



# PROGRAM STRUCTURE & SYLLABUS

(2019 Admission Onwards)

## Master of Arts ECONOMICS



BOARD OF STUDIES IN ECONOMICS (PG)

MAHATMA GANDHI UNIVERSITY

മഹാത്മാഗാന്ധി സർവ്വകലാശാല

2019

MASTER OF ARTS

ECONOMICS

PROGRAM STRUCTURE AND SYLLABUS  
2019-20 ADMISSIONS ONWARDS

(UNDER MAHATMA GANDHI UNIVERSITY PGCSS REGULATIONS 2019)



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2019

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## **M.A. Economics Degree Program**

(Mahatma Gandhi University Regulations PGCSS2019 from 2019-20 Academic Year)

Over time, the thought content of Economics has incessantly gained significant prominence. It is playing 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. Do financial markets matter for aggregate productivity? Why do similar goods have different prices across stores? How do financial frictions amplify recessions? What is the impact of innovation shocks on asset prices and the economy? What do an aging and slow-growing population do to your economy? What drives CEO pay and wealth inequality? Why are there gender and racial wage gaps? How does international trade affect the environment? In the aftermath of the 2008 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 extending into the macroeconomic and financial landscape. The study of Economics considers broad ranging real-world issues such as these. The ability to respond to rapid changes in this environment requires a pellucid understanding of the economic forces that affect economic outcomes. 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.

The Master of Arts program in Economics is designed for students who wish to prepare themselves for careers in the field of economics or improve their knowledge of economic theory and its applications. The M.A. program provides a technical and rigorous approach to the study of 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 postgraduate course. Thus, keeping in view the emerging trends in businesses, finance, and Governance, a new curriculum for

M. A. Economics has been developed. 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 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.

#### AIM OF THE PROGRAM

The broad objective of this programme is to provide students with a full understanding of 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. The objective of economics instruction is to offer an opportunity for students to be exposed to different facets of the discipline and to learn how economists go about their work. The specific objectives of the M.A. Economics Program are as given below:

- i) To give students knowledge in the various fields of Economics and an in-depth understanding of the theoretical and empirical constructs in the field of Economics.
- ii) To disseminate awareness and appreciation of the complexity of socio-economic interdependence and change.
- iii) Application of economic theories and dilating problem-solving acumen. To teach applications of theories in analyzing current economic problems
- iv) Preparation for advanced studies leading to M. Phil. and PhD.
- v) To equip students with a set of tools of 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.
- vii) 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;

- viii) 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 program 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. Locate published research in economics and related fields; locate information on particular topics and issues in economics; search out economic data as well as information about the meaning of the data and how they are derived.
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 regarding the same. Summarize (in a 2-minute monologue or a 300-word written statement) what is known about the current condition of the economy; summarize the principal ideas of an eminent living economist; summarize a current controversy in the economics literature; state succinctly the dimensions of a current economic policy issue; explain key economic concepts and describe how they can be used.
3. Displaying Ability to Draw Out Existing Knowledge: Write a precis of a published journal article; read and interpret a theoretical analysis, including simple mathematical derivations, reported in an economics journal article; 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.
4. 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. Prepare a written analysis (of say, 5 pages) of a current economic problem; prepare a decision memorandum (of say, 2 pages) for a superior that recommends some action on an economic decision faced by the organization.

5. **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. 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

Quantitative Economics, Advanced Microeconomics and Financial Economics.

## 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 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 passed the examination of all the courses with 'E' 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 Economics.
2. The programme shall include two types of courses; Core courses and Elective Courses.
3. There are 17 core courses and 3 groups-wise electives with three courses. The core courses are designed to provide students with rigorous academic 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 advanced microeconomics. The department will offer any one group in the fourth semester.
7. The selection of courses from different groups are not permissible.
8. Course evaluation would consist of seminar presentations, assignments, written examinations, Project and viva-voce.
9. There shall be a Project with a dissertation to be undertaken by all students.
10. The student shall submit one assignment as an internal component for every course.
11. The PG student may deliver one seminar lecture as an internal component for every course.
12. Every student shall undergo two class tests as an internal component for every course.
13. Total credits for the programme are eighty (80). No course shall have more than four (4) credits.
14. 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 organization on the recommendation of the Supervisor. There shall be an internal assessment and external assessment for the project.
15. The external evaluation of the dissertation work is followed by the presentation of work including dissertation and viva-voce.



16. Comprehensive viva voce shall be conducted at the end of the programme. This shall cover questions from all courses in the programme.
17. 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**.
18. There shall be no separate minimum grade point for internal evaluation.
19. The minimum requirement of aggregate attendance during a semester for appearing the end semester examination shall be 75%.
20. 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.

## 7. THE SEMESTER-WISE COURSE DETAILS

Course Code	Title of the Course	Type of the Course	Hours per week	Credits
<b>FIRST SEMESTER</b>				
EC010101	Microeconomics-I	Core	05	04
EC010102	Macroeconomics-I	Core	05	04
EC010103	Development Economics	Core	05	04
EC010104	Indian Economy-I	Core	05	04
EC010105	Mathematical Methods for Economic Analysis	Core	05	04
<b>SECOND SEMESTER</b>				
EC010201	Microeconomics-II	Core	05	04
EC010202	Macroeconomics-II	Core	05	04
EC010203	Public Economics	Core	05	04
EC010204	Indian Economy-II	Core	05	04
EC010205	Statistical Methods for Economic Analysis	Core	05	04
<b>THIRD SEMESTER</b>				
EC010301	International Economics	Core	05	04
EC010302	Econometrics-I	Core	05	04
EC010303	Heterodox Economics	Core	05	04
EC010304	Environment Economics	Core	05	04
EC010305	Kerala Economy	Core	05	03
<b>FOURTH SEMESTER</b>				
EC010401	International Finance	Core	05	04
EC010402	Econometrics-II	Core	05	04

<b>ELECTIVE (Credit 3*3=9)</b>		
<b>GROUP A</b>	<b>GROUP B</b>	<b>GROUP C</b>
EC800401 Agricultural Economics	EC810401 Mathematical Economics	EC820401 Financial Economics
EC800402 Industrial Economics	EC810402 Operations Research	EC820402 Game Theory and Its Economic Applications
EC800403 Labour Economics	EC810403 Multivariate Data Analysis for Social Sciences	EC820403 Economics of Business Strategy

EC010403	Project/Dissertation	Core	<b>Credit</b>	<b>02</b>
EC010404	Comprehensive Viva -Voce	Core	<b>Credit</b>	<b>02</b>
Total weight of the course				<b>80</b>

## 8. 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.

## 9. 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

### 11.1. 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

### 11.2. 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

### 11.3.Theory (Internal)- Components and Weightage

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

(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.)

## **10. 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.

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

### **12.1.Project- Internal: Components and Weightage:**

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

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

### **12.2. Comprehensive viva-voce (External)-components and weightage**

<b>Components</b>	<b>Weightage</b>
Course viva (all courses from first semester to fourth semester)	15
<b>Total</b>	<b>15</b>

## **11. 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.

<b>Components</b>	<b>Weightage</b>
Course viva (all courses from first semester to fourth semester)	5
<b>Total</b>	<b>5</b>

The dissertation shall be prepared in the following format.

## 12. Dissertation Format

### Dissertation: Master of Arts (MA) in Economics

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

	<b>1.1. Title page</b>		<b>1.2 Preface</b>
<b>a</b>	Title of the project		<b>1.3 Table of contents</b>
<b>b</b>	Name of the candidate	<b>a.</b>	List of Tables
<b>c</b>	Name and designation of the supervisor	<b>b.</b>	List of Figures
<b>d</b>	Degree for which project is submitted	<b>c.</b>	Glossary.
<b>e</b>	Name of the College	<b>d.</b>	List of abbreviations
<b>f</b>	Month and year the project is presented	<b>e.</b>	Acknowledgment
<b>g</b>	Declaration of the student & supervisor	<b>1.4 Abstract/ Executive Summary (One page)</b>	
<b>1.5 The Main Text</b>			
Introductory Chapter: Items 3 to 16 mentioned above			
b. Other Chapters- Analysis, Results Interpretation			
c. Conclusion Chapter: Conclusions, Recommendations & Summary			
<b>1.6 End Notes (after each Chapter)</b>		<b>1.7. Bibliography or References (at the end of the thesis)</b>	
<b>1.8 Appendices</b>			
<b>a.</b>	Questionnaire	<b>d.</b>	Coding Frame (optional)
<b>b.</b>	Interview Schedule	<b>e.</b>	Letters sent to sample members (optional)
<b>c.</b>	Observation Schedule (optional)	<b>f.</b>	Any Other
<b>Length of the Project</b>			
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.*

**FIRST SEMESTER**

Course Code	Title of the Course	Type of the Course	Hours per week	Credits
EC010101	Microeconomics-I	Core	<b>05</b>	<b>04</b>
EC010102	Macroeconomics-I	Core	<b>05</b>	<b>04</b>
EC010103	Development Economics	Core	<b>05</b>	<b>04</b>
EC010104	Indian Economy-I	Core	<b>05</b>	<b>04</b>
EC010105	Mathematical Methods for Economic Analysis	Core	<b>05</b>	<b>04</b>

Semester	Course code	Course Title	Type of course	Credit	Teaching Hours
<b>I</b>	<b>EC010101</b>	<b>Microeconomics –I</b>	<b>Core</b>	<b>4</b>	<b>90</b>
<b>Course Objectives</b>					
<p><i>The purpose of this course is to provide students with a solid understanding of modern microeconomic theory. The course presents a rigorous treatment of the principles governing individual behaviour, market structure, and game theory. The cardinal end of the course is to equip the students themselves in a comprehensive manner with the multiple facets of the Modern Microeconomic theory and the applications of theories in analyzing current economic problems and to develop the ability to synthesize knowledge. 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. 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.</i></p>					

**Unit- 1 Theory of Consumer Behaviour (25 Hours)**

- 1.1.The Slutsky Equation- Compensated and Uncompensated Demand Function- Indirect Utility Function- Ray’s Identity- Duality in Consumer Theory;
- 1.2.The Pragmatic Approach to Demand Theory — Constant Elasticity Demand Function
- 1.3.Dynamic Versions of Demand Function; Nerlove, Houthakker and Taylor-Linear expenditure system.
- 1.4.Consumer Choices Involving Risk and Uncertainty, Time and Characteristics -Bernoulli Hypothesis, Neumann and Morgenstern Index, Friedman and Savage hypothesis, Markowitz hypothesis.
- 1.5. Inter-temporal Substitution effect- Choices Involving Time- Time Allocation model- Attributes model of Kevin Lancaster
- 1.6.Network Externalities — Bandwagon, Snob and Veblen Effects

**Unit- 2: Theory of Production and Cost Production Function (20 Hours)**

- 2.1. Homogenous and Non-Homogenous Production Functions –A brief account of Production function of a single product firm- Production function of a multi-product firm (with illustration)

2.2. Empirical production functions - Cobb-Douglas Production Function - Constant Elasticity Substitution Production Function—Variable Elasticity of Substitution (VES) Production Function-- Homothetic Production Function

2.3. A summary of Short- run and Long-run cost in Traditional and Modern Microeconomic Theory (without illustration)

2.4. The L shape Scale curve- Engineering production function and Engineering cost curves (with illustration). Learning Curve- Returns to Scope

**Unit- 3: Oligopoly and Economic Behaviour of Firm (30 Hours)**

3.1. Oligopoly–Price and Output Determination; Collusive and Non-collusive oligopoly

3.2. A brief account of collusive Oligopoly (Cartels and Price Leadership)

3.3. Oligopoly with Homogeneous Product-Cournot, Bertrand & Stackelberg Model

3.4. Oligopoly with Non-homogeneous Product-Chamberlin’s model, Sweezy’s Kinked Demand Curve. The Contestable Market Theory- Baumol

3.5. Theory of Games-Strategies - Zero-Sum Game & Non-Zero-Sum Game -Prisoner’s Dilemma - Nash Equilibrium- Game Theory Applications - Important Issues in Game Theory - Cooperation, Competition.

**Unit- 4: Theories on Distribution (15 Hours)**

4.1. Marginal Productivity Theory and Product Exhaustion Problem: Euler's-Clark-Wicksteed-Walras

4.2. Macro theories of distribution -Ricardo-Marx- Kalecki – Kaldor.

**Reference:**

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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

Semester	Course code	Course Title	Type of course	Credit	Teaching Hours
<b>I</b>	<b>EC010102</b>	<b>Macroeconomics -I</b>	<b>Core</b>	<b>4</b>	<b>90</b>
<b>Course Objectives</b>					
<p><i>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. 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.</i></p>					

### **Unit- 1: Classical versus Keynesian Approach (40 Hours)**

- 1.1. Classical: Labour Market-Employment and Output-Say's Law- Interest Rate-Quantity Theory of Money: Neutrality of Money and Classical Dichotomy. (Self-Study)
- 1.2. Keynesian Fixed Price Models: Keynesian Cross Model (Three Sector Model) and IS-LM Model: Liquidity Trap- Fiscal and Monetary Policies- Crowding Out Effect.
- 1.3. Keynesian Flexible Price Model: AD-AS Framework-Policy Implications-Multiplier: T and G-Multiplier, Balanced Budget Multiplier- Built-in-Stabilizers-Ricardian Equivalence.
- 1.4. Labour Market: Classical versus Keynes -Keynes Effect and Real Balance Effect
- 1.5. 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.
- 1.6. 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.

### **Unit- 2: Monetarism (10 Hours)**

2.1. Main Propositions of Monetarism—Friedman’s Re-statement of Quantity Theory of Money - Monetarist Inflation Theory -Adaptive Expectation Hypothesis

2.2. Monetarism and the Philips Curve: The Friedman-Phelps Expectations-Augmented Phillips Curve -Natural Rate of Unemployment Hypothesis-Accelerationist Hypothesis and NAIRU.

2.3. Policy Implications- Business Cycles and Monetary Policy: -Rule Versus Discretion-Cold Turkey versus Gradualism-Taylor rule-Inflation Targeting.

### **Unit- 3: Demand for Money and Supply of Money**

**(20 Hours)**

3.1. Theoretical Approaches to the Demand for Money: The Classics, Keynes, and Friedman.

3.2 Transactions Theories of Money Demand: The Baumol Model-The Shopping-Time Model -Cash-in-Advance Models.

3.3. Tobin’s Portfolio Theories of Money Demand- Buffer Stock Demand for Money: Akerlof and Milbourne (A-M) Model, Miller and Orr(M-O) Model.

3.4. Supply of Money: Financial Intermediation- Mechanistic Model of Bank Deposit Determination- Behavioural Model of Money Determination- Demand Determined View of Money Supply Process.

3.5. Measures of money supply; H- theory of money supply- Money Multiplier and Its Determination- Methods of Monetary Control- RBI Approach -- High Powered Money- Inside and Outside Money--Money Supply Determination in an Open Economy.

### **Unit- 4: Behavioural Foundations of Macroeconomics**

**(20 Hours)**

4.1. Consumption Function: Current Income Theories (Absolute Income Hypothesis of Keynes, Kuznets’s Consumption Puzzle, Drift Hypothesis of Smithies and Relative Income Hypothesis of Duesenberry). (Self-Study)

4.2. Fischer’s Intertemporal Choice Model.

4.3. Normal Income Theories: Permanent income Hypothesis of Friedman and Life Cycle Hypothesis of Modigliani et.al -Robert Hall’s Random Walk Hypothesis. (Self-Study)

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

### Reference:

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2. Blanchard, Olivier and Johnson, David R (2018): *Macroeconomics*, 8<sup>th</sup> 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*, 3<sup>rd</sup> 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*, 3<sup>rd</sup> 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, 7<sup>th</sup> 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, 6<sup>th</sup> Ed, Pearson. (Unit- 1,2)

Semester	Course code	Course Title	Type of course	Credit	Teaching Hours
<b>I</b>	<b>EC010103</b>	<b>Development Economics</b>	<b>Core</b>	<b>4</b>	<b>90</b>
<b>Course Objectives</b>					
<p><i>The objective of this course is to familiarize the students with the current theoretical literature trying to understand economic growth and development across nations. The approach of this course is to provide a comprehensive introduction to the theoretical paradigms of economic development. In a fast-moving global economic order, there is a persistent demand to synchronize the approaches, theories and development issues for a better understanding of the problems of the developing economies. By its very nature, the scope is interdisciplinary in nature, incorporating non-economic dimensions like culture, norms, and values as well as political, historical and social processes. The objective of this course is to familiarize students with the conceptual routes, theoretical dynamics and practical strategies of growth and development. It is expected that this course would orient them towards major themes of development, lead them towards more methodical probes and equip them with adequate analytical knowledge. At the end of this course, students should be able (i) to understand and critically evaluate alternative theories of growth. (ii) show a clear understanding of the recent literature, both empirical and analytical, on theories of underdevelopment and growth in developing countries; (iii) be able to evaluate critically some of the results in the literature, particularly those related to development issues.</i></p>					

**Module-I: Economic Development –Overview (Self-Study) (10 Hours)**

- 1.1. Meaning and measurement of economic development: conventional, human development index (Human Development Index, Gender Related Development Index, Gender Empowerment Measure, Gender Inequality Index, Human Poverty Index).
- 1.2. Quality of life indices: Entitlements approach- Capabilities and Functioning- Development as Freedom- Human Rights-Based Approach- Three Core Values of Development
- 1.3. Development Gap -Inequality in income distribution- Kuznets Inverted U hypothesis- Lorenz Curve and Gini-coefficient - Concept of Sustainable Development.

**Unit- 2: Theories of Underdevelopment (25 Hours)**

- 2.1. Vicious Circle of Poverty—Dualistic Theories. – Social – Financial and Technical Dualism Prebisch- Singer thesis and Myrdal thesis: Backwash and spread effect- Circular and cumulative causation- Rostow's stages of growth. —Vent for Surplus theory of Hla Myint—Stable Theory –the Dutch Diseases.
- 2.2. Rural-urban migration and urban unemployment (Harris-Todaro model).
- 2.3. Political Economy of Underdevelopment (Theory of dependency): Paul Baran, Gundar Frank, Samir Amin and Emmanuel Wallerstein (World systems approach).

