



SYLLABUS

Core, Complementary
& Open Courses

UG PROGRAMME IN ECONOMICS

Under Choice Based Credit Semester
System

FAROOK COLLEGE
(AUTONOMOUS)

I hereby certify that the documents attached are the bonafide copies of the syllabus of Core Courses offered to BA Economics programme and Complementary & Open Courses offered by the Department of Economics to be effective from 2022 admission onwards.

Principal

Date:
Place: Farook College

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MEMBERS OF BOARD OF STUDIES

CHAIRMAN

1. Mr. P. Muhammed Rasheed

Associate Professor & HoD Dept. of Economics
Farook College (Autonomous), Calicut
e-mail: rasheedchalavara@gmail.com
Ph: 9496351997

MEMBERS

1. Dr. Shyjan Davis

Associate Professor (On Deputation)
John Mathai Centre, University of Calicut,
9400370320, shyjandavis@gmail.com

2. Dr. Shaheed Ramzan

Associate Professor and Head
Govt. Arts and Science College, Calicut
9745866606, cpsramzan@gmail.com

3. Dr. Y.C. Ibrahim

Associate Professor and Head
Dept. of Economics, Govt. College, Kodencherry
9446156983, ycibrahim@gmail.com

4. Mr. Rohit Nair

Project Manager
Global Workforce Planning, Ernst & Young, Info Park Kochi
999515345, rohitvijaynair@gmail.com

5. Dr. Abdul Jabbar A.T.

Asst. Professor
Dept. of Economics, Farook College (Autonomous)
9400833013, abduljabbar@farookcollege.ac.in

6. Dr. Yazir P.

Asst. Professor

Dept. of Economics, Farook College (Autonomous)

9494242407, yasinbox@gmail.com

7. Dr. Muhammed Kasim C

Asst. Professor

Dept. of Economics, Farook College (Autonomous)

9562061066, kasimeco@gmail.com

Special Invitee

1. Dr. P.P. Yusufali

Associate Professor (Rtd)

9446648721, yusufalipp@gmail.com

2. Prof. C.P. James

Associate Professor (Rtd.)

9446401120, drceepjeejames@gmail.com

PROGRAMME SPECIFIC OUTCOMES (PSO)

Upon completion of BA Economics programme, the students will be able to:

- PSO 01** Graduates will be able to recall fundamental concepts and principles of Economics that were produced in the literature and drew global attention.
- PSO 02** Graduates will be able to comprehend the interrelationships between economic concepts, theories, and policies
- PSO 03** Graduates will be able to apply economic models and tools to analyze real-world problems and develop policies that promote economic efficiency, equity, and sustainability
- PSO 04** Graduates will be able to analyze economic data and statistics using quantitative methods and models, and draw valid conclusions from empirical evidence.
- PSO 05** Graduates will be able to evaluate the scope and effectiveness of economic policies, programs, and institutions, and propose alternative solutions based on economic reasoning and evidence.
- PSO 06** Graduates will be able to design and conduct research projects that address significant economic issues and contribute to the advancement of knowledge in the field of economics.
- PSO 07** Graduates will be able to integrate knowledge and skills from different economic subfields, such as microeconomics, macroeconomics, international economics, and development economics, etc. to solve complex economic problems.
- PSO 08** Graduates will be able to analyze economic systems and institutions, such as markets, firms, governments, and international organizations, and identify their strengths, weaknesses, and interactions.
- PSO 09** Graduates will be able to evaluate the ethical and social implications of economic decisions and policies, and propose solutions that promote social welfare and justice.
- PSO 10** Graduates will be able to apply economic principles and theories to innovate and develop new products, services, and businesses that contribute to economic growth and social welfare.

SCHEME OF THE PROGRAMME

Credit and Mark Distribution in Each Semester

Total Credits: 140

Semester	Course	Credit	Internal Mark	External Mark	Total Mark
I	Common course: English	3	15	60	75
	Common course: English	3	15	60	75
	Common course: Additional Language	4	20	80	100
	Core Course 1: Micro economics I	5	20	80	100
	Complementary course: Mathematical Methods for Economics-I	2	10	40	50
	Complementary course: History	2	10	40	50
	Audit Course: Environment studies	4			
	Total		23		
II	Common course: English	4	20	80	100
	Common course: English	4	20	80	100
	Common course: Additional Language	4	20	80	100
	Core Course 3: Microeconomics II	5	20	80	100
	Complementary course: Mathematical Methods for Economics-II	2	10	40	50
	Complementary course: History	2	10	40	50
	Audit Course: Disaster Management	4			
	Total		25		

III	Common course: English	4	20	80	100
	Common course: Additional Language	4	20	80	100
	Core Course 3: Quantitative Methods for Economic Analysis-I	4	20	80	100
	Core Course 4: Indian Economic Development: National and Regional-I	4	20	80	100
	Complementary course: Mathematical Methods for Economics-III	2	10	40	50
	Complementary course: History	2	10	40	50
	Audit Course: Human Rights/Intellectual Property Rights/ Consumer Protection	4			
	Total	24			500
IV	Common course: English	4	20	80	100
	Common course: Additional Language	4	20	80	100
	Core Course 5: Quantitative Methods for Economic Analysis-II	4	20	80	100
	Core Course 6: Indian Economic Development: National and Regional-II	4	20	80	100
	Complementary course: Mathematical Methods for Economics-IV	2	10	40	50
	Complementary course: History	2	10	40	50
	Audit Course: Gender Studies/Gerontology	4			
	Total	24			500

