



M.A. Development Economics Degree Programme

(Mahatma Gandhi University 2019 Regulations: 2020-21 Academic Year)

There is a growing demand globally on issues of development. Sustainable development has attained world attention during recent times. There is a growing demand for various programmes on economics of development. The subject matter of development economics is growing very fast. The various facets of this growing branch has to be introduced to the students of this subject especially at the post graduate level. This is a branch of economics with great scope of specialization.

The various fields of development ranges from the history of development to the political economy of development as well as to the development of the various sectors including agriculture, industry, services sector and infrastructure.

The subject of development economics has a pivotal role in the newly emerging world economic order. Its application to enhance human welfare has become even more vital. The global economic environment has become increasingly complex and poses a myriad of new challenges for policy and data analysts and professionals in all fields. The growing needs of the growing population and the urge for better standard of living poise problems to the modern society. The impact of invention and innovation are so prominent in this new era of Information and Communication Technology. The developmental needs of the knowledge economy is different from that of a traditional economy.

There are also issues of regional disparities inn growth patterns along side with the gender differences in terms of who enjoys the fruits of development and growth. In a globalised world free and fair trade is a sinequanon for development. Whether trade accelerates growth or it impedes growth is to be discussed on a contextual basis. How does international trade affect the development of especially developing countries?

In times of financial and economic crisis, academics and policymakers are paying closer attention to how the market works, and money markets and financial frictions in business cycles affect the macroeconomic and financial landscape and ultimately how it influences development.

The study of development has to correlate with the use of resources, its sustainable use and the damage development causes to the environment. An analysis of the wide ranging relation between development and our ecology is of prime importance..



Meticulous economic policy analysis requires practitioners who can make use of the most current theoretical academic literature, as well as do empirical and econometric analysis using the latest approaches and methods. Mathematical, statistical and econometric methods are imperative in analyzing, forecasting and policy formulation.

The Master of Arts program in Development Economics is designed for students who wish to prepare themselves for careers in the field of economics as development economists, policy designers and planners to improve their knowledge of economic theory and its applications. The M.A. program provides a technical and rigorous approach to the study of development economics. The course seeks to cultivate the analytical and critical skills relevant to economic development, in particular, those needed to assess alternative approaches to policy. It provides rigorous quantitative training that development work now requires, helping students develop the ability to access, process and interpret a variety of data. It aims to provide the research tools and approaches needed for those who wish to proceed to doctoral research in Economics. The need to improve curriculum and keep up with the pace of new developments, it is important to incorporate new literature in the new generation postgraduate course.

The present curriculum also contains teaching and evaluation methodology so that students are well trained and equipped with latest knowledge and skills to cope with the burgeoning challenges. The goal of the MA Development economics program is to train students to think analytically about social issues, and as such provide a solid foundation for further study and careers in economics as well as for multiple other pursuits. It provides theoretical, analytical as well as experiential learning opportunities by developing life skills, computer skills and software package and mathematical skills.

AIM OF THE PROGRAMME

The broad objective of this programme is to provide students with a full understanding of development economic theory and with a firm grounding in the analytic methods of economic theory used by economists working in research, government, and business. It also aims at equipping the students with the analytical tools of economics to have a holistic understanding of the economy in particular and the society in general. It prepares them for challenging careers open to economists,, planners, economic journalists, researchers and policy makers.

The major objectives of this programme of MA Development Economics instruction using the latest methodology is to offer an opportunity for students to be exposed to different facets of this growing discipline. The specific objectives of the M.A. Development Economics Program are as given below:

- i) To give students knowledge in the various fields of Development Economics and an in-depth understanding of the theoretical and empirical constructs in the field of Economics in general and development economics in particular.
- i) To disseminate awareness and appreciation of the complexity of socio-economic interdependence as well as development and environment perspective.
- ii) Application of economic theories and dilating problem-solving acumen. To teach applications of theories in analyzing current economic problems specially related to issues of development.
- iv) Preparation for advanced learning and research.
- v) To equip students with a set of latest tools of mathematics, statistics and econometrics, which would help them to solve real-world problems.
- vi) Develop the powers of inquiry, critical analysis, logical thinking, and your ability to apply theoretical knowledge to current issues of policy and practice in economics.
- vi) Encourage initiative, independent learning, awareness of analytical and theoretical approaches in the field of economics, exposure to recent research and state-of-the-art tools in applied for work in economics;
- vi) To train students for model building, test economic models using advanced methods and sophisticated economic tools, analysis interpretation and formulation of development policies.
- ix) To stimulate analytical and critical thinking on the different economic issues.
- x) To develop the capabilities of original and independent work, promoting excellence in thought and in action.
- xi) To give the students a level of knowledge in economics to equip them to get employment in professional occupations or in other Research focused roles.

1. PROGRAM LEARNING OUTCOMES

Specifically, upon successful completion of the MA program in Development Economics, students will be able:

1. **Gaining Access to Existing Knowledge:** Students are able to create a continuous learning environment for engaging themselves to update with new knowledge in Economics and specifically development economics. Familiarise with recent published research in economics and related fields; locate current information on particular topics and issues in economics and development economics from varied sources of primary and secondary data.
2. **Displaying Command of Existing Knowledge:** Students are able to demonstrate knowledge of theoretical and empirical bases underpinning the construction, implementation and interpretation of Economic theories and assessment techniques, and be able to assess the Economic and social consequences on economics of development and also to relate to current developments in the Indian Economy.
3. **Displaying Ability to Draw Out Existing Knowledge:** Write a review of a published journal article; read and interpret a theoretical analysis, including simple mathematical derivations, reported in an economics journal article.
4. **Read and interpret a quantitative analysis, including regression results, reported in an economics journal article; show what economic concepts and principles are used in economic analyses published in articles from newspapers and newsmagazines.**
5. **Utilizing Existing Knowledge to Explore Issues:** To take a rigorous, quantitative approach to solve economic problems and to build and test economic models, using sophisticated economics tools.
6. **To conduct a primary survey on a local development issue to gain experiential learning through field study, questionnaire preparation, analysis and interpretation and preparing a Report.**
7. **Creating New Knowledge:** Think critically, independently and creatively to synthesize concepts to formulate cases, issues, identify and formulate a question or series of questions about some economic issues that will facilitate investigation of the issue; prepare a 5-page proposal for a research project; complete a research study whose results are contained in a published paper.

2. ELIGIBILITY FOR ADMISSIONS

A Candidate who has passed B.A., Economics or B.Sc., (Mathematics) degree examination of Mahatma Gandhi University or an examination of some other University accepted by the syndicate as equivalent thereto shall be permitted to apply for the M.A. Development Economics in the affiliated colleges of the University. Students admitted under this programme are governed by the University Regulations in force.

3. MEDIUM OF INSTRUCTION AND ASSESSMENT

English shall be the medium of instruction and examination.

4. FACULTY UNDER WHICH THE DEGREE IS AWARDED

Faculty of Social Science

SPECIALIZATIONS OFFERED, IF ANY

Development Economics, Local level Planning, Quantitative Economics, Advanced Microeconomics, Macro Economics and Kerala Economy..

5. NOTE ON COMPLIANCE WITH THE UGC MINIMUM STANDARDS FOR THE CONDUCT AND AWARD OF POST GRADUATE DEGREES

The Programme Structure, Scheme and Syllabus of the M.A. Programme in Development Economics is in compliance with the UGC Minimum Standards for the Conduct and Award of Post Graduate Degrees.

6. ELIGIBILITY FOR THE AWARD OF DEGREE

A candidate shall be eligible for the award of the degree only if he/she has undergone the prescribed course of study in the college affiliated to the University for a period of not less than two academic years. A candidate who has passed the examination of all the courses with 'C' grade shall be the minimum requirement for the award of the degree.

THE PROGRAM STRUCTURE

1. Students shall be admitted into the four -semester postgraduate programme in MA Development Economics.
2. The programme shall include two types of courses; Core courses and Elective Courses.
3. There are 17 core courses and 3 groups of electives with option to choose any three courses from one group. The core courses are designed to provide students with rigorous academic training, quantitative training as well as with tools that can be used in policy

analysis.

4. The elective courses shall be in the fourth semester. All the elective courses should hold same credit for a programme.
5. There shall be three groups of three Elective courses for the programme such as Group A, Group B and Group C.
6. The elective courses mainly aim to provide specialization in various economics courses such as applied, mathematical stream and subjects pertaining to development economics like micro level planning, agriculture development, economics of education, health and infrastructure..
7. Course evaluation would consist of seminar presentations, assignments, written examinations, Project/Internship and viva-voce.
8. There shall be a Project with a dissertation to be undertaken by all students.
9. The student shall submit one assignment as an internal component for every course.
10. The PG student may deliver one seminar lecture as an internal component for every course.
11. Every student shall undergo two class tests as an internal component for every course.
12. Total credits for the programme are eighty (80). No course shall have more than four (4) credits.
13. Project shall be completed by working outside the regular teaching hours. Project shall be carried out under the supervision of a teacher in the department concerned. A candidate may, however, in certain cases be permitted to work on the project in an industrial / research/local body organization on the recommendation of the Supervisor. There shall be an internal assessment and external assessment for the project.
14. The external evaluation of the dissertation work is followed by the presentation of work including dissertation and viva-voce.
15. Comprehensive viva voce shall be conducted at the end of the programme. This shall cover questions from all courses in the programme.
16. The weight for the Internal Evaluation of Theory Project/Comprehensive viva-voce is 5 and the External evaluation of Project /Comprehensive viva-voce is 15 and its maximum Weighted Grade Point (WGP) is 25 and 75 respectively. The Internal External ratio is **1:3**.
17. There shall be no separate minimum grade point for internal evaluation.
18. The minimum requirement of aggregate attendance during a semester for appearing the end semester examination shall be 75%.
19. The programme shall include a study tour for students, which can be done during any semester. The tour shall be to research institutions/ industrial sites, extending for a maximum of five working days, excluding journey time.

Course Code	Title of the Course	Type of the Course	Hours per Week	Credits
SEMESTER 1				
DE010101	Microeconomic Analysis I	Core	5	04
DE010102	Macroeconomic Theory and Policy I	Core	5	04
DE010103	Economics of Growth and Development	Core	5	04
DE010104	Development Issues of Indian Economy	Core	5	04
DE010105	Mathematics for Economics	Core	5	04
SEMESTER 2				
DE010201	Microeconomic Analysis II	Core	5	04
DE010202	Macroeconomic Theory and Policy II	Core	5	04
DE010203	Modern Public Economics	Core	5	04
DE010204	Political Economy of Development	Core	5	04
DE010205	Quantitative Techniques for Economic Analysis	Core	5	04
SEMESTER 3				
DE010301	International Economics I	Core	5	04
DE010302	Econometric Methods I	Core	5	04
DE010303	Regional Economics	Core	5	03
DE010304	Theories and Approaches of Environmental Economics	Core	5	04
DE010305	Development Issues of Kerala Economy	Core	5	04
SEMESTER 4				
DE010401	International Economics II	Core	5	04
DE010402	Econometric Methods II	Core	5	04

DE800401 Gender and Development	DE810401 Research Methodology and Computer Application	DE820401 Micro Level Planning
DE800402 Economics of Education	DE810402 Project Analysis	DE820402 Infrastructure and Economic Development
DE800403 Human Resource Management	DE810403 Fundamental methods of Mathematical Economics	DE820403 Principles of Agricultural Economics

DE010403	Project/Dissertation	Core	Credit	02
DE010404	Comprehensive Viva-Voce	Core	Credit	02
Total Weight of the Course				80

7. Pattern of Questions

The question paper for final assessment will be of three hours duration and will consist of three parts. The question shall be prepared in such a way that the answers can be awarded A+, A, B, C, D, E grades. There shall be no separate minimum grade point for internal evaluation of Theory, Project, and Comprehensive viva-voce. A question paper may contain short answer type/annotation, short essay type questions/problems and long essay type questions.

Weight: Different types of questions shall be given different weights to quantify their range as follows:

Sl.No.	Type of Questions	Weight	Number of questions to be answered
1.	Short Answer type questions	1	8 out of 10
2	Short essay/ problem solving type questions	2	6 out of 8
3.	Long Essay type questions	5	2 out of 4

All questions shall be set in such a way that the answers can be awarded A+, A, B, C, D, E grade.

8. Direct Grading System

Direct Grading System based on a 7 – point scale is used to evaluate the performance (External and Internal Examination of students). For all courses (theory & practical) / semester/overall programme, Letter grades and **GPA/SGPA/CGPA** are given on the following scale:

Range	Grade	Indicator
4.50 to 5.00	A+	Outstanding
4.00 to 4.49	A	Excellent
3.50 to 3.99	B+	Very good
3.00 to 3.49	B	Good (Average)
2.50 to 2.99	C+	Fair
2.00 to 2.49	C	Marginal
up to 1.99	D	Deficient (Fail)

No separate minimum is required for Internal evaluation for a pass, but a minimum **C** grade is required for a pass in an external evaluation. However, a minimum **C grade** is required for pass in a course

Evaluation first stage - Both internal and external (to be done by the teacher)

Grade	Grade Points
A+	5
A	4
B	3
C	2
D	1
E	0

Theory-External

Maximum weight for external evaluation is **30**. Therefore, Maximum Weighted Grade Point (WGP) is **150**. Weight: Different types of questions shall be given different weights to quantify their range as follows:

Sl.No.	Type of Questions	Weight	Number of questions to be answered
1.	Short Answer type questions	1	8 out of 10
2	Short essay/ problem solving type questions	2	6 out of 8
3.	Long Essay type questions	5	2 out of 4

Theory (Internal)- Components and Weightage

	Components	Weightage
i.	Assignment	1
ii	Seminar	2
iii	Best Two Test papers	1 each (2)
	Total	5

(For test papers all questions shall be set in such a way that the answers can be awarded A+, A, B, C, D, E grade.)

9. Project- External: Components and Weightage

The project is evaluated by one external and one internal examiner. The dissertation of the project is examined along with the oral presentation of the project by the candidate. The different weight for assessment of different components is shown in below.

Components	Weightage
Relevance of the topic and analysis	3
Project content and presentation	7
Project viva	5
Total	15

Project- Internal: Components and Weightage:

Internal evaluation of the dissertation will be based on the following criterion

Components	Weightage
Relevance of the topic and analysis	2
Project content and presentation	2
Project viva	1
Total	5

Comprehensive viva-voce (External)-components and weightage

Components	Weightage
Course viva (all courses from first semester to fourth semester)	15
Total	15

10. Comprehensive viva (Internal)- Components and Weightage

Comprehensive viva-voce shall be conducted at the end of the programme. Viva-voce shall be conducted by one external examiner and one internal examiner. The viva-voce shall cover questions from all courses in the programme. There shall be no internal assessment for comprehensive viva-voce.

Components	Weightage
Course viva (all courses from first semester to fourth semester)	5
Total	5



The dissertation shall be prepared in the following format.