**Unit- 3: Theories of Development and Growth**

**(25 Hours)**

- 3.1. Classical Theory of Development–Adam Smith, David Ricardo, Karl Marx and Schumpeter.
- 3.2. Theories of Economic Growth: Harrod-Domar Model.
- 3.3. Neo-Classical Growth Models – Solow and Meade.
- 3.4. Cambridge Growth Models: Mrs. Joan Robinson's and Kaldor's Growth Models.
- 3.5. Endogenous Growth Models: (Ramsey, Romer; Uzawa-Lucas, AK, Arrow's Model, Grossman and Helpman's model, Aghion and Howitt).

**Unit- 4: Approaches to Development**

**(20 Hours)**

- 4.1. Theory of Big Push- Critical Minimum Effort Thesis- Low Income Equilibrium Trap. - Balanced and Unbalanced Growth. (Self-Study)
- 4.2. Development with Unlimited Supply of Labour, Ranis and Fei Model - Michael Kremer's O-Ring Theory of Economic Development-- The Jorgenson model and Dixit-Marglin model.

**Unit- 5: Critical Issues in Development Process**

**(10 Hours)**

- 5.1. Role of Financial Institutions in Economic Development: (Acemoglu and Zilibotti model)
- 5.2. Globalization and Development: Views of Stiglitz.
- 5.3. Development and Human Rights
- 5.4. Culture and Development
- 5.5. Social Capital and Development.
- 5.6. Corruption, Crime, Social Exclusion and Development.
- 5.7. Climate Change and Development.
- 5.8. Energy and Development.

**Reference:**

1. A. P. Thirlwall (2011): Growth and Development with special reference to developing economies, 7<sup>th</sup> Ed, McMillan.
2. Acemoglu, D. (2009): Introduction to Modern Economic Growth. Princeton University Press.
3. Adam Szirmai (2014): The Dynamics of Socio-Economic Development: An Introduction, 2<sup>nd</sup> Ed, Cambridge University Press.

4. Aghion, P. & Howitt, P. (2008), *The Economics of Growth*, MIT Press, Cambridge MA.
5. Alain de Janvry, Elisabeth Sadoulet (2016): *Development Economics: Theory and Practice*, Routledge.
6. Charles I. Jones and Dietrich Vollrath (2013): *Introduction to Economic Growth*, 3<sup>rd</sup> Ed, W. W. Norton & Company.
7. David Alexander Clark (2006): *The Elgar Companion to Development Studies*, Edward Elgar.
8. David N. Weil (2013): *Economic Growth*, 3<sup>rd</sup> Ed, Pearson.
9. Dwight H. Perkins, Steven Radelet, David L. Lindauer and Steven A. Block (2013): *Economics of Development*, 7<sup>th</sup> Ed, W. W. Norton & Company
10. Meier, G.M and J.E. Rauch (2014): *Leading Issues in Economic Development*, Oxford University Press, New Delhi
11. Gerard Roland (2016): *Development Economics*, Routledge.
12. Graham Hacche (1987): *The Theory of Economic Growth: An introduction*, Macmillan.
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15. James M. Cypher, James L. Dietz (2014): *The Process of Economic Development*, 4<sup>th</sup> Ed, Routledge.
16. John Rapley (2007): *Understanding Development: Theory and Practice in the Third World*, 3<sup>rd</sup> Ed, Lynne Rienner Publishers.
17. Martha Nassbaum and Amartya Sen (1993): *The Quality of Life*, the World Institute for Development Economics.
18. Michael P. Todaro, Stephen C. Smith (2017): *Economic Development* 7<sup>th</sup> Ed, Pearson Addison Wesley.
19. Preston, P.W(1996): *Development Theory: An Introduction*, Blackwell Publishers.
20. Richard Peet and Elaine Hartwick (2009): *Theories of Development: Contentions, Arguments, Alternatives*, 2<sup>nd</sup> Ed, The Guil Ford Press.
21. Robert Joseph Barro, Xavier Sala-i-Martin (2009): *Economic Growth*, 2<sup>nd</sup> Ed, MIT Press.
22. Subrata Ghatak (2008): *Introduction to Development Economics*, 4<sup>th</sup> Ed, Routledge.

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24. Vandana Desai and Robert B. Potter (2014): The Companion to Development Studies,3<sup>rd</sup> Ed, Routledge.
25. Wayne Nafziger (2006): Economic Development,4<sup>th</sup> Ed, Cambridge University Press.
26. Yujiro Hayami and Yoshihisa Godo (2005): Development Economics: From the Poverty to the Wealth of Nations,3<sup>rd</sup> Ed, OUP.

Semester	Course code	Course Title	Type of course	Credit	Teaching Hours
<b>I</b>	<b>EC010104</b>	<b>Indian Economy-I</b>	<b>Core-4</b>	<b>4</b>	<b>90</b>
<b>Course Objectives</b>					
<p><i>This course offers an analytical introduction to the main aspects of the Indian economic policy and performance in the post-independence period. It focusses on Indian economic problems in the light of relevant economic theories, and in a comparative perspective. The course is expected to enable the students to appreciate the evolution of the economy, its institutional framework, nuances in using statistical information for analysing public policy, and to get familiar with the issues for research. This course also enables the students to understand the pre-reform and post-reform development experiences of the Indian Economy. A thorough understanding of Indian economic policies is a must for post-graduate students of economics and that is what this course aims to develop among the students.</i></p>					
<b>Unit-1 – Structure and Growth of the Indian Economy</b>					<b>(15 Hours)</b>

- 1.1. India's Economic growth in historical perspective.
- 1.2. National Income – growth and measurement Database on Indian Economy.
- 1.3. Economic Planning – Development strategies - planning and development – debates on planning and import substitution -Rationale – Achievements – failures — crisis of 1991.
- 1.4. Economic Reforms – Structural Adjustment Programmes – Neo-liberalism in India- Disinvestment Policy – PPP-impact of 25 years of reforms on various sectors of the economy- NITI Aayog- and its structure, NITI Aayog Verses Planning Commission.
- 1.5. State-Local financial relations in India.

**Unit-2: Agriculture and Industry** **(15 Hours)**

- 2.1. Productivity in agriculture; Land reforms; New technology in Indian agriculture- Green Revolution- Need for second Green Revolution; Modern farm inputs and marketing;- Commercialization and diversification.
- 2.2. Agricultural Finance and Marketing – globalization and Indian Agriculture — New Agricultural Policy- WTO and- Indian Agriculture- Current Issues in Indian agriculture. Investments and subsidies in Indian agriculture- Agrarian distress and related issues- Govt. Supports and schemes in agriculture sector.
- 2.3. Industrial Growth – Trends patterns and structure – industrial stagnation debates- Industrial Policies in India- Reforms in industrial sector – industry under globalization- Research and development – Technology transfer – Make – in – India initiatives- Small and Medium Scale

Industries (MSMEs)- Role, problems and remedies- Role of FDI in industrialization process- ICT based industrial development strategy- Public Sector Enterprises -Make in India.

**Unit-3: Service Sector and Infra-Structure (15 Hours)**

- 3.1. Growth and performance of service sector in India – Pre and post-Independence period
- 3.2. Health and Education Infrastructure - Efficacy of social sector spending in India along with its implication for inclusive growth.
- 3.3. Energy, Transport, Telecommunication- recent infrastructure policy – Inadequacies and structural bottlenecks in infrastructure development- Trade in services- Global technological change and Indian IT boom. Challenges of India's Service sector.

**Unit-4. Trade and External Sector (15 Hours)**

- 4.1. Evolution of trade policies since independence.
- 4.2. External Sector reforms – Trade reforms – changing structure, composition and direction of India's foreign trade – Balance of Payment; Exchange rate- India and WTO -EXIM policy – SEZ.
- 4.3. FII and FDI in India – role of MNC's.

**Reference:**

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Amir Ullah Khan and Harsh Vivek (2018): State of the Indian Economy: Towards a larger constituency for second generation economic reforms, Sage India.

Anthony P. D’Costa and Achin Chakraborty (2017): *The land Question in India: State, Dispossession and Capitalist Transition*. OUP.

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Ashima Goyal (2015): *A Concise Handbook of the Indian Economy in the 21st Century*, OUP.

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Rajesh Raj S.N. & Kunal Sen (2016): *Out of the Shadows? The Informal Sector in Post-reform India*, OUP.

Rajiv Kumar and Vijay Kelkar (1990): 'Industrial Growth in the Eighties- Emerging Policy Issues', *Economic and Political Weekly*, Vol. 25, Issue No. 4.

Rakesh Mohan (ed) (2017): 'India Transformed- 25 years of Economic Reforms'. Penguin Random House, New Delhi.

Ranjit Sau (1988): 'The Green Revolution and Industrial Growth in India: A Tale of Two Paradoxes and a Half'. *Economic and Political Weekly*, April 16, 1988.

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Rodrik, D. & Subramanian, A. (2005), 'From "Hindu Growth" to Productivity Surge: The Mystery of the Indian Growth Transition', *IMF Staff Papers* 52(2), 193-228.

Rout, H.S. and P. Mishra (2015) *Social Sector in India: Issues and challenges*, Cambridge Scholar Publishing,

Roy Tirthankar (2000): 'The Economic History of India 1857-1947', Oxford University Press, New Delhi.

Roy, M. and S. Sinha Roy (2016). International Trade and International Finance: Explorations of Contemporary Issues. Springer: Singapore.

Ruddar Dutt and Sundaram (2016): Indian Economy, S Chand and Company, New Delhi

Rudra Ashok (1975): 'Indian Plan Models'. Allied Publishes, New Delhi.

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

Sikdar, S (2013). Capital Flows and Foreign Exchange Rate Management. Oxford: New Delhi.

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

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.

Uma Kapila (2018): Indian Economy: Performance and Policies, 2018-19.

Uma Kapila (2019): Indian Economy Since Independence: A comprehensive and critical analysis of India's economy, 1947-2017 (Academic Foundation)

Vaidyanathan, A (2010): Agricultural Growth in India: The Role of Technology, Incentives and Institutions, OUP, New Delhi.

Vijay Joshi (2016): 'India's Long Road: The Search for Prosperity'. Penguin Random House, New Delhi.

Vijay Joshi and I. M. D Little (2018): India's Economic Reforms, 1991-2001, OUP.

Zaad Mahmood (2017): Globalization and Labour Reforms: The Politics of Interest Groups and Partisan Governments, OUP.

Semester	Course code	Course Title	Type of course	Credit	Teaching Hours
<b>I</b>	<b>EC010105</b>	<b>Mathematical Methods for Economic Analysis</b>	<b>Core</b>	<b>4</b>	<b>90</b>

#### Course Objectives

*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. Among the social sciences, economics has been in a privileged position to respond to that invitation, since two of its central concepts, commodity, and price, are quantified in a unique manner. Thus, a good understanding of mathematics is indispensable for better cognizance of almost all fields of economics, both applied and theoretical. 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. 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. Learning outcomes: On completion of this unit, successful students should be able to demonstrate understanding of static optimization and dynamic systems applicable to economics.*

### Unit-1: Linear algebra

(15 Hours)

- 1.1. Definitions of vector and matrix.
- 1.2. Types of matrices, Addition, subtraction and multiplication of matrices.
- 1.3. Determinants, Minors, Cofactors, Adjoint and Inverse of a matrix.
- 1.4. Solution of a system of linear equations - Cramer's rule and Inversion method.
- 1.5. Rank of a matrix - Linear independence of vectors.
- 1.6. *Some applications in Economics - Input -output analysis - Partial equilibrium market model.*

### Unit-2: Differential Calculus

(25 Hours)

- 2.1. Limit of a function - Derivative of a function.
- 2.2. Rules of differentiation - Higher order derivatives - L'Hospital rule of finding the limit of a function
- 2.3. Differentiation of implicit function - Partial and total derivative of a function with several variables

2.4. Maxima and minima of a function.

2.5. Curvature properties - Convexity and concavity - Points of inflection.

2.6. Properties of homogeneous functions - Euler's theorem.

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

2.8. *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: Integral Calculus**

**(25 Hours)**

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

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

3.3. Definite integrals - properties of definite integrals

3.4. Area under a curve, area between curves

3.5. Difference equations and differential equations (basic concepts only).

3.6. Improper integrals - Beta and Gamma integrals.

3.7. *Some applications in Economics - Consumer surplus and producer surplus - continuous interest-discount calculation. Cobweb model, multiplier accelerator. Harrod-Domar and Solow model.*

### **Unit-4: Linear Programming**

**(25 Hours)**

4.1. Formulation of LPP and solution using graphical and Simplex methods.

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

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

4.5. Applications from Economics and Finance.

### **Reference:**

1. Akira Takayama - Mathematical Economics, 2nd Ed, Cambridge University Press.
2. Allen, R. G. D. (2003), Mathematical Analysis for Economists, The Macmillan Press, Delhi.

3. Anthony M. and Biggs N. (1996), Mathematics for Economics and Finance, Cambridge University Press.
4. Carl P. Simon and Lawrence Blume (2014): Mathematics for Economists, Viva Books.
5. Chiang and Wainwright (2018): Fundamental Methods of Mathematical Economics, 4<sup>th</sup> Ed, McGraw-Hill.
6. Edward Dowling (2011): Schaum's Outline of Introduction to Mathematical Economics, 3<sup>rd</sup> Ed, McGraw-Hill.
7. Henderson, James M and Quandt, Richard E (1989)- Microeconomic Theory: A Mathematical Approach. 3<sup>rd</sup> Ed, TMH (Indian Edition).
8. Holden K. and Pearson A.W. (1992): Introductory mathematics for Economics and Business, Second Edition, The Macmillan Press Ltd.
9. Hoy M. et.al. (2001), Mathematics for Economics, 2<sup>nd</sup> Ed, MIT Press.
10. Jacques I. (2006), Mathematics for Economics and Business, 5<sup>th</sup> Edition, Prentice Hall.
11. M. D. Intriligator (1996) - Mathematical Optimization and Economic Theory, Prentice-Hall
12. Malcolm Pemberton and Nicholas Rav (2016): Mathematics for Economists, 4<sup>th</sup> Ed, Manchester University Press
13. Martin Timbrell (1985): Mathematics for Economists: An Introduction, Wiley-Blackwell.
14. Mike Rosser and Piotr Lis (2018): Basic Mathematics for Economists, 2<sup>nd</sup> Ed, Routledge.
15. Ok E. A (2007): Real analysis with Economic Applications, Princeton University Press 2007.
16. Peter N. Hess: Using Mathematics in Economic Analysis, Prentice Hall.
17. Renshaw G. (2009): Maths for Economics, 3<sup>rd</sup> Edition, Oxford.
18. Robert B. and D. L. Schultze (1973): - Modern Mathematics and Economic Analysis, W.W. Norton and company.
19. Sydaester K., Hammond P. and Strom A. (2012), Essential Mathematics for Economic Analysis, 4<sup>th</sup> Ed, Pearson.
20. Ummer E.K (2012), Basic Mathematics for Economics Business and Finance, Routledge.
21. William Novshek (1993): Mathematics for Economists, Academic Press.
22. Yamane, Taro (2010) - Mathematics for Economists: An Elementary Survey, PHI.

**SECOND SEMESTER**

Course Code	Title of the Course	Type of the Course	Hours per week	Credits
EC010201	Microeconomics-II	Core	05	04
EC010202	Macroeconomics-II	Core	05	04
EC010203	Public Economics	Core	05	04
EC010204	Indian Economy-II	Core	05	04
EC010205	Statistical Methods for Economic Analysis	Core	05	04



Semester	Course code	Course Title	Type of course	Credit	Teaching Hours
<b>II</b>	<b>EC010201</b>	<b>Microeconomics –II</b>	<b>Core</b>	<b>4</b>	<b>90</b>
<b>Course Objectives</b>					
<p><i>This is the second part of the core Microeconomics Sequence. 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. The topics will include alternative theories of firms' behavior, information, institutional, behavioral economics, theory of general equilibrium and welfare economics. This course is intended to acquaint the student with decision making in the context of market interdependence, complexity, uncertainty and informational asymmetry; give insights into developments in the areas of general equilibrium and welfare economics; and to enable the student to apply microeconomic principles in the areas of industrial organization, exchange, and welfare.</i></p>					

**Unit- 1: Theories of The Firm (20 Hours)**

- 1.1. Why firms, their size and structure – Ronald Coase-O Williamson-
- 1.2. Team production approach by Armen Alchian and Harold Demsetz
- 1.3. Hierarchical structures- U form and M form

**Unit- 2: Alternative Theories of The Firm's Behaviour (25 Hours)**

- 2.1. Hall and Hitch Report and Full Cost Pricing
- 2.2. Gordon's attack on Marginalism
- 2.3. Theory of Limit Pricing -Bain, Sylos-Labini, F. Modigliani, Bhagwati and Pashigian
- 2.4. Managerial Theories-W J Baumol- O Williamson –Marris
- 2.5. Behavioural theories- March and Cyert-Contestable Market Theory by W.J. Baumol

**Unit- 3: Institution, Information and Behavioural Economics (30 Hours)**

- 1.1. Information Economics-Asymmetric Information - the market for Lemons- the Principal Agent Problem - Moral Hazard, Adverse Selection-Screening and Market Signalling.
- 1.2. Adverse Selection in Labour Market - A Simple Model of Educational Attainment- Adverse Selection in credit market.
- 1.3. Behavioural Economics-Classical and Neo-Classical views of human nature – Cyert and March's behavioural model—framing -anchoring effect – uncertainty

- 1.4. Role of time and emotions in economic decisions - role of constraints and information - satisficing – bounded rationality - altruism and common good.
- 1.5. New Institutional Economics: Transaction costs - Social cost vis-à-vis individual costs- Identification and measurements of transaction costs, Coase Theorem, Bounded Rationality
- 1.6. Concepts of Property and defining Property Rights- Problems of Ill-defined Property rights, Externalities-Market failure and property rights- Issues relating to ill-defined property rights
- 1.7. Contracts - Rent Seeking-Incentives- Applications to Markets- the Firm and the State.

