



**UNIVERSITY OF CALICUT**

**Abstract**

BA Development Economics Programme - Choice Based Credit Semester System - syllabus revised - implemented with effect from 2013 - 14 admission onwards - approved - Orders issued

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**UNIVERSITY OF CALICUT (G & A - IV - B)**

U.O.No. 1841/2013/CU

Dated, Calicut University.P.O, 30.05.2013

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*Read:-*1. U.O No. GA1/J2/3601/08 (Vol II) dated 19-06-2009

2. U.O.No. GAV/B1/269/2009 dated 26-10-2009

3. Minutes of the meeting of the Board of Studies in Economics (UG) held on 06-11-2012(item No 1)

4. Minutes of the meeting of the Faculty of Humanities held on 12-11-2012 (Item No.1)

5. Minutes of the meeting of the Academic Council held on 15-01-2013 vide item No.II B

6. Orders of Vice Chancellor in File No. GAV/B1/181/2012 dated 10-04-2013

**ORDER**

Vide paper read first above, the Rules and Regulations governing the UG Curriculum under Choice Based Credit Semester System in the colleges affiliated to this University was implemented with effect from 2009 admission onwards.

Vide paper read 2 above, orders were issued implementing the syllabus of BA Development Economics Programme under CCSS with effect from 2009 admission.

Vide paper read 3 above,the meeting of the Board of Studies in Economics (UG) held on 06-11-2012 vide item No 1 has resolved to approve the revised syllabus of B.A Development Economics to be implemented from 2013-14 admission.

Vide paper read fourth above, the minutes of the meeting of the Board of Studies in Economics (UG) held on 06-11- 2012(item No 1) has been approved by the Faculty of Humanities at its meeting held on 12-11-2012 vide Item No. I 1.

Vide paper read 5 above, the Academic Council at its meeting held on 15-01-2013 while considering the minutes of the meeting of the Faculty of Humanities vide item No. II B has deferred the matter for detailed study.

As per the Orders of Registrar in File No. 4579/GAIV B1/2012/CU dated 03-04-2013 the minutes of the meeting of the Board of Studies in Economics (UG) held on 06-11- 2012(item No 1) was put up in File No.GAIV/B1/181/2012.

Vide paper read 6 above,the Vice Chancellor after having considered the matter and in view of urgency, has approved the minutes of the meeting of the Board of Studies in Economics (UG) held on 06-11- 2012(item No 1) exercising the powers of the Academic Council subject to ratification by the Academic Council.

Sanction has therefore been accorded to implement the revised syllabus of B.A Development Economics with effect from 2013-14 admission.

Orders are issued accordingly.

The syllabus is uploaded in the website.

Shanawaz T.P  
Assistant Registrar

To

The Principals of all Colleges offering BA Development Economics  
Copy to:PA to CE/ Ex Section/ EG Section/EX IV/ DR,AR-BA Branch/ EA II/ System  
Administrator with  
a request to upload the Syllabus in the University website/ GA I F Section/ Library/ SF/  
FC/DF

Forwarded / By Order

Section Officer

# REVISED UNDERGRADUATE DEGREE CURRICULUM AND SYLLABUS IN DEVELOPMENT ECONOMICS (REGULAR)

## UNIVERSITY OF CALICUT EFFECTIVE FROM 2013-14 ADMISSION

### Towards a Revision of Curriculum and Syllabus of Undergraduate ECONOMICS Programme

Every branch of knowledge is evolving over time. This is the result of man's quest for knowing more about himself and his societal environment. Economics is no exception to this process of evolution. A number of developments in the form of new theories and applications have already taken place in economics during the past few decades with a view to understand the economy, its actors their behavior and the consequent outcomes of their actions.

Generally, curriculum brings out the academic programme's educational philosophy, specific objectives of learning and understanding of a discipline and implementation strategies as well as assessment and evaluation criteria. However, Syllabus traditionally represents the content of a given Course and specifies how this content is graded and sequenced. Syllabus refers to content or subject matter of a given discipline whereas Curriculum refers to the totality of the content to be taught and aims to be realised with in a given academic course period. Thus Curriculum subsumes a Syllabus.

Curriculum and Syllabus of Economics should therefore follow the above line of thinking. Regular updating of both Curriculum and Syllabus in Economics is unavoidable because the subject of Economics has a rapid growth as compared to most of the other social sciences and also being a discipline that touches day-to-day human lives in every society. To quote UGC: *"Renewing and updating of the curriculum is the essential ingredient of any vibrant university academic system. There ought to be the dynamic curriculum with necessary additions and changes introduced in it from time to time by the respective university with a prime objective to maintain updated curriculum and also providing therein inputs to take care of fast paced development in the knowledge of the subject concerned. Revising the curriculum should be a continuous process to provide an updated education to the students at large"*.

To put it in a broad sense, higher education especially in the field of social science must aim at:

- To train students to understand the society, economy and the world at large
- To equip them with the right analytical skills to acquire a 'vision'
- To enjoy life time learning.

It is necessary to repeat that the goal of higher education is two fold: Knowledge Creation and its utilization through activities that are useful to the learners as well as the society.

Coming to the curriculum of Economics, our objective is to impart:

- A knowledge of fundamental concepts and theoretical propositions
- A methodology by which economic ideas are framed, tested and modified
- An understanding of the institutions, social, political and economic. that influence Economic issues

- An ability to present one's own analysis of the problems and issues in the language of an 'Economist'  
Teaching of Economics lack relevance if they do not help in the understanding of the laws of motion of the economy and society where one lives.
- The idea is to make the student at the undergraduate level understand correctly the basic concepts and terms used in Economics and to give him an exposure to the way economic problems and issues are to be looked at with out any bias.
- For this, what is needed is a set of CORE courses and ELECTIVE courses. The core course may consist of two parts (a) Basic Concepts, terms and theories and (b) Application areas.
- The first will have Papers like MICROECONOMICS, MACROECONOMICS , MATHEMATICS FOR ECONOMICS, POLITICAL ECONOMY OF DEVELOPMENT with special reference to INDIA and KERALA etc.
- The elective courses will have, FINANCIAL ECONOMICS, PUBLIC ECONOMICS, INTERNATIONAL ECONOMICS, ENVIRONMENTAL ECONOMICS, HEALTH ECONOMICS, etc., to enable the students to get an exposure to the application of what he is going to learn in CORE courses.

ELECTIVE Courses shall be short courses. A few of them are to be framed to suit ECONOMICS students and others specially suited to non-Economics students. All elective courses should contain substantial active learning component to give depth to the curriculum. This includes writing reports, oral presentations, and research projects. This will reinforce the empirical skills students have acquired in the course on quantitative methods.

Finally, we suggest that students do a final research project that would complete the Process of intellectual maturation It will also provide further insight in the curriculum.

### Suggested Courses:

We are offering 14 Core courses, Four complementary courses and two open courses with three electives each. The course work/ project work / visit are to be handled by the Economics faculty in each college. All these are presented in Table 1.

Table 1: Suggested Courses and Their Short Objectives

Course Code	Course Code	Course Objectives
<b>Semester I</b>		
Common Course I	EC1 A01	<i>Detailed syllabi and objectives are to be provided by the University Separately</i>
Common Course II	EC1 A02	
Common Course III	EC1 A03	
Core Course I	Micro Economics -1 EC1 B01	Teaches the fundamentals of Micro economics required for proper understanding of other courses.
I Complementary I	DEC1 C01 Agricultural Economics I	
II Complementary II	EC1 C02 Fundamentals of Foreign Trade I	

<b>Semester II</b>		
Common Course IV	EC2 A04	<i>Detailed syllabi and objectives are to be provided by the University Separately</i>
Common Course VI	EC2 A05	
Common Course VI	EC2 A06	
Core Course II	Macro Economics I EC2 B02	Teaches the fundamentals of Macro economics required for proper understanding of other courses.
I Complementary II	DEC2 C03 Agricultural Economics II	
II Complementary II	DEC2 C04 Fundamentals of Foreign Trade II	
<b>Semester III</b>		
Common Course VII	EC3 A07	<i>Detailed syllabi and objectives are to be provided by the University Separately</i>
Common Course VIII	EC3 A08	
Core Course III	Quantitative Methods for Economic Analysis-I EC3-B03	Teaches mathematical tools required for the study of undergraduate economics
Core Course IV	Micro Economics II EC3-B04	Develops the tools for further economic analysis.
I Complementary III	DEC3 C05 Population Studies I	
II Complementary III	DEC3 C06 Regional Economics I	
<b>Semester IV</b>		
Common Course IX	EC4 A09	<i>Detailed syllabi and objectives are to be provided by the University</i>
Common Course X	EC4 A10	
Core Course V	Quantitative Methods for Economic Analysis-II EC4 B05	Teaches Statistical tools required for the study of undergraduate economics
Core Course VI	Macro Economics II EC4 B06	To develop the tools for further economic analysis.
I Complementary IV	DEC4 C07 Population Studies II	
II Complementary IV	DEC4 C08 Regional Economics II	
<b>Semester V</b>		
Core Course VII	Development Economics DEC5 B07	Teaches the various theories of Development Economics
Core Course VIII	Mathematical Economics DEC5 B08	Introduces the basic concepts of mathematical economics and its application in Economics
Core Course IX	Environmental Economics DEC5 B09	Introduces the importance and concepts of environmental economics
Core Course X	Computer Application EC5 B10	Introduces the application of computer in Economics studies..
Open Course (For Non-Economic Students)	Basic Principles of Economics EC5 D01	Introduction to the fundamental principles of Economics.
	International Trade and Business EC5 D02	Introduction to international trade theories and practices.