11. Dissertation Format

Dissertation: Master of Arts (MA) in Economics

General Guidelines	
1	General Introduction to the Study
2	Review of Literature
3	Research Gap
4	Statement of the problem
5	Significance of the Study
6	Formulation of Research Questions /Issues
7	Research objectives
8	Hypotheses
9	Conceptual Framework – Conceptualization & Operationalization (precise and specific meaning of the terms and concepts)
10	Theoretical framework
	Analytical Framework
11	Data source (Primary/Secondary)
12	Sampling framework
13	Pilot Survey, if needed
14	Tools of analysis (Analytical Framework)
15	Limitations of the study
16	Chapter outlines
	Chapters
17	Situating the Study
18	Discussion of the Results
19	Major findings, Summary, Recommendations (if any) and Conclusion
20	Bibliography /References &Webliography
21	Appendices

	1.1. Title page		1.2 Preface
a	Title of the project		1.3 Table of contents
b	Name of the candidate	a.	List of Tables
c	Name and designation of the supervisor	b.	List of Figures
d	Degree for which project is submitted	c.	Glossary.
e	Name of the College	d.	List of abbreviations
f	Month and year the project is presented	e.	Acknowledgment
g	Declaration of the student & supervisor	1.4 Abstract/ Executive Summary (One page)	
1.5 The Main Text			
Introductory Chapter: Items 3 to 16 mentioned above			
b. Other Chapters- Analysis, Results Interpretation			
c. Conclusion Chapter: Conclusions, Recommendations & Summary			
1.6 End Notes (after each Chapter)		1.7. Bibliography or References (at the end of the thesis)	
1.8 Appendices			
a.	Questionnaire	d.	Coding Frame (optional)
b.	Interview Schedule	e.	Letters sent to sample members (optional)
c.	Observation Schedule (optional)	f.	Any Other
Length of the Project			
a. Report length 40 to 50 pages excluding Appendix and Certificates b. Alignment: Justify c. Font: Times New roman d. Font size: 12 e. Line spacing: 1.5 f. Double line Page Border * Style of The Report: • Chicago Manual of Style (CMS) or American Psychological Association Style (APA)			

Departmental Requirement

(To be kept at the Department by the Supervisor)

Supervisor- Student Meeting Log

Date/Time	Discussion Areas	Summary of Discussions	Signature of the Supervisor
	Topic selection		
	Clarify Objectives		
	Literature Review		
	Seminar 1		
	Research Design		
	Collect Data		
	Analyze Data		
	Write up		
	Supervisor's Comments		
	Final Draft -Seminar 2		

Name of the Supervisor:

Name of the Student:

Notes: The dissertation work may be started in the Third Semester itself for timely completion of the work at the end of the IV Semester.

Semester	Course Code	Course Title	Type of Course	Credit	Teaching Hours
I	DE010101	Microeconomic Analysis I	Core	04	90

Course Outcome

This course aim to provide students with a solid understanding of microeconomic theory. The course is meant to equip the students themselves in a comprehensive manner with the multiple facets of the Microeconomic theory. In a abroad sense, it provides an intuitive platform for what students will learn in other branches of economics. The emphasis will be on thinking like an economist and the course will illustrate how microeconomic concepts can be applied to analyses real-life situations.

Learning Outcome

By the end of this course, the student is expected to be familiar with basic concepts of microeconomics and acquire analytical skills to analyses problems of economic policy. Besides, students should be able to demonstrate: (i) an understanding of relevant microeconomic concepts; (ii) a capacity to explain and evaluate critically theoretical arguments.

Unit 1

Theory of consumer behavior - Compensated and Uncompensated Demand Function - Duality in Consumer Theory - The Pragmatic Approach to Demand Theory – Constant Elasticity Demand Function - Dynamic Versions of Demand Function - Nerlove, Houthakker and Taylor-Linear expenditure system.

Decision making under uncertainty and attitude towards risk - Bernoulli Hypothesis, Neumann and Morgenstern Index (basic idea), Friedman and Savage hypothesis, Markowitz hypothesis - Attributes model of Kevin Lancaster - Network Externalities – Bandwagon, Snob and Veblen Effects

Unit 2

Theory of production - Homogenous and Non-Homogenous Production Functions –A brief account of Production function of a single product firm - Production function of a multi-product firm - Empirical production functions - Cobb-Douglas Production Function - Constant Elasticity

- Substitution Production Function.

Theory of costs - A summary of Short- run and Long-run cost in Traditional and Modern Microeconomic Theory - The L shaped Scale curve- Engineering production function and Engineering cost curves. Learning Curve - Economies of Scope

Unit 3

Market structures – Competitive and Non Competitive equilibria and their efficiency properties. Oligopoly–Price and Output Determination; Collusive and Non-collusive oligopoly - A brief account of collusive Oligopoly (Cartels and Price Leadership) - Oligopoly with Homogeneous Product - Cournot, Bertrand & Stackelberg Model - Oligopoly with Non-homogeneous Product-Chamberlin’s model, Sweezy’s Kinked Demand Curve.

Theory of Games- Strategies - Zero-Sum Game & Non-Zero-Sum Game - Prisoner’s Dilemma - Nash Equilibrium – Non co operative games.

Unit 4

Factor Pricing - Marginal Productivity Theory and Product Exhaustion Problem: Euler's-Clark-Wicksteed and Walrasian theories – Macro and Micro theories of distribution – Distribution theories of Ricardo, Marx, Kalecki and Kaldor.

Reference:

1. A. Koutsoyiannis (1985): Modern Microeconomics, 2nd Ed, MacMillan Education (Reprint).
2. Andreu Mas-Colell, Michael D. Whinston and Jerry R. Green (2005): Microeconomic Theory, OUP.
3. Austan Goolsbee, Steven Levitt and Chad Syverson (2013): Microeconomics, Worth Publishers
4. B. Douglas Bernheim and Michael D. Whinston (2016): Microeconomics, McGrawHill.
5. Christopher Snyder, Walter Nicholson and Robert Stewart (2015): Microeconomic Theory: Basic Principles and Extensions, Cengage Learning.
6. David Besanko and Ronald R. Braeutigam (2014): Microeconomics, 4th Ed, John Wiley and Sons, Inc.
7. Genaro C. da Costa (2005): Value and Distribution in Neoclassical and Classical System, 2nd Ed, Himalaya Publishers, Mumbai.
8. Geoffrey A. Jehle and Philip J. Reny (2014): Advanced Microeconomic Theory 3rd Ed, Prentice Hall.

9. Gibbons, R. (1992): Game Theory for applied economists, Princeton University Press
10. Hal R. Varian (2014): Intermediate Microeconomics with Calculus, 1st Ed, W. W. Norton & Company.
11. Henderson, M. and R.E. Quandt (1989): Microeconomic Theory: Mathematical Approach, 3rd Ed, McGraw Hill.
12. Jeffrey M. Perloff (2016): Microeconomics with Calculus, 3rd Ed, Pearson.
13. Judy A. Whitehead (2015): Microeconomic: A Global Text, Routledge.
14. Mike Rosser (2011): Microeconomics: The Firm and the Market Economy, MacMillan
15. Robert Awh (2001): Microeconomics, John Wiley.
16. Robin Bade and Michael Parkin (2017): Foundations of Microeconomics, 7th Ed, Pearson.
17. Saul Estrin, David Laidler and Michael Dietrich (2016): Microeconomics, 5th Ed, Prentice Hall
18. Snyder and Nicholson (2016): Microeconomic Theory: Basic Principles and Extensions, 11th Ed, Pearson.
19. Steven E. Landsburg (2017): Price Theory and Applications, 8th Ed. Cengage Learning.
20. Thomas J Nechyba (2010): Microeconomics: An Intuitive Approach with Calculus- 1st Edition, South Western Cengage Learning.
21. William A. McEachern (2017): Principles of Microeconomics, 4th Ed, Cengage Learning.
22. Mas-Colell A, Whinston M and J. Green (2012): Microeconomic Theory, Oxford University Press.
23. David M. Kreps, (1990) A Course in Microeconomic Theory, Princeton University Press.
24. Broadway, R. W and N. Bruce (1984), Welfare Economics, Basil Blackwell, Oxford.
25. Henderson, M. and R.E. Quandt (1989): Microeconomic Theory: Mathematical Approach, 3rd Ed, McGraw Hill.
26. Jeffrey M. Perloff (2016): Microeconomics with Calculus, 3rd Ed, Pearson.
27. Judy A. Whitehead (2015): Microeconomic: A Global Text, Routledge.
28. Mike Rosser (2011): Microeconomics: The Firm and the Market Economy, MacMillan
29. Robert Awh (2001): Microeconomics, John Wiley.
30. Robin Bade and Michael Parkin (2017): Foundations of Microeconomics, 7th Ed, Pearson.
31. Saul Estrin, David Laidler and Michael Dietrich (2016): Microeconomics, 5th Ed, Prentice Hall
32. Snyder and Nicholson (2016): Microeconomic Theory: Basic Principles and Extensions, 11th Ed, Pearson.
33. Steven E. Landsburg (2017): Price Theory and Applications, 8th Ed. Cengage Learning.

34. Thomas J Nechyba (2010): Microeconomics: An Intuitive Approach with Calculus-1stEdition, South Western Cengage Learning.
35. William A. McEachern (2017): Principles of Microeconomics, 4th Ed, Cengage Learning.
36. Mas-Colell A, Whinston M and J. Green (2012): Microeconomic Theory, Oxford University Press.
37. David M. Kreps, (1990) A Course in Microeconomic Theory, Princeton University Press.
38. Broadway, R. W and N.Bruce (1984), Welfare Economics, Basil Blackwell, Oxford.

Semester	Course Code	Course Title	Type of Course	Credit	Teaching Hours
I	DE010102	Macroeconomic Theory and Policy I	Core	04	90

Course Outcome

This course provides a rigorous framework for understanding the aggregate economy in both the short run and the long run. The objective of the course is to provide an overview of modern macroeconomics at the post-graduate level, to show how this body of theory can be adapted to the characteristics of developing economies. Another objective of the course is to familiarize the students with the contribution of various schools of thought in macroeconomics. The first part of the course is intended to present a thorough understanding of three outstanding orthodoxies, viz, Classical, Keynesian, Modern Neo-classical synthesis, Neo Keynesianism and Monetarism. The course structure covers the major debates and controversies intends to provide a wider vision of the present discourses in macroeconomics.

Learning Outcome

The course will help to develop the aptitude to relate concepts with research and policy. The course aims to introduce students to key concepts, methodologies, theories, and techniques in modern macroeconomic analysis. At the end of this course, students should be able to (i) know of the major issues as they arise in the field of macroeconomics, (ii) understand alternative approaches to modeling consumption, and investment, (iii) critically evaluate the usefulness of macroeconomic techniques.

UNIT - I Classical versus Keynesian Approach 30 hrs.

- 1.1 Classical Employment and Output determination - Keynesian Cross Model (Three Sector Model) and IS-LM Model: Liquidity Trap- Fiscal and Monetary Policies- Crowding Out Effect.
- 1.2 Keynesian Flexible Price Model: AD-AS Framework-Policy Implications-Multiplier: T and G-Multiplier, Balanced Budget Multiplier- Built-in-Stabilizers-Ricardian Equivalence.
- 1.3 Labour Market: Classical versus Keynes -Keynes Effect and Real Balance Effect
- 1.4 Inflation: Inflationary Gap-Demand-Pull and Cost-Push Inflation-Phillips Curve: Lipsey's excess-demand model - The Samuelson-Solow modification of the Phillips curve- Tobin's views on Phillips curve- Strategies to control inflation.

UNIT - II Neo-Keynesian Analysis and Monetarism 30 hrs.

- 2.1 Neo-Keynesian Analysis (Disequilibrium Models): Walrasian Vs. Keynesian Models. Effective Demand and Notional Demand ---Incompatibility of Walras Law and

- Neoclassical Synthesis of Keynes's General Theory- Disequilibrium models of Robert Clower- Leijonhufvud's, Barro-Grossman and Malinvaud.
- 2.2 Main Propositions of Monetarism—Friedman's Re-statement of Quantity Theory of Money Monetarist Inflation Theory -Adaptive Expectation Hypothesis
- 2.3 Monetarism and the Philips Curve: The Friedman-Phelps Expectations-Augmented Phillips Curve -Natural Rate of Unemployment Hypothesis-Accelerationist Hypothesis and NAIRU.
- 2.4 Policy Implications- Business Cycles and Monetary Policy: -Rule Versus Discretion-Cold Turkey versus Gradualism-Taylor rule-Inflation Targeting.

UNIT - III Behavioral Foundations of Macro Economics 15 hrs.

- 3.1 Consumption Function: Current Income Theories (Absolute Income Hypothesis of Keynes, Kuznets's Consumption Puzzle, Drift Hypothesis of Smithies and Relative Income Hypothesis of Duesenberry).
- 3.2 Fischer's Intertemporal Choice Model.
- 3.3 Normal Income Theories: Permanent income Hypothesis of Friedman and Life Cycle Hypothesis of Modigliani et.al -Robert Hall's Random Walk Hypothesis.

UNIT - IV Investment Functions in Macro Economics 15 hrs.

- 3.4 Investment Function: Keynes's Investment Theory— MEC Approach - Accelerator Theory of Investment
- 3.5 Capital Stock Adjustment Principle - Financial Theory of Investment – Tobin's Q Ratio
- 3.6 Modigliani-Miller Theory –Metzler Inventory Cycle Model-Jorgenson's Neoclassical Investment Model.

REFERENCE

1. Aschheim, Joseph and Hsieh, Ching-Yao (1970): Macroeconomics: Income and Monetary Theory, Charles E. Merrill Publishing Co. (Unit- 1,2 & 3)
2. Blanchard, Olivier and Johnson, David R (2018): Macroeconomics, 8th Ed, Pearson. (Unit-1& 2)
3. Brendan Sheehan (2009): Understanding Keynes' General Theory, Palgrave Macmillan (Unit- 1 & 2)
4. Carlin, Windy and Soskice, David (1990): Macroeconomics and the Wage Bargain: A modern Approach to Employment, Inflation, and the Exchange Rate, OUP. (Unit- 1,2)
5. Chirichiello, Giuseppe (1994): Macroeconomic Models and Controversies, The Macmillan Press Ltd. (Unit- 1& 2)
6. D'Souza, Errol (2012): Macroeconomics, 2nd Ed. Pearson India. (Unit-4)
7. De Vroey, Michel (2016): A History of Macroeconomics from Keynes to Lucas and Beyond, CUP. (Unit- 1& 2)

8. Dilip M.Nachane (2018): Critique of the New Consensus Macroeconomics and Implications for India, Springer. (Unit- 1& 2)
9. Edgmand, Michael R (1987): Macroeconomic Theory and Policy, PHI. (Unit-4)
10. Felderer, Bernhard and Homburg, Stefan (1987): Macroeconomics and New Macroeconomics, Springer-Verlag. (Unit- 1&2)
11. Galbraith, James, K and Darity, William Jr (1994): Macroeconomics, Houghton Mifflin Co, NJ. (Unit- 1,2 & 4)
12. Gardner Ackley (1978): Macroeconomic theory, Collier Macmillan Ltd; International Edition. (Unit-1 & 4)
13. Gärtner, Manfred (2009): Macroeconomics,3rd Ed, Prentice Hall. (Unit- 1& 2)
14. Ghatak, Anitha (1994): Macroeconomics: A Mathematical Approach, Concept Publishing Co, ND. (Unit- 1,2)
15. Greenaway, David and Shaw G.K (1995): Macroeconomics: Theory and Policy in UK,2nd Ed, Blackwell. (Unit-4)
16. Heijdra, Ben J. (2017): Foundations of Modern Macroeconomics,3rd Ed, OUP (Unit- 1& 2)
17. Hagger, A.1(1977): Inflation: Theory and Policy, MacMillan.
18. Helmut Frisch (1983): Theories of Inflation, Cambridge University Press.
19. Hillier, Brian (2006): Macroeconomics: Models, Debates and Development, Basil Blackwell. (Unit- 1& 2)
20. Jagdish Handa (2009): Monetary Economics, 2nd Ed, Routledge. (Unit-3)
21. Jansen, Dennis W and Delorme, Charles Jr and Ekelund, Robert B, Jr (1994): Intermediate Macroeconomics, West Publishing Co. (Unit-1,2 & 4)
22. Junankar, P.N (1972): Investment: Theories and Evidence, Macmillan Education. (Unit-4)
23. Keith Bain and Peter Howells (2003): Monetary Economics: Policy and its Theoretical Basis, Palgrave. (Unit-3)
24. Laidler, D.F.W. (1977): Demand for Money: Theory and Evidence, Dum-Don Valley, New York (Unit-3)
25. Levacic, Rosalind and Rebmann, Alexander (1982): Macroeconomics: An Introduction to Keynesian- Neo-Classical Controversies, 2nd Ed, MacMillan (Unit-1,2 & 4)
26. Lewis, Mervyn and Mizen, Paul D (2000): Monetary Economics, OUP. (Unit-3)
27. Makinen, Gail E. (1977): Money, The Price Level, and Interest Rates: An Introduction to Monetary Theory, Prentice Hall Inc. (Unit- 1,2 & 3)
28. Natrass, Nicoli and Varma, G. Visakh (2014): Macroeconomics Simplified: Understanding Keynesian and Neoclassical Macroeconomic Systems, Sage India. (Unit- 1,2)
29. Pentacost, Eric (2000): Macroeconomics: An Open Economy Approach, MacMillan. (Unit- 1,2 & 4)
30. Peterson, Wallace C and Estenson, Paul S (1992): Income, Employment and Economic Growth, 7th Ed, W.W Norton, NY. (Unit- 1,2 & 4)