#### **Unit- 4: General Equilibrium and Welfare Economics**

**(15 Hours)**

- 1.1. Partial and General Equilibrium, - 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
- 1.2. Exposition of Welfare theories- A C Pigou, Wilfredo Pareto, Kaldor-Hicks, Bergson-Samuelson, Scitovsky Double Criteria- Welfare Maximization and Perfect Competition- Critique and Extensions
- 1.3. Arrow's impossibility, Sen's Capability Theory, Rawl's theory of justice and equity- Nussbaum's Central Capabilities
- 1.4. Easterlin Paradox. Human Happiness index

#### **Reference:**

1. A. Koutsoyiannis (1985): Modern Microeconomics, 2<sup>nd</sup> 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 (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, 4<sup>th</sup> 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, 2<sup>nd</sup> Ed, Himalaya Publishers, Mumbai.
8. Geoffrey A. Jehle and Philip J. Reny (2014): Advanced Microeconomic Theory 3<sup>rd</sup> Ed, Prentice Hall.
9. Hal R. Varian (2014): Intermediate Microeconomics with Calculus, 1<sup>st</sup> Ed, W. W. Norton & Company.
10. Hal R. Varian (2017): Intermediate Microeconomics: A Modern Approach, 10<sup>th</sup> Ed, WW Norton & Co, NY.
11. Henderson, M. and R.E. Quandt (1989): Microeconomic Theory: Mathematical Approach, 3<sup>rd</sup> Ed, McGraw Hill.
12. Jeffrey M. Perloff (2016): Microeconomics with Calculus, 3<sup>rd</sup> 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, 7<sup>th</sup> Ed, Pearson.
18. Saul Estrin, David Laidler and Michael Dietrich (2016): Microeconomics, 5<sup>th</sup> Ed, Prentice Hall (Chapter 25 Economics of Information)
19. Snyder and Nicholson (2016): Microeconomic Theory: Basic Principles and Extensions, 11<sup>th</sup> Ed, Pearson. (Chapter 18 Information Economics)
20. Steven E. Landsburg (2017): Price Theory and Applications, 8<sup>th</sup> Ed. Cengage Learning.
21. Thomas J Nechyba (2010): Microeconomics: An Intuitive Approach with Calculus.
22. William A. McEachern (2017): Principles of Microeconomics, 4<sup>th</sup> 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
<b>II</b>	<b>EC010202</b>	<b>Macroeconomics -II</b>	<b>Core</b>	<b>4</b>	<b>90</b>
<b>Course Objectives</b>					
<p><i>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. 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.</i></p>					

**Unit- 1: New Classical Macroeconomics (20 Hours)**

- 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- 2: Real Business Cycle and Supply-Side Economics (20 Hours)**

- 2.1.Real Business Cycles Model: Labour Market in RBC Model—Intertemporal 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. 7

**Unit- 3: New Keynesian School and Post-Keynesian Economics (30 Hours)**

- 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.
- 3.6. Post-Keynesian Economics (PKE): Essentials Characteristics of Post Keynesian Economics - Various Strands of PKE- Principles of Effective Demand and Labour Market: Employment and Unemployment—Consumption Theory-Pricing Theory and Distribution of Income---Expectation—Investment Theory Money: Endogenous Supply of Money and Circuit Theory- Minsky’s Financial Instability Hypothesis-Path Dependency and Hysteresis-Role of State- Fiscal and Monetary Policy in PKE

#### **Unit- 4: Macroeconomic Theories of Business Cycles**

**(20 Hours)**

- 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:**

1. Agenor, Pierre-Richard and Montiel, Peter J. (2015): Development Macroeconomics 4<sup>th</sup> Ed, Princeton University Press, Princeton.
2. Bober, Stanley (1968): The Economics of Cycles and Growth, New York: John, Wiley and Sons
3. Carlin, Windy and Soskice, David (1990): Macroeconomics and the Wage Bargain: A modern Approach to Employment, Inflation, and the Exchange Rate, OUP.
4. Chirichiello, Giuseppe (1994): Macroeconomic Models and Controversies, The Macmillan Press Ltd.
5. Dilip M. Nachane (2018): Critique of the New Consensus Macroeconomics and Implications for India, Springer.
6. D’Souza, Errol (2012): Macroeconomics, 2<sup>nd</sup> Ed. Pearson India. (Module-II)
7. De Vroey, Michel (2016): A History of Macroeconomics from Keynes to Lucas and Beyond, CUP.

8. Felderer, Bernhard and Homburg, Stefan (1987): *Macroeconomics and New Macroeconomics*, Springer-Verlag.
9. Galbraith, James, K and Darity, William Jr (1994): *Macroeconomics*, Houghton Mifflin Co, NJ.
10. Gärtner, Manfred (2009): *Macroeconomics*, 3<sup>rd</sup> Ed, Prentice Hall.
11. Ghatak, Anitha (1994): *Macroeconomics: A Mathematical Approach*, Concept Publishing Co, ND.
12. Harcourt, G. C. (2006): *The Structure of Post-Keynesian Economics the Core Contributions of the Pioneers*, CUP. (Module-III-B)
13. Heijdra, Ben J. (2017): *Foundations of Modern Macroeconomics*, 3<sup>rd</sup> Ed, OUP
14. Hillier, Brian (2006): *Macroeconomics: Models, Debates and Development*, Basil Blackwell.
15. Homburg, Stefan (2017): *A Study in Monetary Macroeconomics*, OUP.
16. Jansen, Dennis W and Delorme, Charles and Ekelund, Robert B, Jr (1994): *Intermediate Macroeconomics*, West Publishing Co.
17. Knoop, Todd A. (2015): *Business Cycle Economics: Understanding Recessions and Depressions from Boom to Bust*, Praeger.
18. Lavoie, Marc (2006): *Introduction to Post-Keynesian Economics*, Palgrave. (Module-III-B)
19. Lavoie, Marc (2014): *Post-Keynesian Economics: New Foundations*, Edward Elgar. (Module-III-B)
20. Levaccic, Rosalind and Rebmann, Alexander () : *Macroeconomics: An Introduction to Keynesian- Neo-Classical Controversies*, 2<sup>nd</sup> Ed, MacMillan
21. Paul Davidson (1994): *Post Keynesian Macroeconomic Theory*, Edward Elgar, 1994. (Module-III-B)
22. Peel, David and Minford, Patrick (2016): *Advanced Macroeconomics: A Primer*, Edward Elgar.
23. Pentacost, Eric (2000): *Macroeconomics: An Open Economy Approach*, Macmillan.
24. Peter Galba'cs (2015): *The Theory of New Classical :Macroeconomics: A Positive Critique*, Springer.
25. Peterson, Wallace C and Estenson, Paul S (1992): *Income, Employment and Economic Growth*, 7<sup>th</sup> Ed, W W Norton, NY.
26. Phelps, E. (1990): *Seven Schools of Macroeconomic Thought*, Oxford University Press, Oxford
27. Philip Arestis (1992): *Post-Keynesian Approach to Economics*, Edward Elgar (Module-III-B)
28. Richard P.F. Holt and Steven Pressman (2001) (Ed): *A New Guide to Post Keynesian Economics*, Routledge.
29. Romer, David (1996): *Advanced Macroeconomics* 4<sup>th</sup> Ed, McGraw-Hill.
30. Rouseas, Stephen (1999): *Post Keynesian Monetary Economics* MacMillan. (Module-III-B)
31. Scarth, William (2014): *Macroeconomics: The Development of Modern Methods for Policy Analysis*, Edward Elgar.
32. Snowden, Brian and Vane, Howard R (1997): *A Macroeconomics Reader*, Routledge.

33. Snowdon, Brian and Vane, Howard, R (2005): *Modern Macroeconomics: Its Origins, Development and Current State*, Edward Elgar.
34. Taylor, Lance (2004): *Reconstructing Macroeconomics: Structuralist Proposals and Critiques of the Mainstream*, Harvard University Press.
35. Tsoulfidis, Lefteris (2010): *Competing Schools of Economic Thought*, Springer.
36. Westaway, A J and Jones, T G Weyman (1977): *Macroeconomics theory, evidence and policy*, Longman. (Module-IV 4.1.)
37. Williamson, Stephen D. (2018): *Macroeconomics*, 6<sup>th</sup> Ed, Pearson.

Semester	Course code	Course Title	Type of course	Credit	Teaching Hours
<b>II</b>	<b>EC010203</b>	<b>Public Economics</b>	<b>Core</b>	<b>4</b>	<b>90</b>
<b>Course Objectives</b>					
<p><i>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. The objective of this course is to familiarize students about the rationale for and role of government intervention in economic activities and how the government makes economic decisions. To develop the competence of the students to identify major issues in public finance for a critical evaluation of policies. To enable them to use their skills in finding complete or partial solutions to those identified issues and also enable them to demonstrate it through their presentations and contribute to the debate and policy in terms of a public policy paper appropriate to the discipline. 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.</i></p>					

**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 intervention- Government failure.
- 1.2. Changing Role of State: Issues in Public Finance in a Globalizing World with special emphasis on Global Public Goods.
- 1.3.Macroeconomics of Public Finance: The Interaction between Fiscal and Monetary Policy and Fiscal Stabilization

**Unit- 3: 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- Niskanen Model of Bureaucratic Behavior

3.2. Positive Social Choice Theory: The Leviathan Hypothesis – Theory of Rent Seeking – Property Rights Dimension, Rent Seeking and X- Efficiency

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

### Essential Readings:

1. Anthony B. Atkinson and Joseph E. Stiglitz (2015): Economics of the Public Sector, 2<sup>nd</sup> Rev. Ed, Princeton University Press.
2. C.V. Brown and Peter. M. Jackson (2010): Public Sector Economics, 5<sup>th</sup> Ed, Wiley-Blackwell
3. Harvey Rosen (2012): Public Finance. 8<sup>th</sup> Ed, McGraw Hill Education.
4. Hyman David: Public Finance (2015): A contemporary Application of Theory to Policy, 5<sup>th</sup> Ed, Thomson Learning.
5. John Cullis and Philip Jones (2009): Public Finance and Public Choice: Analytical Perspectives, 3<sup>rd</sup> 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, 5<sup>th</sup> Ed, Worth Publishers.

10. Hindriks, Jean and Gareth D. Myles (2007): Intermediate Public Economics. Prentice Hall of India.
11. Holley H. Ulbrich (2007): Public Finance in Theory and Practice, 2<sup>nd</sup> Rev. Ed, South-Western.
12. Jean-Jacques Laffont (1998): Fundamentals of Public Economics, MIT Press
13. Jha, R (1997): Modern Public Economics, Routledge, London.
14. John Leach (2003): A Course in Public Economics, Cambridge University Press.
15. Kenneth J. Arrow (2012): Social Choice and Individual Values (Cowles Foundation Monographs Series), 3<sup>rd</sup> Ed, Yale University Press
16. Mueller, Dennis C. (1979): Public Choice, Cambridge University Press.
17. Musgrave, R.A. and P.B. Musgrave (2017): Public Finance in Theory and Practice, Fifth Edition, McGraw Hill Education.
18. Stiglitz, Joseph E and Rosengard, Jay K (2015): Economics of the Public Sector, 5<sup>th</sup> Ed, W.W. Norton and Co, Inc.

Semester	Course code	Course Title	Type of course	Credit	Teaching Hours
<b>II</b>	<b>EC010205</b>	<b>Indian Economy-II</b>	<b>Core</b>	<b>4</b>	<b>90</b>
<b>Course Objectives</b>					
<p><i>The course aims to provide a detailed exposure to the various aspects of Indian economic development. The course starts with a discussion of the Indian labour market and then consider the issues of poverty and inequality and performance in financial sector of the economy. The purpose of this course is to enable students to have an understanding the overall features of various key sectors and their issues and developments, obstacles involved in the growth of Indian Economy with a policy perspective. The objectives of this course are: to equip the students with the basic idea for further learning, and to help them to analyze the sectoral development that has taken place in India. This course will enable you to: know the various concepts used in the measurement of employment and unemployment by NSSO; explain the various dimensions of employment and unemployment in India; examine the growth of employment in post-reform period; you will be able to state different income and non-income indicators of poverty; identify the income and non-income dimensions of poverty in India; identify the income and non-income measures of inequality; analyses the level of inequality in India; state the concept of inclusive growth; examine the status of India in terms of inclusive growth; and explain the policy implications on poverty, inequality and inclusive growth. While going through this course, you will be able to: know the principles governing fiscal federalism; state the provisions enshrined in Indian Constitution relating to division of financial powers between Union and States; appreciate the role of Finance Commission which constitutes a pillar of India's federal structure; critically examine the various recommendations of Finance Commission; and consider the dimension and nature of issues involved in contemporary situation prevailing in the country.</i></p>					

### **Unit-1: Labour and Employment**

**(20 Hours)**

- 1.1. Demographic changes in India – Census – Population policies – Demographic Dividend
- 1.2. Labour Market – Demand and Supply in labour market – Problems – Child Labour – Labour Market Reforms – Rural Urban Migration – Global Migration and Foreign remittance- Labour Policy and Social Security
- 1.3. Problems of Unemployment in India – NSSO Estimates – Employment trends in organized and unorganized sector – Employment Generation Programmes in India – MGNREGS

### **Unit-2: Poverty and Inequality**

**(20 Hours)**

- 2.1. Poverty in India – definition, head count ratio, poverty gap and squared poverty gap index; Extent and distribution of poverty in India; Estimates of Poverty: Tendulkar and Rangarajan committee.

2.2. Food Security and Nutrition – Rural development – issues and strategies and micro level planning - SHGs and microfinance

2.3. Inequality – Regional Imbalances in India – Inclusive growth – concepts and policy initiative

**Unit-3: Fiscal Policies and Reforms in India (25 Hours)**

3.1. Fiscal reforms in India post 1991- Tax reforms and reforms in public expenditure management- Goods and Services Tax - Public Debt and Sustainability issues- Implementation of FRBM Act - Fiscal and Monetary Policy dynamics in India- Centre State Fiscal relationship- cooperative and competitive federalism in India- Role of Finance Commission- Local Bodies in India.

3.2 . National Institution for Transforming India (NITI) Aayog, Make in India

3.3. Black money and parallel economy in India, Consequences and Remedies.

3.4. Demonetization and its macro-economic impact

3.5. Global Economic crisis and its impacts

**Unit-4: Financial Sector in India (25 Hours)**

4.1. Financial system – Structure – Social Banking under nationalization – Financial Repression in the Pre-1991 period

4.2. Financial Sector Reforms

4.3. Rural indebtedness – informal credit market – trends

4.4. Financial inclusion - Strategies and progress

4.5. Second Generation Financial Reforms.

**Reference:**

Agarwal A N (2017), Indian Economy: Problems of Development and Planning, Vikas Publishing House, New Delhi.

Ahulwaia, J.J. and I.M.D. Little (Eds.) (1999) India's Economic Reforms and Development (Essays in hon/ of Manmohan Singh) Oxford University Press, New Delhi.

Ashima Goyal (2015): *A Concise Handbook of the Indian Economy in the 21st Century*, OUP.

B A Prakash (ed) (2012) *The Indian Economy Since 1991: Economic Reforms and Performance*, Pearson, New Delhi

Banik Nilanjan (2015), *The Indian economy-A Macro-Economic Perspective*, Sage India

Bardhan R.K. (9th Edition) *The Political Economy of Development in India*, Oxford University Press, New Delhi.

Bhagwati Jagdish and Arvind Panagariya (2012): 'India's Tryst with Destiny'. Collins Business, Noida, India.

Bhalotra Sonia (1998): 'The Puzzle of Jobless Growth in Indian Manufacturing'. *Oxford Bulletin of Economics and Statistics*, Vol. 60 No 1.

Byres T.J (1998): 'The Indian Economy: Major Debates since Independence'. Oxford University Press, New Delhi.

Chakraborty Pinaki (2015): Finance Commission's Recommendations and Restructured Fiscal Space, *Economic and Political Weekly*, Vol . 50, No. 12, March 2015.

Chakraborty Pinaki (2016): 'Emerging Issues in Union-State Relations' *Economic and Political Weekly*, Vol 52, No. 9, March 2017.

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

Chetan Ghate (2016): *The Oxford Handbook of the Indian Economy*, OUP.

Deaton, A. and V. Kozel (ed) (2005): 'The Great Indian Poverty Debate'. New Delhi: Macmillan.

Dipak Mazumdar, Sandip Sarkar (2008): *Globalization, Labour Markets and Inequality in India*, International Development Research Centre

Eswaran Mukesh and Ahsok Kotwal (1994): 'Why Poverty Persists in India'. Oxford University Press, New Delhi.

Gopalji and Suman Bhakri (2013), *Indian Economy, Performance and Policies*, Pearson, New Delhi.

Government of India, *Census of India (2011)*; Paper I, Paper II and Paper III.

Government of India, *Economic Survey (Annual Issues)*, Ministry of Finance, New Delhi.

Himanshu (2011). "Employment Trends in India: A Re-examination." *Economic and Political Weekly*, Vol.46, No. 37, pp 497-508.

Himanshu. (2007). "Recent Trends in Poverty and Inequality: Some Preliminary Results." *Economic and Political Weekly*, Vol.42, No. 6, pp 497-508.

India 2019, Publication Division, New Delhi.

Jayaraj D, Subramanian S (2010): *Poverty, Inequality and Population*- Oxford University Press, New Delhi.

Jean Dereze and Amartya Sen (1996): *'An Uncertain Glory: India and its Contradictions'*. Penguin Books Ltd. London.

Jyotsna Jalan, Sugata Marjit (2016): *India Public Finance and Policy Report 2016: Fiscal Issues and Macro Economy*, OUP.

Kannan, K P and G Raveendran (2009), "Growth sans Employment: A Quarter Century of Jobless Growth in India's Organised Manufacturing", *Economic and Political Weekly*, Vol. 44, No. 10, pp. 80-91.

Kannan, K P and G Raveendran (2012), "Counting and Profiling the Missing Labour Force", *Economic and Political Weekly*, Vol. 47, No. 06, pp. 77-80.

Kaushik Basu and Annemie Maertens (Editors) 2010, *The Concise Oxford Companion to Economics in India*, OUP India

Kohil Atul (2012): *Poverty Amid Plenty in the New India*. Cambridge University Press, New Delhi.

Mahendra Dev S. (2016): *Economic Reforms, Poverty and Inequality*. IGIDR Working paper, 2016-09.

Mahendra Dev S. (ed) (2007): *'Inclusive Growth in India'*. Oxford University Press, New Delhi.

Mahesh C. Purohit & Vishnu Kanta Purohit (2014): *The Oxford Handbook of Tax System in India: An Analysis of Tax Policy and Governance*.

Martin Ravallion (2016): *The Economics of Poverty: History, Measurement, and Policy*, OUP.