	Banking EC5 D03	Introduces the theory and practice of banking
Course / Project/Visit	EC5 B15 (Pr.)	Application of what is taught. ( Group/Individual Activity starts)
<b>Semester VI</b>		
Core Course XI	Basic Econometrics DEC6 B11	Introduces basic econometric methods that will be applied in subsequent courses.
Core Course XII	Public Finance C6 B12	Introduces the role of public / governmental activities expenditure in the Functioning of an economy.
Core Course XIII	Indian Economy with Special Reference to Kerala Economy DEC6 B13	Introduces the features of Indian economy with added importance to Kerala economy.
Core Course XIV	Financial Economics DEC6 B14	Introduces the basic theories and issues of financial economics
Elective Course (For Economic Students)	Gender Economics EC6 E01	Introduces the fundamental principles of gender awareness
	Health Economics EC6 E02	Teaches the fundamental aspects of Health and its emerging issues.
	Economics of Business and Finance EC6 E03	Introduces the students to the basics of business, managerial and financial Economics.
Project/Course/Visit	EC6 B15 (Pr.)	Application of what is taught. ( Group Activity completes)

### Complementary Courses

1. Agricultural Economics
2. Fundamentals of Foreign Trade
3. Population Studies
4. Regional Economics
5. Essentials of Economics.
6. Co Operation
7. Banking
8. Mathematical tools for economics

(Plus other complementary courses offered by sister departments)

### Suggested Contents :

The contents of each course listed above cover most of the *important and the latest theoretical and empirical developments* in their respective fields.

### Suggested Reference :

We propose a list of *books* as the required textbooks for each course. We also provide additional reading list for every course.

**Suggested Teaching Method :**

The current practice of teaching Economics is to give lectures that dominate theories. This method often gives students a mistaken impression that economics is devoid of any practical and real-life use or applications. So we suggest to incorporate as many *real-life examples* as possible in the process of teaching. Reference books contain plenty of examples from different fields of the subject. One can improve this with the aid of modern communication devices.

**Suggested Assessment and Evaluation Methods :**

We follow the directions put forward by the University with regard to *assessment* and *evaluation*. As per these directions, there will be examinations conducted by the University at the *end* of each semester. There will be an internal *assessment* that carries *25 percent of marks*, The internal assessment is further split up as follows. Attendance, (Five marks), two test papers, (Five Marks) seminar and viva voce (Five marks) assignment and Record (Ten Marks). With respect to evaluation, performance of a student is evaluated in terms of *grades*. The University directs to use *direct-grading* with a *5-point scale*.

## Detailed Syllabi

### CORE COURSES

Semester I	1. Micro Economics I
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#### a. Introduction:

Education in Economics begins with a study of the most fundamental ideas that govern economic activities. A beginner normally commences the study of these ideas with two courses in the methodology and principles of economics. The first course covers the simple relations that are concerned with the economic behavior of individual economic agents. This course is called microeconomics I. It will introduce the students to the basic ideas and tools that will be utilized throughout in other courses of the degree programme.

#### b. Objectives:

This course is intended to provide students a basic idea in microeconomics and its methodology. The main objective of this course is to equip students with the basic idea of economic analysis.

#### c. Learning Outcome :

With this course, students are expected to learn the simple relationships and ideas in the theory of consumption, production, cost and revenue.

#### d. Syllabus

##### Module -1 Introduction to Social Sciences:

Relevance of Social Sciences in understanding and solving cotemporary problems at regional, national and global levels.

##### Module-II Introduction to Micro Economic Theory

Micro Economics and its scope. Wants & scarcity, Functions of Economic system, Circular flow of economic activity – price determination and functions of prices-concept of margin, Economic models, Methodology, Value judgement, Positive and normative analysis

##### Module-III: Basic demand supply analysis

Market analysis-market demand and market supply-market equilibrium-adjustment to changes in demand and supply / static and dynamic analysis- comparative static analysis, Algebraic explanation to market equilibrium, market demand and elasticity, Types of elasticity-price, income & cross elasticity,



measurement of elasticity, MR and price elasticity, Elasticity of supply. Determinants of elasticity, uses of elasticity.

#### **Module IV-Consumer Behaviour and Demand**

Utility Analysis – Total and Marginal Utility – Cardinal & Ordinal Utility. Indifference Curves- Characteristics, MRS-Special Types of Indifference Curves, Consumer's Income-Price Constraints- Budget Line-Changes in Income and Prices and Budget line, Consumer's choice, Utility Maximisation, The Changes in demand and Engel's Curve, Changes in Price Substitution Effect and Income Effect / Hicksian and Slutsky's Analysis Normal, Inferior and Giffen Goods, (Application of Indifference Curve Analysis.) Revealed preference theory. Strong Ordering and Weak Ordering. Fundamental Theorem of Consumption Theory, Derivation of Demand Curve under Cardinal, Ordinal and Revealed Preference Theory –.

#### **Module V-Production/ Cost and Revenue**

Production function – AP and MP Production with one variable input, Production with two variable inputs, Isoquants – MRTS-elasticity of factor substitution. Iso-cost line - Ridge Line, Returns to Scale, . Cobb Douglas Production function. Cost of Production, Nature of Production, Costs, Short run and Long run Costs, Isocost lines. Least cost input Combination, Expansion path, Derivation of LAC and LMC, Introduction to Modern Cost Curves. Concepts of revenue – AR, MR, TR; Break even point.

#### **Reference**

- 1 Dominick Salvatore : Microeconomics : Theory and Applications',; Oxford University press, New delhi.
- 2 A. Koutsoyannis : Modern Microeconomics, - Macmillan
- 3 Hunt, Elgin, F (2008) Social Science and its methods in Social Science : An Introduction to the Study of Society : Allen and Bacon
- 4 Abhijit Kundu (2009) : Methodology and Perspectives of Social Science – Pearson Education

#### **Additional Readings**

1. Dominick Salvatore 'Microeconomic Theory' Schaum's Outline series : Tata Magrahill.
2. Lipsey R. and A Chrystal – Economics (11th Edition) Oxford University Press New Delhi.

Note: Case study analysis may be included while teaching various topics, wherever relevant. This may be used for assignments and internal examinations only.

**a. Introduction:**

The study of economics begins with the fundamental ideas of economic actions. The second fundamental course i.e. macroeconomics. I offer the students a view on the economy as a whole. This course will introduce the students to the basic ideas and tools that will be utilized throughout in the other courses of the degree programme.

**b. Objectives :**

This course is intended to provide students with the basic ideas in classical and Keynesian macroeconomics.

**c. Learning Outcome :**

With this course, students are expected to learn the relationships and ideas in the measurement of national income, the theory of income determination, fiscal and monetary policies, the government and its role in the functioning of the economy, etc.

**d. Syllabus****Module I: Why study Economics-**

A Methodological framework of studying Economics – Its relevance and importance

**Module 2: Macro Economic Concepts & Models**

Micro Economics and Macro Economics - National Income concepts Potential GNP - Actual GNP - GDP Gap – Green GNP Macro - Economic Models – Exogenous, Endogenous, ex-ante, ex-post, Nominal, real, dependent and independent variables – Identities and Equations.

**Module 3: Classical Macro Economic Model**

Say's Law of Markets – Wage – Price Flexibility – Classical Model of Output and Employment – Quantity Theory of Money – Fisher's Equation of Exchange – Cash Balance Approach – Neutrality of Money – Money illusion – Pigou effect – Real Balance effect – Classical dichotomy – Concept of full employment – voluntary unemployment.

**Module 4: Keynesian Macro Economic Model**

Consumption function – Psychological Law of Consumption – Determinants of Consumption – APC and MPC – APS and MPS – Paradox of thrift – Income, Consumption and Saving relationship – Investment function – determinants of investment — MEC, MEI and the role of Expectations – Principle of Effective

Demand – Underemployment equilibrium – Wage. Price rigidity – Determination of Income in two and three sectors (using Keynesian Cross diagrams and algebra).

### **Module 5: Elementary IS LM Model (Two Sector only)**

Definition & Derivation of IS and LM curves – General Equilibrium using IS & LM curves.

#### **References:**

1. Edward Shapiro – ‘Macro economics’ Oxford University press.
2. Gregory Mankiw – ‘Macro economics’ – 6th Edn. Tata McGraw Hill.
- 3 Richard T. Frogmen – ‘Macro economics’, Pearson education.
- 5 Eugene Diutio – Macro economic Theory, Shaum’s Outline series. Tata McGraw Hill
- 6 Errol D’Souza – ‘Macro Economics’ – Pearson Education 2008.
- 7 Abhijit Kundu (2009) : Methodology and Perspectives of Social Science – Pearson Education

#### **Additional Readings**

Dominick Salvatore :‘Microeconomic Theory’ Schaum’s Outline series : Tata Macgrowhill.

Lipsey R. and A Chrytal – Economics (11th Edition) Oxford University Press, New Delhi.

Note: Case study analysis may be included while teaching various topics, wherever relevant. This may be used for assignments and internal examinations only.

<b>Semester III</b>	<b>Quantitative Methods for Economic Analysis - 1</b>
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#### **a. Introduction**

Students of economics today need a variety of statistical skills to collect and analyse and interpret empirical data. They also require these skills for advanced studies in empirical-oriented fields. Statistical skills have become an essential toolkit for most branches of economics.

#### **b. Objectives**

This course is intended to provide students an introduction to statistical methods and tools that are used in the study of economics at undergraduate level. The aim of this course is to develop skill in statistical techniques that are required for a meaningful study of applied economics and for carrying out empirical research.

### **c. Learning Outcome**

Students are expected to acquire statistical skills that are necessary for further study in most branches of economics.

### **d. Syllabus**

#### **Module I. Description of Data and Sampling**

Statistics-Meaning and limitations-Data: Elements, Variables, Observations-Scale of Measurement-Types of Data: Qualitative and Quantitative; Cross-section, Time series and Pooled Data-Frequency Distributions: Absolute and relative-Graphs: Bar chart, Histogram etc. Summary Measure of Distributions: Measures of Central Tendency, Variability and Shape-Sampling: Population and Sample, Methods of Sampling.

#### **Module II. Correlation and Regression Analysis**

Correlation-Meaning, Types and Degrees of Correlation- Methods of Measuring Correlation- Graphical Methods: Scatter Diagram and Correlation Graph; Algebraic Methods: Karl Pearson's Coefficient of Correlation and Rank Correlation Coefficient - Properties and Interpretation of Correlation Coefficient

#### **Module III. Index Numbers and Time Series Analysis**

Index Numbers: Meaning and Uses- Laspeyre's, Paasche's, Fisher's, Dorbish-Bowley, Marshall-Edgeworth and Kelley's Methods- Tests of Index Numbers: Time Reversal and Factor Reversal tests -Base Shifting, Splicing and Deflating- Special Purpose Indices-Wholesale Price Index, Consumer Price Index and Stock Price Indices: BSE SENSEX and NSE-NIFTY. Time Series Analysis-Components of Time Series, Measurement of Trend by Moving Average and the Method of Least Squares.