31. Pierce, David G. and Tysome, Peter J (1985): Monetary Economics theories, evidence and policy, Butterworth. (Unit-3)
32. Pierre Picard (1993): Wages and Unemployment: A Study in Non-Walrasian Macroeconomics, Cambridge University Press. (Unit- 1& 2)
33. Poindexter, Carl J (1976): Macroeconomics. The Dryden Press. (Unit-4)
34. Scarth, William (2014): Macroeconomics: The Development of Modern Methods for Policy Analysis, Edward Elgar. (Unit- 1& 2)
35. Serletis, Apostolos (2007): The Demand for Money Theoretical and Empirical Approaches Second Edition, Springer. (Chapters: 7,8 & 9) (Unit-3)
36. Snowdon, Brian and Vane, Howard R (1997): A Macroeconomics Reader, Routledge.
37. Snowdon, Brian and Vane, Howard, R (2005): Modern Macroeconomics: Its Origins, Development and Current State, Edward Elgar. (Unit- 1,2)
38. Todd A. Knoop (2015): Business Cycle Economics: Understanding Recessions and Depressions from Boom to Bust, Praeger.
39. Tsoulfidis, Lefteris (2010): Competing Schools of Economic Thought, Springer.(Unit- 1& 2)
40. Venieris, Yiannis P and Sebold, D Frederick (1977): Macroeconomics: Models and Policy, John Wiley and Sons. (Unit-3 &4)
41. Westaway, A J and Jones, T G Weyman (1977): Macroeconomics theory, evidence and policy, Longman. (Unit- 1,2, 3 &4)
42. Williamson, Stephen D. (2018): Macroeconomics, 6th Ed, Pearson. (Unit- 1,2)

Semester	Course Code	Course Title	Type of Course	Credit	Teaching Hours
1	DE010103	Economics of Growth and Development	Core	04	90

Course Outcome

Development is a crucial constituent that improves the quality of human life, create high wages, more profits and thereby facilitating economic growth of a nation. Development Economics, the subject deals with the economic development of a nation involves the creation of theories and methods that aid in the determination of policies and practices and can be implemented at either the domestic or international level. The theoretical aspects of the subject Development Economics include regularities, structural transformation, economy wide dimensions and the experiences of high growth economies.

Learning Outcome

This course aims to provide the learners with hardcore economic prescriptions to development. The course is designed to explain various approaches to development, various growth theories and international trade development theories. By the successful completion of the course students will be familiar with most central themes and issues of economic development. Learners can analyse empirical evidence on the various patterns of economic development with the given empirical evidence. The learners will also under the recent literatures in Development Economics

UNIT I: CONCEPTIONS OF DEVELOPMENT

(20 Hours)

- 1.1 Meaning of Development:** Factors affecting Economic Development-Economic growth and development –Underdevelopment and Dependence-Historical experience to contemporary Developing and Under Developed countries
- 1.2 Indicators of development:** GDP as development indicator--Human Development Index--Gender Related Development Index-Gender Empowerment Measure-Gender Inequality Index
- 1.3 Indices of Quality of Life:** Physical Quality of Life Index- Entitlement approach- Capabilities and Functioning-Gross National Happiness-Core Values of Development
- 1.4 Inequality and Poverty:** Economic growth and inequality- Lorenz curve -Gini coefficient- Kuznets inverted U Hypothesis-Consequences of Inequality- Head count index- Incomegap index-Human Poverty Index- Consequences of Poverty.

Unit-2: Approaches To Development

(30 Hours)

- 2.1 Mainstream Paradigm:** Vicious Circle of Poverty-Big Push- Critical Minimum effort Thesis, Low income Equilibrium Trap-Theory of Circular Causation- Dualistic Theories: Social Dualism– Technical Dualism-Financial Dualism-Balanced Growth Strategy- Unbalanced Growth Strategy-Stage Theory of Rostow-Historical Perspective of Gerschenkron- Unlimited Supply of Labour- Ranis and Fie model-Dixit and Marglin model- Kremer’s O-Ring Theory - Jorgenson model
- 2.2 Structuralist Paradigm:** Dependency theory of Development- Vent for Surplus Theory
- 2.3 Neo-Marxist Paradigm:** Emmanuel Wallerstein’s World systems approach- Theories of Paul Baran - Paul Sweezy- Andre Gunder Frank-Samir Amin

Unit -3: Growth And Development Models

(30 Hours)

- 3.1 Classical Theories:** Adam Smith-David Ricardo- Karl Marx- Joseph Schumpeter
- 3.2 Keynesian and Cambridge Models:** Harrod-Domar Model-Problem of Knife Edged Equilibrium-Joan Robinson's Model- Kaldor's Growth Model-Passinetti’s Model of Profit and Growth
- 3.3 Neo-Classical Models:** Models of Solow-Swan-Meade
- 3.4 Endogenous Growth Models:** Romer Model- Optimal Savings and Ramsay’s Rule-Learning by Doing-Arrow’s Model-AK Model-Uzawa Lucas Model- Grossman Helpman Model-Creative Destruction model of Aghion and Howitt.

Unit -4: Non Economic Factors Of Development

(10 Hours)

- 4.1 Economic development and institutions:** Markets and market failure-Role of State-Issues of good governance
- 4.2 Geography and Development:**Internal Resource Curse- Dutch Disease
- 4.5 Environment and Development:** Climate Change and Development-Policies for Sustainable Development-Energy and Development
- 4.3 Human Resource and Development:** Role of education and Health- Population as limits to growth and as ultimate source
- 4.4 Gender and Development:**Role of Women in economic growth- Concept of Missing Women as hindrance to development.

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4. A.K. Sen (1983) “Development Which Way Now? Economic Journal, December
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11. James M. Cypher, James L. Dietz (2014): The Process of Economic Development,4th Ed, Routledge.
12. John Rapley (2007): Understanding Development: Theory and Practice in the Third World, 3rd Ed, Lynne Rienner Publishers.
13. Lewis, V.A (1954): ‘Economic development with unlimited supplies of labour’,Manchester School, pp.139-91.
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- 21) T. Dos Santos (1973) The crisis of Development theory....” In H.Bernstein (ed)*Underdevelopment and Development*,Penguin.

Semester	Course Code	Course Title	Type of Course	Credit	Teaching Hours
1	DE010104	Development Issues of Indian Economy	Core	04	90

Course Outcome

After analyzing the working of the major sectors of the Indian economy, the course focuses on the socio-economic problems like unemployment, poverty and inequality. It also discusses the impact of various policies and programmes of the Government on achieving the development of the economy while keeping the objective of inclusive growth. While examining the fiscal policy reforms, the implication GST, FRBM act are also analyzed along with the impact of demonetization of 2016. The major financial sector reforms and its impact finds a space in the syllabus. The examination of informal credit market pinpoints the imperative need for a broader financial inclusion in the economy.

In short the subject outcome is that the learner will get an integrated view of the various problems of the Indian economy and enable them to make a critical analysis of the various policies and programmes of the government to tackle the problems.

Learning Outcome

At the end of the course, a student should be able to understand the development paradigm adopted in India since independence, to review major trends in economic indicators and policy debates taking place in the country, to analyze various government policies and its impact in the socio –economic realm of the society and to participate in the policy decision making process of the Government

Unit 1: An analysis of the structure and growth of various sectors in the Indian economy (30 Hrs)

1:1 Indian economic planning-Structural Adjustment Programmes - Second Generation Financial Reforms- Neo-liberalism in India-- NITI Aayog and its structure

1:2 Agriculture -New Agricultural Policies and reforms – The impact of WTO on Indian Agriculture - Current Issues in Indian agriculture. - Govt. Supports

1.3 Industry – polices and reforms – current issues – government supports – New schemes - (Make in India)

1:4 Service sector- Health ,Education and Infrastructure- –Trade in services- Challenges of India’s Service sector.

1:4 External Sector – EXIM policy –structure and composition of India’s foreign trade –WTO – SEZ- FII and FDI in India

Unit 2: Unemployment in India

(20 Hrs)

2:1 Demographic Dividend - Labour Market Reforms –Child labour

2:2 Migration : Rural- Urban -Global Migration - Labour Policy

2:3 Problems of Unemployment in India – NSSO Estimates – Employment trends in organized and unorganized sector - Employment Generation Programmes

Unit 3: Poverty and inequality in India

(25 Hrs)

3:1 Extent and distribution of poverty in India; Estimates of Poverty: Tendulkar and Rangarajan committee.

3:2 Food Security and Nutrition

3:3 Rural development – issues and strategies and micro level planning - SHGs and microfinance

3:4 Rural indebtedness – informal credit market – trends

3:5 Inequality – Regional Imbalances in India – Inclusive growth – financial inclusions

Unit 4: Fiscal policy reforms in India

(15 Hrs)

4:1 Fiscal reforms in India post 1991-Goods and Services Tax-Public debt and sustainability issues- Implementation of FRBM Act – cooperative and competitive federalism in India

4:2 Black money and parallel economy in India—Demonetization of 2016 and its macro-economic impact

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- Chakraborty Pinaki (2016): *Restructuring of Central Grants: Balancing Fiscal Autonomy and Fiscal Space*, *Economic and Political Weekly*, Vol. 51, No. 6,

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YV Reddy, Partha Roy and Narayan Valluri (2014) Financial and Fiscal policies: Crises and New Realities

Semester	Course code	Course Title	Type of course	Credit	Teaching Hours
I	DE010105	Mathematics for Economics	Core	04	90

Course Outcome

This is a course on the basic mathematical methods necessary for understanding modern economics literature. Mathematics provides a logical, systematic framework within which quantitative relationships may be explored, and an objective picture of the reality may be generated. The deductive reasoning about social and economic phenomena naturally invites the use of mathematics. The goal of the course is to make students understand, assimilate and thus capable of using the mathematics required for studying economics at the master's level. This course will focus on developing the mathematical tools that are used extensively in Microeconomics, Macroeconomics, and Econometrics.

Learning Outcome

This course introduces students to some of the mathematical tools required for intermediate level courses in economics (applied and theory), including elements of linear algebra and matrices, functions of several variables, differential calculus and optimization, with various applications to economic problems. Other topics, such as integration and dynamic methods might also be covered. On completion of this unit, successful students should be able to demonstrate understanding of static optimization and dynamic systems applicable to economics. Students should be given an introduction to the Linear algebra, Differential Calculus, Integral Calculus, etc. These mathematical methods would help students in their understanding of advanced and core courses in Economics. The aim of this course is to: (i) introduce the students to several mathematical tools used in modern economics; (ii) illustrate the use of these tools by applying them to various well-known economic models; and (iii) complement the core postgraduate microeconomic and macroeconomic theory courses.

Unit -1: Linear algebra

(15Hours)

Definitions of vector and matrix.

Types of matrices, Addition, subtraction and multiplication of matrices.

Determinants, Minors, Cofactors, Adjoint and Inverse of a matrix.

Solution of a system of linear equations - Cramer's rule and Inversion method.

Rank of a matrix - Linear independence of vectors.

Some applications in Economics - Input -output analysis - Partial equilibrium market model.

Unit -2:DifferentialCalculus

(25Hours)

Limit of a function - Derivative of a function.

Rules of differentiation - Higher order derivatives - L'Hospital rule of finding the limit of a function

Differentiation of implicit function - Partial and total derivative of a function with several variables

Maxima and minima of a function.

Curvature properties - Convexity and concavity - Points of inflection.

Properties of homogeneous functions - Euler's theorem.

Matrix calculus: Rules of Matrix differentiation, differentiation of a matrix by a scalar, differentiation of a scalar by a matrix

Some applications in Economics -

Derivation of Marginal cost, Marginal revenue functions - Derivation of point elasticity, tax yield and income multiplier, problems relating to indifference curve and isoquant. Production function, utility functions, cost functions.

Cobb-Douglas production function, CES production function -

Comparative static analysis of market model, national income model, input output model, determination of partial elasticities of demand.

Unit-3: IntegralCalculus

(25Hours)

Indefinite integrals - rules of integration, initial conditions and boundary conditions

Integration by substitution, Integration by parts - Integration of natural exponential functions.

Definite integrals - properties of definite integrals

Area under a curve, area between curves

Difference equations and differential equations (basic concepts only).

Improper integrals - Beta and Gamma integrals.

Some applications in Economics - Consumer surplus and producer surplus - continuous interest-discount calculation. Cobweb model, multiplier accelerator.

Unit-4: Linear Programming

(25Hours)

Formulation of LPP and solution using graphical and Simplex methods.

Duality theory - constrained optimization with inequality and non-negativity constraints

Kuhn-Tucker formulation. Primal and dual, shadow prices.

Applications from Economics and Finance.

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Reddy, Rammohar C (2017) *Demonetization and Black Money*, Orient Black swan, New Delhi.

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S. Mahendra Dev (2017): *India Development Report 2017*, OUP.

Sangeeta Verma and P.C. Bodh (2018): *Glimpses of Indian Agriculture*, OUP

Sankar Kumar Bhaumik (2018): *Reforming Indian Agriculture: Towards employment generation and poverty reduction Essays in Honour of G K Chandha*, Sage India.

Saumya Chakrabarti (2016): *Inclusive Growth and Social Change Formal– Informal– Agrarian Relations in India*, OUP

Shankar Acharya (2005): 'Thirty years of Tax Reforms in India'
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Sikdar, S (2013). *Capital Flows and Foreign Exchange Rate Management*. Oxford: New Delhi.

The Ministry of Finance & Government (2018): *Economic Survey 2017-18* (Volume 1 and Volume 2), OUP.

Time Dyson (2018): *A Population History of India From the First Modern People to the Present Day*, OUP

T. J. Byres (ed): *The State, Development Planning and Liberalisation in India*, OUP.

Second Semester

Semester	Course code	Course Title	Type of course	Credit	Teaching Hours
II	DE010201	Microeconomic Analysis II	Core	04	90

Course Outcome

This course is designed to provide students with a sound understanding of advanced microeconomic theory. It will cover the aspects of microeconomic theory that is required to analyze contemporary economics issues and to create new models to explain the behavior of individuals, firms, and markets, and to evaluate economic policies.

Learning Outcome

At the end of the course, the student shall be able to apply microeconomic principles in the areas of industrial organization, exchange, and welfare.

Unit 1

(15 Hours)

Existence of firms, their size and structure –Views of Coase and Williamson - Team production approach by Armen Alchian and Harold Demsetz - Hierarchical structures- U form and M form

Unit 2

(20 Hours)

Classical and Neo-Classical views of human nature – Cyert and March's behavioural model - Satisficing behavior – bounded rationality

Hall and Hitch Report and Full Cost Pricing - Gordon's attack on Marginalism - Theory of Limit Pricing -Bain, Sylos-Labini, F. Modigliani, Bhagwati and Pashigian - Managerial Theories of W J Baumol, O Williamson and Marris - Contestable Market Theory by W.J. Baumol

Unit 3

(15 Hours)

Asymmetric Information - the market for Lemons- The Principal Agent Problem - Moral Hazard, Adverse Selection-Screening and Market Signalling.