Mehrotra, S., Parida, J., Sinha, S., and Gandhi A., (2014), "Explaining Employment Trends in the Indian Economy: 1993-94 to 2011-12", *Economic & Political Weekly*, Vol. 49, No. 32, pp. 49-57.

Mehrotra, Santosh and Jajati Parida (2017), "Why is the Labour Force Participation of Women Declining in India?", *World Development*, Vol. 98, pp. 360–380.

Nayak, Pulin, *Economic Development of India (Critical Concepts in Economics)*, London & New York, Routledge, 2015

Nicholas C. Hope, Anjini Kochhar, Roger Noll and T. N. Srinivasan (2013): *Economic Reform in India: Challenges, Prospects, and Lessons*, Cambridge University Press.

Nilanjan Banik (2015): *The Indian Economy: A Macroeconomic Perspective*. Sage India.

P.S. Krishnan (2018): *Social Exclusion and Justice in India*, Routledge.

Radhakrishna R.(2015): *Well-being, Inequality, Poverty and Pathways Out of Poverty in India*. *Economic and Political Weekly*, October 10.

Raghendra Jha (2018): Facets of India's Economy and Her Society Volume II: Current State and Future Prospects, Palgrave.

Ratan Khasnabis • Indrani Chakraborty (2014): Market, Regulations and Finance: Global Meltdown and the Indian Economy, Springer.

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

Ruddar Dutt and Sundaram (2018): Indian Economy, S Chand and Company, New Delhi

Shankar Acharya (2005): 'Thirty years of Tax Reforms in India' Economic and Political Weekly May 14, 2005.

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

Thomas Piketty and Nancy Qian (2009): 'Income Inequality and Progressive Income Taxation in China and India, 1986–2015'. American Economic Journal: Applied Economics, Vol. 1, No. 2, pp. 53-63.

Uma Kapila (2018): Indian Economy: Performance and Policies, 2018-19.

Uma Kapila (2019): Indian Economy Since Independence: A comprehensive and critical analysis of India's economy, 1947-2017 (Academic Foundation)

Vinod B. Annigeri • R. S. Deshpande Ravindra Dholakia (2018): Issues in Indian Public Policies, Springer

Y.V. Reddy and G.R. Reddy (2019): Indian Fiscal Federalism, OUP (India)

Y.V. Reddy, Partha Ray & Narayan Valluri (2014): Financial and Fiscal Policies Crises and New Realities.



Semester	Course code	Course Title	Type of course	Credit	Teaching Hours
<b>II</b>	<b>EC010205</b>	<b>Statistical Methods for Economic Analysis</b>	<b>Core</b>	<b>4</b>	<b>90</b>
<b>Course Objectives</b>					
<p><i>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. The objective of 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.</i></p>					

**Unit- 1: Probability Theory and Probability distributions (20 Hours)**

- 1.1. Random variables - Discrete and Continuous.
- 1.2. Density function, Distribution function - Definition and properties.
- 1.3. 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, mgf of 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 (20 Hours)**

- 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 (20 Hours)**

- 3.1. Estimation - Point and interval Estimation - Properties of Good estimators – Cramer-Rao inequality.
- 3.2. Methods of Estimation - Maximum Likelihood estimators and estimation using method of moments.
- 3.3. Calculation of MLE of parameters of Binomial, Poisson and Normal distributions.
- 3.4. Interval estimation - Confidence interval - population mean of normal distribution when population variance is known and unknown.

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

- 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 (10 Hours)**

- 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, 8<sup>th</sup> 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, 7<sup>th</sup> Ed, McGraw Hill International Edition.
4. Mendenhall William, Beaver J. Robert and Beaver M. Barbara (2014) - Introduction to Probability and Statistics – 12<sup>th</sup> Ed, Thomson Books/Cole publishers.
5. Earl Babbie (2008): The Basics of Social Research, 4<sup>th</sup> Ed, Thomson.
6. Gerald Keller (2012): Statistics for Management and Economics, 9<sup>th</sup> Ed, South-Western.
7. James P. Stevens (2007): Intermediate Statistics: A Modern Approach, 3<sup>rd</sup> Ed, Lawrence Erlbaum Associates.
8. Joseph F. Healey (2012): Statistics: A Tool for Social Research, 8<sup>th</sup> Ed, Wardworth.
9. Roxy Peck and Jay Devore (2014): Statistics: The Exploration and Analysis of Data, 8<sup>th</sup> Ed, Cengage.
10. Sheldon M Ross (2016): Introductory Statistics, 5<sup>th</sup> Ed, Associate Press.
11. Ronald M. Weiers (2010): Introduction to Business Statistics, 7<sup>th</sup> Ed, South-Western.
12. Anderson, Sweeney and Williams (2016): Statistics for Business and Economics 12<sup>th</sup> 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, 2<sup>nd</sup> 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

**THIRD SEMESTER**

Course Code	Title of the Course	Type of the Course	Hours per week	Credits
EC010301	International Economics	Core	<b>05</b>	<b>04</b>
EC010302	Econometrics-I	Core	<b>05</b>	<b>04</b>
EC010303	Heterodox Economics	Core	<b>05</b>	<b>03</b>
EC010304	Environment Economics	Core	<b>05</b>	<b>04</b>
EC010305	Kerala Economy	Core	<b>05</b>	<b>03</b>

Semester	Course code	Course Title	Type of course	Credit	Teaching Hours
<b>III</b>	<b>EC010301</b>	<b>International Trade</b>	<b>Core</b>	<b>4</b>	<b>90</b>
<b>Course Objectives</b>					
<p><i>This course surveys and studies the various theories of international trade and applies them to the analysis of current trade problems. The topics covered include theories explaining trade patterns, the effect of trade on national welfare, the welfare of groups within a country, trade policy, international economic integration and so on. 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. The theoretical knowledge of international trade and policy 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.</i></p>					

**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.

#### **Essential Readings:**

1. Appleyard D. R and Field A J (2014) -International Economics 8<sup>th</sup> Ed McGraw Hill, New Delhi
2. Chacholiades, M. (1990), International Trade: Theory and Policy, McGraw Hill, Kogakusha, Japan
3. Krugman P R and Obsfeild M (2009) - International Economics- Theory and Policy, 8<sup>th</sup> Ed, Pearson, Dorling Kindersley (India) Pvt. Ltd, New Delhi
4. Salvatore, D (2008) - International Economics, 8<sup>th</sup> Ed, Wiley India, New Delhi
5. Soderston, B and Reed G. (1994) - International Economics, 3rd Edition, McMillan Press Ltd. London

### Supplementary Readings:

6. A.J. Smit (2010): The competitive advantage of nations: Is Porter's Diamond Framework a new theory that explains the international competitiveness of countries? Southern African Business Review, Volume 14 Number 1
7. Bhagwati, J. N. (1987), International trade: Selected readings, Second Edition, MIT Press, Cambridge, Massachusetts
8. Bhagwati and Srinivasan (1983), Lectures on international trade, The MIT Press.
9. Carbaugh, R J (2008) - International Economics, (11th Edition) Thomson South Western, New Delhi
10. Feenstra Robert C (2004), Advanced International Trade- Theory and Evidence, Princeton University Press, Princeton
11. Grimwade Nigel (2001), International Trade, (Second Edition), Routledge, London
12. Grubel H G and Lloyd P J (1975), Intra-industry Trade, Macmillan, London.
13. Haberler G (1961), A Survey of International Trade Theory, International Finance Section, Department of Economics, Princeton University.
14. Handbook of International Business, Oxford University Press
15. Kindleberger, C P -International Economics, R.D. Irwin, Homewood
16. Michele Fratianni: (2007) The Gravity Equation in International Trade, Indiana University, Kelley School of Business, CIBER, Bloomington, Indiana 47405, USA.
17. Prebisch, Raul (1959). "Commercial Policy in the Underdeveloped Countries, AER 49, no.2. pp. 251- 73.
18. Reinert K A (2012), An Introduction to International Economics, Cambridge university Press, New York
19. Richard Baldwin and Charles Wyplosz (2004), The Economics of European Integration, McGraw Hill, New York
20. Richard E Caver and Harry G Johnson, Readings in International economics

Semester	Course code	Course Title	Type of course	Credit	Teaching Hours
<b>III</b>	<b>EC010302</b>	<b>Econometrics—1</b>	<b>Core</b>	<b>4</b>	<b>90</b>

**Course Objectives**

*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, asymptotic normality, and semiparametric efficiency of various 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. 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**

**(20 Hours)**

- 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**

**(15 Hours)**

- 2.1. Multiple Regression-Matrix Approach—General k variable Model—Variance Covariance Matrix—OLS Estimators and Gauss-Markov Theorem (Matrix Notation)
- 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 Assumptions of Classical Model and Extensions (20 Hours)**

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—Underfitting and Overfitting—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 h Statistic—Causality- The Granger Causality Test and Sims Test

### Essential Readings:

1. Gujarati, Damodar & Dawn C Porter (2017): Basic Econometrics, 5<sup>th</sup> Ed, McGraw Hill.
2. Stock James and Watson, Mark (2017): Introduction to Econometrics, 3<sup>rd</sup> Ed, Pearson Education (Indian Edition).
3. J Johnston (1997): Econometric Methods, 4<sup>th</sup> Ed, McGraw-Hill Higher Education.

### Complementary Readings:

1. Badi H. Baltagi (2011): Econometrics, 3<sup>rd</sup> Ed, Springer.
2. Chandan Mukherjee, Howard White and Marc Wuyts (1998): Econometrics and Data Analysis for Developing Countries, Routledge New York.
3. Christopher Dougherty (2016): Introduction to Econometrics, Oxford University Press, Indian Edition.
4. G.S. Maddala and Kajal Lahiri (2012): Introduction to Econometrics, 4<sup>th</sup> Ed, John Wiley & Sons (Indian Edition).
5. Kmenta, Jan (1976), Elements of Econometrics, 2<sup>nd</sup> Ed, McMillan, New York.
6. Michael Bailey, Real Econometrics: The Right Tools to Answer Important Questions, Oxford University Press, 2016
7. Peter Kennedy (2008): A Guide to Econometrics, 6<sup>th</sup> Ed, Wiley-Blackwell.
8. Ramu Ramanathan (2002): Introductory Econometrics with Applications, 3<sup>rd</sup> Ed, Thomson Learning Inc, Singapore.
9. Robert S. Pindyck and Daniel L. Rubinfeld, Econometric Models and Economic Forecasts, 4<sup>th</sup> Ed, McGraw-Hill Publishing Co.
10. Russell Davidson & James G. MacKinnon (2009): Econometric Theory and Methods, Oxford University Press.
11. Sankar Kumar Bhaumik (2015): Principles of Econometrics: A Modern Approach Using EViews, Oxford University Press (India)
12. Studenmund A. H (2017): Using Econometrics: A Practical Guide, 7<sup>th</sup> Ed, Pearson (India).
13. William H. Greene (2018): Econometric Analysis, 8<sup>th</sup> Pearson Education (India).
14. Wooldridge, Jeffrey M (2018): Introductory Econometrics: A Modern Approach, Thomson, 7<sup>th</sup> Ed, South Western, USA.

Semester	Course code	Course Title	Type of course	Credit	Teaching Hours
III	EC010304	Heterodox Economics	Core-15	4	90
<b>Course Objectives</b>					
<p><i>Over the past two decades, the intellectual agenda of heterodox economists has taken a decidedly pluralist turn. Leading thinkers have begun to move beyond the established paradigms of Austrian, feminist, Institutional-evolutionary, Marxian, Post-Keynesian, radical, social, and Sraffian economics – opening up new lines of analysis, criticism, and dialogue among dissenting schools of thought. This cross-fertilization of ideas is creating a new generation of scholarship in which novel combinations of heterodox ideas are being brought to bear on important contemporary and historical problems. A better understanding of heterodox principles will lead to a more informed understanding of mainstream economics. Heterodox economics is defined as a collection of separate schools of thought or traditions such as Marxism, institutionalism, post-Keynesianism, evolutionary economics, feminist and green economics, and more. The aim of this course is to revisit a set of economic concepts that are being extensively used in the economics curriculum--but with a critical stance that concentrates on philosophical and methodological considerations. This course will survey contemporary heterodox approaches to economic research, both from a microeconomic and a macroeconomic perspective.</i></p>					

**Unit- 1: Introduction to Heterodox Approaches (10 Hours)**

- 1.1.Heterodox Economics and Orthodox Economics—Paradigm Blindness
- 1.2.Nature, Characteristic and Features of Heterodox Economics
- 1.3.Epistemology/Ontology, Rationality, Method, Economic Core and Political Core

**Unit- 2: Heterodox View of the Economy (20 Hours)**

- 2.1. Classical political economy
- 2.2. Neoclassical economics and heterodox economics
- 2.3. Social provisioning process—Classical social surplus approach—Neoclassical social surplus approach
- 2.4. Cambridge controversies in the theory of capital, Inequality, welfare, and economic performance—Kalecki–Keynes–Sraffa synthesis
- 2.5. Accumulation regimes—Accumulation before the notion of accumulation regime and the contemporary theoretical approaches—Evolution and diversity of accumulation regimes

**Unit- 3: Value, Production and Distribution (20 Hours)**

- 3.1. Monetary theories of production

- 3.2. Capitalism as a monetary circuit other monetary theory of production
- 3.3. Recent theoretical developments—James Tobin’s stock-flow consistent approach to Macroeconomics (SFCA)—Financialization and other open issues
- 3.4. The principle of effective demand—Marx, Kalecki, and Keynes
- 3.5. Long run principle of effective demand
- 3.6. Heterodox theories of value—Adam Smith, Ricardo, Marx and Sraffa

**Unit- 4: Micro–Macro link in Heterodox Economics (15 Hours)**

- 4.1. Theories of prices and alternative economic paradigms
- 4.2. Pre-analytical visions of the economy and the role of prices—Open issues in the objective approach—Recent Developments
- 4.3. Heterodox theories of distribution—Classical, Marxian and Sraffian, Cambridge theory and the Neo-Kaleckian theory
- 4.4. The functional-size distribution nexus
- 4.5. Micro–Macro link in heterodox economics—Aggregates and aggregation—Problem of compositional Fallacy—Systemism as a general framework

**Unit- 4: Institutions, Money, Trade and Economic Growth (25 Hours)**

- 5.1. Society and its institutions—Government and the state—Money and the household
- 5.2. Business competition and market governance—Austrian, Marxist View and Post Keynesian View
- 5.3 Money and monetary regimes myth of barter
- 5.4. Modern money Monetary sovereignty—Counterfeiting—Hierarchy of money—Modern monetary regimes
- 5.5. Financialization and the crises of capitalism—Development of financialization—Financialization as a new stage of capitalism
- 5.6. Heterodox reconstruction of trade theory
- 5.7. Post Keynesian-institutionalist theory of trade—Business cycles: Marxian and Keynesian approaches
- 5.8. Economic growth from Harrod-Domar to Kaleckian models—Growth in the South—Marxian approaches—Growth Critique

### Select Readings:

1. David Colander, Richard P.F. Holt and J. Barkley Rosser Jr., “Live and Dead Issues in the Methodology of Economics”, *Journal of Post Keynesian Economics*, Vol. 30, No. 2 (Winter, 2007-2008), pp. 303-312.
2. David Dequech, “Neoclassical, Mainstream, Orthodox, and Heterodox Economics”, *Journal of Post Keynesian Economics* 30(2):279-302.
3. Frederic Lee, “A History of Heterodox Economics Challenging the Mainstream in the Twentieth Century”, Routledge, New York.
4. Frederic S. Lee (2018): *Microeconomic Theory: A Heterodox Approach*, Routledge.
5. G. Meijer, W.J.M. Heijman, J.A.C. van Ophem and B.H.J. Verstegen (2006) (Ed): *Heterodox views on economics and the economy of the global society*, Wageningen Academic Publishers.
6. Hendrik Van den Berg (2015) : *International Economics: A Heterodox Approach*, Routledge.
7. John T. Harvey, Robert F. Garnett, “Future Directions for Heterodox Economics”, University of Michigan Press.
8. Jonathan P. Goldstein and Michael G. Hillard (2009): *Heterodox Macroeconomics: Keynes, Marx and globalization*, Routledge.
9. Marc Lavoie, “Post-Keynesian Economics: New Foundations”, Edward Elgar.
10. Marc Lavoie, “Introduction to Post-Keynesian Economics”, Palgrave Macmillan.
11. Sheila Dow, "Heterodox Economics: A Common Challenge to Mainstream Economics?", in Eckhard Hein, Achim Truger, "Money, Distribution and Economic Policy: Alternatives to Orthodox Macroeconomics", Edward Elgar Publishing.
12. Tae-Hee Jo, Lynne Chester, and Carlo D’Ippoliti, “The Routledge Handbook of Heterodox Economics: Theorizing, Analysing, and Transforming Capitalism”, Routledge, New York.
13. Tae-Hee Jo and Frederic S. Lee, “Marx, Veblen, and the Foundations of Heterodox Economics”, Routledge, New York.
14. Tony Lawson, “The Nature of Heterodox Economics”, *Cambridge Journal of Economics*, Vol. 30, No. 4 (July 2006), pp. 483-505.

Semester	Course code	Course Title	Type of course	Credit	Teaching Hours
III	EC010304	<b>Environmental Economics</b>	<b>Core</b>	<b>4</b>	<b>90</b>
<b>Course Objectives</b>					
<p><i>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. Thus, 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.</i></p>					

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

- 1.1.Environment and Economy- Environmental Economics, Ecological Economics and Resource Economics- Interlinkages 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)**

4.1. Integrated environmental and economic accounting and the measurement-Environmentally  
corrected GDP

4.2. 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.

4.3. Environmental regulations and assessment in Indian context.

#### **Essential Reading:**

1. Kolstad, Charles D (2014): Environmental Economics, 2<sup>nd</sup> Ed, Oxford University Press, Indian Edition.
2. Nick Hanley, Jason F. Shogren and Ben White (2010): Environmental Economics in Theory and Practice, 2<sup>nd</sup> Ed, Palgrave MacMillan.
3. Ahmed M. Hussen (2014): Principles of Environmental Economics. 4<sup>th</sup> Ed, Routledge.
4. Horst Siebert (2010): Economics of the Environment: Theory and Policy, 7<sup>th</sup> Ed, Springer.