V	Core Course 7: Macroeconomics I	4	20	80	100
	Core Course 8: History of Economic Thought	4	20	80	100
	Core Course 9: Basic Econometrics	4	20	80	100
	Core Course 10: Financial Markets	4	20	80	100
	Open course	3	15	60	75
	Total	19			475
VI	Core Course 11: Macroeconomics II	4	20	80	100
	Core Course 12: International Economics	4	20	80	100
	Core Course 13: Development Economics	4	20	80	100
	Core Course 14: Public Finance	4	20	80	100
	Elective Course: Research Methodology	3	15	60	75
	Elective Course: Behavioral Economics				
	Elective Course: Economics Application using Excel				
	Elective Course: Environmental Economics				
	Project Work	2	15	60	75
Total	21			550	
English		22			550
Additional Language		16			400
Complementary Course: Mathematical Methods for Economics		8			200
Complementary Course: History		8			200

Core Course: Economics	58			1400
Open Course	3			75
Elective Course	3			75
Project	2			75
<i>Audit Course</i>	16			-
<i>Extra Credit Activities</i>	4			-
Total	140			2975

Semester	Common Course		Core Course	Complementary Course		Open Course	Project	Audit Course	Total
	English	Additional language		Maths	History				
1	3(A1)+3(A2)	4(A7)	5	2	2			4	23
2	4(A3)+4(A4)	4(A8)	5	2	2			4	25
3	4(A5)	4(A9)	4+4	2	2			4	24
4	4(A6)	4(A10)	4+4	2	2			4	24
5			4+4+4+4			3			19
6			4+4+4+4			3	2		21
Total	22	16	58	8	8	6	2	16	136
Extra Credit Activities									4
Grand Total = (120 + 16 Audit Courses + 4 Extra Credit Activities)									140

Credit Distribution

CORE COURSE STRUCTURE

Total Credits: 58 (Internal: 20%; External: 80%)

Semester	Code No	Course Title	Hrs/Week	Credit	Marks
I	BEC1B01	Core Course I: MICROECONOMICS I	6	5	100
II	BECO2B02	Core Course II: MICROECONOMICS II	6	5	100
III	BEC3B03	Core Course III: QUANTITATIVE METHODS FOR ECONOMIC ANALYSIS-I	5	4	100
	BEC3B04	Core Course IV: INDIAN ECONOMIC DEVELOPMENT: NATIONAL AND REGIONAL-I	4	4	100
IV	BEC4B05	Core Course V: QUANTITATIVE METHODS FOR ECONOMIC ANALYSIS-II	5	4	100
	BEC4B06	Core Course VI: INDIAN ECONOMIC DEVELOPMENT: NATIONAL AND REGIONAL-II	4	4	100
	BEC5B07	Core Course VII: Macroeconomics I	5	4	100
V	BEC5B08	Core Course VIII: History of Economic Thought	4	4	100
	BEC5B09	Core course IX: Basic Econometrics	5	4	100
	BEC5B10	Core Course X: Financial Markets	5	4	100
VI	BEC6B11	Core Course XI: Macroeconomics II	5	4	100
	BEC6B12	Core Course XII: International Economics	5	4	100
	BEC6B13	Core Course XIII: Development Economics	4	4	100
	BEC6B14	Core Course XIV: Public Finance	5	4	100
				58	1400

ELECTIVE COURSE STRUCTURE

Semester	Code No	Course Title	Hrs/ Week	Credit	Marks
VI	BEC6E01	Elective Course I: Research Methodology	3	3	75
	BEC6E02	Elective Course II: Behavioral Economics			
	BEC6E03	Elective Course III: Economics Application using Excel			
	BEC6E04	Elective Course IV: Environmental Economics			

OPEN COURSE STRUCTURE

Semester	Code No	Course Title	Hrs/ Week	Credit	Marks
V	BEC5D01	Open Course I: ECONOMICS IN EVERYDAY LIFE	3		75
	BEC5D02	Open Course II: INTERNATIONAL TRADE AND FINANCE			

COMPLEMENTARY COURSE STRUCTURE

Total Credits: 8 (Internal: 20%; External: 80%)

Semester	Code No	Course Title	Hrs/ Week	Total Hrs	Credit	Marks
I	BEC2C01	Complementary Course I: Mathematical Methods for Economics-I	3		2	50
	BHS1C01	COMPLEMENTARY COURSE II: MODERN INDIAN HISTORY INDIA UNDER COLONIAL RULE AND EARLY RESISTANCES (1857- 1885)	3		2	50
II	BEC2C02	COMPLEMENTARY COURSE III: Mathematical Methods for Economics-II	3		2	50
	BHS2C01	COMPLEMENTARY COURSE IV: MODERN INDIAN HISTORY INDIAN NATIONAL MOVEMENT - FIRST PHASE (1885- 1917)	3		2	50
III	BEC3C03	COMPLEMENTARY COURSE V: Mathematical Methods for Economics-III	3		2	50
	BHS3C01	COMPLEMENTARY COURSE VI: MODERN INDIAN HISTORY INDIAN NATIONALMOVEMENT-GANDHIA N PHASE	3		2	50
IV	BEC4C04	COMPLEMENTARY COURSE - VII: Mathematical Methods for Economics-IV	3		2	50
	BHS4C01	COMPLEMENTARY COURSE VIII: MODERN INDIAN HISTORY SELECTED THEMES IN CONTEMPORARY INDIA	3		2	50
Total						400

