- Regional social accounting theory- Short run regional income determination - Interregional Income-Multiple income determination in a multi-regional economic system-Marginal growth theories-Difference in regional income trends in per capita income-Survey of recent techniques for regional analysis-Views of Christaller, Losch, Perroux, Isard -Dynamic theory of regions.

### **Module III: Regional Economic Policy**

Regional income accounts-Regional planning and development- Views of Perloff, Dunn, Lampard and Muth- Regional growth of income-Long term tendencies-Spread effects and backwash effects-Regional economic policy-Formulation of interregional objectives- Channalisation approach towards backward regions-Level of inter-regional disparities- Role of finance commission in regional financial allocation.

### **Module IV: Regional Imbalances and Policies**

Regional characteristics in India and imbalances- Regional development programs to reduce imbalances in India-Policies to reduce regional imbalances in India -Dandekar Committee on regional imbalances.

### **Module V: Kerala Economy: Past, Present and Future**

Overview of social, political and economic situation in Travancore, Cochin and Malabar before the formation of Kerala-Migration to Malabar- Emergence of indigenous capitalist class-Commercialization of agriculture-The rise of plantation sector- Economic development policies of the state of Travancore-Structural characteristics of Kerala economy and changes in them since 1956-Strength and weakness.

**Agriculture:** Land reforms- Co-operative Movement-Institutional and informal credit system- Food crops/cash crops sector- Area, production, productivity and price trends- Cost structure- Rural employment/unemployment and wages- Food security.

**Industry:** Structural Characteristics-Strength and weaknesses-Formal/informal sectors- Growth of unorganized sector-Modernization of traditional industries- the case of coir- Industrial productivity and wage rates-Industrial Relations-Trade union movement-Infrastructure-Power Energy-Transport and communications - Banking - Education, Healthcare- Development issues.

**External Sector:** Exports, imports and balance of trade-Gulf migration and remittances-

Implications of Government of India's policies on Kerala economy-Kerala Model of Development-Strength and weaknesses-Major issues in Kerala's development- Problems and prospects.

### **References**

1. H W Richardson: Regional Economics- 1969.
2. H W Richardson: Regional Economics -A Reader- 1969.
3. H W Richardson: Elements on Regional Economics- 1969.
4. T Wilson (Ed.): Papers on Regional Development- 1965.
5. L Needlemana (Ed.): Regional Analysis- 1968.
6. H S Perloff, E S Lampard and R F Muth: Region's Resources and Economic Growth.
7. J R Myer: Regional Economics: A Survey in Economic Theory- Vol. II, 1968.
8. L S Bhat: Regional Planning in India- Statistical Publishing Society, 1972

### LIST OF ELECTIVE COURSES

#### SEMESTER IV

##### List1

Elective Course	Title of Course	Hours/Week	Credit
5	Advanced Econometrics	6	4
6	Business Economics	6	4
7	Demography	6	4
8	Environmental Economics	6	4
9	Political Economy of Development	6	4

##### List2

Elective Course	Title of Course	Hours/Week	Credit
10	Agricultural Economics	6	4
11	Gender Economics	6	4
12	Health Economics	6	4
13	Mathematical Economics	6	4

### SEMESTER IV

#### ELECTIVE 5

### ECO4E01 – ADVANCED ECONOMETRICS

*Contact Hours per Week: 6 hrs*

*Number of Credits: 4*

#### **Course Outline**

##### **Module I: Qualitative Response Regression Models**

The linear probability model (LPM)- The logit model- The probit model- The tobit model.

##### **Module II: Dynamic Econometric Models and Panel Data Regression Models**

Autoregressive and distributed-lag models-Role of lag in economics-The Koyck approach- The adaptive

expectations model- Stock adjustment model-Estimation of autoregressive models- The method of instrumental variable (IV)- Durbin h test- Almon approach to distributed lag models.

#### Panel Data Regression Models

Fixed effects regression model-The random effects model.