#### **Module IV. Nature and Scope of Econometrics**

Econometrics: Meaning, Scope, and Limitations - Methodology of econometrics-Modern interpretation-Stochastic Disturbance term- Population Regression Function and Sample Regression Function-Assumptions of Classical Linear regression model.

References:

- 1) Anderson, Sweeney and Williams, Statistics for Business and Economics, Thomson Education
- 2) Richard Levine and David S Rubin, Statistics for Management, Pearson Education
- 3) Damodar Gujarati, Basic Econometrics, McGraw Hill International
- 4) A. Koutsoyiannis , Theory of econometrics: An introductory exposition of econometric methods

- 5) Lind D.A., W.G. Marchal and S.A Wathen., Statistical Techniques in Business and Economics, Tata Mc Graw Hill, New Delhi.
- 6) Gupta S. P, Statistical Methods, Sultan Chand and Sons, New Delhi.

<b>Semester III</b>	<b>Microeconomics -II</b>
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**a. Introduction :**

This part of the syllabus focuses on the particulars of the market- It attempts to explain how a particular market functions;

**b. Objectives :**

It is designed to introduce undergraduate students to the fundamental concepts of the markets and its strictures. The objective of the course is to apply principles of microeconomic analysis to the day-to-day decision-making of firms and market.

**c. Learning Outcome:**

It is expected to develop skills in students in understanding the functioning of various type of market. This crucial skill will certainly help students in understanding and solving economic problems of the society, make policy.

**d. Syllabus**

**Module 1: Market Structure – Perfect Competition:**

Price determination in the market period – Short period and long period / Equilibrium of the firm – Efficiency implications of the firm.

**Module 2: Imperfect Competition – Monopoly:**

Price and output under monopoly – sources of monopoly – Types of monopoly – market demand curve under monopoly – short run and long run equilibrium of the monopolist – (MC -MR approach) – social cost of monopoly –Degrees of price discrimination – Equilibrium of discriminating monopolist – dumping – regulation of monopoly – A comparison of perfect competition and monopoly.

**Module 3: Monopolistic Competition:**

Monopolistic competition price and output determination – short run and long run –Product differentiation – selling cost – non-price competition – Chamberline’s group equilibrium and the concept of excess capacity.

**Module 4: Oligopoly:**

Features and types of oligopoly – Kinked demand curve theory.

**Module 5: : Factor pricing**

Input pricing and employment under perfect competition – profit maximization and optimal employment – demand curve of a firm for an input – market demand curve for an input and its elasticity – Supply curve of an input – pricing and employment of an input.

**Recommended Readings:**

Dominick Salvatore : Microeconomics : Theory and Applications’,;Oxford University press,  
New Delhi.

A. Koutsoyannis : Modern Microeconomics.

**Additional Readings**

Dominick Salvatore : ‘Microeconomic Theory’ Schaum’s Outline series : Tata Magraw Hill.

Lipsey R. and A Chrytal – Economics (11th Edition) Oxford University Press New Delhi.

Note: Case study analysis may be included while teaching various topics, wherever relevant. This may be used for assignments and internal examinations only.

<b>Semester IV</b>	<b>Quantitative Methods for Economic Analysis – II</b>
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**a. Introduction:**

Economics is increasingly becoming quantitative in nature. Students of economics today need a variety of quantitative skills. Mathematical skills have also become an essential element in the toolkit for higher education.

**b. Objectives**

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

**c. Learning Outcome**

This course in quantitative methods will cover the essential topics in mathematics needed for Economic analysis.

**d. Syllabus**

**Module I- Preliminaries**

Logic and Mathematical Proof-Concept of Sets-Set operations, Finite and Infinite Sets, Cartesian Product, Relations, Functions, Ordered sets, Linear Point sets-Exponents, Logarithms and progression.

## **Module II :Functions and Graphs**

Types of Functions-functional form-Linear and Quadratic-Solution to system of equations up to three unknowns- Rectangular Co-ordinate System and graphs of functions.

## **Module III- Basic Matrix Algebra**

Matrices-Types, Matrix manipulations and their rules, Order of Matrix, Transpose of Matrix-Determinants up to order 3x3- Properties and Value of determinant, Minor and Cofactor, Inverse and Cramer's Rule.

## **Module IV –Differential Calculus**

Limits and Continuity-Derivative-Rules of Differentiation- Higher Order Derivatives-Differentials-Logarithms-Derivative of Logarithmic and Exponential Functions. Function of two variables: Partial, total differential, Higher order differentials and Total Derivatives, Implicit functions-Homogeneous functions and their properties-Euler's Theorem. Maxima and Minima of Functions- Curvature Properties-Convexity and Concavity.

## **References:**

- 1) Taro Yamane, Mathematics for Economists: An Elementary Survey, Prentice Hall of India
- 2) Sydsaeter K and P. Hammond, Essential Mathematics for Economic Analysis, Financial Times- Prentice Hall, London, 2002.
- 3) Holden. K and A.W. Pearson, Introductory Mathematics for Economics and Business, Macmillan, 2002.
- 4) Barauh.S, Basic Mathematics and Its Application in Economics, Macmillan, 2002. Allen R.G.D, Mathematical Analysis for Economist, Macmillan, 1986.
- 5) Dowling E.T, Mathematical Methods for Business and Economics, Schaums Outline Series, McGraw Hill, 1993.
- 6) Allen R.G.D, Mathematical Analysis for Economist, Macmillan, 1986.

<b>Semester IV</b>	<b>Macro economics -II</b>
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### **a. Introduction:**

Policy makers all over the world use macroeconomic theories and related empirical results to frame policies. Similarly, business firms, use these theories and results to formulate their strategies. A sound understanding of macroeconomic principles and their applications is essential for students of Economics.

**b. Objectives:**

The objective is to familiarise the students in the application of principles of macroeconomic analysis to the day-to-day decision-making in the aggregate economy.

**c. Learning Outcome :**

This course is expected to develop skill in economic reasoning. This vital skill is expected to help them in understanding and solving aggregate economic problems.

**d. Syllabus****Module 1: Theories of Money**

Nature and Functions of Money - Types of Money: Near money, inside money and outside money. 1. Theories of Demand for money - Defining demand for money - Classical theory of demand for money - Friedman's re-statement of Quantity Theory of Money - Liquidity Preference theory and Keynesian Liquidity Trap. 2. Theories of Supply of money: - Defining supply of money - Measuring supply of money - High powered money & money multiplier.

**Module 2: Theories of Inflation and Unemployment**

Meaning, Types and Theories of Inflation. - Cost of inflation and sacrifice ratio. - Measurement of Inflation in India - Meaning and types of unemployment. - Cost of unemployment and Oakun's Law - Measurement of unemployment in India. - Concept of Stagflation - Concept of Philips Curve.

**Module 3: Macro economic Instability and Policy:**

Business Cycle: meaning, types and phases. - Monetary, Fiscal, and income policy - Meaning and Instruments.

**Module 4: Open Economy Macro Economics:**

a. Foreign trade multiplier - Four sector macro economic model Using IS-LM-Balance of Payment Schedule.

**Reference:**

1. Edward Shapiro – 'Macro economic Analysis' Oxford University press.
2. Gregory Mankiw – 'Macro economics' – 6th Edn. Tata McGraw Hill.
3. Richard T. Frogmen – 'Macro economics', Pearson education.
4. Eugene Diutio – Macro economic Theory, Shaum's Outline series. Tata McGraw Hill
5. Errol D'Souza – 'Macro Economics' – Pearson Education 2008.



### **Module 1 Introduction**

Economic Growth and Development – Defining Development and underdevelopment- Measurement of development: Per Capita income (PCI) Physical Quality of Life Index (PQLI), Human Development Index (HDI), Gender Related Development Index (GDI), Gender Empowerment Measure (GEM), Human Poverty Index(HPI), Sen's Capability Approach, Inequality and Kuznet's inverted 'U'

### **Module II Problems of Development**

Structure and Characteristics of developing nations - Obstacles to growth and development – Vicious Circle of Poverty, Unemployment, inequality, gender, caste and community, problems related to technology, manpower and resources, problems related to capital formation, foreign capital and foreign aid - problems related to different sectors and their growth.

### **Module III Theories of development**

Classical theories- Adam Smith - Ricardo- Malthus, Marx's theory of economic development; Schumpeter's theory, Harrod Domar Growth model – Approaches to development- low income equilibrium trap - critical minimum effort-thesis - balanced and unbalanced growth, , big push theory, Rostow's stages of Economic Growth , unlimited supply of labour,

### **Module IV Development Planning : Indian Experience**

-Genesis of planning in India- Planning commission in India ; role and functions- goals and achievements of five year plans in India, Bombay Plan, Gandhian Plan- overview of current five year Plan.