Transaction costs - Coase Theorem, Concept of and defining Property Rights, Externalities and Market failure

Unit 4

(20 Hours)

Partial and General Equilibrium analysis - Walrasian General Equilibrium System- Existence, Uniqueness and Stability of an Equilibrium- 2x2x2 General Equilibrium Model - Static Properties of a General Equilibrium State- General Equilibrium and the Allocation of Resources- Prices of Commodities and Factors- Factor Ownership and Income Distribution

Unit 5

(20 Hours)

Welfare Economics – Fundamental theorems – Efficiency criteria – Pareto Optimality – Kaldor – Hicks – wealth maximization - Theories of Bergson-Samuelson - Scitovsky Double Criteria- Arrow's impossibility theorem - Sen's Capability Theory - Rawl's theory

Reference:

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2. Andreu Mas-Colell, Michael D. Whinston and Jerry R. Green (2005): Microeconomic Theory, OUP.
3. Austan Goolsbee, Steven Levitt and Chad Syverson (2013): Microeconomics, Worth Publishers (chapter 15- information economics -17 behavioural economics)
4. B. Douglas Bernheim and Michael D. Whinston (2016): Microeconomics, McGrawHill. (Chapter 14 transaction cost, information and behavioural economics. Chapter 18- information economics Chapter 9 information economics)
5. Christopher Snyder, Walter Nicholson and Robert Stewart (2015): Microeconomic Theory: Basic Principles and Extensions, Cengage Learning.
6. David Besanko and Ronald R. Braeutigam (2014): Microeconomics, 4th Ed, John Wiley and Sons, Inc. Edition, South Western Cengage Learning

7. Genaro C. da Costa (2005): Value and Distribution in Neoclassical and Classical System, 2nd Ed, Himalaya Publishers, Mumbai.
8. Geoffrey A. Jehle and Philip J. Reny (2014): Advanced Microeconomic Theory 3rd Ed, Prentice Hall.
9. Hal R. Varian (2014): Intermediate Microeconomics with Calculus, 1st Ed, W. W. Norton & Company.
10. Hal R. Varian (2017): Intermediate Microeconomics: A Modern Approach, 10th Ed, WW Norton & Co, NY.
11. Henderson, M. and R.E. Quandt (1989): Microeconomic Theory: Mathematical Approach, 3rd Ed, McGraw Hill.
12. Jeffrey M. Perloff (2016): Microeconomics with Calculus, 3rd Ed, Pearson.
13. Judy A. Whitehead (2015): Microeconomic: A Global Text, Routledge.
14. Maria Moschandreas (1994): Business Economics, Cengage Learning.
15. Mike Rosser (2011): Microeconomics: The Firm and the Market Economy, MacMillan
16. Robert Awh (2001): Microeconomics, John Wiley.
17. Robin Bade and Michael Parkin (2017): Foundations of Microeconomics, 7th Ed, Pearson.
18. Saul Estrin, David Laidler and Michael Dietrich (2016): Microeconomics, 5th Ed, Prentice Hall (Chapter 25 Economics of Information)
19. Snyder and Nicholson (2016): Microeconomic Theory: Basic Principles and Extensions, 11th Ed, Pearson. (Chapter 18 Information Economics)
20. Steven E. Landsburg (2017): Price Theory and Applications, 8th Ed. Cengage Learning.
21. Thomas J Nechyba (2010): Microeconomics: An Intuitive Approach with Calculus.
22. William A. McEachern (2017): Principles of Microeconomics, 4th Ed, Cengage Learning.
22. Yew-Kwang Ng (2004): Welfare Economics: Towards a More Complete Analysis, Palgrave-Macmillan

Semester	Course code	Course Title	Type of course	Credit	Teaching Hours
II	DE010202	Macroeconomic Theory and Policy II	Core	04	90

Course Outcome

Analyzing today's hot-button policy issues requires better understanding of macroeconomic theories and models that researchers and policymakers employ. This second part of macroeconomics intended to present the students with a firm grounding in modern macroeconomic thoughts. It, therefore, pays special heed to the major developments in the classical and Keynesian orthodoxy with clear historical perspectives. Here, the emphasis is both on competing hypotheses and analytical techniques. The principal objective of the course is to provide the students with an intuitive understanding of both the sources of controversies and how the debates have led to the development of modern macroeconomics.

Learning Outcomes

At the end of this course students should be able to: (i) Understand the strengths and weakness of the main macroeconomic tools and models used in modern macroeconomics; (ii) Learn to evaluate and critically compare results in alternative macroeconomic models; and (iii) Understand the importance and limitations of modeling assumptions for macroeconomic policy.

UNIT - I **New Classical Macroeconomics** **20 hrs.**

- 1.1 Main Propositions of NCM: The Rational Expectations Hypothesis-Continuous Market Clearing - The Lucas Supply Curve - Rational Expectations
- 1.2 The New Classical Economics and the Business Cycle - The Ineffectiveness of Government Intervention - The Lucas Critique
- 1.3 .Monetary Policy in the NCM and the Philips Curve -Credibility and Dynamic Time Inconsistency.

UNIT - II **Real Business Cycle and Supply-Side Economics** **20 hrs.**

- 2.1 Real Business Cycles Model: Labour Market in RBC Model—Inter temporal Substitution.
- 2.2 AS- AD in RBC Model—Supply Shocks in RBC Model-- Technology Shocks- Neutrality of Money and Flexibility of Wages and Prices- Stabilization Policy
- 2.3 Supply side Economics: Main features- and Types of supply-side policies -Tax (Laffer Curve), incentive and production- SSE and role of the Government.

UNIT - III New Keynesian School and Post-Keynesian Economics 25 hrs.

- 3.1 New Keynesian School: Imperfect Competition and Price Setting – Sticky Nominal Wages — Staggered Wage-Contract Theory.
- 3.2 Sticky Price Model: Menu Costs and Demand Externality.
- 3.3 Sticky Real Wages: Asymmetric Information Model-Implicit Contract Theory- Insider Outsider Model and Hysteresis.
- 3.4 Efficiency Wage Theories of Involuntary Unemployment: - Shapiro–Stiglitz Model - Turnover Cost-Selective Theory—On the Job Efficiency -Shirking Theory and Coordination Failure- Policy Implications of NKE.
- 3.5 Search and Matching Models-DMP Model.

UNIT - IV Macroeconomic Theories of Business Cycles 25 hrs.

- 4.1 Samuelson's Interaction between Multiplier and Accelerator. Hicksian theory of Cycles. Kaldor's model of Cycles. Goodwin's Non-Linear Model. Kalecki's Theory of Cycles and Dynamics of a Capitalist Society and Political business cycles.
- 4.2 The Great Recession of 2008: The Roots of the Current Crisis -Financial Innovation and Agency Problems in the Mortgage Markets. - Asymmetric Information and Credit Rating Agencies-Residential Housing Prices (The Subprime Debacle)
- 4.3 Financial Deregulation and Securitization.

REFERENCE

43. Agenor, Pierre-Richard and Montiel, Peter J. (2015): Development Macroeconomics 4 th Ed, Princeton University Press, Princeton.
44. Bober, Stanley (1968): The Economics of Cycles and Growth, New York: John, Wiley and Sons
45. Carlin, Windy and Soskice, David (1990): Macroeconomics and the Wage Bargain: A modern Approach to Employment, Inflation, and the Exchange Rate, OUP.
46. Chirichiello, Giuseppe (1994): Macroeconomic Models and Controversies, The Macmillan Press Ltd.
47. Dilip M. Nachane (2018): Critique of the New Consensus Macroeconomics and Implications for India, Springer.
48. D'Souza, Errol (2012): Macroeconomics, 2nd Ed. Pearson India. (Module-II)
49. De Vroey, Michel (2016): A History of Macroeconomics from Keynes to Lucas and Beyond, CUP.
50. Felderer, Bernhard and Homburg, Stefan (1987): Macroeconomics and New Macroeconomics, Springer-Verlag.
51. Galbraith, James, K and Darity, William Jr (1994): Macroeconomics, Houghton Mifflin Co, NJ.

52. Gärtner, Manfred (2009): *Macroeconomics*, 3rd Ed, Prentice Hall.
53. Ghatak, Anitha (1994): *Macroeconomics: A Mathematical Approach*, Concept Publishing Co, ND.
54. Harcourt, G. C. (2006): *The Structure of Post-Keynesian Economics the Core Contributions of the Pioneers*, CUP. (Module-III-B)
55. Heijdra, Ben J. (2017): *Foundations of Modern Macroeconomics*, 3rd Ed, OUP
56. Hillier, Brian (2006): *Macroeconomics: Models, Debates and Development*, Basil Blackwell.
57. Homburg, Stefan (2017): *A Study in Monetary Macroeconomics*, OUP.
58. Jansen, Dennis W and Delorme, Charles and Ekelund, Robert B, Jr (1994): *Intermediate Macroeconomics*, West Publishing Co.
59. Knoop, Todd A. (2015): *Business Cycle Economics: Understanding Recessions and Depressions from Boom to Bust*, Praeger.
60. Lavoie, Marc (2006): *Introduction to Post-Keynesian Economics*, Palgrave. (Module III-B)
61. Lavoie, Marc (2014): *Post-Keynesian Economics: New Foundations*, Edward Elgar. (Module-III-B)
62. Levaccic, Rosalind and Rebmann, Alexander (): *Macroeconomics: An Introduction to Keynesian- Neo-Classical Controversies*, 2nd Ed, MacMillan
63. Paul Davidson (1994): *Post Keynesian Macroeconomic Theory*, Edward Elgar, 1994. (Module-III-B)
64. Peel, David and Minford, Patrick (2016): *Advanced Macroeconomics: A Primer*, Edward Elgar.
65. Pentacost, Eric (2000): *Macroeconomics: An Open Economy Approach*, Macmillan.
66. Peter Galba'cs (2015): *The Theory of New Classical: Macroeconomics: A Positive Critique*, Springer.
67. Peterson, Wallace C and Estenson, Paul S (1992): *Income, Employment and Economic Growth*, 7th Ed, W W Norton, NY.
68. Phelps, E. (1990): *Seven Schools of Macroeconomic Thought*, Oxford University Press, Oxford
69. Philip Arestis (1992): *Post-Keynesian Approach to Economics*, Edward Elgar (Module III-B)
70. Richard P.F. Holt and Steven Pressman (2001) (Ed): *A New Guide to Post Keynesian Economics*, Routledge.
71. Romer, David (1996): *Advanced Macroeconomics* 4th Ed, McGraw-Hill.
72. Rousseas, Stephen (1999): *Post Keynesian Monetary Economics* MacMillan. (Module III-B)
73. Scarth, William (2014): *Macroeconomics: The Development of Modern Methods for Policy Analysis*, Edward Elgar.
74. Snowdon, Brian and Vane, Howard R (1997): *A Macroeconomics Reader*, Routledge.

75. Snowdon, Brian and Vane, Howard, R (2005): *Modern Macroeconomics: Its Origins, Development and Current State*, Edward Elgar.
76. Taylor, Lance (2004): *Reconstructing Macroeconomics: Structuralist Proposals and Critiques of the Mainstream*, Harvard University Press. 35.
77. Tsoulfidis, Lefteris (2010): *Competing Schools of Economic Thought*, Springer.
78. Westaway, A J and Jones, T G Weyman (1977): *Macroeconomics theory, evidence and policy*, Longman. (Module-IV 4.1.)

Semester	Course code	Course Title	Type of course	Credit	Teaching Hours
II	DE010203	Modern Public Economics	Core	04	90

Course Outcome

Public economics is the study of government policy from the points of view of economic efficiency and equity. Public economics explores the economic effects of government tax and expenditure policies, as well as the optimal design of these policies. The primary objective is to teach the leading current tools and methods of public finance. The course covers major topics in public finance including externalities, public goods, benefit/cost analysis, fiscal federalism, taxation, and others. The course deals with the nature of government intervention and its implications for allocation, distribution, and stabilization

Learning Outcome

At the end of this course, students should be able to demonstrate a clear understanding of established concepts and theoretical results on collective choice, optimal income taxation, and the effects of income redistribution on the provision of public goods. The course will be useful for students aiming towards careers in the government sector, policy analysis, business, and journalism.

Unit- 1: Role of State and Macroeconomic Perspective of Public Finance (10 Hours)

1.1.Role of Government: Issues related to market failure and government interventionGovernment failure.

1.2. Macroeconomics of Public Finance: The Interaction between Fiscal and Monetary Policy and Fiscal Stabilization

1.3. Changing Role of State: Issues in Public Finance in a Globalizing World with special emphasis on Global Public Goods.

Unit- 2: Economic Analysis of Public Goods and externalities (25 Hours)

2.1.Public goods: Pure and Impure Public Goods.

2.2.Market failure and Externalities- Types of Externalities, Coase Theorem and Property Rights, Free-Rider Problem

2.3.Optimal provision of public goods – Voluntary Exchange Models – Samuelson’s contribution.

2.4.The Theory of Clubs and Local Public Goods- Tiebout Model

2.5.Voting and Public Choice – Reasons for Public Choice- Public Choice under Direct Democracy unanimity rule –Wicksell approach

2.6. Majority Rule – Buchanan and Tullock model - Bowen Black model

2.7. Preference Revelation Mechanisms - Lindahl equilibrium- Groves–Clarke mechanism

Unit- 3: Economic Decision Making of Government (15 Hours)

3.1. Normative social choice theory – Arrow’s theorem – Majority Voting – The Median Voter Model – Representative Democracy -Downs Model on Demand and Supply of Government Policy

3.2. Positive Social Choice Theory: The Leviathan Hypothesis – Theory of Rent Seeking – Property Rights Dimension

3.3. Lobbying and Interest Groups.

Unit- 4: Fiscal Administration and Management (25 Hours)

4.1. Incidence of Taxation – Optimal Taxation – Dead Weight Loss – Equity Vs Efficiency Theories of taxation: Benefit Theory, The Cost Service Theory and Ability to Pay Theory

4.2. Impact and Incidence of Taxation, Theories of Shifting- Diffusion Theory, Concentration Theory, Demand and Supply Theory.

4.3. Theories of Public Expenditure: Adolf Wagner- Wiseman- Peacock - Colin Clark- Bowen Model, Lindahl Model, Pigou Model and Samuelson Model

4.4. Theories of Public debt: Classical – Keynesian – Modern

4.5. Burden of Public Debt - Intergenerational Equity –Buchanan

Thesis

4.6. Measurement and Macroeconomic Impact of Deficits: Alternative Paradigms

4.7. Deficit concepts-Problem of fiscal deficit –Corrective measures-FRBM Act

4.8. Budgetary Policy in India- Stages involved in the preparation, presentation and execution of government budget – A brief review of recent budgets in India

4.9. Recent trends in the fiscal parameters in India -Its macroeconomic implications

Unit- 5: Fiscal Federalism: Theory and Practice (15 Hours)

5.1. Theory of Fiscal Federalism: The Decentralization Theorem

5.2. Theory of Intergovernmental Transfers

5.3. Issues of Indian Federalism and Intergovernmental Transfers in India- Vertical and Horizontal Imbalances.

5.4. Centre-State financial relations in India- Finance Commission and the recent most reports of the Finance commissions of India

Reference

1. Anthony B. Atkinson and Joseph E. Stiglitz (2015): Economics of the Public Sector, 2nd Rev. Ed, Princeton University Press.
2. C.V. Brown and Peter. M. Jackson (2010): Public Sector Economics, 5th Ed, Wiley-Blackwell
3. Harvey Rosen (2012): Public Finance. 8th Ed, McGraw Hill Education.
4. Hyman David: Public Finance (2015): A contemporary Application of Theory to Policy, 5th Ed, Thomson Learning.
5. John Cullis and Philip Jones (2009): Public Finance and Public Choice: Analytical Perspectives, 3rd Ed, OUP (India)
6. Patrick A. McNutt (1997): The Economics of Public Choice: Contemporary Issues in the Political Economy of Governing, Edward Elgar Publishing Ltd.