#### **Supplementary Reading:**

5. Anthony C. Fisher (1981): Resource and Environmental Economics, Cambridge University Press



6. Barry C. Field and Martha K. Field (2016): Environmental Economics: An Introduction, 7<sup>th</sup> Ed, McGraw Hill.
7. Baumol, William J and Wallace E Oates: The theory of environmental policy, Cambridge University press, 1988.
8. Charles S. P. (2000): Economics and Global Environment, Cambridge University Press
9. David A. Anderson (2010): Environmental Economics and Natural Resource Management, Routledge, London
10. Hans Wiesmeth (2012): Environmental Economics: Theory and Policy in Equilibrium, Springer.
11. Henk. F, H. L. Gabel, Shelby G. and Adam Rose, (2001) "Frontiers of Environmental Economics" Edward Elgar, Cheltenham UK
12. James Crustave Speth and Peter Maas (2009). Global Environmental Governance – Foundation of Contemporary Environmental Studies-Island press.
13. Jonathan M. Harris and Brian Roach (2018): Environmental and Natural Resource Economics: A Contemporary Approach, 4<sup>th</sup> Ed, Routledge.
14. Katar Singh, Anil Shishodia (2007): Environmental Economics; Theory and Applications, Sage publications, New Delhi.
15. Kavi Kumar, in Kanchan Chopra and Vikram Dayal (2009), (Ed). Hand book of Environmental Economics; Oxford University Press.
16. Kimio Uno and Peter Bartelmus (1998): Environmental Accounting in Theory and Practice, Springer
17. Krutilla John V. (1967). "Conservation Reconsidered", American Economic Review, Vol. 57, 1067.
18. Lee G. Anderson and Juan Carlos Seijo (2010): Bioeconomic of Fisheries Management, Wiley-Blackwell, Iowa
19. Lester R. Brown (2001): Eco Economy: Building an Economy for the Earth, W.W Norton and Company, London
20. Lester R. Brown (2015): The Great Transition: Shifting from Fossil Fuels to Solar and Wind Energy, W.W Norton and Company, London
21. Mohan Munasinghe and James Gustave Speth, Sustainable Development in Practice Cambridge University Press.
22. Nicholas Stern(2007): The Economics of Climate Change: Stern review, Cambridge University Press.
23. Oates W.E. (1994) (ed.), The Economics of the Environment, An Elgar Critical Writings Reader, Edward Elgar.
24. Olson, Jr., Mancur (1971), The Logic of Collective action: Public Goods and the theory of Groups, Cambridge, Harvard University Press.
25. Ostrom, E. (1990), Governing the Commons: The Evaluation of Institutions for Collective Actions, Cambridge University Press, Cambridge.
26. Pearce, D.W. and R. Turner (1991): Economics of Natural Resource Use and Environment, John Hopkins University Press, Baltimore.
27. Pearce D.W. and Jeremy J. Warford (1996), World without End: Economics, Environment and Sustainable Development, OUP.

28. Peter G. Brown and Geoffry Garner (2009), Right Relationship, Building a whole Earth Economy, Berrett-Koehler publishers, Sanfransisco.
29. Rabindra N Bhattacharya (2002), Environmental Economics-an Indian perspective, OUP, New Delhi.
30. Roger Perman, Yue Ma, James McGilvray and Michael Common: Natural Resource and Environmental Economics, 3<sup>rd</sup> Ed, Pearson Learning.
31. Steven C. Hackett (2006): Environmental and Natural Resources Economics: Theory, Policy, and the Sustainable Society, M.E.Sharpe, New York
32. Sugatha Margit (2007): India Macroeconomics Annual 2007, Centre for Studies in Social Sciences, Kolkata, Sage Publishers
33. Tietenberg, T. (1994): Environmental Economics and Policy, Harper Collins, New York.
34. Tony Prato (1998): Natural Resource and Environment Economics, Iowa State University Press.
35. Trond Bjorndal and Gordon Munro (2012): The Economics and Management of World Fisheries, OUP, London
36. Ulaganathan Sankar (2004) Environmental Economics OUP, New Delhi.
37. United Nations (2014): System of Environmental Economic Accounting Central Framework, New York.

Semester	Course code	Course Title	Type of course	Credit	Teaching Hours
III	EC010305	Kerala Economy	Core-15	3	90
<b>Course Objectives</b>					
<p><i>The basic objective 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. 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.</i></p>					

**Unit- 1: Introduction to Kerala Economy (20 Hours)**

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

**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**

**(25 Hours)**

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 – Tendencies of Exclusion

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

5.2. Role of remittances – Regional Imbalances

5.3. Gender Equality- Unemployment, Poverty and Inequality—Social Security—Human  
Development

5.4. Decentralised Planning—Financing of Local Government Plans

5.5. State Finance Commissions

5.6. Performance of Local Government—Scheduled Caste Sub Plan, Tribal Sub Plan and  
Women Component Plan under Decentralization

5.7. Rural Development Programmes— Kudumbasree

5.8. Development and Utilisation of Natural Resource—Issues of Reclamation

### 5.5. Tourism and Environmental impact—Waste management—Policies and programmes— Impact of Flood 2018 and Rebuilding initiatives.

#### Select Readings:

- 1) Ajith Kumar and KK George, "Kerala's Education System: From Inclusion to Exclusion?", *Economic and Political Weekly*, Vol. 44, No. 41/42 (OCTOBER 10-23, 2009), pp. 55-61
- 2) BA Prakash and Jerry Alwin (Edited), *Kerala's Economic Development: Emerging Issues and Challenges*, Sage Publications
- 3) Brigit Joseph and K.J. Joseph (2005): *Commercial Agriculture in Kerala after the WTO*, *South Asia Economic Journal*, 2005.
- 4) C.U. Thresia (2014): *Social Inequities and Exclusions in Kerala's: Egalitarian Development*, *Monthly Review*, 2014.
- 5) Centre for Development Studies, *Poverty, Unemployment and Development Policy : A Case Study of Selected Issues with reference to Kerala*, Orient Longman, Bombay.
- 6) CT. Kurien, "Kerala's Development Experience: Random Comments about the past and Some Considerations for the Future", *Social Scientist*, Vol. 23, No. 1/3 (Jan. - Mar., 1995), pp. 50-69
- 7) *Economic Review*, Kerala State Planning Board, Thiruvananthapuram (Various Issues)
- 8) *Economic Reviews- State Planning Board-Variou s Issues*
- 9) Frank RW and BH Chasin: *Kerala Development through Radical Reform*, Promilla and Co., New Delhi.
- 10) George K.K: *Limits to Kerala Model of Development*, CDS, Thiruvananthapuram.
- 11) Govindan Parayil (2000): *Kerala: The Development Experience: Reflections on Sustainability and Replicability*, Zed Books.
- 12) Harilal, K. N., Eswaran, K. K (2017): *Agrarian Question and Democratic Decentralization in Kerala*, *Agrarian South: Journal of Political Economy*, June, 2017.
- 13) Hiroshi Sato (2004): *Social Security and Well-Being in A Low-Income Economy: An Appraisal of The Kerala Experience*, *The Developing Economies*, 2004 Vol. 42; Iss. 2
- 14) *Human Development Report*, Kerala State Planning Board, Thiruvananthapuram
- 15) Joseph Tharamangalam (1998): *The Kerala Model of Development: A Debate ( Part I)*, *Bulletin of Concerned Asian Scholar*, Vol.30.N0.3,1998.
- 16) Joseph Tharamangalam, *Kerala: The Paradoxes of Public Action and Development*, Orient Longman, New Delhi.
- 17) K K George and Parvathy Sunaina (2005): *Dynamics of Change in Kerala's Education System: The Socio-Economic and Political Dimensions*, WP-12, Centre for Socio-Economic and Environmental Studies, Kochi.
- 18) K P, Kannan and Pillai N., Vijayamohanan, "Evolution of Social Security in the Lap of Public Action: Recounting the Experience of Kerala", *MRPA 2007*, <https://mpra.ub.uni-muenchen.de/9691/>

- 19) K. K. Subramanian and K. J. Joseph, "Electronics in Kerala's Industrialization", *Economic and Political Weekly*, Vol. 23, No. 24 (Jun. 11, 1988), pp. 1233-1240
- 20) K. K. Subramanian and P. Mohanan Pillai, "Kerala's Industrial Backwardness: Exploration of Alternative Hypotheses", *Economic and Political Weekly*, Vol. 21, No. 14 (Apr. 5, 1986)
- 21) K. K. Subramanian, "Development Paradox in Kerala: Analysis of Industrial Stagnation", *Economic and Political Weekly*, Vol. 25, No. 37 (Sep. 15, 1990)
- 22) K. K. Subramanian, "Economic Growth in the Regime of Reforms: Kerala's Experience", *Economic and Political Weekly*, Vol. 41, No. 10 (Mar. 11-17, 2006),
- 23) K. K. Subramanian, "Economic Growth in the Regime of Reforms: Kerala's Experience", *Economic and Political Weekly*, Vol. 41, No. 10 (Mar. 11-17, 2006), pp. 885-890
- 24) K. N. Harilal and K. J. Joseph, "Stagnation and Revival of Kerala Economy: An Open Economy Perspective", *Economic and Political Weekly*, Vol. 38, No. 23 (Jun. 7-13, 2003), pp. 2286-2294
- 25) K. P. Kannan, "Kerala Economy at the Crossroads?", *Economic and Political Weekly*, Vol. 25, No. 35/36 (Sep. 1-8, 1990)
- 26) K. P. Kannan, "Kerala's Turnaround in Growth: Role of Social Development, Remittances and Reform", *Economic and Political Weekly*, Vol. 40, No. 6 (Feb. 5-11, 2005), pp. 548-554
- 27) K. P. Kannan, "Political Economy of Labour and Development in Kerala" *Economic and Political Weekly*, Vol. 33, No. 52 (Dec. 26, 1998 - Jan. 1, 1999), pp. L61-L70
- 28) K. R. G. Nair, "Kerala's Development Experience", *Economic and Political Weekly*, Vol. 40, No. 30 (Jul. 23-29, 2005), pp. 3289-3291
- 29) K. Ravi Raman (2010): *Development, Democracy and the State: Critiquing the Kerala Model of Development*, Routledge.
- 30) K. T. Rammohan, "Assessing Reassessment of Kerala Model", *Economic and Political Weekly*, Vol. 35, No. 15 (Apr. 8-14, 2000), pp. 1234-1236
- 31) K.C. Zachariah, E.T. Mathew, S. Irudaya Rajan (2001): *Impact of Migration on Kerala's Economy and Society*, *International Migration 2001* Vol. 39; ISSN. 1
- 32) K.C. Zachariah, P.R. Gopinathan Nair and S. Irudaya Rajan (2006): *Return Emigrants in Kerala: Welfare, Rehabilitation and Development*. Manohar Publishers & Distributors.
- 33) K.V. Joseph: *Migration and Economic Development of Kerala*, Mittal Publications.
- 34) Kakkadan Nandanath Raj and Michael Tharakan (1981): *Agrarian reform in Kerala and its impact on the rural economy: a preliminary assessment*, Issue. ILO.
- 35) Kannan, K.P (1999): *Rural labour relations and development Dilemmas in Kerala: Reflections on the Dilemmas of a socially transforming labour force in a slowly growing economy*, Volume: 26 Journal: *Journal of Peasant Studies*
- 36) *Kerala Development Report by India*. Planning Commission.
- 37) KP Kannan, "Agricultural Development in an Emerging Non-Agrarian Regional Economy: Kerala's Challenges", *Economic and Political Weekly*, Vol. 46, No. 9 (February 26-March 4, 2011)

- 38) M. H. Suryanarayana (2001): Economic reform versus food security: Kerala's Gordian knot, *Journal of International Development* 2001 Vol. 13; ISSN. 2
- 39) M. K. Ramachandran (2009): *Economics of Agro-based Industries: A Study of Kerala*, Mittal Publications.
- 40) M. M. Thampy, "Wage-Cost and Kerala's Industrial Stagnation: Study of Organized Small-Scale Sector", *Economic and Political Weekly*, Vol. 25, No. 37 (Sep. 15, 1990)
- 41) M. Parameswaran: *Financial Crisis and Kerala Economy*, Issue 441 of Working paper (Centre for Development Studies (Trivandrum, India)
- 42) M. Suresh Babu, "Kerala's Growth Trajectory", *Economic and Political Weekly*, Vol. 40, No. 30 (Jul. 23-29, 2005), pp. 3291-3292
- 43) M. Williams (2008): *The Roots of Participatory Democracy: Democratic Communists in South Africa and Kerala*, Routledge.
- 44) Munster, D (2012): *Farmers' suicides and the state in India: Conceptual and ethnographic notes from Wayanad, Kerala*, Volume: 46 , *Journal: Contributions to Indian Sociology* , February, 20
- 45) N Vijayamohanan Pillai, "Doubling Kerala's NSDP In 3 Years :Implications for Investment and its Financing", MRPA 2008, <https://mpr.ub.uni-muenchen.de/8876/>
- 46) N Vijayamohanan Pillai, *Power Sector Reform: Some Lessons for Kerala*, MRPA, 2008, <https://mpr.ub.uni-muenchen.de/12334/>
- 47) Nielsen, Kenneth Bo (2016): *Political economy of development in India: Indigeneity in transition in the state of Kerala*, *Forum for Development Studies*, August, 2016
- 48) Oommen MA: *Rethinking Development: Kerala's Development Experience*, Vol-1 & 2 Concept, New Delhi.
- 49) P. D. Jeromi, "What Ails Kerala's Economy: A Sectoral Exploration", *Economic and Political Weekly*, Vol. 38, No. 16 (Apr. 19-25, 2003), pp. 1584-1600
- 50) P. K. Michael Tharakan and Vikas Rawal, "Decentralization and the People's Campaign in Kerala", *Social Scientist*, Vol. 29, No. 9/10 (Sep. - Oct., 2001)
- 51) P. Mohanan Pillai and N. Shanta, "Kerala's Turnaround in Growth", *Economic and Political Weekly*, Vol. 40, No. 41 (Oct. 8-14, 2005), pp. 4481-4483
- 52) P. Mohanan Pillai, "Whither State Sector Enterprises in Kerala?", *Economic and Political Weekly*, Vol. 25, No. 7/8 (Feb. 17-24, 1990)
- 53) P. N. Mari Bhat and S. Irudaya Rajan, "Demographic Transition in Kerala Revisited", *Economic and Political Weekly*, Vol. 25, No. 35/36 (Sep. 1-8, 1990)
- 54) P. S. George, "Dilemma of Cost of Cultivation in Kerala", *Economic and Political Weekly*, Vol. 23, No. 39 (Sep. 24, 1988)
- 55) P.T. Thomas: *Fiscal Decentralization and Economic Development: The Kerala Experience*
- 56) P.V. Rajeev: *Socio-economic Change and Regional Development*, Deep & Deep Publications.
- 57) Patrick Heller (1996): *Social capital as a product of class mobilization and state intervention: industrial workers in Kerala, India*, *World Development*, Vol 24,1996.
- 58) Patrick Heller (1999): *The Labor of Development: Workers and the Transformation of Capitalism in Kerala, India*, Cornell University Press.

- 59) Prerna Singh (2010): *We-ness and Welfare: A Longitudinal Analysis of Social Development in Kerala, India*, Word Development, Vol 39, 2010.
- 60) R.K. Sureshkumar and P. Sureshkumar: *Governance and Development: Lessons and Experience of Kerala*, Achutha Menon Foundation, APH Publishing Co.
- 61) Raman Pillai KK: *Land Reforms in Kerala*, APH, New Delhi
- 62) Richard Sandbrook, Marc Edelman, Patrick Heller, Judith Teichman (2007): *Social Democracy in the Global Periphery: Origins, Challenges, Prospects*, Cambridge.
- 63) Robin Jeffrey, "Politics, Women and Well Being: How Kerala Became A Model", Cambridge University Press
- 64) Silvia Masiero (2014): *Redesigning the Indian Food Security System through E-Governance: The Case of Kerala*, World Development, pp.126-137.
- 65) Swapna Mukhopadhyay: *The Enigma of the Kerala Woman: A Failed Promise of Literacy*, Social Science Press, New Delhi.
- 66) T N Krishnan, "Wages, Employment and Output in Interrelated Labour Markets in an Agrarian Economy: A Study of Kerala", *Economic and Political Weekly*, Vol. 26, No. 26 (June 29, 1991), pp. A82-A96
- 67) Thomas Isaac T. M. and Michael Tharakan P. K., "Kerala: The Emerging Perspectives: Overview of the International Congress on Kerala Studies", *Social Scientist*, Vol. 23, No. 1/3 (Jan. - Mar., 1995), pp. 3-36
- 68) Thomas Isaac T. M. and Michael Tharakan P. K., "Kerala: Towards a New Agenda", *Economic and Political Weekly*, Vol. 30, No. 31/32 (Aug. 5-12, 1995), pp. 1993-2004
- 69) V. Balakrishnan Nair: *Social Development and Demographic Changes in South India: Focus on Kerala*, M D Publications.
- 70) Varman, R (2008): *The Political Economy of Markets and Development: A Case Study of Health Care Consumption in the State of Kerala, India*, Volume: 34 *Journal: Critical Sociology* January, 2008
- 71) Yadu, C. R (2016): *The Land Question and the Mobility of the Marginalized: A Study of Land Inequality in Kerala*, *Agrarian South: Journal of Political Economy*, May, 2016
- 72) Zachariah K.C and S Irudaya Rajan, *Kerala's Demographic Transition: Determinants and Consequences*, Sage, New Delhi.
- 73) Zachariah K.C and S Irudaya Rajan: *Migration and Development: The Kerala Experience*, Danish Books, New Delhi.
- 74) Zachariah KC, Mathew E T and S Irudaya Rajan: *Dynamics of Migration in Kerala*, Orient Black Swan Books, New Delhi



### FOURTH SEMESTER

Course Code	Title of the Course	Type of the Course	Hours per week	Credits
EC010401	International Finance	Core	05	04
EC010402	Econometrics-II	Core	05	04
<b>Elective- Group-A</b>				
EC800401	Agricultural Economics	Elective	05	03
EC800402	Industrial Economics	Elective	05	03
EC800403	Labour Economics	Elective	05	03
<b>Elective- Group-B</b>				
EC810401	Mathematical Economics	Elective	05	03
EC810402	Operations Research	Elective	05	03
EC810403	Multivariate Data Analysis for Social Sciences	Elective	05	03
<b>Elective- Group-C</b>				
EC820401	Financial Economics	Elective	05	03
EC820402	Game Theory and its Economics Applications	Elective	05	03
EC820403	Economics of Business Strategy	Elective	05	03
EC010403	Project/Dissertation	Core		02
EC010404	Comprehensive Viva -Voce	Core		02

Semester	Course code	Course Title	Type of course	Credit	Teaching Hours
<b>IV</b>	<b>EC010401</b>	<b>International Finance</b>	<b>Core</b>	<b>4</b>	<b>90</b>
<b>Course Objectives</b>					
<p><i>The course will address the following main topics: the balance of payments; foreign exchange market and exchange rate determination; foreign currency derivative instruments; arbitrage and international parity conditions; risks in global finance, the management of foreign exchange risk with forwards and options; basic characteristics of trade finance and investment instruments; and international capital flows and markets. The intent is to investigate how various financial instruments are used for hedging and speculating in the currency markets and how economic theories are applied to determine the equilibrium exchange rates. Some policy issues concerning the recent world financial market turbulence will also be discussed. This course aims at providing a theoretical exposition of different aspects of international finance and financial institutions in a historic cum emerging geopolitical context particularly in that of globalization. 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. The stress will be on an understanding of the intuition behind the theories.</i></p>					

### **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

### **Reference:**

1. Keith Pilbeam (2013) – International Finance, 4th edition, Palgrave
2. Salvatore, D (2008) - International Economics, (8th Edition). Wiley India, New Delhi
3. Appleyard D. R and Field A J (2014) -International Economics (8th Edition) McGraw Hill, New Delhi
4. Krugman Paul, R and Obstfeld, Maurice and Melitz, Marc.J (2018) - International Finance- Theory and Policy, 11<sup>th</sup> Ed, Pearson (India) Pvt. Ltd, New Delhi
5. Soderston, B and Reed G. (1994) - International Economics, 3rd Edition, McMillan Press Ltd. London
6. MacDonald, Ronald (2007): Exchange Rate Economics: Theories and Evidence, Routledge.
7. Levi Maurice D. (2009): International Finance, 5<sup>th</sup> Ed, Routledge, New York.