### **References**

1. Mier, Gerald . M : Leading issues in Eco-development , OUP, Delhi
2. Todaro Michael P : Economic development in the third world, orient Longman, Hyderabad
3. Ghatak , Subrata : Introduction to Development Economics
4. Arther Lewis, W : The Principle of economic Planning, George Allen and Unwin (India) Pvt Ltd
5. Sukumoy Chakravarthy: Development Planning: the Indian Experience'- OUP
6. Misra & Puri : Economics of Development & Planning(Theory and Practice
7. Thirlwal AP : Growth and Development, Palgrave

### **Module I. Introduction**

Mathematical Economics: Meaning and Importance –Mathematical Representations of Economic Models- Economic Functions: Demand Functions, Supply function, Utility function, Consumption function, Production function, Cost function, Revenue function, profit function, Saving function and investment function

### **Module II. Marginal Concepts**

Marginal Utility, Marginal Propensity to consume, Marginal propensity to save, Marginal product, Marginal cost, marginal revenue, marginal rate of substitution, Marginal rate of technical substitution Relationship between Average revenue and Marginal revenue- Relationship between Average cost and Marginal cost – Elasticity: Demand elasticity , Supply Elasticity, Price Elasticity, Income Elasticity, Cross Elasticity – Engel function

## **Module III Constraint Optimisation and Production function**

Constraint Optimization Methods: Substitution and Lagrange Methods – Economic applications, Utility maximization, Cost minimization, Profit maximization. Production Functions: Linear, Homogeneous, and Fixed Production Functions – Cobb Douglas production function

## **Module 1V Linear Programming**

Concept – Formulation of LPP – Solution of LPP, Graphical methods, Simplex method – Duality –economic interpretation of dual – application and limitation of Linear Programming

## **Module V Market Equilibrium**

Market Equilibrium: Perfect Competition – Monopoly –Discriminating Monopoly

References:

1. Chiang A.C and K. Wainwright, Fundamental methods of Mathematical Economics,4<sup>th</sup> Edition, McGraw-Hill, New York, 2005
2. Dowling E.T, Introduction to Mathematical Economics, 2<sup>nd</sup> edition, Schaum Series, Mcgraw-Hill, New York, 2003
3. R.G.D Allen, Mathematical Economics
4. Mehta and Madnani – Mathematics for Economics
5. Joshi and Agarwal \_ Mathematics for Economics
6. Taro Yamanae – Mathematics for Economics

<b>Semester V</b>	<b>Environmental Economics</b>
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### **Module I Introduction to Environmental Economics and Basic Concepts**

Concept of Environmental Economics- origin- development- Environmental Economics and Ecological Economics – Environmental Economics and Natural Resource Economics- **Basic Concepts** – Biodiversity :- genetic, species, and ecosystem - Habitat , Property rights, tragedy of commons, Renewable non renewable resources, Maximum Sustainable Yield(MSY), air pollution, water pollution, solid waste management and hazardous substances, Green National Accounting

### **Module II Environmental Valuation**

Valuation of Environmental Benefits and Costs – problems involved- Direct and Indirect methods of environmental valuation- cost-benefit analysis- net present value and discounting rate

### **Module III Trade and Environment**

Does Trade Harm the Environment? Global Pollutants and international Environmental Agreements – The Global environment Issues- green house gases and Global warming-Climate Change and Global agreements - Kyoto Protocol, Montreal protocol – Environmental Kuznets Curve

### **Module IV Environment and Development**

Development, poverty and Environment- Population and environment – Sustainable development and Environmental Justice Field Visit: One-day field visit to be done by the students to a place where environmental related issues could be highlighted, and the students are requested to prepare a note after the visit.

Reference:

1. Kolstad, Charles D (2003), 'Environmental economics' OUP
2. Bhattacharya, R N (2001) 'Environmental Economics, An Indian Perspective'
3. Tietenberg, Tom "Environmental and Natural Resource Economics',6<sup>th</sup> ed., Pearson
4. Singh, Katar and Shishodia, Anil (2007) " Environmental Economics; Theory and Applications,' Sage
5. Thomas, Janet M and Callan , Scott J (2007) ' Enviornmental economics' Thomson South – western India ed

**a. Introduction :**

Information technology has revolutionised the way we live and work. Economics is relatively more quantitative in nature than many other social sciences. Thus computer application has assumed utmost significance in Economics. Many of the large models in macroeconomics such as input-output models, national income estimation models, etc., require applications of computer programmes. Similarly, Computer application will facilitate in-depth studies in other branches of Economics.

**b. Objectives:**

This course will provide the students with a skill that is .that is useful both in job market and in academia.

**c. Learning Outcome:**

It is expected to provide the students with those computing skills that are, necessary for success. This course will arm the students with the knowledge of fundamentals of computers.

**d. Syllabus****Module 1. Philosophical foundations of Computing**

Software - Philosophy of open source software – social computing – Operating systems .

**Module 2. Creation and Manipulation of Documents**

Word processor basics. New blank document and toolbars. Manipulation of the first document. Editing the document. Designing and redesigning the document. Working with graphs, pictures and video in documents. Records and mail merge.

**Module 3: Data Analysis**

Spreadsheet basics. Excel environment. Insertion of rows and columns. Entering data. Excel toolbars. Creation and manipulation of charts and graphs. Manipulation of data. Mathematical and statistical calculations. Excel functions. Changing the layout. Applications in economics using simple examples.

**Module 4: Database Management**

Introduction to database. Defining database. Meaning and functions of database management system. Creation and manipulation of tables. Updating tables. Working with forms. Handling queries. Generating reports. Applications in economics using simple examples.

## Module 5: Preparation of Presentations

Introduction to PowerPoint. Starting PowerPoint. AutoContent Wizard. Working with texts, graphs, pictures, audio and video in slides. Design templates. Adding transition effects to slides. Adding animation in slides. Previewing the contents.

## Module 6: The Internet and E-Commerce

Meaning and scope of the Internet. Creating, sending and receiving e-mails. Browsing the WWW. Downloading from and uploading to the Internet. Online shopping and e-business/ecommerce., E-market. (Concepts)

Note: 25 marks for this paper are from internal examination. Internal marks should be awarded based on practical examinations. Expected practical sessions for teaching: 20 hours.

### Reference

1. Vikas Gupta – Comdex Computer Course Kit – Dream Teck Press
2. Sharma D - Foundations of IT- Excel books.

<b>Semester VI</b>	<b>Basic Econometrics</b>
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### MODULE 1 Introduction

Definition and scope of econometrics. The Methodology of econometrics – Specification and estimation of an econometric model. - Types of data : Time series, Cross section and panel data - Basic concepts of estimation: Desirable properties of estimators

### MODULE II Simple Regression Analysis and Theoretical Distribution

Statistical vs deterministic relationships: Correlation and regression: Coefficient of determination: Estimation of an equation – Testing of hypothesis – Standard errors: tests based on Z, t and  $\chi^2$  (Chi Square statistics)

### MODULE III Estimation Theory

Ordinary least squares (OLS) method – assumptions: Gauss-Markov theorem – Testing of regression coefficient. Problems in OLS estimation. Problems of heteroscedasticity: Auto correlation(first order), Multicollinearity – test and remedies

### MODULE IV Application of Econometric Methods

Estimation of demand and supply functions – Production and cost functions – Consumption function and investment function

References:

1. Damodar N Gujarati, Basic Econometrics, McGraw-Hill, New York
2. Koutsoyiannis; Econometrics
3. Intrilligator, M D (1980) Econometric Models and Techniques, Prentice Hall India

**a. Introduction :**

Public finance or fiscal economics deals with the fisc of the country. It is related to decision making in the public sector or finance of the governmental agencies. A training in public finance will help students in decision making and in higher studies.

**b. Objectives :**

The basic aim of this course is to introduce students to the application of the techniques, methods and principles of Economics to decision making in public finance.

**c. Learning Outcome :**

The students are expected to learn how the principles of economics can be applied to sound decision making in public finance. They are expected to learn all the important economic issues that government agents face.

**d. Syllabus****Module I: Meaning and Scope of Public finance**

Public finance – Meaning and Scope – Public and Private Finance – Principles of Maximum Social Advantage – Public Goods, Private Goods, Mixed Goods and Merit Goods (Concept only).

**Module II: Public Expenditure**

Meaning and Importance – Reasons for the Growth of Public Expenditure – Wagner's Hypothesis, Peacock - Wiseman Hypothesis, Canon's of Public Expenditure – Effects of Public Expenditure.

**Module III: Public Revenue**

Sources of public revenue Taxes -Classification of Taxes - Canons of Taxation, Principles of Taxation. Ability, Benefit and cost of service- Impact, Incidence and shifting of Tax Burden — Effects of Taxation – Major Taxes in India. Value Added Tax in India , The concept of goods and service tax (GST).

**Module IV: Public Debt and Budget**

Public Debt : Meaning, Types of Public Debt, Debt Redemption. **Budget**, Meaning, Types of Budget: Revenue and Capital Budget, Revenue Expenditure and capital expenditure, Revenue Deficit, Fiscal Deficit, Primary Deficit - Budget Deficit – Fiscal Policy – Contra Cyclical Fiscal Policy – Deficit financing - Preparation of Budget in India – (Introduce the latest Central and State Budgets to the students.)

## **Module V: Federal Finance**

Meaning – Principles of Federalism – Finance Commission (Finance Commission Report – Latest) - Importance of Local finance in India.

### **References**

- (1) R.A Musgrave and PB Musgrave – Public finance – Tata Macgrail
- (2) Govinda Rao and Singh - Political Economy of Federalism in India – Oxford.
- (3) Govinda Rao – State Finances in India Issues and Challenges ( Article) EPW – 03-08- 2002.
- (4) Shankar Acharya – Thirty Years of Tax Reforms in India (Article) EPW – 14-05-1995.
- (5) Bhatia HL – Public Finance – Vikas Publishing.
- (6) Lekhy Public Finance and Public Economics – Kalyani publications,

### **Additional Reading**

1. Economic Review – Govt of Kerala
2. Economic survey Government of India

## **Semester VI**

## **INDIAN ECONOMY WITH SPECIAL REFERENCE TO KERALA ECONOMY**

### **Module I: Resource Base and Structure of Indian Economy**

Economic Geography of India – Basic features – Human Resource: Demographic features, extent of unemployment, poverty and inequality: Recent trends and conceptual issues. HDI of India – trend in National and Per capita Income – Sectoral Composition (output and employment) – Primary , Secondary and Tertiary sectors

### **Module II :Agriculture**

Trends and Composition of Output of major crops – Trends in Investment, Credit and Agricultural Subsidy – New Agricultural Strategy of 1960s(Green Revolution) – Food security and PDS in India – Evaluating Land Reforms in India – New Agricultural Policy (in the context of liberalization)

### **Module III: Industry and Service**

Industrial Structure in India: Traditional, SSI, Village, Cottage and Modern industries – Industrial Policy Resolution in India till 1991- new Industrial policy and its impacts – Components of Service Sector – Role of Service Sector in India