CORE COURSE SYLLABUS

SEMESTER 1

COURSE CODE: BEC1B01				
CORE COURSE I: MICROECONOMICS I				
Credit	Hours/week	Marks		
		Internal	External	Total
5	6	20	80	100

Course Outcomes	Expected Course Outcome	Learning Domain	PSO No
	Upon completion of this course, students will be able to;		
CO1	Able to explain the fundamental concepts of Micro Economics such as wealth, welfare, scarcity, growth, and economic systems	Remember, Understand	PSO1 PSO2
CO2	Analyze the market demand and supply curves, identify the determinants of demand and supply, and measure the elasticity of demand and supply	Analyse	PSO4
CO3	Apply utility analysis in consumer behavior and analyze the demand for normal, inferior, and Giffen goods. They will also understand the concept of consumer surplus and the theory of revealed preference	Apply, Analyse	PSO3 PSO8
CO4	Analyze the theory of production and costs and explain the cost concepts, such as explicit and implicit, private and social, fixed and variable, and accounting costs. They will also analyze the	Analyse	PSO 4

	production function, scale of production, and the law of returns to scale		
CO5	Evaluate the economic model and use the Production Possibility Curve to analyze an economy's production and consumption possibilities. They will also understand the concepts of positive and normative economics and value judgments	Understand, Evaluate	PSO9 PSO2
CO6	Synthesize the different economic analysis methods such as induction and deduction to analyze economic issues and propose solutions and to apply their understanding of the basic problems of an economy and the market equilibrium to make sound economic decisions	Synthesise, Apply	PSO3 PSO7

COURSE CONTENT	
Module I: Exploring the Subject Matter of Economics	16 Hours
Nature and scope of Micro Economics- Micro Versus Macro- Concepts of wealth, welfare, scarcity and growth - Methods of economic analysis- Induction and deduction-Positive and normative economics-Value judgments- scarcity and choice- the basic problems of an economy- Production Possibility curve- Economic systems- Economic model	
Module II: Demand and Supply Analysis	20 Hours
Concept of Demand- Law of Demand- Determinants of demand – Types of Demand – Demand Function – Market Demand Curve - Elasticity of Demand – Price, Income and Cross elasticity of demand –Measurement of Elasticity of Demand- Point, arc and total expenditure method. Demand Forecast- Meaning- Factors influencing demand forecast. Concept of Supply – Law of Supply – Determinants of Supply – Supply Function – Elasticity of Supply – Market Supply Curve -Market Equilibrium- changes in demand and supply and equilibrium	
Module III: Theory of Consumer Behaviour	30 Hours

Utility Analysis – Cardinal and Ordinal approaches – Law of Diminishing Marginal Utility – Law of Equi-marginal utility, indifference curve, properties of indifference curves – Income Price (Budget) line – Equilibrium of the Consumer with the help of indifference curves – Price, Income and Substitution effect- Derivation of individual demand curve for normal good – Decomposition of Price effect into income effect and substitution effect – Hicksian and Slutsk’s methods–Normal, inferior and Giffen goods – Application of Indifference Curves – Theory of Revealed Preference – Revealed Preference axioms – Consumer surplus – Marshall and Hicks.

Module IV: Theory of Production and Costs

30 Hours

Cost function and Cost concepts – Explicit and implicit- Private & Social- Fixed and Variable- Short run and long run- MC, AC, AFC, AVC, ATC- accounting cost. Traditional theory of costs- Modern theory of costs.

Concept of Production – Production Function – Scale of production- short run versus long run production function- Law of Variable Proportions – Law of Returns to Scale – the Isoquant- Isocost Approach–producers equilibrium–expansion path- Internal and External Economies- Cobb–Douglas production function

MODE OF TRANSACTION

Lecture: Lecturing is one of the most common teaching methods used in economics. Lectures can be delivered using visual aids such as PowerPoint presentations, videos, and handouts.

Case studies: Real-world examples of how economic theories are used in businesses, industries, and governments can be used to enhance student learning.

Group discussion: Group discussions can be used to promote critical thinking and allow students to share their ideas and opinions. This method encourages student engagement and participation.

Interactive activities: Interactive activities, such as games and simulations, can be used to help students learn economic concepts in a fun and engaging way. These

activities can be used to simulate market scenarios, economic decision-making, and production processes.

Problem-based learning: Problem-based learning involves presenting students with real-world problems and challenges related to economic concepts. Students are then required to apply economic theories to solve these problems.

Flipped classroom: In a flipped classroom, students learn the course content before class through online videos or readings. Classroom time is then used for discussion, problem-solving, and interactive activities. This method encourages student engagement and allows for more personalized learning.