Additional Readings:

1. Amaresh Bagchi (2005): Readings in Public Finance, OUP (India)
2. Bailey, Stephen J: Public Sector Economics (2001): Theory and Practice. Second Edition. Palgrave, New York.
3. Bharti Pandey (2017): Fiscal Federalism in India: Challenges and Reforms, Serials Publications.
4. Buchanan, J. M (1968): The Demand and Supply of Public Goods. Randy McNally, Chicago.
5. Cornes, Richard and Todd Sandler (1996): The Theory of Externalities, Public Goods and Club Goods. Cambridge University Press.
6. Friedman, A (1986): Welfare Economics and Social Choice Theory. Martins Nijhoff, Boston.
7. Glennester, H. and J. Hills (1998): The State of Welfare: the Economic and Social Spending, Oxford University Press, London.
8. Greene, Joshua E (2012): Public Finance: An International Perspective, World Scientific.
9. Gruber, Jonathan (2016): Public Finance and Public Policy, 5th Ed, Worth Publishers.
10. Hindriks, Jean and Gareth D. Myles (2007): Intermediate Public Economics. Prentice Hall of India

Semester	Course code	Course Title	Type of course	Credit	Teaching Hours
II	DE010204	Political Economy of Development	Core	4	90

Course Outcome

This course provides an insight into key economic, social and political factors that have shaped economic disparities between nations and the socio-economic wellbeing of citizens in the developing world. The objectives of the course are to demonstrate an understanding of key concepts in the political economy of development literature, to characterize the key obstacles to economic developing faced by developing countries in the world today, to evaluate and critique the current research in the political economy of development regarding the causes of development and underdevelopment.

Learning Outcomes

The course will help student to develop the aptitude in development research and policy. The course aims to introduce students to key concepts, methodologies, theories, and techniques in political development discourse. At the end of this course, students should be able to (i) know of the major issues as they arise in the field of political economy of development, (ii) understand alternative approaches to modeling development policies, (iii) critically evaluate the usefulness of development methodologies and techniques.

Unit - 1 Epistemology of Development 20 hrs.

- 1.5 Enlightenment, colonialism and orientalism - Classical Political Economy and capitalism.
- 1.6 Idea of dualism, economic dualism, social dualism - Transition, capitalist development and poverty eradication.
- 1.7 History of Capitalist transition and Imperialism - Introduction to critique of economic dualism and alternatives.
- 1.8 Transition beyond capitalism: Historical Materialism, mode of production and socialism.

Unit - 2 Critical approaches to Classical Transition and Development 25 hrs.

- 2.5 Transition to capitalism as underdevelopment: Center-periphery, unequal exchange, dependency, regulation theory on a world scale.
- 2.6 World system theory. - Transition beyond development: Post-development approach.
- 2.7 Transition and development beyond income and commodity: Capability, human development and justice.
- 2.8 A Critique of Political Economy of Development; re-examining dual economic model (Lewis, informal-formal, etc.); interrogating alternative theories of transition and development. Rethinking transition: reconstruction beyond the capitalist hegemonic; post capitalist politics.

10. Ruccio, D. 2011. *Development and Globalization: A Marxian Class Analysis*. Routledge.
 - Sanyal, K. 2007. *Rethinking Capitalist Development: Primitive Accumulation, Governmentality and Post-Colonial Capitalism*. Routledge.
11. Sen, A, K. 2003. *Rationality and Freedom*, Oxford University Press: New Delhi.
12. Sen, A, K. 2009. *The Idea of Justice*, Penguin. • Warren, B. 1980. *Imperialism: Pioneer of Capitalism*. Verso.

Semester	Course code	Course Title	Type of course	Credit	Teaching Hours
II	DE010205	Quantitative Techniques for Economic Analysis	Core	04	90

Course Outcome

This course is designed to cover the statistical tools required for entry into Econometrics. It begins with some basic concepts and terminology that are fundamental to Inferential Statistics. It then develops the notion of probability, followed by probability distributions of discrete and continuous random variables and of joint distributions. This is followed by a discussion on sampling techniques used to collect survey data. This course is to train students in the use of the most common statistical tools and techniques encountered in economics for analysis of data with valid logical inferences. At the end of the course, students are expected to gain a clear understanding of the inferential statistics as well as the interpretation of data.

Learning Outcome

This is a course on statistical methods for economics. It begins with some basic concepts and terminology that are fundamental to statistical analysis and inference. It then develops the notion of probability, followed by probability distributions of discrete and continuous random variables and of joint distributions. This is followed by a discussion on sampling techniques used to collect survey data. The course introduces the notion of sampling distributions that act as a bridge between probability theory and statistical inference. The semester concludes with some topics in statistical inference that include point and interval estimation.

Unit - 1: Probability Theory and Probability distributions

(20Hours)

- 1.1.1 Random variables - Discrete and Continuous.
- 1.2 Density function, Distribution function - Definition and properties.
 - 1.2.1 Mathematical Expectation, Variance and co-variance of random variables.
- 1.4 Bivariate random variables - Marginal and conditional distributions.
- 1.5 Moment Generating function - Definition and properties.
- 1.6 Discrete distributions-Binomial-Mean, variance, Binomial distribution Computation of probability using Binomial distribution. Fitting of Binomial.
- 1.7 Poisson distribution - mean, variance, mgf of Poisson distribution. Computation of probability using Poisson distribution, Fitting of Poisson distribution.
- 1.8 Continuous distributions - Normal distribution - Mean, variance and mgf of Normal

distribution (Derivation is not required). Standard Normal distribution - pdf, tables of standard normal distribution, Computation of probabilities of Normal distribution. Log-normal distribution - pdf, relation between normal and log-normal distribution.

1.9 Law of large numbers and Central Limit theorem (Concept and statement only)

Unit - 2: Sampling methods and Sampling Distributions (20Hours)

2.1 Population and Sampling - Parameter and Statistic - Definition and examples.

2.2 Probability and non-probability sampling methods - Practical methods of drawing random samples – with replacement and without replacement.

2.3 Determination of Sample size.

2.4 Sampling distributions - Standard error. Sampling vs Non-sampling errors.

2.5 Chi-square, t, and F distribution - Definition, properties and tables of distribution. Examples of statistics following t, Chi-square and F distributions.

Unit - 3: Inferential Statistics-Estimation (20Hours)

3.1 Estimation - Point and interval Estimation - Properties of Good estimators –Cramer-Rao inequality.

3.2 Methods of Estimation

3.3 Maximum Likelihood estimators and estimation using method of moments.

3.4 Calculation of MLE of parameters of Binomial, Poisson and Normal distributions.

3.5 Interval estimation - Confidence interval - population mean of normal distribution when population variance is known and unknown.

Unit - 4: Inferential Statistics – Testing of Hypothesis (20Hours)

4.1 Hypothesis testing - Hypothesis - Simple and composite hypothesis - Null and alternative hypothesis Rejection and acceptance region - Type I and Type II errors, Significance level and power of a test. p-value of a test.

4.2 Large sample tests of population mean of one sample and two samples, proportion of a population of one sample and two samples, Goodness of fit, independence of attributes (two-way classification).

4.3 Small sample tests of mean and variance of normal population of one sample and two samples - paired sample and independent sample tests, ratio of variances of two normal populations.

4.4 Non-parametric tests - Sign test, Wilcoxon Matched-pairs Test (or Signed Rank Test), run test, Fisher-Irwin Test, Mann-Whitney test, Kendall's Coefficient of Concordance and Kruskal-Wallis test.

Unit - 5: Research methodology

(10Hours)

5.1 Objectives of Research - Types of Research - Research Process - Criteria of Good Research -

Research Problem - Selecting the Problem - Technique Involved in defining a Problem

5.2 Research Design - Features of a Good Design - Different Research Designs

5.3 Research Report - Technique of Interpretation - Significance of Report Writing - Different Steps and layout of writing report - types of Reports - Precautions for Writing Research Reports.

Reference

1. McClave, Benson and Sincich (2012): A First Course in Business Statistics, 8th Ed, Prentice Hall.
2. Moore, McCabe, Alwan, Craig and Duckworth (2011a): The Practice of Statistics for Business and Economics H Freeman and Company.
3. Lind A. Douglas, Marchal G. William and Wathen A. Samuel (2016)- Basic Statistics for Business and Economics, 7th Ed, McGraw Hill International Edition.
4. Mendenhall William, Beaver J. Robert and Beaver M. Barbara (2014)- Introduction to Probability and Statistics – 12th Ed, Thomson Books/Cole publishers.
5. Earl Babbie (2008): The Basics of Social Research, 4th Ed, Thomson.
6. Gerald Keller (2012): Statistics for Management and Economics, 9th Ed, South-Western.
7. James P. Stevens (2007): Intermediate Statistics: A Modern Approach, 3rd Ed, Lawrence Erlbaum Associates.
8. Joseph F. Healey (2012): Statistics: A Tool for Social Research, 8th Ed, Wardworth.
9. Roxy Peck and Jay Devore (2014): Statistics: The Exploration and Analysis of Data, 8th Ed, Cengage.
10. Sheldon M Ross (2016): Introductory Statistics, 5th Ed, Associate Press.
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12. Anderson, Sweeney and Williams (2016): Statistics for Business and Economics 12th Ed, South-Western.
13. Peter J. Diggle and Amanda G. Chetwynd (2011): Statistics and Scientific Method: An Introduction for Students and Researchers, OUP.
14. Don E. Ethridge (2004): Research Methodology in Applied Economics, 2nd Ed, Wiley-Blackwell
15. William J. Goode and Paul K. Hatt: Methods in Social Research, McGraw-Hill Book Company, Inc.
16. Bryman, Alan (2008), Social Research Methods, Oxford University Press, New Delhi.
17. Gerard Guthrie (2010), Basic Research Methods, Sage Publications New Delhi

Semester 3

Semester	Course code	Course Title	Type of course	Credit	Teaching Hours
III	DE010301	International Economics I	Core	04	90

Course Outcome

This course studies the various theories of international trade and policies and applies them to the analysis of current trade problems. The course aims to provide an understanding of the broad principles and theories, which govern the free flow of international trade, with empirical evidence. It would also provide an exposure to the theoretical underpinnings and empirical evidence of the major trade policies followed both at national and international level.

Learning Outcome

The theoretical knowledge of international trade, policy and balance of payment imparted in the course would help the students to solve real-world problems. It will prepare them to become trade policy-makers and key strategists on trade issues.

Unit- 1: Classical Trade Theory (Self-Study)

(15 Hours)

- 1.1 Mercantilism
- 1.2 Absolute Advantage Theory
- 1.3 Comparative Advantage of Trade - Real and Opportunity Cost Approaches
- 1.4 Gains from Trade- Reciprocal Demand (Offer Curves)
- 1.5 Terms of Trade and its Computation
- 1.6 Revealed comparative advantage (Case Study- Estimate India's revealed comparative advantage using Balassa index)

Unit- 2: Neo- Classical Trade Theory

(20 Hours)

- 2.1 Heckscher-Ohlin theorem
- 2.2 Factor-Price Equalization Theorem – Factor Intensity Reversal
- 2.3 Empirical Verifications of Heckscher-Ohlin Theory
- 2.4 The effect of growth on trade – Immiserating Growth – Rybczynski Theorem
- 2.5 Technical progress and trade – neutral, capital saving, labour saving

Unit-3: Modern Trade Theory

(25 Hours)

- 3.1 Kravis and Linder Theory of Trade- Technology Gap Theory and Product Life Cycle Theory.
- 3.2 Intra-industry trade- causes, emergence and measurement- imperfect competition and trade
- 3.3 The Neo-Heckscher -Ohlin Models
- 3.4 Neo- Chamberlin models- Neo-Hotelling models- Krugman Model
- 3.5 Oligopolistic models- Brander- Krugman Model- Reciprocal Dumping Model- - Gravity Model- Porter Diamond Model
- 3.6 Empirical work in intra-industry trade-Balassa index- Grubel-Lloyd index, Acquino index- - impact of intra industry trade on developing economies-trade in services.
- 3.7 Introduction to supply chain management (SCM) - impact of SCM on international trade
- 3.8 Trade and economic development- role and significance- Singer- Prebisch Thesis

Unit-4: Trade Policy

(30 Hours)

- 4.1 Free trade and protection
- 4.2 Effects of tariff —Metzler Paradox- Optimum Tariff- Effective rate of protection
- 4.3 Quotas and other non-tariff barriers- technical/ quality/ safety standards (regulations)- case study on India's EXIM policy
- 4.4 Economic integration – theory of customs union – partial and general equilibrium analysis –dynamic effects
- 4.5 Integration experiences- European Union, BRICS- NAFTA, PAFTA ASEAN
- 4.6 Regional trade blocs and barriers to free flows of trade
- 4.7 Multilateral trade negotiations- the GATT rounds – UNCTAD and evolution of world trading arrangements – World Trade Organization and fair trade- Development Round- Trade Facilitation- Trade War.

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Semester	Course code	Course Title	Type of course	Credit	Teaching Hours
III	DE010302	Econometric Methods I	Core	04	90

Course Outcome

An Economic model is a family of probability distributions proposed by a researcher that could possibly have generated the data of some economic variables -viewed as random variables. Given the economic data on cross-section or time series or panel, a researcher would like to select a particular probability distribution from the family of distributions to “best match” the data. This course helps the students to learn how to estimate a general class of parametric models or semiparametric models, how to conduct testing and draw inference, given the data. The course also aims to cover (1) identification of model parameters;(2)consistency,asymptoticnormality,andsemiparametricefficiencyofvarious estimators; (3) hypothesis testing and model selection. It also covers the problems encountered in estimation and inference in the context of the single-equation linear regression model. Empirical applications include estimation and inference of some popular economic models in microeconomics and macroeconomics. The true objective of this course is to acquaint students with econometric techniques that are widely used in empirical work in Economics and other related disciplines. It is intended to expose students to the art of performing estimation, analyzing and interpretation of the estimated econometric model.

Learning Outcome

At the end of the course students should be able to: (i) demonstrate their understanding of the appropriate econometric methods for analyzing data; (ii) interpret computer output for the estimation and testing of econometric relationships; and (iii) interpret and discuss results.

Unit- 1: Two Variable Regression Model

(20Hours)

- 1.1 Definition & Scope of Econometrics-Methodology-Modern Interpretation
- 1.2 Classical Linear Regression Model-PRF-Linearity-Stochastic Disturbance Term-Significance-SRF
- 1.3 Method of OLS-Derivation of OLS Estimators-Deviation Form, Properties-
- 1.4 Assumptions-Gauss-Markov Theorem-Goodness of the Fit- R^2
- 1.5 Estimation and Testing of Hypothesis-Standard Error.