### **Module IV: External Sector**

Trends and composition of India's Imports – trends and direction of India's Exports – EXIM policy of India in relation to trade liberalization and its impacts – FDI, FII and MNCs in India – External Borrowing and BOP problem in India – International Institutions (IMF, WB, ADB, WTO) and the Indian Economy

### **Module V : Kerala Economy (only a broad outline is expected)**

Unique features - Structural composition – Primary, secondary and tertiary sectors – Development Experience – Demographic transition in Kerala – Impact of Emigration and Migration - tourism and development

#### References:

1. Uma Kapila, (2008), Indian economy: performance and Policies', 8<sup>th</sup> Ed. Academic Fountation, New Delhi
2. Prakash B A (Ed.) (2009) 'Indian economy Since 1991: Economic reforms and performance, sage publications New Delhi
3. Bhalla G S (2008) 'Indian Agriculture since Independence(2008), NBT, New Delhi
4. I C Dhingra: Indian Economy, Environment and Policy – Sultan Chand and Sons
5. Poverty, Unemployment and development Policy: Special issues with reference to Kerala, Centre for Development Studies, UNDP
6. V. K. Ramachandran on Keralas Development Acheivements. In Sen & Dreeze –India Selected Regional Perspectives - Oxford
7. Various Issues of – Economic Review, Census Report, Statistics for Planning, Economic Survey
8. Rajan K (2009)(ed) – Kerala Economy: Trends during the post Reform period – Serial Publications

## **Semester VI**

## **Financial Economics**

### **Module I**

Financial system: Role and Functions of the financial system in an economy – Financial markets and instruments – financial instruments – structure of Indian Financial system

### **Module II**

Money Market –Features and instruments – Commercial Banking System in India – Banking sector reforms, call money market, CBLO market.

### **Module III**

Role of Capital Market in an economy – Capital market in India – evolution and growth -Primary, Secondary ,Capital Market reforms in India - Stock Exchanges: functions – Structure of stock exchanges- BSE, NSE

### **Module , IV**

Non-banking financial Institutions in India; nature , role and functions – Classification of NBFCs –mutual funds , insurance Companies, Venture capital funds, merchant banks, Asset Reconstruction Companies

### **Module V**

Regulatory institutions – RBI – role and functions . the Securities and Exchange Board of India –objectives – function \_ SEBI guidelines for primary and secondary market – Role of IRDA and PFRDA

#### References

1. Bhole L.M; Financial Institutions and markets, Tata McGraw Hill
2. Kohn , Meir: Financial Institutions and markets, Tata McGraw Hill
3. Desai, Vasantha: Indian Financial System, Himalaya Publishing House
4. Pathak , V.Bharathi: Indian Financial System, Pearson education
5. Khan M Y: Indian Financial System, Tata McGraw Hill

## (Semester V)

### Open Course for Non-Economics Students

#### EC 5 D01: Basic Principles of Economics

##### **Module 1: Basic Concepts and the Methods of Economics**

Why study economics? - Meaning of microeconomics- Resource scarcity, choice, opportunity cost and the production possibility curves- Central Problems of an economy. Inductive and Deductive methods-Positive and normative Economics.

##### **Module 2: Demand, Supply Price Determination and Consumer Behaviour**

Demand – nature, demand function, demand schedule, demand curve, shifts in Demand curve- Supply –supply function, supply curve, shifts in supply curve- market equilibrium, price determination and imbalances- Elasticity of demand – Price Elasticity-Income elasticity-Cross elasticity- Utility- Law of diminishing marginal utility- Law of Equi-marginal Utility.

##### **Module 3: Theory of Production, Costs and Market Structures**

Production and production function- costs and profits- Profit maximization and cost minimization-Market structures – features of perfect competition, monopoly, monopolistic competition and oligopoly.

##### **Module 4: Macro Economics and the Measurement of National Income:**

Meaning of Macroeconomics –Macro economics paradox-National income concepts – Importance-Measurement of national income.

##### **Module 5: Income Determination, Inflation and Fiscal and Monetary Policies**

Say's law of market- consumption function, saving function- investment multiplier- Inflation – meaning, types and effects - Fiscal and monetary policies: meaning and instruments.

##### **Reference**

1. Anintya Sen - Micro Economics – Oxford
2. Saumyan Sikdar – Principles of Macro Economics. – Oxford



## **II. International Trade and Finance (EC5 D02)**

### **Module 1: Introduction to International Trade**

Importance of International Trade - Inter-dependence among countries - The concept of 'Trade as an engine of Growth' - Arguments for and against free trade.

### **Module 2: Basic Theories of International Trade**

Absolute advantage - Comparative advantage – Hckscher Ohlin

### **Module 3: Foreign Exchange and Balance of Payment**

Components of foreign exchange - Exchange rate determination (mention floating and fixed exchange rate; specify mint parity, PPP and supply and demand) - Devaluation, revaluation, appreciation and depreciation of currency. – BOP and BOT - Disequilibrium in BOP - Full and partial Convertibility

### **Module 4: International Finance**

IMF, World Bank, ADB, WTO, International Financial Flow: FDI, FII, Portfolio.

### **References:**

1. Dominick Salvatore 'International Economics', McMillan.
2. Bo Soderstien and Geoffrey Reed - 'International Economics'.
3. Francis Cherunilam - 'International Economics'.
4. Mannur, H.G. - 'International Economics'.
5. R.B.I. Bulletin, Various issues.

## **III. Banking (EC5 D03)**

### **Module 1:**

Banks, Evolution and Economic Importance, Growth of Banking in India.

### **Module 2:**

Commercial Banking - Branch Banking Vs Unit Banking, Group Banking, Chain Banking, Mixed Banking, Clearance Banks, Balance sheet, Rules of Management of funds, Assets, Liabilities, Financial Intermediaries, Bank Failures, Deposit Insurances, Merchant Banking - Nationalization of Banks in India : An overview of Changes after Nationalisation.

**Module 3:**

Negotiable Instruments, Cheques, Bills, Treasury bills, Acceptance Houses, Discounts, Money Market, Peculiarities of Indian Money Market; Deposits; Borrowings; Primary and Secondary sources, Loans, Practices in Lending, Credit creation, Limitations.

**Module 4:**

Accounts: Joint accounts, Partnership, Company guarantees, Individual Surety, Joint and Several Guarantee, Security, Exchange Securities, Life Policies, Payment and Collections of Cheques, Dishonouring, Negotiability, Crossing and Account payee.

**Module 5:**

Central Banking: Evolution Functions- Reserve Bank of India. - Development Banking in India . emerging trends in capital market.

**Reference :**

1. R.S. Sayers, Modern Banking. Macmillan
2. M.D. Decock, Central Banking.
3. S.K. Basu, Banking in India.
4. Milnes Holdern, Studies in Practical Banking.
5. I.C. Dhingra, Indian Economy. - Sulthan chand and sons

## (Semester VI)

### Elective Courses to Economics Students

#### I. Gender Economics (EC6 E01)

**Module I - Introduction**

Definition of Gender- Gender and sex - Gender Equity and Gender Equality-Gender Development- Human Development Index and Gender Development index-Gender Disparity Index-Gender Empowerment Measure- Gender Status in India and Kerala -Sex Ratio-Concept of Missing Women.

**Module II - Gender Discrimination in India and Kerala**

Gender Discrimination in Labour Force Participation- Occupational Segregation and Wage Differences- Gender Discrimination in Education, Health, Employment, Political Participation and Decision Making.

### **Module III - Gender Budgeting**

Gender awareness in planning- Invisibility of Women's Work in Budgeting- How to Adjust our Budgeting Policies to Reduce Gender Disparities.

### **Module IV - Gender Issues in Contemporary World**

Women and Globalisation- Social and Economic Empowerment of Women- Technology and Gender:, for example Internet and Blogs.

#### **References:**

1. Gita Sen and Canen Crown; Gender and Class in Development Experience
2. Leela Gulati and Ramalingam; Kerala Women: A profile
3. Neera Desai and Maithreyi Krishnaraj; Health-A Gender Issue in India
4. Lourdes Beneria and Savithri Biswanath; Gender and Development: Theoretical, Empirical and practical Approaches
5. Lekha Chakraborti; Invisibility of Women's Work in Budgeting.
6. National Institute of public Finance and policy (NIPFP); Gender Budgeting in India, [www.nipfp.org.in](http://www.nipfp.org.in).
7. UNDP - Human Development Reports

## **II. Health Economics (EC6 C02)**

### **Module 1: Introduction to Health Economics:**

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

### **Module 2: Demand and Supply of Health Care:**

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

### **Module 3: Health Financing & Policy::**

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

#### **Module 4: Health Statistics in India and Kerala:**

Infrastructure and Health Status of India & Kerala using informations from NSSO, NFHS, CRS and SRS.

#### **References :**

- 1) V. Ramankutty – A Premier of Health System Economics (2007) Allied publications New Delhi
2. Kannan KP,et.al..... (1991) Health Development in Rural Kerala – (KSSP, Thiruvanthapuram)..
3. Henderson JW - Health Economics and Policy – Thomson learning.

### **III. Economics of Business and Finance(EC6 C03)**

#### **Module 1: Introduction:**

Basic concept of Business Economics, Financial Economics and Managerial Economics.

#### **Module II: Investments –**

meaning,nature and importance. Considerations in Investment decision and investment process – Investment alternatives – Capital Budgeting – Introduction and methods

**Module III** Organising Financial asset various financial assets and securities. Introduction to Balance Sheets – Evaluation of Balance Sheets – Break even Analysis – Linear and non-linear – time value money Future Value and Compounding – present value of discounting.

**Module IV** Introduction to Demand Estimation, Demand forecasting – Production Function and its importance – Cost estimation, Cost functions – Economics of Scale, Cost cuts and estimation Cartal ,price leadership, price discrimination, pricing strategies.

#### **References:**

1. Kettell, Brian – Financial Economics – Making sense of Market information, Financial Time, Prentice Hall, London – 2001.
2. Nellis J., and D. Parker – Principles of Business Economics 2<sup>nd</sup> Edition – Pearson Education, London.
3. Griffith A. and S. Wall = Economics for Business and Management – Pearson Education, London (2004)
4. Keat P.G. and P.K.Y. Young – Managerial Economics – Tools for Today's Decision matters – Pearson Education New Delhi – 2006.