### **Module III: Simultaneous Equation Methods**

Simultaneous equation bias-The identification problem-Rules of identification- Rank and order condition- Simultaneous equation methods-Limited information versus full information methods-Recursive models and ordinary least squares-The method of indirect least squares (ILS)-The method of two stage least squares (2SLS)-Instrumental variable estimation- Properties of various estimators.

### **Module IV: Instrumental Variables Regression and Time Series Econometrics**

Instrumental variables estimator with a single regressor and a single instrument- The general IV model- Checking instrument validity, instrument relevance and instrument exogeneity.

#### Time Series Econometrics

Stochastic processes, stationary versus nonstationary stochastic processes-Unit roots- Trend stationary versus difference stationary stochastic processes- Spurious Regression-Testing for unit roots- Dickey Fuller and Augmented Dickey Fuller tests-Cointegration and error correction models

### **Module V: Modelling Stochastic Processes**

The Box Jenkins methodology -AR, MA, ARMA and ARIMA models-Estimation and forecasting- Vector autoregression (VAR)-Measuring volatility- The ARCH and GARCH models.

### ***References***

1. Damodar N Gujarati and Dawn C Porter (2009): Basic Econometrics- Fifth Edition, McGraw Hill International Edition.
2. James H Stock and Mark W Watson (2008): Introduction to Econometrics- Pearson, Addison Wesley.
3. Christopher Dougherty (2007): Introduction to Econometrics, Third Edition, Oxford University Press.
4. Robert S Pindyck and Daniel L Rubinfeld (1998): Econometric Models and Economic Forecasts- Fourth Edition, McGraw Hill International Edition.
5. Jeffrey M Wooldridge (2006) -Introductory Econometrics: A Modern Approach- Third Edition, Thomson South Western
6. Chandan Mukherjee, Howard White and Marc Wuyts (1998): Econometric and Data Analysis for Developing Countries- First Edition, Routledge
7. Gary Koop (2005): Analysis of Economic Data- Second Edition, John Wiley and Sons.
8. Kerry Patterson (2000): An Introduction to Applied Econometrics: A Time Series Approach- First Edition, Palgrave.
9. Jack Johnston and John Dinardo (1998): Econometric Methods- Fourth Edition, The McGraw Hill Companies.

10. William H Greene (2003): *Econometric Analysis- Fifth Edition*, Pearson Education.
11. Walter Enders (2004): *Applied Econometric Time Series- Second Edition*, Wiley India Edition.
12. Richard Harris and Robert Sallis (2006): *Applied Time Series Modelling and Forecasting- First Edition*, Wiley Student Edition.

## **ELECTIVE 6**

### **ECO4E02 – BUSINESS ECONOMICS**

*Contact Hours per Week: 6 hrs*

*Number of Credits: 4*

#### **Course Outline**

##### **Module I: Growth of the Firm**

Growth strategy-Constraints on growth-Alternative growth strategies-Internal expansion- External expansion- Vertical integration- Diversification-Merger-Growth through strategic alliance- Multinational corporation- Types of multinationals-Problems facing the multinationals.

##### **Module II: Demand Forecasting**

Demand forecasting- Need for demand forecasting-Types of demand forecasting- Short term and long term forecasting -Quantitative and qualitative forecasts -Explanatory versus time series forecasting- Basic steps involved in a forecasting task -Criteria of a good forecasting method- Survey methods and statistical methods.

##### **Module III: Financial Statements and Profit Planning**

Time value of money-Present value and discounting- Sources of business finance- Financial statements (income statement-balance sheet-statement of retained earnings-statement of cash flows)-Financial ratios (liquidity, activity, debt, profitability and market ratios)- Breakeven analysis- Operating leverage.

##### **Module IV: Risk Analysis and Capital Budgeting**

Risk analysis-Types of risks- Risk return indifference curves-Risk management- Adjusting the valuation model for risk-Certainty equivalent adjustment- Risk adjusted discount rate- Decision trees -Computer simulation-Capital budgeting- Need for capital budgeting- Steps in capital budgeting- Capital budgeting and decision rules-Net present value- Internal rate of return- Payback period- Benefit cost ratio- Cost of capital- Capital rationing and profitability index.