Unit- 2: Multiple Regression Model

(15Hours)

- 2.1 Multiple Regression—General k variable Model—Variance Covariance Matrix—OLS Estimators and Gauss-Markov Theorem-(Matrix Notation-**Optional**)
- 2.2 Partial Regression Coefficients—Multiple Coefficient of Determination-R Square and Adjusted R Square
- 2.3 Estimation and Testing of Hypothesis-Test of Coefficients and Overall Significance-t-test and F test-P-value—Testing the Equality of Two Regression Coefficients
- 2.4 Restricted Least Squares-Testing Linear Equality Restrictions

Unit 3 : Violation of the Assumption of Classical Model and Extensions

20 Hrs

- 3.1. Heteroscedasticity: Nature, Consequences, Tests, and Remedial Measures
- 3.2. Auto-correlation: Nature, Consequences, Tests, and Remedial Measures
- 3.3. Multicollinearity: Nature, Consequences, Tests, and Remedial Measures
- 3.4. Model Specification and Errors: Consequences—Under fitting and Over fitting— Measurement Errors
- 3.5. Regression through Origin -Scaling and Units of Measurement
- 3.6. Different Functional Forms of Regression Models and their Applications (Log-linear, Semi- log, Double log, Reciprocal and Log Reciprocal Models)—Choice of Functional Forms

Unit 4 : Regression with Qualitative Variables and Simultaneous Equation Models

20 Hours

- 4.1 Qualitative Explanatory Variables—Dummy Variable Regression—ANOVA and ANCOVA Models—Dummy variable Trap—Interpretation of Regression Results
- 4.2 Models with Qualitative Dependent Variables- LPM, Logit, Probit, and Tobit Models— Interpretation of Regression Results
- 4.3 Simultaneous Equation Models—Simultaneous Equation Bias—Inconsistency of OLS Estimators—Identification Problem—Test of Simultaneity and Exogeneity
- 4.4 Problem of Estimation—Single Equation Methods —OLS—ILS— 2SLS and Systems Methods—2SLS and SURE Model—Lurking Variables

Unit -5 : Dynamic Econometric Models

(15 Hours)

- 5.1 Estimation of Distributed Lag Models—Koyck Model and its rationalization—
Partial Adjustment and Adaptive Expectations Model—Almon Approach
- 5.2 Estimation of Auto Regressive Models— Instrumental Variables—Method of
Instrumental Variables—Problems—SARG Test and Durbin's Statistic—
Causality-The Granger Causality Test and Sims Test

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Semester	Course code	Course Title	Type of course	Credit	Teaching Hours
III	DE010303	Regional Economics	Core	03	90

Course Outcome

Every economic activity has allocation, but dissimilar activities flourish in different areas. Regional economics considers the impact of location and distance on economic activity. Regional economics helps to determine where different types of economic activity will prosper. The primary issue of regional economic concerns the appropriate delineation of a region. Regional economics focuses on theories and policies, increasing returns to scale and externalities. These components change the face of traditional economic theory. Distance (space) also disrupts macroeconomic theories as they are applied to a regional economy. Macroeconomic models that seem robust on a national or international scale are not as solid at a regional level. The course presents an overview of key concepts such as regional economics, spatial micro and macro theories, globalization regionalization, regional disparities and rural development.

Learning Outcome

After completing the course, the student should be able to:

(i) Knowledge in fundamentals of Regional Economics and the impacts of globalization on regional economies, (ii) knowledge in strategies to deal with economic change, in particular on a regional level in developing economies, (iii) understanding of how globalization processes impact upon development at different geographical scales, especially on a regional level and (iv) ability to apply economic geographical concepts and theories in descriptions and analyses of regions' development and to present.

Unit - 1 Regional Economics and Spatial Micro Economics 22 hrs.

1.9 Definition and Scope of Regional Economics – Concepts of region –Types of Region

1.10 Importance of Regionalization – Regionalization Approaches – Indicators of Regional Development

1.11 Determinants of Regional Location – Theories of Location – Von Thunen, Weber, Isaed, Christaller, Losch on Location – Concentration vs Dispersal of Economic Activities.

Unit - 2 Spatial Macro Economics 22 hrs.

2.1 Regional Social Accounting – Regional Growth Process

2.2 Regional Economics Multipliers - Regional Input Output Analysis

2.3 Regional Business Cycle – Convergence and Divergence

2.4 Techniques for regional Economic Analysis

Semester	Course code	Course Title	Type of course	Credit	Teaching Hours
III	DE010304	Theories and Approaches of Environmental Economics	Core	04	90

Course Outcome

This course examines the economics behind environmental issues and problems and policies designed to address them. Topics cover the valuation of non-market goods, cost-benefit analysis, correcting market failures especially in the provision of public goods, the tragedy of the commons, and climate change. The economic assessment of environmental impacts and the economics of policies and institutions which have a significant bearing on the environment are also dealt with in this course. This course will provide students with the tools to understand how market inefficiencies might arise in the presence of externalities like pollution and how market solutions can correct market failures. The main objective of the course is to illustrate how the study of mainstream economics needs to be reoriented in the light of the following premises: the natural environment is the core of any economy and economic sustainability cannot be attained without environmental sustainability.

Learning Outcome

The course is intended to equip students with analytical skills that would enable the evaluation of environmental and economic policy issues. It is expected to enable students to understand the economics of the relationship between economic activities and environmental impacts. This course builds on the knowledge of students in microeconomics and public economics.

Unit- 1: Basic Environmental issues: Environment and Economy (15 Hours)

- 1.1 Environment and Economy- Environmental Economics, Ecological Economics and Resource Economics- Inter linkages between the Economy and the Environment
- 1.2 Material Balance Approach- criteria of Natural Resource Use-Principles of uncertainty and irreversibility – Inter generational equity- intra generational equity
- 1.3 Environment-Development Trade-offs: Environmental Cost of Economic Growth- The Environmental Kuznets Curve. Theory of Krutilla-Fisher Equation for Preservation or Development.
- 1.4 Different Perspectives on Development and Growth: The First and Second Laws of Thermodynamics Pessimist and Optimistic Models Limits to Growth- Beyond the Limits - Simon Julian's thesis of "Ultimate Resource"-The Skeptical Environmentalist.
- 1.5 Global environment issues – climate change: positive and normative analysis of climate change- Economics of Global Warming and Climate Change: Nordaus' Dice Model.

Unit- 2: Welfare Economics, Social Sector and Environment

(20 Hours)

- 2.1 Individual preference regarding environmental protection-Pareto optimality
- 2.2 Market Failure and Externalities: Non-exclusion and the Commons Tragedy of Commons Nonrivalry and Public Goods -Non-convexities- Asymmetric Information
- 2.3 Hardin's Thesis, Olson Theory of Collective Action, Externalities and Property Rights: Coase theorem -Pigouvian Solution, Ostrom's Co-operative Solutions to Common Pool Resources (CPR) -Optimal Provision of Public Goods- Pollution Prevention, Control and Abatement – Command, Control and Market Based Instruments -Taxes Vs Tradable Permits -CPRS
- 2.4 Land use - Deforestation- urbanization and their impact on environment - Air and water pollution

Unit- 3: Environmental Valuation

(20 Hours)

- 3.1 Valuing the Environment: The Economic Concept of Value-Types of Value: Use-Value, Option Value and Non-use or Passive Use Values- The standard model-divergence in value measures-challenges to neo-classical theory of environmental valuation - Development of Nonmarket Valuation—Anthropocentric versus Biocentric Viewpoints - Valuation techniques-market and non-market- direct and indirect - Environment impact assessment-LCA
- 3.2 Valuation Methods: Compensating and Equivalent Welfare Compensating and Equivalent Variations and Willingness to Pay and Willingness to Accept.
- 3.3 Alternative Approaches and Methods of Environmental Valuation – Revealed Preference Methods—Travel Cost Method—Random Utility Site Choice Model—Problems of Travel Cost Method—Hedonic Pricing Method and the Problems—Hedonic Wage Values—Dose Response Function—Averting Expenditure and Avoided Cost Methods—Challenges—Aggregation and Partial Values
- 3.4 Stated Preference Methods—Contingent Valuation—Steps in Conducting a Contingent Valuation—Reliability and Validity—Attribute Based Models—Conjoint Analysis—Choice Experiments—Contingent Ranking—Production Function Methods—General Methodology and Measurement Issues
- 3.5. Economic Incentives: Emission taxes, tradable pollution permits, Pigouvian fee; Emission standards and Environmental Protection

Unit- 4: Sustainable Development

(15 Hours)

- 4.1. Sustainable Development: Sustainability Criteria: Hicksian Sustainability Possible-Sustainability Rules -The Hartwick-Solow Approach
- 4.2. Non-Declining Natural Capital Stock Approach -Safe Minimum Standards Approach - Daly's Co-operational Principles - Sustainability versus Efficiency

- 4.3. Indicators of Sustainability ENP/AENP (Environmentally Adjusted or Approximate Environmentally Adjusted National Product) and Green GNP Indicator on the Basis of Natural Capital Stock and SMS Approaches
- 4.4. Weak, Strong and Very Strong Sustainability- Pearce-Atkinson Measure of Weak Sustainability Daly-Cobb's Index of Sustainable Economic Welfare- Common-Perring's Model of Sustainable Development.
- 4.5. Course of Inter-Generational Welfare- Environmental Sustainability- Ecological Sustainability-Protecting Forest Products and Services
- 4.6. Eco Economy and its Shape—Solar Hydrogen Economy—New Materials Economy Feeding Everyone Well—Protecting Forest Products and Services

Unit- 5: Environmental Governance and Management (20 Hours)

- 5.1. Integrated environmental and economic accounting and the measurement- Environmentally corrected GDP
- 5.2. Ecological Footprint Analysis-Global Environmental Governance- the Montreal and Kyoto Protocol -International Environmental Treaties and Institutions- WTO and TRIPS as related to environmental issues- Subsidies and taxes, Product standards and Exceptions clause; International environmental externalities.
- 5.3. Environmental regulations and assessment in Indian context.

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Semester	Course code	Course Title	Type of course	Credit	Teaching Hours
III	DE010305	Development Issues Of Kerala Economy	Core	04	90

Course Outcome

The contents of the course are structured to make students aware of burning issues in agriculture, industrial and social sectors of Kerala economy. Keeping in view the scope for alternative approaches, such an analysis is essential because the Kerala economy is a unique amalgam of alternative competing and often conflicting theories and a proper understanding of its working is a sine qua-non-if the student is to comprehend the ramifications that underline most of the observed phenomena in the Kerala's economic scenario.

Learning Outcome

The Learning outcome of the course is to introduce students to the current and critical issues, challenges and problems of the Kerala economy and thereby enhance their analytical ability to understand the dynamics of a regional economy. The aim of the course is to teach the students about Kerala's development experiences in historical perspective. It will enable them to understand the current economic scenario and their routes in historical and global perspective.

Unit -1 : Introduction to Kerala Economy

(20Hours)

- 1.1. Kerala economy at the time of state formation- Broad Features – Sectorial contribution
- 1.2. Growth and Development since 1956- Trends and Pattern of GSDP
- 1.3. Trend, Pattern and Sectorial Contribution—Re-distributive policies (Health, Education, PDS,)

Unit-2: Agriculture and Allied Sectors

(15 Hours)

- 2.1. Agriculture Growth and Performance-Trends in production and productivity
- 2.2. Land Reforms and Land use pattern
- 2.3. Changes in Cropping Pattern
- 2.4. Agricultural Wages

- 2.5. Collective farming Initiatives—green army
- 2.6. Crop Insurance Schemes
- 2.7. Special Agricultural Zone
- 2.8. Finance to Agriculture
- 2.9. Livestock-Fisheries-Water Resources and-Forestry
- 2.10. Agricultural Crisis - Food Security

Unit-3 : Industrial Sector and Business

(15 Hours)

- 3.1. Industry-Growth and Performance-Industrial Backwardness
- 3.2. Mining, Manufacturing and Construction Sector- Issues and Challenges
- 3.3. Central Sector Investment
- 3.4. State Public Sector Undertakings
- 3.5. Industrial Financing
- 3.6. MSMEs—Traditional Industries—Electronic industry- KELTRON and Electronic Parks.

Unit- 4: Service Sector

(25Hours)

- 4.1. Growth and performance of Service Sector-Income Generation and Employment Issues.
- 4.2. Performance of service Sub-Sectors- Economic Infrastructure—Transport—Energy-- Communication.
- 4.3. Social Infrastructure- Health and Education –Public Health and Sanitation – Role of Health Care system in Kerala
- 4.4. Kerala Disability Census 2015—Economic and Community Services
- 4.5. Demographic Profile of the State—Demographic Transition in Kerala—Sex Ratio— Nutrition, Morbidity and Ageing.
- 4.6. Trends, Pattern and Problems of Migration—Rehabilitation Issues of Return Migrants
- 4.7. In Migration-- Interstate Migration—Issues of Marginalisation

Unit- 5: Local Governments, Decentralised development and Environmental Issues

(15 Hours)

- 5.1 Kerala's development experience: From lopsided to virtuous phase of development— Sustainability Issues- New Development Initiatives- Kerala Bank, KIFBI etc.
- 5.2 Role of remittances – Regional Imbalances Gender Equality- Unemployment, Poverty and Inequality—Social Security—Human Development
- Decentralised Planning—Financing of Local Government Plans-State Finance Commissions
- 5.6. Planning in Kerala- Planning Commission- Decentralised Planning in Kerala Performance of Local Government—Scheduled Caste Sub Plan, Tribal Sub Plan and Women Component Plan under Decentralization Rural Development Programmes— Kudumba sree Development and Utilisation of Natural Resource—Issues of Reclamation
- 5.9 Tourism and Environmental impact—Waste management—Policies and programmes— Disaster Management - Impact of Flood 2018 and Rebuilding initiatives. Defence Strategies of Covid-19.

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Semester 4

Semester	Course code	Course Title	Type of course	Credit	Teaching Hours
IV	DE010401	International Economics II	Core	04	90

Course Outcome

The objective of this course is to introduce to students the theories of international finance flows, determination of interest and exchange rates in interconnected economies, macroeconomic policies available to the government, and the nature of financial crises. The course also aims to provide a framework for consistent reasoning about international flows of goods, factors of production, and financial assets, trade policy and monetary policy in open economy.

Learning outcome

It will equip students with both fundamental knowledge in international finance, financial institutions and their application in real life. This course seeks to provide a working knowledge of these issues. It will prepare students to become policy-makers and key strategists on issues related to international finance and related institutions.

Unit-1: Foreign Exchange Rates and Markets (30 Hours)

- 1.1 Foreign exchange market- structure and functions-the demand for and supply of foreign exchange – fixed and flexible exchange rate-nominal, real and effective exchange rates- Case studies on REER and NEER in India.
- 1.2 Types of foreign exchange transactions-arbitrage, spot and forward markets and rates, currency swaps, futures and options-foreign exchange risks, hedging and speculation
- 1.3 Theory of optimum currency area- Euro currency markets and international bond markets - Currency Board determination of exchange rate
- 1.4 Theories of exchange rate- mint parity theory-purchasing power parity theory- Balance of payments Approach- monetary approach-asset market (Portfolio Balance) approach- Exchange rate over shooting- Exchange control-objectives and methods of exchange control.

Unit-2: Balance of Payments (18 Hours)

- 2.1 Balance of payments: concepts-structure-disequilibrium in balance of payments
- 2.2 Adjustment Mechanisms-devaluation-elasticity and absorption approaches-Marshall-Lerner condition- J- Curve- Monetary approach to balance of payment adjustment
- 2.3 Foreign Trade Multiplier.
- 2.4 Case Study on 1991 BOP Crisis in India.

Unit-3: Open Economy Macro Economic Policy**(15 Hours)**

- 3.1 Open Economy Adjustment Policies-Internal and External Balance
- 3.2 Swan Diagram
- 3.3 Assignment Problem
- 3.4 Mundell-Fleming Model-combining monetary and fiscal policies
- 3.5 Implications of Impossible Trinity in the Indian context.