### Supplementary Readings:

1. Bhagwati, Jagdish, Arvind Panagariya, and T.N Srinivasan, (2004): 'The muddles over outsourcing'. *Journal of economic perspectives*, 18(4): 93-104
2. Asbjorn Rodseth (2000): *Open Economy Macroeconomics*, Cambridge University Press.
3. Carbaugh, R. J (2008): *International Economics*, (11th Edition). Thomson South Western, New Delhi
4. Feenstra, Robert C. and Taylor, Alan M (2011): *Advanced International Trade- Theory and Evidence*, 2<sup>nd</sup> Ed, Worth Publishers.
5. Fleming, J.M. (1962): *Domestic Financial Policies Under Fixed and Floating Exchange Rates*, *International Monetary Fund Staff Papers* 9, pp. 369–379.
6. Frankel, J.A. (1993): *Monetary and Portfolio Balance Models of Exchange Rate Determination*, MIT press, Cambridge.
7. Gerber, James (2014): *International Economics*, 6<sup>th</sup> Ed, Pearson Education Inc.
8. Husted, Steven and Melvin, Michael (2016) : *International Economics*, 9<sup>th</sup> Ed, Pearson.
9. Kenen Peter B. (2000): *The International Economy*, Cambridge University Press, New York.
10. Mundell, R A (1962): *The Appropriate Use of Monetary and Fiscal Policy for Internal and External Stability*, *International Monetary Fund Staff Papers* 9, pp. 70 - 79.
11. Radlett, S, and Sachs J. (1998): *The east Asian Financial Crisis: Diagnosis, Remedies, and Prospects*, *Brookings Papers on Economic Activity*. Vol 28, no.1. pp. 1- 74.
12. Ramsaran Ramesh (1998): *An Introduction to International Money and Finance* Palgrave
13. Reinert K A (2012): *An Introduction to International Economics*, Cambridge university Press, New York:
14. Pugel, Thomas A (2016): *International Economics*, 16<sup>th</sup> Ed, McGraw Gill Education.
15. Stern, R.M. (2007): *Balance of Payments: Theory and Economic Policy*, Aldine Transaction
16. Thirlwal, A.P (1999): *Balance of Payments Theory*, 6th edition, Oxford University Press, New York
17. Ugur Mehmet (2002): (Edited), *An Open Economy Macroeconomics Reader*, Routledge, London.

Semester	Course code	Course Title	Type of course	Credit	Teaching Hours
<b>IV</b>	<b>EC010402</b>	<b>Econometrics—II</b>	<b>Core</b>	<b>4</b>	<b>90</b>
<b>Course Objectives</b>					
<p><i>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 modelling 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. 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.</i></p>					

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

- 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 (20 Hours)**

- 2.1. The Wold Decomposition Theorem—AR and MA processes—ARMA and ARMAX—ARIMA Modelling

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 (15 Hours)**

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 Coefficients 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

**Reference:**

1. Badi H. Baltagi (2013): Econometric Analysis of Panel Data, 5<sup>th</sup> Ed, John Wiley & Sons.
2. Cheng Hsiao (2013): Analysis of Panel Data, 3<sup>rd</sup> Ed, Cambridge University Press
3. Chris Brooks (2014): Introductory Econometrics for Finance, 3<sup>rd</sup> Ed, Cambridge University Press.

4. Chris Chatfield (2003): The Analysis of Time Series: An Introduction, 6<sup>th</sup> Ed, Chapman and Hall.
5. Douglas C Montgomery, Cheryl L. Jennings and Murat Kulahci (2015): Introduction to Time Series Analysis and Forecasting, 2<sup>nd</sup> Ed, Wiley.  
Econometric Modelling by Dr. Rudra P. Pradhan, Department of Management, IIT Kharagpur. For more details on NPTEL visit <http://nptel.iitm.ac.in>
6. Erik Biorn (2017): Econometrics of Panel Data: Methods and Applications, OUP.
7. Franses, P. H. (1998), Time Series Models for Business and Economic Forecasting, Cambridge University press, New York.
8. G. S. Maddala and In-Moo Kim (1999): Unit roots, cointegration, and structural change, Cambridge University Press.
9. Gebhard Kirchgassner, Jurgen Wolters, Uwe Hassler, Introduction to Modern Time Series Analysis, Springer.
10. Gujarati Damodar & Dawn C Porter (2017): Basic Econometrics, 5<sup>th</sup> Ed, McGraw Hill.  
Gusti Ngurah Agung (2014): Panel Data Analysis Using EViews, Wiley.
11. H. Stock James and Watson Mark (2017): Introduction to Econometrics, 3<sup>rd</sup> Ed, Pearson Education (Indian Edition)
12. James D Hamilton (2012): Time Series Analysis, Princeton University Press.
13. Jeffrey M. Wooldridge (2010): Econometric Analysis of Cross Section and Panel Data, 2<sup>nd</sup> Ed, The MIT Press.
14. M. Hashem Pesaran (2015): Time Series and Panel Data Econometrics, Oxford.
15. Marc S. Paolella (2019): Linear Models and Time-Series Analysis, Wiley.
16. Orley Ashenfelter, Phillip B. Levine, David J. Zimmerman, Statistics and Econometrics: Methods and Applications, John Wiley & Sons.
17. Peter J. Brockwell, Richard A. Davis (2010): Introduction to Time Series and Forecasting, 2<sup>nd</sup> Ed, Springer.
18. Philip Hans Franses, Dick van Dijk and Anne Opschoor (2014): Time Series Models for Business and Economic Forecasting, 2<sup>nd</sup> Ed, Cambridge University Press.
19. Robert Alan Yaffee, Monnie McGee (2000): An Introduction to Time Series Analysis and Forecasting: With Applications of SAS and SPSS, Academic Press.
20. Ruey S. Tsay (2010): Analysis of Financial Time Series, 3<sup>rd</sup> Ed, Wiley.
21. Sankar Kumar Bhaumik (2016): Principles of Econometrics: A Modern Approach Using EViews, Oxford University Press (India).

22. Spyros Makridakis, Steven C. Wheelwright, Rob J. Hyndman (2008): Forecasting: Methods and Applications, 3<sup>rd</sup> Ed, John Wiley & Sons.
23. Svetlozar T. Rachev, Stefan Mittnik, Frank J. Fabozzi, Sergio M. Focardi, Teo Jaic, Financial Econometrics: From Basics to Advanced Modelling Techniques, John Wiley Sons.
24. Terence C. Mills (2015): Time Series Econometrics: A Concise Introduction, Palgrave.
25. Walter Enders (2018): Applied Econometric Time Series, 4<sup>th</sup> Ed, John Wiley & Sons (Indian Edition)



Semester	Course code	Course Title	Type of course	Credit	Teaching Hours
<b>IV</b>	<b>EC800401</b>	<b>Agricultural Economics</b>	<b>Elective-A-1</b>	<b>3</b>	<b>90</b>
<b>Course Objectives</b>					
<p><i>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. 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.</i></p>					

### **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.

#### **References:**

1. Acharya, S.S and Aggrawal, N.L ‘Agricultural Prices –Analysis and Policy’, Oxford and IBH Publishing Co. Pvt. Ltd, New Delhi
2. Andrew Barkley and Paul W. Barkley (2013): Principles of Agricultural Economics, Routledge.
3. Basu, K. ‘Agrarian Structure and Economic Underdevelopment ‘, Harwood Academic, London, 1980
4. Bilgrami, SAR. ‘An Introduction to Agricultural Economics’, Himalaya Pub. House, Mumbai
5. David Colman and Trevor Young (1997): Principles of Agricultural Economics: Markets and Prices in Less Developed Countries, Cambridge University Press.

6. Johl, S.S. and Kapur, T.R. 'Fundamentals of Farm Business Management', Kalyani Publishers, Ludhiana
7. John B Penson, Jr, Oral Capps, C Parr Rosson and Richard Woodward (2015): Introduction to Agricultural Economics, 6<sup>th</sup> Ed, Pearson.
8. Joydeb Sasmal (2016): Resources, Technology and Sustainability: An Analytical Perspective on Indian Agriculture, Springer.
9. Kohlon, A.S. and Tyagi, D.S. 'Agricultural Price Policy in India', Allied Pub. New Delhi , 1983
10. Lekhi, R.K. and Sing Joginder, 'Agricultural Economics', Kalyani Publishers, Ludhiana
11. Mellor, J.W. 'The Economics of Agricultural Development' Vora and Co, Mumbai, 1966
12. R.N. Sony and Sangeeta Malhotra (2015): Leading issues in Agricultural Economics, 12<sup>th</sup> Ed, Vishal Publishing Co.
13. Reddy S. Subha et al. 'Agri cultural Economics', Oxford and IBH Publishing Co. Pvt. Ltd, New Delhi
14. Rudra Ashok, 'Indian Agricultural Economics: Myth and Realities' Allied Pub. New Delhi, 1982
15. Sankhayan, P.L. 'Introduction to Economics of Agricultural Production', Prentice Hall of India Pvt. Limited., New Delhi
16. Schultz, T.Z. 'Transforming Traditional Agriculture', Yale University Press, 1964
17. Drummond, H. E and Goodwin, J W (2004), Agricultural Economics, Pearson Delhi

Semester	Course code	Course Title	Type of course	Credit	Teaching Hours
<b>IV</b>	<b>EC800402</b>	<b>Industrial Economics</b>	<b>Elective-A-3</b>	<b>3</b>	<b>90</b>
<b>Course Objectives</b>					
<p><i>In the globalized era, industrial development is a sine qua-non for rapid economic development. Keeping this in view, the objectives are to provide thorough knowledge about the economics of industry and issues related to market structure, firms' motivations and conducts, productivity, and efficiency in a cogent and analytical manner. Its aim is to familiarize students with a broad range of the methods and models applied by economists in the analysis of firms and industries. It also provides a detailed understanding of policy debates involved in industrial development in India. By learning this course, the students can obtain a glimpse of the recent developments in this field and enhance their analytical skill. This course offers a rich and diverse platform to explore the core of the economic theory, using real-world examples and encouraging unique and innovative problem-solving techniques. Upon completion of the course students should: understand basic models of the behavior of firms and industrial organization and how they can be applied to policy issues; be able to manipulate these models and be able to solve analytically problems relating to industrial economics; be familiar with the history of competition policy and the functioning of different experimental market institutions and the key results of these experiments.</i></p>					

**Unit- 1: Industrial Economics and Theory of Firm (15 Hours)**

- 1.1. Meaning and scope of industrial economics.
- 1.2. Industrial organisation: Different forms of Industrial Organization, Proprietorship, partnership, Joint Stock Companies, Holding Companies, and Industrial Co-Operative Organizations – Corporation – Public Sector Companies: departmental, govt. companies, joint-sector, internal organisation: unitary (U)form and multi-divisional (M)form-Choice of Organizational form.
- 1.3. Size of the firm: Optimum firm, Representative firm, Equilibrium firm, factors determining optimum size.
- 1.4. Theories of the growth of the firm: Downie's theory Penrose's theory and Morris's theory of the growth of the firm.

**Unit- 2: Market Structure & Industrial Location (20 Hours)**

- 2.1. Market Structure: Meaning of the market structure, Sellers concentration and its measurement: the concentration ratio, the Lorenz curve, product differentiations – its sources

and its implications, entry conditions, economies of scale, market structure & innovation – the process of innovation – concepts & relationships – its measurement.

2.2. Concept of Industrial Location, Determinants of Location, Dynamics of industrial Location – Theories of Industrial Location (Weber’s Theory, August Losch and Sargent Florence’s Theory) – Industrial Location Policy.

2.3. Theories of Industrialisation-Hoffman, Chenery and Gershenkron.

### **Unit- 3: Market Conduct**

**(20 Hours)**

3.1. The structural conduct performance approach relationships between structure, conduct & performance, neoclassical developments of the SCP approach.

3. Pricing Decisions: Pricing goals: maximisation of profit, sales, rate of return, sales and market shares—Pricing policies: marginal cost and full-cost pricing—Pricing procedures: Penetrating, skimming, price discriminations and transfer pricing.

Pricing in practice – cost plus pricing, incremental cost pricing, the target rate of return pricing, acceptance pricing, the going rate pricing, pricing in public enterprises.

3.3. Diversification and Vertical Integration, Merger – Definitions, Types & Motives, Implication for Public Policies.

### **Unit- 4: Market Performance & Project Appraisal**

**(20 Hours)**

4.1. Industrial productivity – its importance, distinction between production and productivity, factors influencing industrial productivity.

4.2. Industrial efficiency – meaning of the concept, the determinants of economic efficiency, measurement of the efficiency levels- efficiency conditions in the theory of production: constrained output maximisation, constrained cost minimisation, profit and revenue maximisation- efficiency and decision-making process.

4.3. Investment decisions: – profile of the project, methods of project evaluation; - the payback method, the average of accounting rate of return method, the net present value method, the internal rate of return method, ranking of projects; NPV VS IRR. Risk & uncertainties in project appraisal

### **Unit- 5: India’s Industrial Growth:**

**(Self-study)**

**(15 Hours)**

5.1. Pattern of industrialization since independence-Changing structure of industries.

5.2. Evolution of industrial policy - Liberalization of Industrial sector in India- Industrial Policy-1991, Trends in Industrial Growth after NEP - Public sector industries in India- policy on privatization -competition policy.

5.3. Industrial sickness- Exit policy- Role of BIFR – Role of MNC s in India.

5.4. Issues in industrial development in the context of globalization.

5.5. Industrial Finance- Nature and types of Industrial Finance - Sources of Institutional Finance – Specialized institutions – IDBI, IFCI, SFCs, SIDC etc.- Commercial banks - Capital structure in India.

### Essential Reading:

- 1) Divine, P.J. and R.M. Jones et. al. (1976), An Introduction to Industrial Economics, George Allen and Unwin Ltd., London
- 2) Hay, D A and Morris D J (1979), Industrial Economics: Theory and Evidence, Oxford University Press, New Delhi.
- 3) Paul R Ferguson & Glenys J Ferguson, Industrial Economics: Issues and Perspectives 2nd Ed, New York University Press, Washington square, New York 1994.

### Supplementary Reading:

1. Ahluvalia, I.J. 'Industrial Growth in India', Oxford University Press, New Delhi
2. Balakrishnan, P and Pushpangadan, K. 'Total Factor Productivity Growth in Indian Manufacturing-A Fresh Out Look', Working Paper No.259, CDS, Thiruvananthapuram, 1994
3. Barathwal, R.R. 'Industrial Economics: An Introductory Text Book', Wiley Eastern Ltd. New Delhi, 2016.
4. Brahmananda, P.R. and Panchamukhi, V.R. (Eds), 'The Development Process of the Indian Economy', Himalaya Publishing House, Mumbai, 1987
5. Cherunilam, Francis, 'Industrial Economics: Indian Perspective', (3<sup>rd</sup> Edition), Himalaya Publishing House, Mumbai, 1994
6. Deepak Nayyar, Industrial Growth and Stagnation. Oxford University Press, 1994
7. Deepak Nayyar, Trade and Industrialisation, Oxford University Press, New Delhi, 1977
8. Desai, B (1999), Industrial economy of India, Himalaya Publishing House, Mumbai.
9. Isher Judge Alhuwalia, Industrial Growth in India, Oxford University Press, New Delhi, 1985

10. Kuchhal, S.C. 'Industrial Economy of India', (5<sup>th</sup> Edition), Chaitanya Publishing House, Allahabad, 1980
11. Mishra and Puri (latest edition): Indian economy, Himalaya publisher, Mumbai.
12. Renjana Seth, Industrial Economics, Ane Books Pvt. Ltd, New Delhi ,2010
13. Rogor Clarke, 'Industrial Economics', Basil Blackwell, New York
14. Shy, Oz., Industrial Organization: Theory and Applications, MIT Press, 1995
15. Singh, A and A.N. Sandhu (1988), Industrial Economics, Himalaya Publishing House, Mumbai.
16. Smith, D.M. 'Industrial Location-An Economic and Geographic Analysis', John Wiley, New York, 1971
17. Stephen Martin, Advanced Industrial Economics, Basic Blackwell, 1993.
18. Tirole, J., The Theory of Industrial Organization, MIT Press, 1988

Semester	Course code	Course Title	Type of course	Credit	Teaching Hours
<b>IV</b>	<b>EC800403</b>	<b>Labour Economics</b>	<b>Elective-A-2</b>	<b>3</b>	<b>90</b>

**Course Objectives**

*Labor economists study the economic forces that determine wages and employment. The major objective of this course is to impart knowledge about the dynamics of labour market. This course emphasizes the power of microeconomic reasoning to answer important economic questions. Topics covered include: approaches to labor supply and family coordination of time allocation and commodity demand, incorporating gender and generational bargaining; human capital, job tenure, union status, and discrimination as wage determinants; wage inequality, minimum wages, unions, immigration, and interpretation of compensating variations in wages, job and location amenities. Issues pertaining to the labour market, wage theories, employment policies, trade unions and collective bargaining in the globalized economy have become vitally important for developing countries. In a country like India where the bulk of the labour force is in the unorganized sector and the organized sector is witnessing jobless” growth, the importance of issues such as employment and unemployment as well as livelihood and social security for the growing millions continues to assume significance. This course exposes students to theoretical as well as empirical issues relating to the labour market. The objective of the course is to provide an empirical understanding of the labour market and enable the students to understand applications of formal theoretical models in labour economics to the Indian labour market.*

**Unit- 1: Labour Markets: Supply of Labour (20 Hours)**

- 1.1. Theory of Individual Labor Supply: The Work–Leisure Decision: Basic Model-- Indifference Curves-- Opportunity Cost of Leisure --Budget Constraint--Utility Maximization
- 1.2 Wage Rate Changes: Income and Substitution Effects--Rationale for the Backward-Bending Supply Curve—Wage Elasticity of Labour Supply— Labor Supply of Women—
- 1.3 Policy Application: Cash Grants and Labor Supply-The Impact of Welfare on Labor Supply--The Earned Income Tax Credit.
- 1.4 Participation Rates and Hours of Work: Becker’s Model: The Allocation of Time-- Commodity Characteristics--Household Choices--Becker Income Effect--Becker Substitution Effect--Participation Rates--Cyclic Changes in Participation Rates--Added-Worker Effect--Discouraged-Worker Effect-- Life Cycle Aspects of Labor Supply -The Choice of Retirement Age--Policy Application: Child Care and Labor Supply.