# Complementary Courses

## Complementary Course I (semester I)

### Course Title : AGRICULTURAL ECONOMICS-I

#### Module I. Role of Agriculture in a growing Economy

Agriculture in a growing economy : Product contribution, Market contribution , Factor contribution, Foreign exchange contribution - Interdependence between agriculture and Industry –Role of Agriculture in India - Challenges before Indian Agriculture

#### Module II Economics of Agricultural Production

Agriculture firm as a production unit – Production Function - Traditional Production Function: Law of variable proportions and Returns to Scale – Modern production Function: Isoquant Approach - cost concepts and concept of farm budgeting

#### Module III Agriculture Marketing , Credit and Agricultural Prices

Marketed and marketable surplus – Role of marketable surplus in economic Development – Factors affecting marketable surplus – Demand and Supply of Agricultural Products –regulated markets – cooperative markets - Credit : Non-institutional Sources -Institutional sources - Fluctuation in Agricultural Prices – stabilization and support prices

#### References:

1. Karl Eicher and Lawrence W . H. : Agriculture in Economic Development
2. Uma, Kapila(2008) : Indian economy
3. G. S Bhalla : Indian agriculture since independence (2008), NBT, New Delhi
4. Mamoria C. B: Agricultural problems of India
5. Ishwar C Dhingra: The Indian Economy
6. Sadhu and Singh: fundamentals of Agricultural Economics
7. R. L Cohen : Economics of Agriculture
8. Harold J Halcrow : Economics of Agriculture

## Course Category : COMPLEMENTARY COURSE -1I(Semester II)

### Course Title: FUNDAMENTALS OF FOREIGN TRADE 1

#### Module I Introduction

Nature and importance of foreign trade – features of foreign trade – Difference between internal and international trade – Advantages and disadvantages of Foreign Trade – Foreign trade and economic development

#### Module II Theories of Foreign Trade

Concept of Offer Curve - Classical theory - Adam Smith , Ricardo, Modern Theory – Heckscher –Ohlin theorem , Leontiff paradox ,Lerner's factor price equalization, terms of trade and gains from trade, Immiserisation

#### Module III Foreign Exchange

Defining foreign exchange and exchange rate – Components of foreign exchange reserve –different systems of exchange rate determination: gold standard (Mint Parity), PPP, Floating exchange rate , Fixed and Flexible

exchange rate -Demand and Supply of foreign exchange - Devaluation, revaluation , depreciation and appreciation

References:

1. Salvatore , Dominick, 'International Economics' Weily India , New Delhi
2. C. P Kindle Berger "International Economics'
3. Bo Soderstein and Geoffrey Reed 'International economics' Macmilon
4. Harry G Johnson 'International Trade and Economic Growth
5. Francis Cherunilam –' International Economics
6. Errol D'Souza,'Macro economics,' Person education 2008 (for BOP in India)
7. Misra and Puri; Indian Economy, Himalaya Publications
8. RBI bulletin, Various issues

**Semester – I**

## **Essentials of Economics – Micro**

### **Module I: Introduction to Economics**

What Economics is about? – Importance of the study of economics, relation with other social sciences (History, Political Science, Law, Psychology, Sociology). Basic Problems. Micro versus Macro

### **Module II: Theory of Demand**

Utility, utility function, marginal utility, law of diminishing marginal utility, demand, law of demand. Elasticity of demand and its types.

### **Module III: Theory of Supply**

Cost, cost function, opportunity cost, variable cost, fixed cost, total cost, marginal cost, average cost, supply, supply function, supply curve, Elasticity of supply and its types. Equilibrium price, market and its classification

### **Module IV: Theory of Production**

Production function, types of production function (short run and long run), economies of scale

### **Reference**

1. Dominick Salvatore 'Microeconomic Theory', Schuam's Outline Series

## **Course Title : AGRICULTURAL ECONOMICS-II(Semester II)**

**Module I Institutional and technological Changes in Indian agriculture:** Land Reforms ; New Agricultural Strategy - Green Revolution –Features of new Strategy, impact of new agricultural strategy-achievement and weaknesses of new strategy – Institutional change – land reforms- objective – Progress - Impact of land reforms –cause of poor performance of land reforms

### **Module II Indian Agriculture under Five Year Plans**

Progress of Agriculture since 1951 – Role of agriculture in our Five Year Plans – Objectives of Planning for Agricultural sector – pattern of investment in agricultural sector – New Economic Policy and Agriculture – WTO and Indian Agriculture - Agriculture and Current Five Year Plan, Recent trends and latest agriculture scenario

## **Module I: Role and range of Agriculture Marketing , Credit ,Insurance Schemes and Agricultural Prices in India**

Credit : Non-institutional Sources - Institutional sources; Commercial Banks, Co-operative Banks, Regional Rural Banks and Co-operative Banks – NABARD and Agricultural development Insurance Schemes : National agricultural insurance scheme (NAIS) , Krishi Shramik Suraksha Yojana, Farm Income Insurance Scheme, Varsha Bima (Rainfall Insurance scheme) - Agricultural Price Policy – Objective of price policy – Instruments of price Policy: Minimum support prices, Procurement prices, issue prices, Buffer stock operations – Food security and public distribution system – Structure, Role and functioning of PDS, Features, Objectives and Problems of Public Distribution System

### **References:**

1. Karl Eicher and Lawrence W . H. : Agriculture in Economic Development
2. Uma, Kapila(2008) : Indian economy
3. G. S Bhalla : Indian agriculture since independence (2008), NBT, New Delhi
4. Mamoria C. B: Agricultural problems of India
5. Ishwar C Dhingra: The Indian Economy
6. Sadhu and Singh: fundamentals of Agricultural Economics
7. R. L Cohen : Economics of Agriculture
8. Harold J Halcrow : Economics of Agriculture

## **Course Title: FUNDAMENTALS OF FOREIGN TRADE II (Semester II)**

### **Module I. Balance of Payment**

Defining Balance of Trade and Balance of Payment – Equilibrium and disequilibrium in BOP – Measures to correct BOP disequilibrium – BOP in India

### **Module II. India's Foreign Trade**

Trends and composition of India's Imports – trends and direction of India's Exports – EXIM policy of India in relation to trade liberalization and its impacts – New Foreign Trade Policy – **Policy Packages Since July 1991:** Foreign trade, exchange rate and foreign capital- Devaluation of rupee and exchange rate reforms: LERMS, UERS – concepts of convertible currency; current account convertibility and capital account convertibility – concepts of Foreign Direct investment, Foreign Institutional Investment and Foreign Portfolio Investment

### **Module III. International Monetary Institutions**

Brettonwood Conference: IMF, World Bank - Asian Development Bank, IDA – their structure and functions - Economic integration EU, NAFTA, ASEAN, SAARC, WTO

### **References:**

1. Salvatore , Dominick, 'International Economics' Wiley India , New Delhi
2. C. P Kindle Berger "International Economics"
3. Bo Soderstein and Geoffrey Reed 'International economics' Macmillan
4. Harry G Johnson 'International Trade and Economic Growth
5. Francis Cherunilam –' International Economics
6. Errol D'Souza, 'Macro economics,' Person education 2008 (for BOP in India)
7. Misra and Puri; Indian Economy, Himalaya Publications
8. RBI bulletin, Various issues

## **Semester – II Essentials of Economics – Macro**

### **Module I: National Income Concepts and Meaning**

GDP and GNP, NDP and NNP. GDP at factor cost and market price, GNP at market price and factor cost, NDP at market price and factor cost, NNP at market price and factor cost. Personal Income, disposable income, per-capita income. Importance of the estimation of national income, difficulties in estimation of national income.

### **Module II: Major Classical Postulates**

Say's Law of Market, Full employment, wage-price flexibility, laissez-faire

### **Module III: Major Keynesian Concepts**

Effective demand, consumption, savings, under-employment equilibrium, wage price rigidity

### **Reference**

1. Diwedi DN 'Macroeconomics Theory and Policy" Tata Magragel

## **Course Title: POPULATION STUDIES I (Semester III)**

**Course Category: COMPLEMENTARY COURSE -1**

### **MODULE I Introduction**

Concept of Population, Demography , Human capital, Human resource , Human resource development, Labour , Population Data : Census and vital statistics - Population study : Meaning , nature , scope , objectives and importance – Relation of population studies with other sciences

### **MODULE II Theories of population**

Malthusian Theory of Population – Optimum Theory of Population – Theory of demographic transition different stages – components of Population Growth and their interdependence

### **MODULE III Measures and Quality of Population**

The concept of Quality of Population – factors affecting Quality of population –Measures of Crude Birth Rate – General fertility Rate \_ Total Fertility Rate –Reproduction Rate and Net Reproduction Rate- Crude Death Rate – Infant Mortality - Life expectancy

### **References:**

1. Agarwal S N (1972) , India,s Population Problem, Tata McGraw-Hill, Co Bombay
2. Bose A (1996) India's Basic Demographic statistics , B A Publishing Corporation, New Delhi
3. Bouge D J (1971) Principle of Demography, John Wiley, New York
4. Chenery H and T n Srinivasan (eds)(1989), hand Book of Development Economics, Vol.1&2 Elsvier, Amsterdam,et.
5. Choubey p K (2000), population Policy in India, Kanishka Publications New Delhi
6. Coale A J and L M Hoover (1958) Population Growth and Economic Development in Low income countries: A case study of India's Prospects Princeton university Press, Princeton
7. Gulati S C (1998) Fertility in India: An Econometric study of metropolis of sage, New Delhi
8. Srinivasan K (1998)Basin Demographic Techniques and application Sage, New Delhi
9. Srinivasan k and a Shariff (1998), India; Towards Population and Demographic Goals, OUP
10. John R Population: An introduction to concepts and issues 8th edition



## **course Title : REGIONAL ECONOMICS I (Semester III)**

**Course Category : COMPLEMENTARY COURSE -2**

### ***MODULE I Introduction***

Definition of Regional Economics and region – Different types of regions – regional income, Problems of estimation; Indicators of regional development

### ***MODULE II Regional growth and Techniques of regional analysis***

Spatial Price Theory- Price equilibrium in geographically separated and interlinked markets; Spatial Macro economics- Inter Regional Income Models- Cumulative Causation Models- Center Periphery Model; Growth Pole Analysis, Convergence and Divergence of disparities in per capita regional income, Techniques of Regional Analysis: Regional and Inter Regional input-output analysis; Attraction model; Gravity model; shift-share Analysis; Impact studies

#### Reference

1. Hoover E M , An Introduction to Regional Economics, Alfred p knopf, New York (1974)
2. Chand, M and V K Puri; Regional Planning in India, Allied Publishers, New Delhi
3. Isard W, Methods of Regional Analysis:MIT Press Cambridge, Mass (1960)
4. Nair, K R G regional experience in a Developing Economy, Wiley-Eastern, New Delhi (1982)
5. Richardson H W, Regional Economics, Weidenfield and Nicholson, London (1969)
6. Brahmananda, P R, and V R Pachmikh (Eds) Development experience in the Indian Economy, Inter state perspectives, Bookwell, Delhi(2001)

## **Semester – III**

# **Essentials of Economics – Money, Banking, Finance and Trade**

### **Module I: Money**

Definitions and functions of money, demand for and supply of money, Fischer's quantity theory of money, inflation and deflation

### **Module II: Banking**

Role and functions of commercial banks and central bank, monetary policy and its instruments, credit instruments (cheque, draft etc)

### **Module III: Public Finance**

Public revenue and its sources, public expenditure, public debt, deficit financing, fiscal policy, budget, finance commission.