Unit-4: Resource Movements, Currency Crisis and International Financial Institutions**(27 Hours)**

- 4.1 International labour movements and remittances
- 4.2 ILO- Outsourcing- challenges and Issues
- 4.3 multi-national organizations (MNCs)
- 4.4 International capital movements-FDI and portfolio investments – Indian experience
- 4.5 Currency Crisis- East Asian Financial Crisis-Sub- prime lending crisis-Greece crisis-Euro zone (debt) crisis
- 4.6 Breton Woods system: International Liquidity and IMF-World bank- international debt problem-external debt of India using international statistics

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Semester	Course code	Course Title	Type of course	Credit	Teaching Hours
IV	DE010402	Econometric Methods II	Core	4	90

Course Outcome

The aim of the course is to provide the theoretical background that is useful for research in applied economics. Applications of economic theory need a reasonable understanding of economic relationships and relevant statistical methods. This course provides an introduction to time series methods in econometrics covering aspects of the trend behavior, detrending mechanisms, and their properties, unit root theory, cointegrated system approaches, realized volatility and, model selection. This course accordingly is devoted to equipping the students with advanced theory of econometrics and relevant applications of the methods. It is designed to equip students for analyzing real-life data, related to economics in particular and social science in general. It will acquaint the students with advanced techniques in time-series and panel-data analysis as well as implementation of theory through software applications to gear them towards execution of independent research projects. The emphasis is on learning to use methods and to developing an understanding of how specific empirical questions determine the empirical approach to be used. The aims of this course are threefold: to introduce students to basic modeling techniques in the analysis of cross-section, panel and time series economic data; to provide students with sufficient econometric training to read the applied literature in core journals which use these standard techniques; to prepare students for a dissertation topic that analyses either cross-section, panel or time series data using basic econometric techniques.

Learning Outcome

At the end of the course, students should be able to perform the following tasks: Interpret the results from regression models involving panel data and instrumental variables; understand how to use instrumental variables to account for endogenous regressors; understand how to estimate binary response models; understand how to set up, estimate and analyze panel data regression models; understand the basic concepts of stationary and non-stationary time series; understand and apply basic linear models for univariate and multivariate time series; understand the concepts of integration and cointegration and how to test for these phenomena in time series.

Unit -1: Stochastic Process and Stationarity**15Hours**

- 1.1. Stochastic Process, Ergodicity and Stationary—White Noise Processes
- 1.2. Non-Stationarity and Random Walk Models— Deterministic and Stochastic Trends/Trend and Difference Stationary Processes-Integrated Stochastic Process
- 1.3. Non-Stationary Time Series and the problem of Spurious Regression— Solutions
- 1.4. Transforming the Non-Stationary Time Series—Tests of Stationarity — Correlogram (ACF, PACF), and Unit Root Test—Augmented Dicky-Fuller Test Non-parametric PP test—Structural Change

Unit- 2: ARIMA Modelling and Cointegration**(20Hours)**

- 2.1. The Wold Decomposition Theorem—AR and MA processes—ARMA and ARMAX—ARIMA Modeling.
- 2.2. Linear combination of non-stationary series and Cointegration Difference between Unit Root and Cointegration Tests– Augmented Engle-Granger test and Johansen –Juselius tests— Granger Representation Theorem
- 2.3. Cointegration and Error Correction Mechanism— VECM (Vector Error Correction Model) – Granger Causality.

Unit -3: time series Forecasting and VAR models.**(20 Hours)**

- 3.1. Time Series Forecasting— Single Equation and Simultaneous Equation Regression Modelling and the Lucas Critique.
- 3.2. Vector Auto regressions (VAR)— Structural VAR (SVAR) and Bayesian VAR (BVAR)— In sample & out of sample (VAR)—Impulse Response Functions— The issues of optimal lag length.

Unit -4 Volatility Measurement and Growth Rate Estimation**(15Hours)**

- 4.1. Volatility Measurement—Measurement of Volatility ARCH and GARCH Models and Estimation—GARCH Forecasting
- 4.2. Growth Rate Estimation—Robustness—Endogenous and Exogenous Breaks—Kinked Exponential Growth Rates.

Unit-5: Panel Data Models**(20 Hours)**

- 5.1. Panel Data Models—Nature and Data Sources—Constant Co efficient Model—Error Components Models—Fixed Effect (Lest Squares Dummy Variable LSDV) Model—Fixed Effect (Within Groups WG) Estimator—Random Effects Model (REM)—REM and Hausman Test—Breusch-Pagan Test—Consistency Property of Estimators.
- 5.2. Dynamic Panel Data Analysis—Panel Data Unit Root—Cointegration Tests

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Electives

Semester	Course code	Course Title	Type of course	Credit	Teaching Hours
IV	DE820401	Micro Level Planning	Core	03	90

Course Outcome

Decentralized planning or micro level planning is a kind of percolation of planning activities. It is process from the center to the sub-state levels, i.e. district, sub-division, block and village level. The aim of this course is to provide a conceptual framework of decentralized planning for the learner and develop their competence in the use of some of the essential tools of planning.

Learning Outcomes

By the end of this module student will be better able to:
Describe the concept and evolution of decentralized planning
Describe the Panchayati Raj system and the decentralization process
Prepare a village profile
Identify problems of a local area and set planning objectives.

Unit-1: Decentralised Planning (15 Hours)

- 1.1 Meaning, objectives, requisites and types of planning,
- 1.2 Planning commission-role, structure and functions,
- 1.3 Trends in decentralized planning in different countries and states in India,
- 1.4 Centralization limitations, shift in development scenario leading to decentralization,
- 1.5 Types of decentralized planning in India.

Unit -2: PRA and Micro Level Planning (20 Hours)

- 2.1 Micro level planning- meaning, objectives, basic concepts, principles, rationale.
- 2.2 Methodology of micro level planning -Relevance of PRA tools to Micro level planning - tasks and steps.

Unit -3: Local Planning and Development (30 Hours)

- 3.1 The local context, participation in the planning process, potential of public participation
- 3.2 Public participation in rural communities, planning for integrated area development, identification of village classification, proposed activity, implementation and evaluation, role of panchayat president and members in the village level planning.
- 3.3 Urban Planning – nature and scope of urban planning
- 3.4 Nature, scope, challenges of Local, Block, District and State Planning in Economic Development.

Unit -4: MLP and Management with Special Reference to Kerala

(30 Hours)

- 4.1 Issues in Micro Level planning or Decentralised planning
- 4.2 Case studies in India, Micro level planning and macro level planning and training requirements,
- 4.3 National Productivity council (NPC).
- 4.4 Decentralized Planning and Panchayati Raj System of Kerala (History, evolution and critical evaluation).

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Semester	Course Code	Course Title	Type of Course	Credit	Teaching Hours
IV	DE800401	Gender and Development	Elective	3	90

Course Outcome

The contemporary development plans and policies needs look how power structures and social norms impact the lives and livelihood of different groups of men and women as the women of all stratum of the society are more isolated in the development process when compared to their male counterparts. This course is designed to provide an introduction on how to recast the development theory to create a world with gender equity through various approaches and strategies.

Learning Outcome

This course will enable the learner to understand the gender gap in the development scenario and how the gender gap can be bridged over time. The course will also help the learners to critically analyse gender differentials in selected development sectors. By the completion of the course become familiar with the methodology of gender analysis in economics and acquire the skills to conduct gender review of development policies, programmes and strategies.

Unit -1: Approaches To Gender And Development

(20 Hours)

- 1.1 Concepts: Sex and Gender- Development and Underdevelopment- Gender Equality
- 1.2 Feminisms in Development: Three waves of Feminism-Trends in Feminism
- 1.3 Women in Development (WID) Approach : Welfare Approach-Equity Approach
- 1.4 Women and Development (WAD) Approach: Anti-poverty Approach, Efficiency Approach, Empowerment Approach
- 1.5 Gender and Development Approach: Fourth World Conference on Women-Gender Related Development Index (GDI)-Gender Empowerment measure (GEM)-Social Institutions and Gender Index (SIGI).

Unit -2: Economic Growth And Gender Status

(25 Hours)

- 2.1 Economic Development and Gender: Women and the economy-Gender Issues in Developed Countries-Gender Issues in Developing and Under Developed countries- Women's contribution in GDP- Feminization of Poverty
- 2.2 Globalization and Women: Concept of Globalization- Positive Impact of Globalization on Gender Status-Negative Impact of Globalization on Gender Status
- 2.3 Demographic Changes and Gender: Global Demographic Changes, Impact of Demographic changes in Gender Status-Gender differences in mortality and morbidity.
- 2.4 Gender Discrimination as a hindrance to Development: Education-Health-Employment-Entrepreneurship-Political Participation and Decision making

Unit -3: Strategies In Gender And Development

(25 hours)

- 3.1 Gender Mainstreaming: Beijing Platform for Action-Prioritizing Gender Equality-Gender into Politics and Decision making- Post Conflict Peace Building (PCPB)
- 3.2 Gender Planning and Policy Making: Gender Blind Approach- Gender Neutral Approach- Gender Biased Approach- Rights Based Approach-Gender Positive Approach
- 3.3 Gender Budgeting and Gender Auditing: Principles of Gender Budgeting- Gender Budgeting Analysis-Global trends in Gender Budgeting-Types of Gender Auditing- Methodology of Gender Auditing
- 3.4 Engendering Governance: Meaning and Concept- Need for Engendering Governance- Initiatives for Engendering Governance.

Unit-4: Gender And Development In India And Kerala

(20 Hours)

- 4.1 Gender Status in India: Concept of Missing Women- Violence against Women- Gender Discrimination- Demographic changes and emerging Gender issues-Laws related to women- Women Empowerment Schemes
- 4.2 Gender Status in Kerala: Kerala as a Female Capital- Demographic Changes and Gender Status- Self Help Groups in Kerala- Crime against Women- Laws related to women- Women Empowerment Schemes
- 4.3 Gender Budgeting in India and Kerala: Framework of Gender Budgeting-Women Specific Schemes-Pro Women Schemes- Critical Evaluation

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Semester	Course Code	Course Title	Type of Course	Credit	Teaching Hours
IV	DE820402	Infrastructure and Economic Development	Elective	03	90

Course Outcome

The main objective of the course is to provide students with a thorough grounding in the key concepts of Infrastructure economics. The course aims at improving the understanding of students on the problems and policies regarding various social and economic infrastructure in India.

Learning Outcome

The course enables the student to have a strong footing in all important components of infrastructure and their respective roles in economic development.

Unit-1: Introduction

(40Hours)

- 1.1. Infrastructure : definition, features – Classification - Social and Physical infrastructure
- 1.2. Infrastructure as a public good : Special characteristics of public utilities - The peak-load, Off-peak load problem, Dual principle controversy; Economies of scale of joint supply.
- 1.3. Infrastructure and Development: impact of physical and social infrastructure on social and economic development
- 1.4. Infrastructure Financing : Types, Source, Public and Private, Resource use efficiency
- 1.5. Infrastructure Pricing: free prices equity and efficiency-Effects of Competition and Monopoly on Productivity and Performance – Methods of pricing: marginal cost pricing, two-part tariff, peak load pricing - price discrimination and cross subsidization - Cost vs. Benefit as the basis - Cost based approaches.

Unit-2: Transport and Communication

(10Hours)

- 2.1. Structure of Transport costs and location of economic activities - Demand for Transport: Determinants-Models of Passenger and Freight Demand- Rural and Urban Transport Planning -Cost Functions - principle of pricing
- 2.2. Rail, Road, Water and Air Transport in India. special problems of individual modes of transport and inter-model coordination in the Indian context
- 2.3. Cost Functions in Communication Sector - Measurement of Standards of Service in Telephone and Postal Utilities - Private Sector Participation - Pricing Methods - Principle of decreasing costs in telephone industry- Rate making in telephone utilities –

- the Relationship between TRAI, Department of telecom, and public and private operators - Role of telecom infrastructure in meeting needs of the economy and the IT sector.
- 2.4. Postal services: Criteria for Fixation of Postal Rates - the impact of growing technology.

Unit- 3: Water Supply, Sanitation and Energy

(20Hours)

- 3.1 Irrigation: Sources of irrigation, ownership - spatial aspects; Impact of irrigation on selected indicators of agricultural development; role of public sector, pricing of water, issues in financial recovery of major irrigation projects; institutional reforms in public sector irrigation.
- 3.2 Drinking water - urban and rural water supply – Issues associated with drinking water supply - An overview of various programmes and present scenario
- 3.3 Sanitation in India: various problems associated with it – policies and programmes
- 3.4 Energy – Economy Linkages: factors determining demand for energy - Effect of energy Shortage costing and pricing of energy -Energy Crisis and Security - Energy conservation - Renewable and non-renewable sources of energy – Prospects of non-renewable sources - Energy modelling (*overview only*) – Need for an Optimal and Integrated Energy Policy in the Indian Context - Public private partnership in energy investment and energy development
- 3.5 Bulk supply and pricing of electricity: the relative economics of Thermal, Hydel and Nuclear power – sector specific problems - Rural Electrification in India – Problems & Prospects - The case for a national power grid; uses of natural gas; the exploitation of natural gas - pricing problem.

Unit- 4: Health and Education

(20Hours)

- 4.1. Distinction between health and health care- Nature of health care as an economic commodity- Demand for health and Supply of health- Opportunity costs and problems of rationing health care. Costs and efficiency- Costs: fixed, marginal and average costs. Efficiency - technical and allocative efficiency, and of various types of equity. Market System and health care needs- Market failure and the role of government – Poverty, Malnutrition and Environmental Issues.
- 4.2. The rationale of government funding and regulation of health care –examining the potential role of user charges and community financing schemes. Delivery of health care decentralisation and role of the private / public mix health system reforms. The future of Health Sector reforms in developing countries like India.
- 4.3. Education and economic growth - Special characteristics of education –Implications of economic analysis – Role of the State –Education Productivity and Employment – Investment in education: Costs and benefits, Private and Social rates of return (Human capital and Signalling theories of education)
- 4.4. Approaches to education planning. Social demand, Rate of return and manpower balance approaches – Methods of financing education –Resource allocation to primary, secondary and higher education – Efficiency, equity and distributional aspects
- 4.5. Economics of Educational Planning in Developing Countries with special reference to India. The issues and prospects in new education policy

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Semester	Course Code	Course Title	Type of Course	Credit	Teaching Hours
IV	DE810401	Research Methodology And Computer Application	Elective	03	90

Course Outcome

Research in Economics is at once exciting and challenging because it is a living and breathing process of enquiry. The methods guide the researcher to understand and appreciate the social and economic reality in an objective way. It is expected to generate the capability to develop a broader understanding and analysis of social and economic issues using appropriate methods tools and techniques.

Learning Outcome

This course provides the students basic knowledge about the social science research and its relevance in tackling real issues of the society. It Create an enabling environment to identify research issues and to develop scientific approach in the analysis of social problems.It helps to acquire the ability to derive and organize conclusions from empirical works for offering concrete solutions to various socio-economic problems.

Unit: 1

- 1.1 Meaning of Research
- 1.2 Type of research-applied and fundamental-analytical and descriptive qualitative and quantitative-conceptual and empirical
- 1.3 Research methods and research methodology
- 1.4 Scientific and social science research
- 1.5 Approaches in social research
- 1.6 Inductive and deductive methods
- 1.7 Interdisciplinary research
- 1.8 Objectivity and ethics in social science research

Unit: 2

- 2.1 Selection and formulation of research problem
- 2.2 Survey of literature
- 2.3 Research design- meaning and contents
- 2.4 Types of research design –exploratory and formulative- descriptive and diagnostic - evaluation and experimental.
- 2.5 Steps in the research process.

Module: 3

- 3.1 Methods of data collection
- 3.2 Sources of data – primary and secondary –time series and cross section
- 3.3 Sample survey- methods –interview methods –questionnaire method –Constructing of questionnaire /interview schedule-case study method-
- 3.4 Sampling methods-random, stratified, multistage, systematic, cluster, quota, judgement, convenient, purposive samples
- 3.5 Data analysis and techniques
- 3.6 Drawing inferences from analysis
- 3.7 Writing of report, references and bibliography.

Module: 4

- 4.1 Computer application – estimation of mean, median and mode – standard deviation and co-efficient of variation
- 4.2 Presentation of charts-line, subdivided, multiple, pie chart
- 4.3 Estimation of growth rates and trend equation
- 4.4 Estimation of simple and multiple regression equation –using Excel/SPSS for computation and estimation-Gretel-R

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Semester	Course Code	Course Title	Type of Course	Credit	Teaching Hours
IV	DE800402	Economics of Education	Elective	03	90

Course Outcome:

Human Capital is perhaps the most rewarding of all resources utilized by production processes. Investments in human capital are never wasted and the countries always seek newer avenues to enrich this form of capital. Economics of Education and Human capital is a focused and exhaustive field of post graduate study in major universities in the world.