**Unit- 2: Labour Markets: Demand for Labour: (20 Hours)**



2.1 The Production Function--The Employment Decision in the Short Run-- The Short-Run Labor Demand Curve for a Firm and Industry

2.2 The Employment Decision in the Long Run: Iso-quant and Iso-cost Approach: The Long-Run Demand Curve for Labor--Substitution and Scale Effects.

2.3 Labor Demand Elasticity--Elasticity of Substitution---- The Hicks–Marshall Laws of Derived Demand---The Cross-Wage Elasticity of Demand.

2.4 Labor Market Equilibrium: Equilibrium in a Single Competitive Labor Market--Competitive Equilibrium across Labor Markets. Policy Application: Payroll Taxes and Subsidies--Deadweight Loss--Employment Subsidies-- Effects of Minimum Wage Laws --The Labor Market Impact of Immigration. The Cobweb Model.

### **Unit- 3: Wage Determination and the Allocation of Labor**

**(10 Hours)**

3.1 Theory of A Perfectly Competitive Labor Market--Wage and Employment Determination: Monopoly in The Product Market---Monopsony-Wage Determination within the Firm.

3.2 The Employment Contract--Motivating Workers--Motivating the Individual in a Group--Productivity and the Basis of Yearly Pay--Productivity and the Level of Pay --Productivity and the Sequencing of Pay.

3.3 Incentive Pay: Piece Rates and Time Rates—Tournament— Economics of Fringe Benefits--Theory of Optimal Fringe Benefits---Profit Sharing-Equity Compensation---Tournament Pay--Efficiency Wage Payments- Hedonic Wage Theory and Employee Benefits (10 Hours)

### **Unit- 4: Labour Union and Wage Bargaining**

**(25 Hours)**

4.1. Determinants of Union Membership--The Demand for and Supply of Union Jobs-- The Structural Change Hypothesis---Managerial Opposition Hypothesis--The Substitution Hypothesis--Monopoly Union Model--Efficient Contracts Model.

4.2. Strikes and The Bargaining Process--The Activities and Tools of Collective Bargaining--Bargaining and the Threat of Strikes-- Accident Model--Asymmetric Information Models— Union Wage Effects--Threat and Spill-over Effects--Unions and Wage Dispersion--Unions and Fringe Benefits--Nonwage Effects of Unions.

4.3 The Economic Impact of Unions: The Union Wage Advantage--Spill over Effect--Threat Effect-- Other Effects --The Effects of Unions on Employment, Productivity and Profits

4.4 State and social security of labour - Concept of social security and its evolution; Social assistance and social insurance; Labour market reforms - Exit policy, need for safety nets, measures imparting flexibility in labour markets; National Commission on Labour; Globalization and labour markets.

### **Unit- 5 Unemployment**

**(15 Hours)**

5.1 Unemployment Types— A Stock-Flow Model of the Labor Market.

5.2 The Theory of Job Search--Effects of Unemployment Insurance Benefits

5.3 Structural Unemployment--Downward Wage Rigidity and Union, Specific Human Capital, Asymmetric Information, Worker Status and Social Norms-- Implicit Contracts---Insider-- Outsider Theories- Efficiency Wages and Unemployment

### **Reference:**

1. Campbell R. McConnell, Stanley L. Brue and David A. Macpherson (2017): Contemporary Labor Economics, 11<sup>th</sup> Edition, McGraw-Hill Education, 2 Penn Plaza, New York, NY 10121.
2. George J. Borjas (2016): Labor Economics 7<sup>th</sup> Edition, McGraw-Hill Education, 2 Penn Plaza, New York, NY 10121.
3. J.E. King (2000): Labour Economics.2<sup>nd</sup> Ed, Macmillan Education.
4. Pierre Cahuc, Stéphane Carcillo, André Zylberberg (2014): Labor Economics,2<sup>nd</sup> Ed, MIT Press.
5. Ronald G. Ehrenberg and Robert S. Smith (2012): Modern Labor Economics: Theory and Public Policy, 11<sup>th</sup> Edition, Prentice Hall.
6. Stephen Smith (2003): Labour Economics, 2<sup>nd</sup> Ed, Routledge.

Semester	Course code	Course Title	Type of course	Credit	Teaching Hours
<b>IV</b>	<b>EC810401</b>	<b>Mathematical Economics</b>	<b>Elective-B-1</b>	<b>3</b>	<b>90</b>

**Course Objectives**

*The main objective of the course is to train the students to use the techniques of mathematical and, 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. Hence in this course, 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-maximisation 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: Theory of The Firm (20 Hours)**

- 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 linearly 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**

**(30 Hours)**

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.

4.5. Theory of games: Two-person zero-sum game, pure and mixed strategy, game with and without saddle point, Nash equilibrium- Game theory and duopoly problems-solution to games with mixed strategy: the algebraic method and graphical solution to obtain value of the game.

### **Unit- 4: Multi-Market Equilibrium and Welfare Economics**

**(20 Hours)**

4.1. Equilibrium of the  $i^{\text{th}}$  consumer, two commodity exchange using Edgeworth box, production and exchange: equilibrium of  $i^{\text{th}}$  consumer and  $i^{\text{th}}$  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.

### **Essential Reading**

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, Mc Graw 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.

### Supplementary Reading

- 10). Brajesh Kumar (2010): Modern Microeconomics, Global Professional Publishing.
- 11). Thomas J. Nechyba (2017): Microeconomics: An Intuitive Approach with Calculus
- 12). Hugh Gravelle and Ray Rees (2010): Microeconomics, 4<sup>th</sup> Edition, Pearson Education Limited 2<sup>nd</sup> Edition, Cengage Learning.
- 6). Dowling.T.E., Introduction to Mathematical Economics, McGraw Hill.
- 7). Koutsoyiannis, A. (2011), Modern Microeconomics, Macmillan Press, London.
- 8). Hal R. Varian (2014): Intermediate Microeconomics with Calculus,1<sup>st</sup> Edition, W. W. Norton & Company
- 9). Jeffrey M. Perloff (2014): Microeconomics with Calculus, 3<sup>rd</sup> Edition, Pearson Education Limited.

Semester	Course code	Course Title	Type of course	Credit	Teaching Hours
<b>IV</b>	<b>EC810402</b>	<b>Operations Research</b>	<b>Elective-B-2</b>	<b>3</b>	<b>90</b>
<b>Course Objectives</b>					
<p><i>Operations research helps in solving problems in different environments that need decisions. The module covers topics that include: linear programming, Transportation, Assignment, and CPM/ MSPT techniques. Analytic techniques and computer packages will be used to solve problems facing business managers in decision environments. Course Objectives: This course aims to introduce students to use quantitative methods and techniques for effective decisions-making and model formulation that are used in solving business decision problems.</i></p>					

**Module-1: Introduction to Linear Programming (20 Hours)**

- 1.1. The Linear Programming Model --Assumptions of Linear Programming --Solving Linear Programming Problems: The Graphical Method—extreme one-point solution method—minimisation, maximisation and mixed constraints.
- 1.2. The Simplex Method --The Essence of the Simplex Method --- Simplex Algorithm – maximisation and minimization cases—Two Phase Method—Big-M Method.
- 1.3. Duality Theory: The Essence of Duality Theory - Primal–Dual Relationships -- Optimal Dual Solution---- Economic Interpretation of Duality ---Economic Interpretation of Dual Variables -Economic Interpretation of Dual Constraints.

**Module-2: Transportation and Assignment Problem (15 Hours)**

- 2.1. Transportation Model: The Transportation Algorithm –types of transportation problem—balanced and unbalanced
- 2.2. Methods to solve: Initial Basic Solution and U-V Method.
- 2.3. The Assignment Model: Zero-one Programming—Types of assignment problem—Hungarian Method—Branch and Bound Technique.

**Module-3: Inventory Theory (15 Hours)**

- 3.1. Components of Inventory Models --Deterministic Continuous-Review Models ---A Deterministic Periodic-Review Model

3.2. Deterministic Multiechelon Inventory Models for Supply--Chain Management --A Stochastic Continuous-Review Model

3.3. A Stochastic Single-Period Model for Perishable Products --Revenue Management

**Module-4: Decision Theory (10 Hours)**

4.1. Decision under certainty, Decision under risk

4.2. Decision under uncertainty: Laplace criterion, Maximin criterion, Minimax criterion, savage Minimax regret criterion, Hurwitz criterion

4.3. Decision tree.

**Module-5: Queueing Theory (15 Hours)**

5.1. Basic Structure of Queueing Models--Examples of Real Queueing Systems

5.2. The Role of the Exponential Distribution---The Birth-and-Death Process

5.3. Queueing Models Based on the Birth-and-Death Process

5.4. Queueing Models Involving Nonexponential Distributions --Priority-Discipline Queueing Models --The Application of Queueing Theory

**Module-6: Project Management (15 Hours)**

Introduction to PERT and CPM, critical Path calculation, float calculation and its importance. Cost reduction by Crashing of activity.

**Reference:**

- 1) F. S. Hiller and G. J. Liberman (2016). *Introduction to Operations Research*, Mc Graw Hill.
- 2) H. A. Taha (2017): *Operations Research: An Introduction*, Pearson, 2010.
- 3) J. K. Sharma (2016): *Operations Research: Theory and Applications*, 6<sup>th</sup> Ed, Trinity Press,
- 4) R. Pannerselvam (2014): *Operations Research*, PHI, New Delhi.
- 5). Stepheng. Powell and Kenneth. Baker (2010): *Management Science*, 3<sup>rd</sup> Ed, Wiley.
- 6). Frederic F Hillier (2008): *Introduction to Management Science*, 3<sup>rd</sup> Ed, McGraw Hill.
- 7). F. S. Hiller and G. J. Liberman (2016). *Introduction to Operations Research*, Mc Graw Hill.

Semester	Course code	Course Title	Type of course	Credit	Teaching Hours
<b>IV</b>	<b>EC810403</b>	<b>Multivariate Data Analysis for Social Sciences</b>	<b>Elective-B-3</b>	<b>3</b>	<b>90</b>
<b>Course Objectives</b>					
<p><i>This course covers the statistical foundations of data analysis in social sciences. Large and complex data sets are becoming prevalent in the social sciences and statistical methods are crucial for the analysis and interpretation of such data. This course aims to capture new developments in statistical methodology with particular relevance to applications in economics. It seeks to promote the appropriate use of statistical and econometric methods in applied economics. The specific objective of this course is as follows:</i></p> <ul style="list-style-type: none"> <li>• <i>To provide an understanding of the basic concepts and methods of Statistics, for application in data analysis.</i></li> <li>• <i>To get statistical skill required for the analysis of socio-economic data.</i></li> <li>• <i>Emphasis is on application (including analysis and interpretation) rather than theoretical derivations. The idea is to impart training on how to make an argument with data.</i></li> </ul>					

1. Principal Components and Factor Analysis
2. Multivariate analysis of variance and covariance
3. Multiple discriminant analysis and logistic regression
4. Canonical correlation analysis
5. Cluster Analysis
6. Multidimensional Scaling
7. Correspondence Analysis
8. Structural Equation Modelling

#### **Essential Readings:**

1. Joseph F. Hair, William C. Black, Barry J Babin, Rolph E Anderson (2017): Multivariate Data Analysis, 7<sup>th</sup> Edition, Person.
2. Craig A. Mertler and Rachel Vannatta Reinhart (2017): Advanced and Multivariate Statistical Methods: Practical Application and Interpretation, 6<sup>th</sup> Edition, Routledge

#### **Supplementary Reading:**

1. Brian S. Everitt (2010): Multivariable Modelling and Multivariate Analysis, CRC-Taylor and Francis
2. Daniel J. Denis (2019): SPSS Data Analysis for Univariate, Bivariate, and Multivariate Statistics, John Wiley & Sons, Inc.



3. Darren George and Paul Mallery (2016): IBM SPSS Statistics 23 Step by Step, 14<sup>th</sup> Ed, Routledge.
4. David J. Bartholomew, Fiona Steele, Irini Moustaki, Jane I. Galbraith (2008): Analysis of Multivariate Social Science Data, 2<sup>nd</sup> Ed. CRC- Taylor and Francis
5. Everitt, Brian S and Dunn, Graham. (2001). Applied Multivariate Data Analysis. 2<sup>nd</sup> Ed. Arnold.
6. James P. Stevens (2009): Applied Multivariate Statistics for the Social Sciences, 5<sup>th</sup> Ed, Routledge.
7. Johnson RA and DW Wichern., Applied Multivariate Statistical Analysis, Upper Saddle River, NJ, Prentice Hall
8. K.V.S. Sarma and R. Vishnu Vardhan (2019): Multivariate Statistics Made Simple: A Practical Approach, CRC Press. Taylor & Francis Group
9. Neil H. Spencer (2014): Essentials of Multivariate Data Analysis, CRC Press Taylor & Francis Group
10. Robert Ho (2014): Handbook of Univariate and Multivariate Data Analysis with IBM SPSS, CRC Press. Taylor & Francis Group
11. Robert Ho (2014): Univariate and Multivariate Data Analysis with IBM SPSS, 2<sup>nd</sup> Ed, Taylor and Francis Group.
12. T. W. Anderson (2003): An Introduction to Multivariate Statistical Analysis, 3<sup>rd</sup> Ed, John Wiley & Sons.
13. Wolfgang Karl Härdle Léopold Simar (2012): Applied Multivariate Statistical Analysis. 3<sup>rd</sup> Edition, Springer.
14. S. P. Mukherjee • Bikas K. Sinha, Asis Kumar Chattopadhyay (2018): Statistical Methods in Social Science Research, Springer.

Semester	Course code	Course Title	Type of course	Credit	Teaching Hours
<b>IV</b>	<b>EC820401</b>	<b>Financial Economics</b>	<b>Elective-C-1</b>	<b>3</b>	<b>90</b>
Course Objectives					
<p><i>Financial economics is a very active field of applied economics research. The purpose of this course is to provide the foundations for the study of modern financial economics. Concentrating on individual's consumption and portfolio decisions under uncertainty, we will explore the implications of these decisions on the valuation of securities. The focus will be on single period models, although some dynamics, discrete-time models will be considered. The course will include topics such as: present value and discounting, interest rates and yield to maturity, various financial instruments including financial futures, the efficient market theory, basic asset pricing theory, the capital asset pricing model, and models for pricing options. The course on Financial Economics is designed with the following objectives in mind. Firstly, to familiarize students with the financial system and its components viz. financial instruments, financial institutions, financial markets, and financial regulations. Secondly, to provide conceptual insights into the valuation of securities; to provide insight about the relationship of the risk and return and how risk should be measured to bring about a return according to the expectations of the investors; and finally, to familiarize the students with the fundamental and technical analysis of the diverse investment avenues.</i></p>					

**Unit-1: Time and Resource Allocation (20 Hours)**

- 1.1. Time Value of Money: Why the time value of Money; Simple Interest and Compounded Interest; Nominal and Real Rates of Interest; Future Value.
- 1.2. Compounding—present value and discounting—discounted cash flow decision rules—Annuities—Loan Amortization—exchange rate and time value of money—inflation and DCF analysis— Perpetuity and Growing Perpetuity -taxes and investment decision.
- 1.3. Household saving and investment decisions--- A life cycle model of saving—social security—deferring taxes through voluntary retirement plans.
- 1.4. Analysis of investment project—Project analysis- NPV – cost of capital—project with different lives—ranking mutually exclusive project and inflation and capital budgeting

**Unit-2: Valuation Models: Valuation of Securities (10 Hours)**

- 2.1 Asset's value and its price---- law of one price and arbitrage---arbitrage and prices of financial assets—interest rates and law of one price
- 2.2. Valuation models: valuing real estate and shares of stock

2.3. Valuation of Bonds and stocks, Pure Discount Bonds, Coupon Paying Bonds, Bond Yield, Yield to Maturity

2.4. Valuation of Preference and Common stocks: Discounted-Dividend Model

**Unit-3: Security analysis**

**(15 Hours)**

3.1. Economic/Market Analysis

3.2. Industry Analysis

3.3. Company Analysis

3.4. Technical Analysis.

**Unit-4: Risk Management and Portfolio Theory**

**(20 Hours)**

4.1. Risk and Return Concepts: Concept of Risk, Types of Risk- Systematic risk, Unsystematic risk, Risk and Return: Concepts; Relationship Between Risk and Return; Calculation of Risk and returns: Variance and Standard Deviation- Trade-off between risk and return (the Markowitz model) -Risk Diversification

4.2. Portfolio Risk and Return: Expected returns of a portfolio, Calculation of Portfolio Risk and Return, Portfolio with 2 assets, Portfolio with more than 2 assets.