##### **Module V: Pricing of Goods and Services**

Price discrimination- Pricing and the product life cycle-Pricing of multiple products- Products with interdependent demands-Joint products- Fully distributed versus incremental cost pricing- Ramsey pricing- Tying-Product bundling- Peak load pricing- Mark up pricing- Rigid pricing- Flexible pricing- Special designs pricing-Charm pricing- Seasonal pricing- Progressive pricing- Two-part tariff-Prestige pricing-Price lining- Price matching-Auction pricing-New product pricing (price skimming, penetration pricing, going rate pricing)- Transfer pricing.

## ***References***

1. John Sloman and Mark Sutcliff: Economics for Business- Third Edition, Pearson.
2. Mark Hirschey: Managerial Economics- Cengage Learning India.
3. Lila J Truett and Dale B Truett: Managerial Economics- John Wiley & Sons.
4. Spyros Makridakis, Steven C. Wheelwright, and Rob J Hyndman: Forecasting Methods and Applications- Third Edition, John Wiley & Sons.
5. Dominick Salvatore: Managerial Economics- Fourth Edition, Thomson Asia Pvt. Ltd.
6. Lawrence J Gitman: Managerial Finance- Tenth Edition, Pearson Education.
7. H Craig Peterson W Cris Lewis: Managerial Economics- Fourth Edition, Prentice Hall
8. Paul G Keat and Philip K Y Young: Managerial Economics- Pearson Education.
9. R R Barthwal: Industrial Economics- New Age International (P) Ltd.
10. D N Dwivedi: Managerial Economics- Seventh Edition, Vikas Publishing House.

## **ELECTIVE 7**

### **ECO4E03 – DEMOGRAPHY**

*Contact Hours per Week: 6 hrs*

*Number of Credits: 4*

#### **Course Outline**

##### **Module I: Concepts and Measures of Population Changes**

Meaning and scope of demography- Components of population growth and their interdependence- Measures of population change- Growth, structure and distribution and sources of population data- Demographic data in India- Censuses, Civil Registration System and Sample Surveys- Sample registration- Methods and drawbacks- Measures of fertility and mortality- Standardized birth rates and death rates- Concepts of life table- Meaning of its column and uses- Population distribution- Population projections-Stable, stationary and quasi stable population.

##### **Module II: Sex and Age Structure**

Patterns of sex and age structure in developed and less developed countries- Determinants of sex and age structure- Demographic effects of sex and age structure- Ageing and younging of population.

##### **Module III: Fertility**

Fertility: Levels and trends-Factors affecting fertility in developed and LDCs- Differential fertility- Ecological factors- Regional differences- Urban-rural-Socio-economic factors- Educational attainment, economic status, occupation of husband, employment status of wife, religion, caste, race, etc.

##### **Module IV: Nuptiality and Mortality**

**Nuptiality:** Concepts-Analysis of marital status from census-Mean age at marriage- Synthetic and decadal synthetic cohort methods- Mean age at widowhood and divorce- Trends in age at marriage-Change in age

pattern of marriage.

**Mortality:** Levels and trends of mortality in developed and LDCs-Sex and age patterns of mortality- Fetal and infant mortality-Still birth, abortion and prenatal mortality-Levels and trends of infant mortality-Factors affecting-Mortality differentials-Rural, urban, geographical, occupational, ethnic, etc.- Factors in mortality declines in developed and LDCs.

### **Module V: Migration**

Basic concepts and definitions- Importance of migration in the study of population- Types of migration- Internal, international, temporary migration- Effects of immigration and emigration- Socio-economic aspects of migration- Theories concerning internal migration- Costs and benefits of internal migration and outmigration.