MODE OF ASSESSMENT

Internal Assessment (20 Marks)

- | | |
|-----------------------------------|--------|
| a. Classroom participation (20%): | 4 Mark |
| b. Test papers I (40%): | 8 Mark |
| c. Assignment (20%): | 4 Mark |
| d. Seminar/ Viva (20%): | 4 Mark |

External Assessment (80 Marks) Duration 2.5 Hours, No of Questions: 27

MODULE WISE MARK DISTRIBUTION

Module	Mark
Module I: Exploring the Subject Matter of Economics	20
Module II: Demand and Supply Analysis	25
Module III: Theory of Consumer Behaviour	35
Module IV: Theory of Production and Costs	30

REFERENCES:

1. Dominick Salvatore (2003): Microeconomics: Theory and Applications- 4thEdition, Oxford University Press.
2. Robert S Pindyck and Daniel L Rubinfeld (2009): Microeconomics- 8th Edition, Pearson India.
3. Watson and Getz (2004): Price Theory and its Uses- 5thEdition, AITBS Publishers and Distributors.
4. A Koutsoyiannis (1979): Modern Microeconomics- 2ndEdition, Macmillan.
5. G S Madalla and Ellen Miller (1989): Microeconomics: Theory and Applications- Tata McGraw-Hill.
6. Robert Y Awh (1976): Microeconomics: Theory and Applications- John Wiley & Sons.
7. H.R Varian (2009) , Intermediate Microeconomics- A Modern Approach., W W Norton & Co Inc; 8 edition
8. Gregory Mankiw (2006) Principles of Microeconomics,(Paperback) South Western Educational Publishing

SEMESTER 2

COURSE CODE: BECO2B02				
CORE COURSE II: MICROECONOMICS II				
Credit	Hours/week	Marks		
		Internal	External	Total
5	6	20	80	100

Course Outcomes	Expected Course Outcome	Learning Domain	PSO No
	Upon completion of this course, students will be able to;		
CO1	Able to Classify the fundamental concepts of Pricing, features of different market etc and evaluate the characteristics and market outcomes of different market structures, such as perfect competition, monopoly, monopolistic competition, and oligopoly.	Understand , Evaluate	PSO2 PSO5
CO2	Analyze the effects of government intervention and policies on market structures and their welfare implications	Synthesise	PSO7
CO3	Evaluate the behavior of firms operating in different market structures, such as pricing strategies and production decisions.	Evaluate	PSO9
CO4	Apply the concepts of marginal analysis, demand and supply analysis, and cost concepts to analyze and solve problems related to market structures.	Apply	PSO 3
CO5	Compare and contrast the different market structures, identifying their similarities and differences	Analyse	PSO4
CO6	Discuss the implications of market structures on factor markets and employment	Understand	PSO2
CO7	Critically apprise the efficiency and equity implications of different market structures, pricing strategies, and government interventions, and assess the social costs and benefits of monopoly power, monopsony power, and collusive behavior in oligopolistic markets.	Evaluate	PSO5

COURSE CONTENT	
Module I: Market Structure: Perfect Competition	18 Hours
<p>Introduction to Markets -Market - Functions - Market structure -Types of markets - Perfect competition - Characteristics - Demand AR and MR curves - Price determination in the market period- Short run equilibrium of the firm and industry- Shut down point-Long run equilibrium of the firm and industry- Long run Supply curve of Firm and industry- Constant, increasing and decreasing cost industries- Welfare effects of government intervention- Impact of a tax and subsidy.</p>	
Module II: Monopoly	25 Hours
<p>Monopoly- Sources of monopoly-Types of monopoly-AR and MR curve of a monopolist - Short run and long run equilibrium- Supply curve of a monopolist- The multi plant firm- Monopoly power-Measurement of monopoly power-Social cost of monopoly- Regulation of monopoly -Price discrimination-First degree, second-degree and third degree- International price discrimination (Dumping-types)-Two part tariff, tying and bundling-Peak load pricing- Monopsony- Bilateral monopoly.</p>	
Module III: Monopolistic Competition	15 Hours
<p>Monopolistic competition- Features of monopolistic competition-Nature of AR and MR-Short run and long run equilibrium- Excess Capacity-Product differentiation-types- selling costs- Group Equilibrium.</p>	
Module IV: Oligopoly	18 Hours
<p>Oligopoly-Characteristics- Collusive versus non-collusive oligopoly-Classic models of oligopoly Cournot model- Bertrand model -Edgewroth model -Kinked demand curve model - Cartel and price leadership</p>	

Module V: Pricing and Employment of Inputs**20 Hours**

Competitive factor markets -Demand curve of the firm for one variable input-Demand curve of the firm for several variable inputs- Market demand curve for an input - Supply of inputs to a firm- The market supply of inputs- Equilibrium in a competitive factor market- Factor market with monopoly power- Factor market with monopsony power-Marginal Productivity theory of input demand.

MODE OF TRANSACTION

Lecture: Lecturing is one of the most common teaching methods used in economics. Lectures can be delivered using visual aids such as PowerPoint presentations, videos, and handouts.

Case studies: Real-world examples of how economic theories of pricing are used in firms and industries can be used to enhance student learning.

Group discussion: Group discussions can be used to promote critical thinking and allow students to share their ideas and opinions. This method encourages student engagement and participation.

Interactive activities: Interactive activities, such as games and simulations, can be used to help students learn economic concepts in a fun and engaging way. These activities can be used to simulate market scenarios, economic decision-making, and production processes.