### **Module IV: Trade**

Internal and External Trade, Why international trade?, balance of trade and balance of payment, foreign exchange rate, devaluation, revaluation, depreciation, appreciation.

#### Reference

1. Diwedi DN 'Macroeconomics Theory and Policy" Tata Magragel
2. Salvator D and EA Diulio – Principals of Economics Schuam's Outline Series
3. Salvator D – International Economics Schuam's Outline Series

## **Course Title : POPULATION STUDIES II (Semester IV)**

**Course Category : COMPLEMENTARY COURSE -1**

### **MODULE IV Population in India**

India's Population: Size and Growth trends – Ageing – gender issues – Women empowerment – population explosion - Age composition of population and its Demographic Dividend -Growth and Distribution of Rural Urban population - Population Trends in Recent Years in India- National Population Policy – Family Planning Strategies and their outcomes- policies related to Health, Nutrition , Education , Training

### **MODULE V Trends in World Population**

Population Trends in Recent Years - Population Explosion – Growth of World Population- developed and Developing Nations – Migration : Motivating factors, internal and international migration - Pattern of Age and Sex structure in Developed and Developing Nations – Determinants of Age and sex structure – Age Pyramids and projections

### **MODULE VI Population and Economic Development**

Views of Population and Economic Development – Demographic Growth and socio – economic development - Impact of population growth on long term development, food production , natural resources and the environment

#### **References:**

1. Agarwal S N (1972) , India,s Population Problem, Tata McGraw-Hill, Co Bombay
2. Bose A (1996) India's Basic Demographic statistics , B A Publishing Corporation, New Delhi
3. Bouge D J (1971) Principle of Demography, John Wiley, New York
4. Chenery H and T n Srinivasan (eds)(1989), hand Book of Development Economics, Vol.1&2 Elsevier, Amsterdam,et.
5. Choubey p K (2000), population Policy in India, Kanishka Publications New Delhi
6. Coale A J and L M Hoover (1958) Population Growth and Economic Development in Low income countries: A case study of India's Prospects Princeton university Press, Princeton
7. Gulati S C (1998) Fertility in India: An Econometric study of metropolis of sage, New Delhi
8. Srinivasan K (1998) Basin Demographic Techniques and application Sage, New Delhi
9. Srinivasan k and a Shariff (1998), India; Towards Population and Demographic Goals, OUP
10. Misra and PURI (2008), Indian Economy

## **Course Title : REGIONAL ECONOMICS 1I(Semester :1V)**

**Course Category : COMPLEMENTARY COURSE -2**

### **MODULE I Regional Growth**

Concept of Regional Growth and local economic development – Approaches to Local Economic Development – Theory of regional Income and employment determination.

### **MODULE II: Regional Policy**

People Prosperity Vs Place prosperity; Formulation of inter regional objectives; Consistency between national and regional objectives; Alternative regional policy measures; Historical evidence

Inter- Regional differences in India's development

### **MODULE III Regional Economic Structure in India**

- Regional economic structure : Economic base of regions and municipalities ,assessment of economic performance of territorial system – Regional administration: Local Self Government , 3 tier structure – Regional Planning –Regional finance as a part of Public Finance -Regional Budget.

Reference

1. Hover E M , An Introduction to Regional Economics, Alfred p knopf, New York (1974)
2. Chand, M and V K Puri; Regional Planning in India, Allied Publishers, New Delhi
3. Isard W, Methods of Regional Analysis:MIT Press Cambridge, Mass (1960)
4. Nair, K R G regional experience in a Developing Economy, Wiley-Eastern, New 5. Delhi (1982)
6. Richardson H W, Regional Economics, Weidenfield and Nicholson, London (1969)
7. Brahmananda, P R, and V R Pachmikh (Eds) Development experience in the Indian Economy, Inter state perspectives, Bookwell, Delhi(2001)

## **Semester – IV**

### **Essentials of Economics – Indian Economy**

#### **Module I: India as a Developing Economy**

Major Issues: poverty, unemployment and inequality - causes and remedies

#### **Module II: Major Sectors of Indian Economy**

Importance, contribution and problems of agricultural sector, green revolution, land reforms, Industry: importance, contribution and problems. Services: contribution to the national economy. Impact of economic reforms on major sectors.

#### **Module III: Planning**

Economic planning and its objectives; five year planning in India – achievements and failures

#### **Module IV: Kerala Economy**

Unique features, sectoral contribution, land reforms, decentralized planning, people's planning, achievements and challenges in Health and Educational Sectors, Role of Migration and remittances, tourism and development

#### **Reference**

1. Uma Kapila – (Ed) Indian Economy Since Independence – Academic Foundation – New Delhi
2. Kerala padhanam - KSSP Kozhikode

## **II. CO-OPERATION**

### **Semester I**

#### **Co-operation 1**

#### **Module 1: Principles and Problems of Co-operation:**

Meaning and Significance of Co-operation; Co-operation and other business enterprises; Problems of Co-operation, Role of Co-operatives in a dynamic economy.

38

#### **Module 2: Practice of Co-operation in Foreign Countries:**

Co-operative Movement in Germany, England, Denmark, Ireland, Japan, Italy, France, International Co-operative Alliance.

## **Semester II**

### **Co-operation 2**

#### **Module 1: Practice of Co-operation in India:**

Origin and Development of Co-operative Movements, Co-operative Legislations and Administrations. Recent Trends.

#### **Module 2: Co-operative Banking:**

Principles and Policy, Rural Primary Agricultural Credit Societies, Central Co-operative Banks, Banking Unions, State Co-operative Banks, Land Development Banks, Institutions in Aid Co-operative Banks.

## **Semester III**

### **Co-operation 3**

#### **Module 1: Agricultural Co-operatives:**

Co-operative production, Co-operative Vs Collective Farming, Co-operative Supply (Service Co-operatives), Co-operative Marketing, Co-operative Processing, Co-operative Storage and Warehousing.

#### **Module 2: Non-Agricultural Co-operatives:**

Consumers' Co-operatives, Co-operative Housing, Urban Co-operative Credit Societies, Industrial Co-operatives, Workers' Co-operative, Dairy Co-operatives.

## **Semester- IV**

### **Co-operation 4**

#### **Module 1: Human Resource Development in Co-operatives:**

Nature and Significance of Human Resources Development in Co-operatives, Co-operative Education and Training.

#### **Module 2: Role of Co-operatives in a Liberalised Financial situation.**

Analysing Vaidyanathan Committee Report – History & Role of Co-operative Movement in Kerala - Co-operatives and SHGs – Kudumbasree in Kerala, co-operatives and de-centralisation

#### **Reference :**

1. T.N. Hajila, Principles, Problems and Practices of Co-operation (Shivalal Agarwala & Co., Agra).
2. E.S. Bogardus, Principles of Co-operation.
3. K.R. Kulkarni, Theory & Practice of Co-operation in India and Abroad.
4. G. Druhain, The Co-operative Society as a Form of Enterprise.
5. H. Calvert, Law & Principles of Co-operation.
6. C.R. Ray, Co-operation at Home & Abroad.
7. R. Philips, Economic Nature of Co-operative Association.

## **III. BANKING**

### **Semester I**

#### **Banking 1**

##### **Module 1:**

Banks, Evolution and Economic Importance, Functions, Growth of Banking in India.

**Module 2:**

Commercial Banking, Branch Banking Vs Unit Banking, Group Banking, Chain Banking, Mixed Banking, Clearance Banks, Balance sheet, Rules of Management of funds, Assets, Liabilities, Financial Intermediaries, Bank Failures, Deposit Insurances, Merchant Banking, Nationalisation of Banks in India : An overview of Changes after Nationalisation.

## **Semester II**

### **Banking 2**

**Module 1:**

Negotiable Instruments, Cheques, Bills, Treasury bills, Acceptance Houses, Discounts, Money Market, Peculiarities of Indian Money Market; Deposits; Borrowings; Primary and Secondary Resources, Loans, Practices in Lending, Credit Circulation, Limitations.

**Module 2:**

Accounts: Joint accounts, Partnership, Company guarantees, Individual Surety, Joint and Several Guarantee, Security, Exchange Securities, Life Policies, Payment and Collections of Cheques, Dishonouring, Negotiability, Crossing and Account payee.

## **Semester III**

### **Banking 3**

**Module 1:**

Central Banking: Evaluation Functions, Rules of note issue system in India, Bankers' Bank, Reserve Functions, Statutory Minimum, Banker to Government, Custodian Notions, Reserve, Credit Control, Objectives, Methods, Limitations, Lender of the last resort, Bank Rate, Open market operations, Exchange control, Reserve Bank.