### **References**

1. U.N: The Determinants and Consequents of Population Trends.
2. A.A. Bhende and T. Kanikar: Principles of Population Studies- Himalaya, 1982.
3. D.J.Bogue: Principles of Demography- Wiley, 1971.
4. B.D.Misra: An Introduction to the Study of Population- South Asian Publishers, 1980.
5. S.Nagarwal: India's Population Problem- Tata McGraw Hill, 1985.
6. Government of India: Census of India and Related Monographs and Reports.
7. U.N: Methods of Measuring Internal Migration- 1979

## **ELECTIVE 8**

### **ECO4E04 – ENVIRONMENTAL ECONOMICS**

*Contact Hours per Week: 6 hrs*

*Number of Credits: 4*

#### **Course Outline**

##### **Module I: Basic Concepts**

Basic concepts of environmental economics- Property rights in environment- Pollution rights- Habitats, resources, amenities- Collectively consumed goods and services- Spill over costs- Social efficiency- Economic efficiency- Sustainability- Bio-diversity-Ozone layer- Environmental quality- Environmental accounts- Externalities.

##### **Module II: Normative Theory of Environmental Regulation**

The theory of externalities-Measurement of externalities- The basic theory of environmental policy- The choice among policy instruments- Environmental policy under uncertainty- Market imperfections- Properties of the Pigovian solution to the problem of externalities- Pigouvian levy as a tax equal to marginal damages at the optimal outcome.

### **Module III: Design and Implementation of Environmental Policy**

Problems of measurement-Obstacles to determination of environmental policy- Second best approaches- Standards of targets for environmental quality- Design of regulatory system- Choice of policy instruments- Experience with economic incentives for environmental management- Legal liability as an economic instrument for environmental protection- Environmental federation- Enforcement policy on patterns of international trade- Command and control vs. economic incentives.

### **Module IV: Benefits and Costs of Pollution Control and Environmental Programs**

Defining the value of change in environmental quality- Indirect methods of measuring the benefits of environmental quality- The advertising behaviour approach- Weak complementarity approach- Hedonic market methods- Contingent valuation method- Application of valuation techniques.

#### **Benefits and Costs of Environmental Programs**

Use of benefits- Cost analysis in environmental standards- Need for B-C analysis of environmental standards- Welfare loss from setting incorrect standards- Distribution of costs and benefits- Who pays for pollution abatement and who benefits from it- Environmental economics and environmental policy-Use of economic analysis and economic incentives in environmental management.

### **Module V: Development and Sustainability**

Notion of development- Notion of sustainability-Variables of the ecological system- Rules that govern the interactions of these variables-Operational meaning of sustainability- Defining the target state- Measure of sustainability-Case of agricultural system- Soil technology- Crop production and environmental changes- Environmentally (Eco) friendly technology and development-Value of sustainable path- Use and constraints of natural resources accounting and auditing- Methodologies for pricing natural resources- an overview -Case studies of sustainable development (based on man and the biosphere series- Studies sponsored by the UNESCO).

### ***References***

1. Joseph J Seneca and M K Taussig: Environmental Economics.
2. P Abelson: Cost Benefit Analysis and Environmental Problems.
3. P Nikamp: Theory and Application of Environmental Economics, Vol. I
4. P Nikamp: Environmental Economics, Vol. I
5. H Siebert: Economics of Environment: Theory and Policy.
6. D N Thompson: The Economics of Environmental Protection.
7. A M Freeman (etc) Economics of Environmental Policy.
8. C C Park: Environmental Policies: An International Review.
9. R Costanza: Ecological Economics.
10. Charles D Kolstad (2003): Environmental Economics- OUP.

## ELECTIVE 9

### ECO4E05 – POLITICAL ECONOMY OF DEVELOPMENT

*Contact Hours per Week: 6 hrs*

*Number of Credits: 4*

#### **Course Outline**

##### **Module I: Subject Matter of Political Economy**

Subject matter of political economy- State, market and institutions-Government, bureaucracy, corruption, mis-governance, rent seeking- Elite capture, Political clientelism- Competitive Populism.

##### **Module II Classical Political Economy**

Genesis of Classical Political Economy-Adam Smith and David Ricardo on theory of value, growth and distribution- Views on trade- Major questions raised by classical economists- Neoclassical critique of classical economics-Contributions of Joan Robinson and Sraffa.

##### **Module III Marxist Political Economy**

Mode of production- Dynamics of social change- Primitive communism, slavery, feudalism, capitalism, socialism and communism- Asiatic mode of production- Theory of value, surplus value and profit- Marxian Scheme of Simple and Expanded Reproduction.