Problem-based learning: Problem-based learning involves presenting students with real-world problems and challenges related to economic concepts. Students are then required to apply economic theories to solve these problems.

Flipped classroom: In a flipped classroom, students learn the course content before class through online videos or readings. Classroom time is then used for discussion, problem-solving, and interactive activities. This method encourages student engagement and allows for more personalized learning.

MODE OF ASSESSMENT

Internal Assessment (20 Marks)

- | | |
|-----------------------------------|--------|
| a. Classroom participation (20%): | 4 Mark |
| b. Test papers I (40%): | 8 Mark |
| c. Assignment (20%): | 4 Mark |
| d. Seminar/ Viva (20%): | 4 Mark |

External Assessment (80 Marks) Duration 2.5 Hours, No of Questions: 27

MODULE WISE MARK DISTRIBUTION

Module	Mark
Module I: Market Structure: Perfect Competition	20
Module II: Monopoly	30
Module III: Monopolistic Competition	15
Module IV: Oligopoly	22
Module V: Pricing and Employment of Inputs	23

REFERENCES:

1. Dominick Salvatore (2003): Microeconomics: Theory and Applications- 4th Edition, Oxford University Press.
2. Robert S Pindyck and Daniel L Rubinfeld (2009): Microeconomics- 8th Edition, Pearson India.

3. Watson and Getz (2004): Price Theory and its Uses- 5th Edition, AITBS Publishers and Distributors.
4. A Koutsoyiannis (1979): Modern Microeconomics- 2nd Edition, Macmillan.
5. G S Madalla and Ellen Miller (1989): Microeconomics: Theory and Applications- Tata McGraw-Hill.
6. Robert Y Awh (1976): Microeconomics: Theory and Applications- John Wiley & Sons.

SEMESTER 3

COURSE CODE –BEC3B03				
CORE COURSE III: QUANTITATIVE METHODS FOR ECONOMIC ANALYSIS-I				
Credit	Hours/week	Marks		
		Internal	External	Total
4	5	20	80	100

Course Outcomes

CO No.	Expected Course Outcome	Learning Domain	PSO No.
	Upon completion of this course, students will be able to;		
CO1	Discuss the role and importance of statistics in economics and to identify the different types of data and variables.	Understand Remember	PSO2 PSO1
CO2	Prepare a scheduled questionnaire and to conduct data collection, data processing and exploratory data analysis using a range of tabular and graphical methods.	Apply Analyze	PSO3 PSO4

CO3	Apply various statistical tools to economic data to extract, analyze and summarize the major features inherent in it.	Apply Analyze Understand	PSO3 PSO4 PSO2
CO4	Construct index number and to apply in real economic data.	Create Apply	PSO6 PSO3
CO5	Demonstrate a time series data and to measure various components of time series	Understand Evaluate	PSO2 PSO5

COURSE CONTENT	
Module 1: Introduction to Statistics for Economics	10 Hours
<ol style="list-style-type: none"> 1. Scope of statistics in economics- 2. Basic Concept in Statistics: Element, observation, Data, Variable and its scale of measurement 	
Module 2: Stages of statistical Investigation in Economics	20 Hours
<ol style="list-style-type: none"> 1. Collection of data: Population and sample-Primary Data: Schedule and Questionnaire-Process of constructing an interview schedule-Secondary data and Sources 2. Organization: Tabulation, Principles of forming frequency distribution, 3. Presentation: Tabular and Diagrammatic, Bar diagram, Pie chart, histogram, frequency curve and cumulative frequency curve (Ogives), leaf and stem diagram, Line graph, Pie-diagram 4. Analysis and Interpretation: Descriptive and Inferential methods 	
Module 3: Descriptive Statistical methods	35 Hours
<ol style="list-style-type: none"> 1. Measures of Central tendency: why do we need to measure central tendency <ol style="list-style-type: none"> a. Measuring averages of quantitative variable: Arithmetic mean and its properties- Limitations of arithmetic mean: Weighted mean, Geometric mean, Harmonic Mean- b. Measuring averages of qualitative variable: Median and its properties, Limitation of median, measuring averages of Nominal Scale variable: Mode and its Estimation, Grouping Method, Limitations of Mode. c. Empirical relationship among mean, median and mode d. Partition Values: Quartiles, Deciles and Percentiles 2. Measures of Dispersion: Need of measuring variation of the data-Absolute and relative measures of variation 	

<ul style="list-style-type: none"> a. Distant measures: Range and its uses, inter quartile range, limitation of range- quartile deviation and its limitation b. Average Deviation Measures: Quartile deviation, Mean Deviation and Standard deviation and their Limitations, Variance and Coefficient of variation c. Graphical measures: Lorenz curve and Gini coefficient <p>3. Measures of Symmetry: Need of measuring symmetry of the data-symmetrical and asymmetrical distribution-Absolute measure of skewness-Relative measures of skewness: Karl Pearson's, Bowly's and Kelly's methods-moment bases measures method of skewness- Karl Pearson's beta and gamma measure of skewness</p> <p>4. Measures of Peakedness: Need of measuring degree of peakedness of the data-lepto-kurtic and platy-kurtic-measuring skewness</p>	
Module 4: Index Numbers	18 Hours
<p>1. Index Number-Why we need index number in Economics-Simple Index number: price, quantity and value- Weighted Index Number: Laspeyre's, Paasche's, Dorbish and Bowley's, Walsch's, Fisher's, Marshall-Edgeworth's and Kelly's methods TIME</p> <p>2. Tests of Adequacy of Index Number Formulae: Reversal Test (TRT), Factor Reversal Test (FRT) and Circular Test (CT)</p> <p>3. Fixed Base and Chain Base-Base Shifting-Splicing</p>	
Module 5: Introduction to Time Series Analysis	7 Hours
<p>1. Time Series: Components of Time Series,</p> <p>2. Measurement of Trend: Free Hand Curve Method, Semi-Average Method and Moving Average Method</p>	