**Module 2:**

Development Banks in India : IFCI, SFCS, IDBI, NIDC, NSIC, SIDBI: Capital market in India, Emerging trends, Mutual Funds. New Generation Banks.

## **Semester IV**

### **Banking 4**

**Module 1:**

Agricultural Banking, Land Development Banks, Co-operative Banks, Regional Rural Banks, NABARD.

**Module 2:**

Financial Liberalisation and its impacts. Recommendations of Narasimhan Committee –Financial Crisis and the Role of Public Sector Banks.

**Suggested Readings:**

6. R.S. Sayers, Modern Banking. – Mac millon
7. M.D. Decock, Central Banking.
8. S.K. Basu, Banking in India.
9. Milnes Holdern, Studies in Practical Banking.
10. I.C. Dhingra, Indian Economy. Sulthan Chand and sons.

## IV. Mathematical Tools for Economics

<b>Semester I</b>	<b>Mathematical Tools for Economics- I</b>	<b>EC1 C04</b>
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### **Module 1: Theory of Sets:**

1.1 Kinds of sets, 1.2 Operations of sets, 1.3 Venn Diagrams, 1.4 Cartesian Products, 1.5 Relations – Types of Relations, 1.6 Functions.

### **Module 2: Fundamental of Linear Algebra – Matrices:**

2.1 The Role of Linear Algebra, 2.2 Definitions and terms, 2.3 Addition and Subtraction of Matrices, 2.4 scalar Multiplication, 2.5 Vector Multiplication, 2.6 Multiplication of Matrices, 2.7 Commutative, Associative and Distributive Laws in Algebra. 2.8 Identity and Null Matrices 2.9 Matrix Expression of a set of Linear Equations. 2.10 Row Operation.

### **Basic Reading**

1. Taroyamane, Mathematics for Economists (Prentice Hall)
2. Edward T. Dowling, Introduction to Mathematical Economics (2<sup>nd</sup> Edition), Schaum's Outline Series, McGRAW-HILL.

### **Additional Readings**

1. Maths for Economics, Geoffrey Renshaw, 2<sup>nd</sup> Edition, Oxford University Press
2. Chiang A C, Fundamentals Methods of Mathematical Economics, McGraw Hill
3. Michael Hoy, John Livernois, Mathematics For Economics, 2<sup>nd</sup> Edition, Phi Learning
4. Mathematics for Economics and Business, Bhardwaj R S, 2<sup>nd</sup> Edition, Excel Books

<b>Semester II</b>	<b>Mathematical Tools for Economics -II</b>	<b>EC2 C04</b>
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### **Module 1: Matrix Inversion:**

1.1 Determinants and Nonsingularity, 1.2 Determinants, 1.3 Properties of a Determinant, 1.4 Minors and Cofactors, 1.5 Cofactor and Adjoint Matrices, 1.6 Inverse Matrices 1.7 Solving Linear Equations with the Inverse, 1.8 Cramer's Rule for Matrix Solutions, 1.10 Rank of a Matrix.

### **Module 2: Basic Mathematical Concepts:**

2.1 Exponents, 2.2 Polynomials, 2.3 Factoring, 2.4 Equations : Linear and Quadratic, 2.5 Completing the Square, 2.6 Simultaneous Equations, 2.7 Functions, 2.8 Graphs, Slopes, and Intercepts, 2.9 Graphs of Nonlinear Function.

### Module 3: Economic Applications of Graphs and Equations:

3.1 Isocost Lines, 3.2 Supply and Demand Analysis, 3.3 Production – Possibility Frontiers.

#### Basic Reading

1. Taroyamane, Mathematics for Economists (Prentice Hall)
2. Edward T. Dowling, Introduction to Mathematical Economics (2<sup>nd</sup> Edition), Schaum's Outline Series, McGRAW-HILL.

#### Additional Readings

1. Maths for Economics, Geoffrey Renshaw, 2<sup>nd</sup> Edition, Oxford University Press
2. Chiang A C, Fundamentals Methods of Mathematical Economics, McGraw Hill
3. Michael Hoy, John Livernois, Mathematics For Economics, 2<sup>nd</sup> Edition, Phi Learning
4. Mathematics for Economics and Business, Bhardwaj R S, 2<sup>nd</sup> Edition, Excel Books

**Note :** 1. This course is a complementary course and is intended for students of B.A. Economics course who may not have sound knowledge of advanced mathematical concepts. Hence questions may be confined to intermediary level. 2. Derivations and proofs not required.

<b>Semester III</b>	<b>Mathematical Tools for Economics- III</b>	<b>EC3 C04</b>
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### Module 1: The Derivative and The Rules of Differentiation:

1.1 Limits, 1.2 Continuity, 1.3 The Slope of a Curvilinear Function, 1.4 The Derivative, 1.5 Differentiability and Continuity 1.6 Derivative Notation 1.7 Rules of Differentiation 1.8 Higher-Order Derivatives 1.9 Implicit Differentiation. *Uses in Mathematics and Economics:* 1.10 Increasing and Decreasing Functions, 1.11 Concavity and Convexity, 1.12 Relative Extreme, 1.13 Inflection Points, 1.14 Curve Sketching, 1.15 Optimization of Functions.

### Module 2: Calculus and Multivariable Functions:

2.1 Functions of Several Variables and Partial Derivatives, 2.2 Rules of Partial Differentiation, 2.3 Second-Order Partial Derivatives, 2.4 Optimization of Multivariable Functions, 2.5 Constrained Optimization with Lagrange Multipliers, 2.6 Significance of the Lagrange Multiplier, 2.7 Differentials, 2.8 Concept of Total and Partial Differentials, 2.9 Concept of Total Derivatives, 2.10 Implicit and Inverse Function Rules, 2.11 Application of Calculus of Multivariable Functions in Economics.

#### Basic Reading

1. Taroyamane, Mathematics for Economists (Prentice Hall)
2. Edward T. Dowling, Introduction to Mathematical Economics (2<sup>nd</sup> Edition), Schaum's Outline Series, McGRAW-HILL.

### **Additional Readings**

1. Maths for Economics, Geoffrey Renshaw, 2ndEdition, Oxford University Press
2. Chiang A C, Fundamentals Methods of Mathematical Economics, McGraw Hill
3. Michael Hoy, John Livernois, Mathematics For Economics, 2ndEdition, Phi Learning
4. Mathematics for Economics and Business, Bhardwaj R S, 2ndEdition, Excel Books

<b>Semester IV</b>	<b>Mathematical Tools for Economics- IV</b>	<b>EC4 C04</b>
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**Module 1: Special Determinants and Matrices in Economics:** 1.1 The Jacobian, 1.2 The Hessian, 1.3 The Discriminant, 1.4 Higher-Order Hessians, 1.5 The Bordered Hessian for Constrained Optimization.

#### **Module 2: Integral Calculus : The Indefinite Integral:**

2.1 Integration, 2.2 Rules of Integration, 2.3 Initial Conditions and Boundary Conditions, 2.4 Integration by Substitution, 2.5 Integration by Parts, 2.6 Economic Applications.

#### **Module 3: Integral Calculus : The Definite Integral:**

3.1 Area under a Curve, 3.2 The Definite Integral, 3.3 Area between curves

#### **Module 4: Introduction to Differential Equations and Difference Equations:**

4.1 Definitions and Concepts of Differential Equations 4.2 Definition and Concepts of Difference Equations.

#### **Basic Reading**

1. Edward T. Dowling, Introduction to Mathematical Economics (2<sup>nd</sup> Edition), Schaum's Outline Series, McGRAW-HILL.

### **Additional Readings**

1. Maths for Economics, Geoffrey Renshaw, 2ndEdition, Oxford University Press
2. Chiang A C, Fundamentals Methods of Mathematical Economics, McGraw Hill
3. Taroyamane, Mathematics for Economists (Prentice Hall)
4. Michael Hoy, John Livernois, Mathematics For Economics, 2ndEdition, Phi Learning
5. Mathematics for Economics and Business, Bhardwaj R S, 2ndEdition, Excel Books

**Note :** 1. This course is a complementary course and is intended for students of B.A. Economics course who may not have sound knowledge of advanced mathematical concepts. Hence questions may be confined to intermediary level. 2. Differentiation / Integration of Trigonometric functions, logarithmic functions etc., are not to be included.



**Distribution of Credit under the UG Economics (CCSS) Development Economics**

Semester	Course Title	Subject	Hrs/week	Credit
I	Common Course 1	English	4	3
	Common Course 2	English	5	3
	Common Course 3	Second Language	4	4
	Core Course 1	Micro Economics 1	6	4
	Complementary 1	Agricultural Economics I	3	2
	Complementary 1	Fundamentals of Foreign Trade I	3	2
II	Common Course 4	English	5	4
	Common Course 5	English	4	4
	Common Course 6	Second Language	4	4
	Core Course 2	Macro Economics 1	6	4
	Complementary 2	Agricultural Economics II	3	2
	Complementary 2	Fundamentals of Foreign Trade II	3	2
III	Common Course 7	English	5	4
	Common Course 8	Second Language	5	4
	Core Course 3	Quantitative Methods for Economic Analysis -I	5	4
	Core Course 4	Micro Economics II	4	4
	Complementary 3	Population studies 1	3	2
	Complementary 3	Regional Economics I	3	2
IV	Common Course 9	English	5	4
	Common Course 10	Second Language	5	4
	Core Course 5	Quantitative Methods for Economic Analysis -II	5	4
	Core Course 6	Macro Economics II	4	4
	Complementary 4	Population Studies II	3	2
	Complementary 4	Regional Economics II	3	2
V	Core course 7	Development Economics	5	4
	Core course 8	Mathematical Economics	5	4
	Core course 9	Environmental Economics	5	4
	Core course 10	Computer Application	5	4
	Open course	Basic Principles of Economics/International Trade and Finance/Banking	3	4

	Project work		2	-
	Core course 11	Basic Econometrics	5	4
VI	Core course 12	Public Finance	5	4
	Core course 13	Indian Economy with Special Reference to Kerala Economy	5	4
	Core course 14	Financial Economics	5	4
	Elective course	Gender Economics/ Health Economics/ Economics of Business and Finance	3	2
	Project Work	Individual/group activity	2	4
Total credit				120