4.3. Risk management process—risk transfer: hedging, insuring and diversifying

4.4. Portfolio theory—process of personal portfolio selection—trade-off between expected return and risk—efficient diversification with many risk assets

4.5. Modern Portfolio Theory: Markowitz Model -Portfolio Selection, Opportunity set, Efficient Frontier. Beta Measurement and Sharpe Single Index Model

4.6. Capital Asset pricing model: Basic Assumptions, CAPM Equation, Security Market line, Extension of Capital Asset pricing Model - Capital market line, SML VS CML

4.7. Arbitrage Pricing Theory: Arbitrage, Equation, Assumption, Equilibrium. of Treynor, Sharpe and Lintner

4.8. Efficiency Management Hypothesis (EMH) – The weak, semi-strong and the strong form of EMH.

**Unit-5: Derivative Markets**

**(25 Hours)**

5.1. Markets for derivatives, Types, uses and pricing of derivatives; Future Contracts and Forward Contracts; Future and forward Markets, Origin of Future Trading; Future Prices Relation between Spot and Future Prices, Commodity Future; Financial Future; Hedging in Futures.

5.2. Options. The Put Option and Call Option; Option Pricing, the Pay-Offs. From Buying and Selling Options. Option Pricing Models: The Black-Scholes formula -The Binomial Model.

5.3. Swaps Currency and Interest Rate Swaps; Equity and Commodity Swaps.

**Reference:**

1. Zvi Bodie, Alex Kane and Alan J. Marcus: Financial Economics, 2nd Ed. McGraw-Hill
2. Chris Jones (2008): Financial Economics, Routledge.
3. Stephen F. LeRoy and Jan Werner (2003): Principles of Financial Economics
4. Chandra, Prasanna (2016), Investment Analysis and Portfolio Management, Tata McGraw Hills.
5. Charles P. Jones (2013): Investments: Analysis and Management, 12<sup>th</sup> Ed, Wiley.
6. David G. Luenberger (1997): Investment Science, Oxford University Press, USA.
7. Elton, E.J and et.al, (2014): Modern Portfolio Theory & Investment Analysis, 9<sup>th</sup> Ed John Wiley & Sons.
8. Frank K. Reilly and Keith C. Brown (2012): Investment Analysis and Portfolio Management, 10<sup>th</sup> Ed, South-Western, Cengage Learning.
9. John C. Hull, (2005), Options Futures and other Derivatives, Prentice Hall, New Delhi
10. Zvi Bodie, Alex Kane and Alan J. Marcus (2011), Investments, 9<sup>th</sup> Ed, ISBN: 0-07-338237-X, McGraw-Hill
11. Bradford D. Jordan, Thomas W. Miller Jr. and Steven D. Dolvin (2012): Fundamentals of Investments: Valuation and Management, 7<sup>th</sup> Ed, McGraw Hill publication.
12. David G. Luenberger (2000): Investment Science, OUP.
13. Haugen Robert (2017): Modern Investment Theory, Pearson Education
14. Jack Clark Francis and Dongcheol Kim (2013): Modern Portfolio Theory: Foundations, Analysis, and New Developments, John Wiley & Sons, Inc

Semester	Course code	Course Title	Type of course	Credit	Teaching Hours
<b>IV</b>	<b>EC820402</b>	<b>Game Theory and Its Economic Applications</b>	<b>Elective-C-2</b>	<b>3</b>	<b>90</b>
<b>Course Objectives</b>					
<p><i>The study of economics is an attempt to understand the ways in which people behave and make decisions, as individuals and in group settings. The goal is to apply our understanding to the analysis of questions pertinent to the functioning of societies and their institutions. Social scientists have developed frameworks and rigorous models that abstract from reality with the intent of focusing attention on the crux of the issues at hand. We use these models not only to shed light on what we observe but also to help us predict what we cannot see.</i></p> <p><i>Game theory provides a framework based on the construction of rigorous models that describe situations of conflict and cooperation between rational decision makers. Following the tradition of mainstream decision theory and economics, rational behaviour is defined as choosing actions that maximize one's payoff subject to the constraints that one faces. This is clearly a caricature of reality, but it is a useful benchmark that in many cases works surprisingly well. Topics include strategic games, extensive games, repeated games, Non-cooperative static games, dynamic games with perfect and imperfect information. Game theory has been successfully applied to many relevant situations, such as business competition, the functioning of markets, political campaigning, jury voting, auctions and procurement contracts, and union negotiations, to name just a few. This course is designed to equip students with a solid understanding of modern game theory and its applications in Economics.</i></p>					

### **Unit- 1: Introduction to Game Theory**

**(10 Hours)**

- 1.1.Strategic behaviour
- 1.2.Belief, strategy and expected payoff
- 1.3.Normal and extensive forms
- 1.4.Prisoner's dilemma
- 1.5.Nash equilibrium

### **Unit- 2: Non-cooperative Static Games: Complete information**

**(25 Hours)**

- 2.1. One-time games- Dominant strategies and equilibrium
- 2.2. Three player games—Non-dominant strategies—Multiple Nash equilibrium—Focal point equilibrium
- 2.3. Evolutionary game theory-Infinitely and Finitely repeated games—Collusion—Trigger strategies—Cheating and threats—End of game problem—Folk theorem—Certain and

uncertain end—Common enforcement mechanisms—N-person games—Simplifying assumptions—Proportional games

2.4. Mixing pure strategies—Zero sum games—Minimax theorem—Mixed strategies—Optimal mixing rules—Randomising pure strategies—Bluffing

2.5. Static games with continuous strategies—Reaction functions—Shifting reaction functions

### **Unit- 3: Dynamic Games with Perfect Information (20 Hours)**

3.1. Game trees—Sub game perfect equilibrium—Backward induction—First mover advantage—Credible threats—Dynamic games with continuous strategies

3.2. Pure strategies with uncertain payoffs—Static and dynamic games with uncertain payoffs—Harsanyi transformation

3.3. Static Bayesian game—Bayesian Nash equilibrium

3.4. Risk and uncertainty—Attitudes towards risk—Risk averse behaviour of consumer and firm

### **Unit- 4: Dynamic Games with Imperfect Information (10 Hours)**

4.1. Dynamic games with imperfect information—Information sets—Bayesian updating

4.2. Separating strategy—Pooling—Strategy screening

### **Unit- 5: Application of Games (25 Hours)**

5.1. Mechanism design—Game design and revelation principle

5.2. Social mechanism design—Liability—Paradox of benevolent authority

5.3. Voting games—Strategic voting—Voting problems and criteria—Alternative voting schemes

5.4. Auctions—Auction types—Auctions with complete and perfect information, independent private values—Common value auctions and winner's curse—Efficiency of auctions—Design of Optimal Auctions—Revenue equivalence theorem

### Essential Reading:

- 1) Martin J. Osborne (2012): An Introduction to Game Theory, Oxford University Press
- 2) Thomas J Webster (2009): Introduction to Game Theory in Business and Economics, Segment Books
- 3) H. Scott Bierman, Luis Fernandez (2011): Game Theory with Economic Applications, Addison Wesley.
- 4) Robert Gibbons (2005): Game Theory for Applied Economists, Princeton University Press.

### Supplementary Reading:

1. Å. N. Barron (2008): Game Theory: An Introduction, John Wiley & Sons, Inc., Publication
2. Akio Matsumoto • Ferenc Szidarovszky (2016) : Game Theory and Its Applications, Springer.
3. Andrew M. Colman (2003): Game Theory and its Applications in the Social and Biological Science, 2<sup>nd</sup> Ed, Routledge.
4. Aviad Heifetz (2012): Game Theory: Interactive Strategies in Economics and Management, Cambridge University Press.
5. Avinash Dixit and Susan Skeath (2004): Games of Strategy, W. W. Norton & Company.
6. Benoit Chevalier-Roignant and Lenos Trigeorgis (2016): Competitive Strategy: Options and Games, The MIT Press.
7. Charles A Holt (2007): Markets, Games and Strategic Behaviour, Pearson.
8. Drew Fudenberg and Jean Tirole: Game Theory, The MIT Press.
9. Eric Rasmusen (2010): Games and Information: An Introduction to Game Theory, 4<sup>th</sup> Ed. Wiley-Blackwell
10. Fiona Carmichael (2005): A Guide to Game Theory, PHI.
11. Game Theory and Economics by Dr. Debarshi Das, Department of Humanities and Social Sciences, IIT Guwahati. For more details on NPTEL visit <http://nptel.iitm.ac.in>.
12. Graham Romp (1997): Game Theory: Introduction and Applications, OUP.
13. Joel Watson (2013): Strategy: An Introduction to Game Theory, 3<sup>rd</sup> Ed. WW Norton & Company.
14. Robert Gibbons (2000): A Primer in Game Theory, PHI.



15. Roger A. McCain (2010): Game Theory: A Non-Technical Introduction to the Analysis of Strategy, World Scientific Publishing Co Pte Ltd.
16. Saul Stahl (2016): A Gentle Introduction to Game Theory, AMS.
17. Steven Tadelis (2013): Game Theory: An Introduction, Princeton University Press.



Semester	Course code	Course Title	Type of course	Credit	Teaching Hours
<b>IV</b>	<b>EC820403</b>	<b>Economics of Business Strategy</b>	<b>Elective-C-3</b>	<b>3</b>	<b>90</b>
<b>Course Objectives</b>					
<p><i>This course in applied microeconomics is concerned with the analysis of behavior, performance and strategic interactions of firms. It goes beyond the perfectly competitive model by considering the nature of firms, market power and how it affects their behavior and subsequently consumers? The purpose of the course is to help the students to have a holistic understanding of the firm - about the industry and the competitive environment in which it operates. The learning objectives of the Business Strategy course are: *To develop your capacity to think strategically about a firm as a whole; about its present business position, its long-term direction, its resources and competitive capabilities, the nature of its strategy and its opportunities for gaining sustainable competitive advantage. *To develop your skills in conducting strategic analysis in a variety of industries and competitive situations and, especially, to provide you with a strong understanding of the competitive challenges of a global market. *To get you acquainted with managerial tasks associated with implementing and executing firm strategies, to drill you in the range of actions the managers can take to promote competent business strategy.</i></p>					

### **Unit- 1: Approaches to Competitive Market Analysis**

**(10 Hours)**

- 1.1.The Structure Conduct Performance Paradigm of Joe S. Bain
- 1.2.Alternative Approaches to Competitive Analysis--Austrian and Schumpeterian views—  
Baumol’s Contestable markets
- 1.3.Managerial approach
- 1.4.Transaction cost analysis
- 1.5.Porter’s “Five Forces” model of competition.
- 1.6.Organization Ecology

### **Unit- 2: Analysis of Firm Strategy-I**

**(25 Hours)**

**2.1. Product Differentiation:** Forms of product differentiation--Horizontal and vertical product differentiation- Theoretical analysis of product differentiations—The Bertrand model with product differentiation—product differentiation with asymmetric information-- The Lemons Model --Adverse Selection- Lancaster’s product characteristics model --- Location Models: Hotelling’s location model -- Salop’s location model

**2.2 Pricing strategy:** Cost-oriented methods: Mark-up, cost-plus, Break-even, target return pricing. --Market-oriented Methods: Going-rate pricing, Premium pricing, Discount pricing, Sealed-bid Pricing--Peak-Load Pricing-Multi-Product Pricing- Predatory pricing --Pricing of a new product: Skimming and Penetration pricings--- Non-Linear Pricing Practices: Price

Discrimination -Conditions and Types of Price Discrimination -Perfect, Individual and Group (Second Degree) and multimarket (Third-Degree) Price Discrimination- Block-Declining Tariff- Two-Part Tariff- Bundling- Tying- Quantity discounts- Ramsey pricing- Quality differentiation- Priority pricing and efficient rationing

**2.3. The Advertising Decision of the Firm:** Marginalistic, Profit-Maximising Models of The Advertising Decision--Buchanan's Advertising-Price Model--Schmalensee's Model of Oligopoly Advertising--A Managerialist Model of Advertising: The Baumol-Hawkins--Bushnell-Kafoglis Static Model-- A Model of Advertising Barriers: Williamson's--Model of Advertising as an Entry -Prevention Strategy- Effects of Advertising.

### **Unit- 3: Analysis of Firm Strategy-II** (20 Hours)

**3.1. Entry and Exist: Barriers to entry** --- Structural, Legal barriers and Geographic barriers - Taxonomy of entry-related strategies---Entry-detering strategies --Entry accommodation --- Product Proliferation-- Natural monopoly and contestability--sunk costs and barriers to entry--the Stackelberg-Spence\_Dixit model-The Milgrom-Roberts Model of Limit Pricing - The theory of contestable markets.

**3.2. Cartels and collusion:** Cartels Form -- Creating and Enforcing the Cartel - Factors That Facilitate the Formation of Cartels: Simultaneous and Sequential cartel formation- Network of market-sharing -- tacit collusion-- multimarket contact- cyclical demand---detecting and fighting collusion-The difficulty in detecting collusion -Leniency and whistleblowing programs.

### **Unit- 4: Corporate Strategy: *Integration-Diversification-Merger and Acquisitions*** (20 Hours)

**4.1. Diversification** ---Corporate focus and De-conglomeration-- The multinational enterprise --Concentric-horizontal and conglomerate diversification.

**4.2. Mergers and Acquisitions (Takeover):** Difference between Merger and Takeover- Mergers and the Profit-maximisation Hypothesis- Mergers and the Valuation-Discrepancies Hypothesis- Mueller's Model of Conglomerate Mergers

**4.3. Vertical Integration and Vertical Restraints**-motives and forms of vertical restraints, Measures and determinants—Franchising.

**4.4. Foreign Direct Investment (FDI):** Types and Causes of Horizontal and Vertical FDI- Economic Effects of Foreign Direct Investment

**Unit- 5: Government and Business : Regulation and Deregulation**

**(15 Hours)**

5.1. Market Failure and Government Policy: Market Failure and The Case for Government Intervention - Regulating to Correct A Market Failure-Appling the Cost-Benefit Principle to Regulation

5.2. Antitrust Law and Competition -The Inefficiency of Competition with Externalities - Reducing Externalities

5.3. Governmental Protection of Business -- Protection of Intellectual Property --Licensing and Permitting -Patents -Copyright Protection -Competition Policy.

**Essential Reading:**

1. John Lipczynski and John Wilson (2010): The Economics of Business Strategy, Prentice Hall.
2. A. Koutsoyiannis (1982): Non-Price Decisions: The Firm in a Modern Context, The Macmillan Press Ltd.
3. Dennis W. Carlton and Jeffrey M. Perloff (2015): Modern Industrial Organization 4th Ed, Pearson.
4. Besanko, Dranove, Shaley and Schaefer (2013): Economics of Strategy,6th Ed, Wiley.
5. Don E. Waldman Colgate and Elizabeth J. Jenson (2013): Industrial Organization Theory and practice 4th Ed, Pearson.
6. Jay B.Barney (2014): Gaining and Sustaining Corporate Strategy, 6<sup>th</sup> Ed, Pearson.
7. Paul Belleflamme and Martin Peitz(2010): Industrial Organization: Markets and Strategies, Cambridge University Press.
8. Luis M.B.Cabral(2002): Introduction to Industrial Organization, The MIT Press.
9. John Lipczynski , Johan O.S. Wilson and John Goddard(2017): Industrial Organisation: Competition, Strategy and Policy, 5th Ed, Pearson.

**Additional Reference:**

10. Jean Tirole (2007): Theory of Industrial Organisation, PHI.
11. Maria Moschandreas (2002): Business Economics, 2<sup>nd</sup> Ed, Thomson.
12. Jeffrey Church and Roger Ware (2001): Industrial Organisation: A Strategic Approach, Irwin Mc Graw-Hill.
13. Kenneth D. George, Caroline Joll and E.L.Lynk(2001): Industrial organisation Competition, Growth and Structural Change, 5<sup>th</sup> Ed, Routledge.
14. Lynne Pepall, Dan Richards and George Norman (2014): Industrial Organisation; Contemporary Theory and Empirical Application, 5<sup>th</sup> Ed, Wiley.

15. Malcolm C. Sawyer (1991): *The Economics of Industries and Firms: Theories, Evidence and Policy*, 2<sup>nd</sup> Ed, Routledge.
16. Martin Ricketts (2002): *The Economics of Business Enterprise: An Introduction to Economic Organisation and the Theory of Firm*, 3<sup>rd</sup> Ed, Edward Elgar.
17. Oz Shy (1995): *Industrial Organisation: Theory and Applications*, The MIT Press.
18. Stephen Martin (2010): *Industrial Organisation in Context*, OUP.
19. Stephen Martin, *Advanced Industrial Economics*; Blackwell, 2003.
20. • *Handbook of Industrial Organization*, Vol. I, II, and III.
21. Ian M. Dobbs (2010): *Managerial Economics: Firms, Markets and Business Decisions*, OUP.
22. Paul G. Kear, Philip K.Y. Young and Stephen E. Erfle (2011): *Managerial Economics: Economic Tools for Today's Decision Makers*, Pearson. William F. Samuelson and Stephen G. Marks (2012): *Managerial Economics*, 7<sup>th</sup> Ed, John Wiley & Sons, Inc.
23. Michael R. Baye (2012): *Managerial Economics and Business Strategy*, 7<sup>th</sup> Ed, McGraw-Hill.
24. Luke M. Froeb and Brian McCann (2008): *Managerial Economics: A Problem Solving Approach*, Thomson.
25. Christopher R Thomas and Charles Maurice (2013): *Managerial Economics: Foundations of Business Analysis and Strategy*, Mc Graw Hill.
26. Thomas J. Webster (2010): *Managerial Economics: Theory and Practice*, Academic Press.
27. Majes R. McGuigan, Charles Moyer and Frederick M deB. Harris (2012): *Managerial Economics: Application, Strategy and Tactics*, South-Western.
28. Jeffrey M. Perloff and James A. Brander (2018): *Managerial Economics and Strategy*, Pearson

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