MODE OF TRANSACTION

Teaching: Blended Learning combining different teaching methods, such as lecture-based teaching, interactive teaching, and hands-on teaching need to be conducted. In this approach, the lecture-based method will be used to explain the various concepts outlined in the syllabus using modern teaching aids. Certain parts of the syllabus require student participation, such as group discussions and seminars. The teacher in charge should adopt a hands-on teaching approach, allowing students to work with data and conduct statistical analysis. Additionally, the use of real-world examples can make teaching more interesting and relevant. The teacher can use examples from the field of economics to explain statistical concepts and demonstrate their real-life applications.

Internal Assessment:

- i. Assignment: Two comprehensive assignments will be given during the term. Students have to do their assignments individually. The assignments will be goal-specific rather than task-specific.
- ii. Continuous Assessment Test: A descriptive exam will be given in class during the 10th week of the term, on a date to be arranged. The exam will test students' knowledge and understanding of the important statistical principles, methods and practices covered in the course.
- iii. Activities: Apart from assignment different activities will be given in order to make the students acquainted practicability of various statistical tools.

MODE OF ASSESSMENT

Internal Assessment (20 Marks)

- | | |
|-----------------------------------|--------|
| a. Classroom participation (20%): | 4 Mark |
| b. Test papers I (40%): | 8 Mark |
| c. Assignment (20%): | 4 Mark |
| d. Seminar/ Viva (20%): | 4 Mark |

External Assessment (80 Marks): Duration 2.5 Hours, No of Questions: 27

MODULE WISE MARK DISTRIBUTION	
Module	Marks
Module I: Introduction to Statistics for Economics	6
Module II: Stages of statistical Investigation in Economics	14
Module III: Descriptive Statistical methods	28
Module IV: Index Numbers	18
Module V: Introduction to Time Series Analysis	14

REFERENCES:

1. Anderson, D. R., D. J. Sweeney and T. A. Williams (2017), "Statistics for Business and Economics", Cengage Learning India Pvt. Ltd., 13th Edition.
2. Black K (2016). Business Statistics: For Contemporary Decision Making, 9th Edition, Wiley
3. David M. Levine, David F. Stephan, Kathryn A. Szabat and P.K. Viswanatha (2007), Business Statistics: A First Course, Pearson, 2017
4. D. Freedman, R. Pisani and R. Purves (2007), "Statistics," W.W. Norton & Co., New York
5. Freund, J. E., Miller, I., & Miller, M. (2004). John E. Freund's Mathematical Statistics: With Applications. Pearson Education India.
6. Gupta S. P (2007), Statistical Methods, Sultan Chand and Sons, New Delhi.
7. Keller and Warrack, Statistics for Management and Economics
8. Lind D.A., Marchal W. G., Wathern S.A., Basic Statistics for Business & Economics, 10th ed McGraw Hill
9. Mann S Prem (2012), Introductory statistics, 8th Edition, John Wiley and Sons
10. Mario F. Triola (2013), Elementary Statistics Using Excel, 5th Edition, Pearson
11. McClave, J. T., Benson, P. G., Sincich, T., & Sincich, T. (2014). Statistics for business and economics, Boston: Pearson.
12. Murray R. Spiegel, L. J Stephens and Narinder Kumar (2017), Statistics. Schaum's Outline of Statistics, Second Edition
13. N.L. Gupta, Statistics for Economics
14. Santonu Basu, Statistical Methods for Economics
15. Seymour Lipschutz and John Schiller, Introduction to Probability and Statistics, Schaum's outlines, Tata McGraw Hill
16. Sher Muhammad Chaudhry and Dr. Shahid Kamal, Introduction to Statistical Theory
17. G S Maddala and Kajal Lahiri, Statistical Methods for Economics

18. George E. P. Box, Gwilym M. Jenkins, Gregory C. Reinsel, Time Series Analysis: Forecasting and Control
19. A. L. Bowley, Index Numbers in Theory and Practice
20. Michael Barrow, Statistics for Economics, Accounting and Business Studies
21. Newbold P., Carlson W. L., Thorne B M. (2013) Statistics for business and economics, 8th Ed, Pearson
22. D.S. Prasada Rao, Index Numbers in Theory and Practice
23. Douglas Lind, William Marchal, Samuel Wathen, Basic Statistics for Business and Economics

COURSE CODE –BEC3B04				
CORE COURSE IV: INDIAN ECONOMIC DEVELOPMENT: NATIONAL AND REGIONAL-I				
Credit	Hours/week	Marks		
		Internal	External	Total
4	4	20	80	100