##### **Module IV International Political Economy**

Neoclassical views on international integration- WTO regime- Free Trade and its relative gains, ECLA-school- Latin American experience, Prebisch Singer, Unequal exchange, Dependency theory- Monopoly capital, imperialism and its critique. Cross border investment. European Integration- Intermediate regime.

##### **Module V Political Economy of Development in India**

The Mode of Production debate in India- Political economy of fiscal federalism- Political economy of liberalisation in India- Decentralisation and local government-displacements, Environment related movements - selected cases.

#### ***References***

1. Ha-Joon Chang 2006: Rethinking Development Economics- Anthem Press.
2. Edmund S. Phelps, Political Economy: An Introductory Text-New York: WW Norton, 1985.
3. Usher, Dan 2003: Political Economy, Blackwell Publishing
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- historical in the evolution of economic theory”, Routledge.
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  9. Jeffrey S. Banks and Eric Allen Hanushek: Modern Political Economy: Old Topics, New Directions (Cambridge UP, 1995)
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  15. Screpanti, Ernesto and Zamagni, Stefano (2006), An Outline of the History of Economic Thought, Second Edition, Oxford University Press, New Delhi (Chapter 8.1)
  16. Sweezy, P. M (1968), The Theory of Capitalist Development, Monthly Review Press, New York
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  21. Corbridge, Stuart: The Political economy of Development in India Since Independence. (2009): 318-336. Paul R Brass 'Handbook of South Asian Politics, Routledge
  22. Ernest Mandel (2008), Marxist Economic Theory (Vol 1 & 2), Aakar Books, Delhi.
  23. Kozlov (1977): Political Economy of Capitalism, Progress publishers, Moscow.
  24. Khudokormov G.N. (1985), Political Economy of Socialism, Union of Soviet Socialist Republics.
  25. Chalm K.S. (1999), Readings in Political Economy, Orient Longman, Hyderabad.
  26. Vaggi, Gianni: Historical Antecedents of Development Economics - International Handbook of Development Economics. Cheltenham: Edward Elgar (2008): 97-110.
  27. Bagchi, A. K. 2008: Historical Perspectives on Development, in, Amitava Krishna Dutt and Jamie Ros (eds), International Handbook of Development Economics, Vol. 1, Edward Elgar, Cheltenham, UK and USA, Chapter 2, pp16-31.
  28. Junankar P N: Marx's Economics.

## ELECTIVE 10

### ECO4E06 – AGRICULTURAL ECONOMICS

*Contact Hours per Week: 6 hrs*

*Number of Credits: 4*

#### **Course Outline**

##### **Module I: Agriculture in Economic Development**

Nature and scope of agricultural economics- Agriculture and economic development, Models of agricultural development (Schultz, Lewis, Fei & Ranis, Jorgenson, Todaro, Mellor, and Boserup) - Interdependence between agriculture and industry- Terms of trade between agriculture and industry.

##### **Module II: Economic Decisions in Agriculture**

Production- Factor-product relationship - Production functions- Cobb Douglas, CES & Spillman- Factor-factor relationship- Product-product relationship- Resource-use efficiency- Farm-size productivity debate- Capital formation in agriculture- Public versus private investment- Complimentarily versus substitutability debate- Classification of costs- Farm planning and farm budgeting- Systems of farm organization.

##### **Module III: Behaviour of Demand, Supply and Agricultural Prices**

Price determination of agricultural commodities-Elasticity of demand and supply of agricultural commodities- Cob-web theorem- Nerlovian supply response model-Prices instability- Role of public intervention in price determination and distribution of agricultural commodities- Agricultural price policy in India- Instruments of price policy- Crop insurance- CACP- Output subsidy- PDS- Food inflation.

##### **Module IV: Agricultural Marketing**

Agribusiness- Market structure of agricultural commodities- Marketed and marketable surplus- Distress sales- Defects of markets- Regulated markets- Co-operative markets- Market intelligence- Futures trading.