Learning Outcome:

By imparting knowledge of the Economics of Education and Human Capital, students are equipped to apply the principles and techniques of this area of study for developing human capital.

Unit 1

- 1.1 Education as an engine for economic growth
- 1.2 Human capital vs. physical capital,
- 1.3 Investment in human capital;
- 1.4 Demand for education-private demand and social demand - determinants of demand;
- 1.5 Cost of Education-, private, institutional and social costs, wastage and stagnation in education

Unit 2

- 2.1 Returns to education -direct and indirect returns, private and social returns;
- 2.2 Educational planning and economic growth
- 2.3 Cost-benefit analysis,
- 2.4 Production function models,
- 2.5 Growth equations of Schultz and Denison,
- 2.6 Manpower requirements approach,
- 2.7 Programming and input-output models;

Unit 3

- 3.1 Educational financing -resource mobilization and utilization- pricing and subsidies
- 3.2 Effects of educational financing on income distribution
- 3.3 Cost recovery in education
- 3.4 Regional inequality in human capital formation

Unit 4

- 4.1 Education and labour market - effects of education on earnings, poverty and income-
- 4.2 Distribution, equity and access to education, education and employment;
- 4.3 Economics of educational planning in India.
- 4.4 Review of the state of education in Kerala –The role of state in education system-Educated unemployment in Kerala.

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Semester	Course Code	Course Title	Type of Course	Credit	Teaching Hours
IV	DE820403	Principles of Agricultural Economics	Elective	3	90

Course Outcome

This course is intended to provide an overview of the economics of agriculture. This course is directed toward understanding the performance of the agricultural sector in the process of economic development. In this course, the role of the agricultural sector in aggregated (macro) growth and development theories, including the recent endogenous growth theories are reviewed. The course also deals with the production and diffusion of improved agricultural technology, institutions, infrastructure, markets, food security policy.

Learning Outcome

The objectives of this course are: to expose the students to the concepts, significance and uses of production economics in an agricultural context; to provide orientation to the students regarding the agricultural policies and its effect on sustainable agricultural development and to make them to understand the globalization and its impact on agricultural development; to expose the students to the various kinds of risk in farming, risk management strategies and mechanisms and insurance policies; to apprise students regarding various aspects of agro-food marketing; and to develop understanding regarding issues in agricultural markets.

Unit- 1: Nature and scope of Agricultural Economics

(10 Hours)

- 1.1 .Nature and Scope of Agricultural Economics
- 1.2 .Role of Agriculture in Economic Development
- 1.3. Risk and Uncertainty in Agriculture
- 1.4. Instability of Agriculture.
- 1.5. Terms of Trade between Agriculture and Industry -Ranis-Fei Model-Jorgenson's Model-Resource mobilisation from the agricultural sector.
- 1.6. Role and Need for Agro-Based Industries.

Unit- 2: Models of Agricultural Development**(20 Hours)**

- 2.1. Schultz's Transformation of Traditional Agriculture
- 2.2. Jorgenson's Model of development of Dual economy
- 2.3. Mellor's Model of Agricultural Development
- 2.4. Boserup Model of Agricultural Development

Unit- 3: Farm Management**(40 Hours)**

- 3.1. Farm management- Principles of farm management–Farm management decisions– principles of factor substitution
- 3.2. Cost Principles – Opportunity Cost Principle – Principles of Comparative Advantage – Limitations of Farm Management.
- 3.3. Agricultural Production Functions– Factor–Product Relationships
- 3.4. Product–Product Relationships, Factor–Factor- Relationships
- 3.5. Objective functions for family farms and their optimisation-large farms operated by an individual farmer-large farms under tenancy-small owner cultivator-tenant operating a small farm and using only family labour-tenancy and the conflict between the interests of land owner and those of the tenant
- 3.6. Agricultural Supply Response Models - Cobweb and Nerlove Models.
- 3.7. Measures of Farm Efficiency.
- 3.8. Size of the Farm and Productivity

Unit- 4: Issues Related to Indian Agriculture**(20 Hours)**

- 4.1. Agriculture and Productivity- Food Security and Public Distribution System in India.
- 4.2. Agricultural Finance - Rural Indebtedness
- 4.3. Agricultural Marketing -Agricultural Price Policy- Price System in India; Challenges of Agricultural Marketing in India-Measures to improve the efficiency of agricultural marketing-role of the state.
- 4.4. WTO and Agreement on Agriculture (AOA)-WTO and India's Agricultural Sector-Review of Recent Debates.

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Semester	Course Code	Course Title	Type of Course	Credit	Teaching Hours
IV	DE800403	Human Resource Management	Elective	3	90

Course Outcome

The objective of the course is to make the students understand the importance of human resource management, to know the elements of the HR function, and to be familiar with application of the principles and techniques of human resource management.

Learning Outcome

The student will acquire theoretical knowledge regarding human resource Management, familiarise with the different HR functions and acquaint with the recruitment and selection, induction training of personnel.

Unit-1: Perspectives in Human Resource Management (20Hours)

- 1.1. Evolution of Human Resource Management – Principles of HRM- The Importance of the Human Factor – Challenges – Inclusive Growth and Affirmative Action.
- 1.2. Role of Human Resource Manager – Human Resource Policies – Computer Applications in Human Resource Management – Human Resource Accounting and Audit.

Unit-2: The Concept of Best Fit Employee (25Hours)

- 2.1. Importance of Human Resource Planning – Forecasting Human Resource Requirement – Matching Supply and Demand -Internal and External Sources.
- 2.2. Recruitment – Selection – Induction – Compensation Method- Pay Structure- Fringe Benefits- Socialization Benefits.
- 2.3 Training and Executive Development: Types of Training Methods –Purpose- Benefits- Resistance. Executive Development Programmes – Common Practices – Benefits – Self-Development – Knowledge Management- Stress Management-Methods.

Unit-3: Performance Evaluation and Control Process

(25Hours)

- 3.1 Method of Performance Evaluation – Feedback – Industry Practices. Promotion, Demotion, Transfer and Separation – Implication of Job Change.
- 3.2. The Control Process – Importance – Methods – Requirement of Effective Control Systems Grievances – Causes –Implications.
- 3.3. Redressal Methods- HR Related Issues in Mergers and Acquisitions- International HRM- Issues- International Labour Standards.

Unit-4:IndustrialRelations

(20Hours)

- 4.1. Meaning of Employee Relations – Industrial Disputes – Causes- Forms and Types of Industrial Disputes – Methods of Settling Disputes.
- 4.2. Trade Unions – Objectives, Functions – Employee Welfare - Strategic Human Resources Management – Strategic Tools.
- 4.3. Contemporary Issues in Industrial Relations- Laws of Social Security- Health and Safety.

Reference

- 1. V.S.P. Rao- 'Human Resources Management'
- 2. Keith Davis - 'HR and Personnel Management'
- 3. Flippo- 'Personnel Management'
- 4. T.V.Rao- 'Human Resource Management'
- 5. Pareek, Udai and Rao T.V –'Designing and Managing Human Resource Systems'
- 6. Satyadian S.Mirza – 'Human Resource Management'
- 7. R. S Davar - 'Personnel Management and Industrial Relations in India'.
- 8. Edwin B. Flippo- Principles of Human Resource Management.
- 9. K. K Ahuja- Personnel Management, Himalaya Publishing House.
- 10. Gary Deseler – 'Human resource management (9th edition)'PrenticeHall.
- 11. George W. Bohlander, Scott. A. Snell- 'Managing Human resources, methods andchallenges' South Westerncollege.
- 12. Rothwell & Cazan.- 'Strategic Human resource planning and Management' PrenticeHall.
- 13. Rao T. V & Pereira. – 'Recent Experiences in Human resource management' Prentice Hall.

Semester	Course Code	Course Title	Type of Course	Credit	Teaching Hours
IV	DE810402	Project Analysis	Elective	03	90

Course Outcome

The course intends to provide basic idea regarding project formulation, evaluation, appraisal, situational analysis, social cost –benefit analysis, project preparation and project management. The students are exposed to risk management.

Learning Outcome

The students will gain skills on project formulation, appraisal evaluation, project management, risk management, cost –benefit analysis. They will familiarise with the different modes of financing of various project.

Unit 1

(20 Hours)

Phases and Objectives of Capital Budgeting- Generation and screening of project ideas- Concepts, Scope and Uses of Project Evaluation- Project Evaluation and Project Cycles- Market analysis, Demand Analysis and Situational analysis-Project appraisal-Technical Appraisal, Commercial Appraisal, Economic appraisal, Financial appraisal and Management Appraisal of Projects-Government projects and Social Projects- Appraisal Criteria

Unit 2

(15 Hours)

Special decision Situation-Cost of Project-Components of Capital Cost of a Project-Analysis of Project Risk-Types of Risk-Firm Risk and Market Risk-Techniques of Risk Analysis- Measurement of Risk-Empirical Testing

Unit 3

(20 Hours)

Social Cost Benefit Analysis (SCBC)- Classes of Project Costs and Benefits- Indicators of Cost Benefit Comparison- Traditional Cost Benefit Analysis(CBA)- Valuation of unmarketable items- Effects of Induced price changes- UNIDO approach- SCBA by financial institutions, Project Financing in India-Project Appraisal by banks and financial institutions-Environmental Appraisal of Projects

Unit 4

(20 Hours)

Project management: Organization, Planning, control-Human aspects and pre-requisites- Financing Infrastructure Projects: Concepts, rational and financial instruments- public finance for infrastructure projects- BOOT/BOT system for infrastructure projects- Approaches for infrastructure, PPP model- Mix of Government support and regulation.

Unit 5

(15 Hours)

Project Evaluation and Audit- Sources of financing, role of institutions in project financing- project evaluation- use of NPV, PI, IRR, BCR, NBCR- Value added method-Sensitivity and risk analysis- Integrative frame work of project evaluation-Project cost overruns and cost control- Phases of post audit- types of post audit

References

1. Chandra, Prasanna, Projects, Planning analysis, Selection, Implementation and Review, Tata Me Graw Hill, New Delhi, 2002
2. Bhavesh, M. Patel, Project Management, Vikas Publishing House, New Delhi
3. Machiraju, H.R, Project Finance, Vikas Publishing House, New Delhi
4. Rao, P.C.K, Project Management and Control, Sulktan Chand & Sons, New Delhi
5. Gido & Clemens, Successful Project Management, Prentice Hall of India, New Delhi, 2008
6. Sang Mend-Rang, 1999, Project Evaluation: Techniques and Practicals for Developing Countries, Avebury and Aldershot.

Semester	Course Code	Course Title	Type of Course	Credit	Teaching Hours
IV	DE810403	Fundamental methods of Mathematical Economics	Elective	03	90

Course Outcome

The main objective of the course is to train the students to use the techniques of mathematics which are commonly applied to understand and analyze economic problems. The emphasis of the course is on understanding economic concepts with the help of mathematical methods rather than learning mathematics itself.

Learning Outcome

A student will be initiated into various economic concepts, which are amenable to mathematical treatment. The objectives of this course are: (1) to help the students to study the nature and extent of relationships among economic variables by using mathematical tools, and (2) to apply these tools in solving the economic and business problems.

Unit 1: The Theory of Consumer Behaviour

(20 Hours)

- 1.1. Utility function-Indifference Curves-commodity substitution-maximization of utility.
- 1.2. Demand function-compensated demand function-demand curves- price, income and cross elasticities of demand-the Slutsky equation: substitution and income effects.
- 1.3 Linear expenditure system-separable and additive utility functions-homogeneous and homothetic utility functions- indirect utility function and duality in consumption.
- 1.4 Theory of revealed preference-strong axiom – substitution effect-composite commodities- consumer surplus.

Unit- 2: The theory of the firm

(20Hours)

- 2.1. Production function-product curve- Isoquants -elasticity of substitution-optimizing behaviour- constrained output maximisation-constrained cost minimisation-profit maximisation
- 2.2. Cost function-short run cost function-long run cost function-joint products-constrained revenue maximisation-profit maximisation.
- 2.3. Homogeneous Function–Definition and properties–Properties of Linearly Homogeneous

Function–Cobb–Douglas Production Function–Expansion Path for Cobb–Douglas Function. | Elasticity of Substitution -elasticity of Linear Homogenous Functions – C.E.S. and VES production functions—Translog forms- Euler's Theorem - Derivation of cost function from production function-Modern Approach to the Theory of Cost, Shephard's Lemma Adding Up Theorem- Production analysis of multi-product firm.

Unit- 3: Market Equilibrium

(30Hours)

- 3.1. Demand function-market demand -producer demand-Supply functions: very short run-short run and long run.
- 3.2. Commodity-market equilibrium: short run equilibrium-long run equilibrium-factor market equilibrium: demand functions, supply functions and market equilibrium- the existence and uniqueness of equilibrium- the stability of equilibrium: static and dynamic-dynamic equilibrium with lagged adjustment: cob-web theorem
- 3.3. Monopoly-AR and MR- Profit maximisation: cost function, profit maximisation; production function- price discrimination: market and perfect discrimination- the multi- plant monopolist- the multi-product monopolist-revenue maximizing monopolist- monopsony
- 3.4. Duopoly and oligopoly: homogeneous product: the Cournot and the Stackelberg solutions- duopoly and oligopoly: differentiated products-market -shares solution and kinked demand curve solutions.

Unit- 4: Multi-market equilibrium, Welfare economics and growth models (20Hours)

- 4.1. Equilibrium of the i^{th} consumer, two commodity exchange using Edgeworth box, production and exchange: equilibrium of i^{th} consumer and i^{th} firm.
- 4.2. Walras law and multi-market equilibrium
- 4.3. Pareto optimality: pareto optimality for consumption and production-the efficiency of perfect competition- the efficiency of imperfect competition in consumption, commodity and markets.
- 4.4. Social welfare functions- the Arrow impossibility theorem-the theory of second best.
- 4.5. Trade cycle model of Samuelson and Hicks; Harrod problem; Neoclassical model of growth; Solow and Meade growth models with technical progress; Optimal growth;

and golden rule of accumulation.

Reference

1. Henderson, J. M. and R.E. Quandt (1980), Microeconomic Theory: A Mathematical Approach, McGraw Hill, New Delhi.
 2. Chiang, A.C. (1986), Fundamental Methods of Mathematical Economics, McGraw Hill, New York.
 3. R.G.D. Allen, Mathematical Economics, MacMillan, London
 4. Lancaster, V. (1965): Mathematical Economics, Rand McNally College Pub
 5. Silberberg, E. (1990): The Structure of Economics – A Mathematical Analysis, McGraw Hill.
 6. Arrow, K.J. and M. Intrilligator (Eds.) (1982), Handbook of Mathematical Economics, Volumes I, II and III, North Holland, Amsterdam.
 7. Chung, J.W. (1993), Utility and Production: Theory and Applications Basil Blackwell, London.
 8. Ferguson, C.E. (1976), Neo-Classical Theory of Production and Distribution.
 9. Brajesh Kumar (2010): Modern Microeconomics, Global Professional Publishing.
 10. Thomas J. Nechyba (2017): Microeconomics: An Intuitive Approach with Calculus
 11. Hugh Gravelle and Ray Rees (2010): Microeconomics, 4th Edition, Pearson Education Limited 2nd Edition, Cengage Learning.
 12. Dowling.T.E., Introduction to Mathematical Economics, Mc Graw Hill
 13. Koutsoyiannis, A. (2011), Modern Microeconomics, Macmillan Press, London.
 14. Hal R. Varian (2014): Intermediate Microeconomics with Calculus, 1st Edition, W. W. Norton & Company
- Jeffrey M. Perloff (2014): Microeconomics with Calculus, 3rd Edition, Pearson Education Limited.