CO No.	Expected Course Outcome	Learning Domain	PSO No
	Upon completion of this course, students will be able to;		
CO1	Analyze the economic consequences of British Conquest on India, including the decline of Indian handicrafts and changes in the land system.	Analyse	PSO 4
CO2	Evaluate the rationale and features of planning in the mixed economic framework, including the objectives of planning and strategies of planning such as the Mahalanobis Strategy.	Evaluate	PSO 5
CO3	Compare and contrast the size, growth, and sectoral composition of the Indian economy's output and employment, including the trends in unemployment, poverty incidence, and income inequality.	Compare Contrast	PSO 5 PSO 5
CO4	Assess the achievements and failures of planning in India, including the economic crisis of 1991 and the subsequent New Development strategy and Economic Reforms of 1991.	Evaluate	PSO 5
CO5	Analyze the social and human development indicators of the Kerala Model of Development, including historical dimensions, health and education achievements, and demographic transition.	Analyse	PSO 4
CO6	Create an evidence-based policy recommendation to address the issue of	Create	PSO 6

	missing women in India, using Bloom's Taxonomy's Create level.		
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Course Outcomes

COURSE CONTENT	
Module I: Indian Economy in Pre-Independence Era	12 Hours
<p>Economic consequences of British Conquest: Decline of Indian Handicrafts - Changes in the Land System during 1793-1850 - Commercialisation of agriculture during 1850-1947- Colonial Exploitation: Forms and Consequences- British rule and India's underdevelopment - Drain Theory - Nature and causes of famines.</p>	
Module II: Development Policies and Planning	16 Hours
<p>Mixed Economic framework – Rationale and features of planning- Objectives of Planning - Strategies of planning: Mahalanobis Strategy and Its Appraisal- Departure from Mahalanobis Strategy- Economic Crisis of 1991-New Development strategy and Economic Reforms of 1991-Liberalisation, Privatisation, and Globalisation Strategies (General Introduction only)-Inclusive Growth Strategy-Achievements and Failures of Planning-NITI Ayog and Its Functions.</p>	
Module III: Demographic and Structural Changes in Indian Economy	20 Hours
<p>Size and Growth of Population-Demographic transition and Demographic Dividend- Issue of Missing Women-Trends in National Income and Per capita income - Sectoral composition (output and employment). Unemployment: Measurement, Trends and Causes- Employment Programmes - Poverty Line and trends in Incidence of Poverty-Strategies for Poverty alleviation –Extent and Causes of Income inequality -HDI of India -State wise comparison.</p>	
Module IV – Social and Human Development in Kerala	16 Hours

An Introduction to Kerala Model of Development –Historical Dimensions of Human Development – Indicators of Health and Education Achievements- Sen Bhagawati Debate–Demographic Transition in Kerala – Trends in Work Force Participation Rate in Kerala –Incidence of Unemployment and Dimensions of Gender and Education –Declining Incidence of Poverty in Kerala–Decentralisation and its Achievements.

MODE OF TRANSACTION

Lectures: Conduct interactive lectures using PowerPoint presentations, videos, and images to explain the different concepts and theories of Indian economy. This can help students to understand the content easily.

Case Studies: Provide case studies related to the content taught, such as the Bengal Famine, to help students analyze and understand the nature and causes of famines in India.

Debates: Organize debates among students to discuss the different strategies of planning and their effectiveness in achieving economic growth and development.

Group Discussions: Conduct group discussions on the Kerala model of development and its indicators of health and education achievements to help students understand the impact of social and human development on economic growth.

Role-plays: Organize role-plays where students can act as policy makers and suggest strategies for poverty alleviation or inclusive growth, based on the content taught in class.

Field Trips: Organize field trips to agricultural farms or industries to give students a first-hand experience of the commercialization of agriculture or the impact of colonial exploitation on Indian handicrafts.

MODE OF ASSESSMENT

Internal Assessment (20 Marks)

- | | |
|-----------------------------------|--------|
| a. Classroom participation (20%): | 4 Mark |
| b. Test papers I (40%): | 8 Mark |
| c. Assignment (20%): | 4 Mark |
| d. Seminar/ Viva (20%): | 4 Mark |

External Assessment (80 Marks) Duration 2.5 Hours, No of Questions: 27

MODULE WISE MARK DISTRIBUTION

Module	Mark
Module I: Indian Economy in Pre-Independence Era	20
Module II: Demographic and Structural Changes in Indian Economy	25
Module III: Theory of Consumer Behaviour	35
Module IV: Social and Human Development in Kerala	30

REFERENCES:

- Vijay Johi and I. M.D Little (1998), India's Economic Reforms, Oxford University Press, New Delhi
- Ahluwalia. I.J. and I.M.D Little (Eds) (1999), India's Economic Reforms and Development, Oxford University Press (OUP), New Delhi.

3. Bawa,R.S. and P.S. Raikhy,(1997), Structural Changes in Indian Economy, GurunanakDev University press, Amritsar.
4. Chakravarty, S. (1987), Development planning: The Indian Experience, OUP, New Delhi.
5. Dreze, Jean and AmartyaSen (2013): An Uncertain Glory – India and its Contradictions, Penguin Books.