##### **Module V: Structural and Institutional Changes in Indian Agriculture**

Area, production & productivity trends- Changing cropping pattern- Factors affecting cropping pattern- Agricultural development under five year plans- Green revolution- Agricultural inputs- HYV seeds- Farm mechanization- Fertilizer use efficiency- Crop irrigation technology- Input subsidies- Second green revolution- Ever green revolution- ICAR-Land reforms- Institutional and non-institutional sources of agricultural credit- NABARD- Co-operative credit, Rural indebtedness- Agricultural labour and wages- National Agricultural Policy 2000- National Commission on Farmers- WTO and Indian agriculture- DOHA Agreement.

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## ELECTIVE 11

### ECO4E07 – GENDER ECONOMICS

*Contact Hours per Week: 6 hrs*

*Number of Credits: 4*

#### **Course Outline**

#### **Module I: Introduction to Gender Studies**

Concepts of gender and sex-Feminity and masculinity-importance of women studies- Patrilineal and

matrilineal systems and its relevance to present Indian society- Demography of female population in India- Age structure, mortality rates-Inter-state variations in sex ratio- Causes of declining sex ratio- Measurement of fertility and its control-UNDP's gender related measures.

### **Module II: Women and Labour Markets**

Factors affecting female entry in labour markets-supply and demand for female labour in developed and developing countries, particularly in India- Female work participation in agriculture, non-agriculture rural activities, informal sector, cottage and small industries, organized industry and service sector- Wage differentials and its determinants- Gender, Education, Skill, Productivity, Efficiency -Impact of technology and modernization on women's work participation- Effects of globalization and liberalization on women.

### **Module III: Tools of Women Empowerment**

Women and education- GER ratio in India -Addressing gender inequalities in education- Gender equity in health-Access to nutrition-Women's participation in decision making -Role of civil society -Role of NGO's in empowering women- Gender and Community Economic Development (CED)-SEWA-Shramshakti-Kudumbashree in Kerala.

### **Module IV: Social Security for Women**

Measures for gender well-being- Entitlements, ensuring economic independence and risk coverage, access to credit and insurance market- Review of legislation for women's entitlements in India -Importance of 73<sup>rd</sup> Amendment of constitution in gender empowerment.

### **Module V: Social Protection for Women**

Protection of property rights- schemes for safety net for women- Effectiveness of collective bargaining-Public and private programmes to improve women's health-National Commission for Women (NCW)- The National Credit Fund for Women-Mahila Samridhi Yojana (MSY)- National policy for empowering women- International measures to protect women's rights- U.N Decade for women -UN convention on CEDAW and DEVAW.

### ***References***

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## ELECTIVE 12

### ECO4E08 – HEALTH ECONOMICS

*Contact Hours per Week: 6 hrs*

*Number of Credits: 4*

#### **Course Outline**

##### **Module I: The National and International Health Scene**

Health output and input indicators and their correlation with the level of economic development and with the public expenditure on health-Sources of health statistics and a critical appraisal of their usefulness and limitations.

##### **Module II: Resource Allocation in the Health Sector**

Resource allocation problems in private and government hospitals- Resource allocation problems facing a private practitioner-The problem of multiple services of a hospital- Pricing of these services and the choice of the mix of services- The trade-offs between quantity and quality- Production function- Productivity-Efficiency and equity considerations applied to the hospital sector- Spatial distribution of health care facilities and

services-The demand for health services and the role of the physician- The impact of pharmaceutical companies and health insurance on this demand.

### **Module III: Evaluation of Benefits and Costs of Health Services**

Private benefits and private costs of providing health services- The failure of the market to provide essential health services- The provision of health services by the government-The application of benefit cost analysis to public health and family planning projects- The role of health in economic development- Value of output lost due to number of sick days- Benefits and costs (both private and social) of training professional manpower such as physicians, dentists, pharmacists and nurses.

### **Module IV: Financing of Health Service and Issues in Health Economics**

Theory and practice- Review of per capita and public expenditure on health services over time and in different parts of the country- An analysis of the sources of public funds for health- The need for a general health insurance- Need for a social health insurance for the savings and the aged- A comparative analysis of alternative payment systems such as health insurance, prepayments scheme, savings-linked insurance system etc.-Financing health services through specific (health cess) and general (direct and indirect taxes) local government revenues- The role of government financing institutions in financing health.

#### ***Issues in Health Economics***

Growth in expenditure of personal health services- Characteristics of health services- Healthcare problems, public's and economist's views- Analysis of demand for health services and supply of it-Tastes and preferences- Relative prices- Full-cost pricing- Rising healthcare costs- Supply, demand and reform approaches-Productivity and efficiency of private and public health services- Laissez-faire approach to healthcare industry-Issues in the Indian healthcare system.

### **Module V: Health and Nutrition: Indian Experience**

Socio-economic and political setting-Improvement in health status, a historical analysis- Factors affecting health-Nutritional status- Changes in morbidity pattern and trends immortality rates-Development policies, health strategy and role of non-health system- Socio-economic determinants of health status- Health goals, strategies and intersectoral action-Implementation of intersectoral programme for health-Institutional framework- Community participation and informal organization- Health and nutrition in Kerala-Issues for the 21st Century.

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## ELECTIVE 13

### ECO4E09 – MATHEMATICAL ECONOMICS

*Contact Hours per Week: 6 hrs*

*Number of Credits: 4*

#### **Course Outline**

##### **Module I Theory of Consumer Demand**

Utility maximization- derivation of demand functions – Elasticity- measurement –Slutsky equation -Direct and cross effects - Homogeneous and homothetic utility functions - Indirect utility function - Roy's identity - Linear expenditure systems -Constant elasticity models.

##### **Module II Theory of Production**

Production Function – Producers equilibrium – derivation of input demand functions - Cobb- Douglas production function - CES production function -VES production function- Translog production. Cost function: Derivation of cost as a function of output-Duality - Shepherd's lemma- derivation of supply function-generalized Leontief cost function - Technological progress and production function.

##### **Module III Theory of Markets**

Mathematical treatment of market equilibrium- Single goal firm and multiple goal firms- Mathematical treatment of equilibrium under different market situations.

##### **Module IV Linear Programming and Input-Output Analysis**

Linear programming: Primal and dual problem - General linear programme - Complementary slackness theorem - Simplex Solution-Input Output Analysis: Open and closed, static and dynamic Leontief system - Technological viability -Hawkins-Simon's conditions for viability-

##### **Module V Decision Theory**

Decision theory framework-Payoff Tables-Regret Tables-Decision under uncertainty- uncertainty and risk-Methods of incorporating risk-Value of perfect information-Decision tree and its uses-Theory of Games: Two person zero-sum game - Pure and mixed strategy - Saddle point theorem.

#### **References**

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## **SEMESTER IV**

### **Additional Course for SDE/Private registration Students in lieu of Dissertation/Project**

### **ECO4C14 – RESEARCH METHODOLOGY AND COMPUTER APPLICATIONS**

*Number of Credits: 4*

#### **Course Outline**

##### **Module I: Fundamentals of Research Methodology**

Meaning of research- The relation between theory and research- Types of research- Scientific and social research- Pure and applied research- Special features of social research- Different approaches in social research.

##### **Module II: Formulation of Research Problem**

Formulation of null and alternative hypothesis- Research design and methods- Exploratory, diagnostic and experimental studies- Deductive and inductive method- Static and dynamic method- Historical and dialectical method- Case study method-Interdisciplinary research.

##### **Module III: Data Collection**

Sources of data- Primary and secondary- Time series and cross section data- Sample survey- Methods - Interview Methods-Questionnaire methods- Construction of questionnaire.

##### **Module IV: Sampling Methods**

Random, stratified, multistage, systematic, cluster, quota and judgment samples- Data analysis techniques- Drawing inferences from analysis- Scaling-Problems and Techniques- Report writing procedures.

### **Module V: Computer Applications**

Estimation of mean, median and mode-Standard deviation and coefficient of variation- Presentation of graphs- Line, sub divided, multiple, pie graphs- Estimation of growth rates- Estimation of trend equations- Estimation of regression equations- Introduction to EXCEL, SPSS.

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