SEMESTER 4

COURSE CODE –BEC4B05

CORE COURSE V: QUANTITATIVE METHODS FOR ECONOMIC ANALYSIS-II

Credit	Hours/week	Marks		
		Internal	External	Total
4	5	20	80	100

CO No.	Expected Course Outcome	Learning Domain	PSO No
	Upon completion of this course, students will be able to;		
CO1	explain the concept of probability and to describe various concept and theorems associated with probability.	Understand Remember	PSO2 PSO1
CO2	prepare the probability distribution and to measure its mathematical expectation and variance	Apply Evaluate	PSO3 PSO5
CO3	apply various probability and non-probability sampling techniques to collect the sample and to construct sampling distribution.	Apply Analyze Create	PSO3 PSO4 PSO6
CO4	compute population parameter on the basis of a sample statistic	Apply Analyze	PSO3 PSO4
CO5	illustrate the procedure of hypothesis testing	Analyze	PSO4

COURSE CONTENT

COURSE CONTENT	
Module 1. Introduction to probability	25 Hours
<ol style="list-style-type: none">1. Probability – Approaches to Probability: Empirical, Classical, Axiomatic, relative frequency and subjective Approach2. Concept and Terms: Experiment, Outcome, Random Experiment, Sample space and Point- Tossing a Game-Dice Problem-Card Play3. Counting Rule: Multistep experiment, Permutations and Combinations4. Event: Certain and Impossible, Mutually Exclusive and non-mutually exclusive-Algebra of Events-Addition Theorem of Probability5. Conditional Probability- Multiplication Theorem of probability-Independent and Dependent Events- Bayes Theorem	
Module 2. Probability Distribution	25 Hours
<ol style="list-style-type: none">1. Random variable – Discrete and continuous random variables2. Discrete Probability distributions – Mathematical Expectation and standard deviation-PMF and CDF3. Theoretical Discrete Probability Distribution: Binomial Distributions– Mean and Variance (without proof)- Characteristics and fitting of Binomial- Poisson Distributions and its Mean and Variance (without proof)-Characteristics and fitting of Poisson Distributions4. Continuous Probability Distribution: Normal Distributions-Standard Normal Distribution- Area Under Standard Normal Distribution-Standardizing a Normal Distribution- Application of Normal Distribution	
Module 3. Sampling Distribution and Sampling Methods	15 Hours
<ol style="list-style-type: none">1. Sampling Distribution-Statistic and Parameter-Mean and Standard Deviation of Sampling Distribution-2. Probability Sampling: Simple random, Systematic Random, Stratified, Cluster and Multi-stage sampling	

3. Non-Probability Sampling: Convenience, Judgment, Quota, Purposive and Snow-ball Sampling	
Module 4. Estimation	15 Hours
<ol style="list-style-type: none"> 1. Estimation: Point and Interval, Confidence Interval, Level of Significance, 2. Construction of Confidence Interval and Estimation of a Population Mean-Large and small sample, t distribution, degrees of freedom 	
Module 5. Introduction to Hypothesis testing	10 Hours
<ol style="list-style-type: none"> 1. Hypothesis Testing: Null and Alternative Hypothesis, Type I and II Error, Tail of a Test, 2. Procedure of Hypothesis Testing-Large and small Sample 	

MODE OF TRANSACTION
<p>Teaching:</p> <ol style="list-style-type: none"> i. Lecture-Based Teaching: The teacher can use a lecture-based approach to teach the fundamental concepts of probability, including the different approaches to probability, concept and terms, and counting rules. ii. Interactive Teaching: Interactive teaching methods, such as group discussions and seminars, can be used to teach probability concepts such as events, conditional probability, and Bayes theorem. These methods promote critical thinking and problem-solving skills and allow students to engage with the material actively. iii. Hands-on Teaching: The teacher can use a hands-on teaching approach to teach probability distribution concepts, such as random variables, discrete and continuous probability distributions, and the normal distribution. This approach can involve students working with data and conducting statistical analysis to develop their skills.

- iv. Real-World Examples: Teachers can use real-world examples from games, such as tossing a game dice, card play, and sampling methods, to make the subject more interesting and relevant to students.
- v. Problem-Based Learning: Problem-based learning can be an effective teaching method for teaching concepts such as estimation and hypothesis testing. This approach involves presenting students with real-world problems and asking them to apply the concepts they have learned to solve the problem.

Internal Assessment:

- i. Two comprehensive **assignments** will be assigned during the term, and each student is expected to complete them individually. The assignments will be designed to test students' ability to achieve specific goals, rather than simply completing a task. This means that students will be required to apply the statistical principles, methods, and practices learned in the course to solve real-world problems.
- ii. A descriptive **exam** will be administered during the 10th week of the term. The exam will assess students' knowledge and understanding of the important statistical principles, methods, and practices covered in the course. The purpose of this exam is to evaluate students' progress and to identify areas where additional instruction may be necessary.
- iii. In addition to assignments and exams, students will participate in various activities to become familiar with the practical application of statistical tools. These activities may include hands-on exercises, group discussions, and case studies. The goal is to provide students with opportunities to practice and apply the statistical concepts they have learned in class to real-world situations.

MODE OF ASSESSMENT	
Internal Assessment (20 Marks)	
a. Classroom participation (20%):	4 Mark
b. Test papers I (40%):	8 Mark
c. Assignment (20%):	4 Mark
d. Seminar/ Viva (20%):	4 Mark
External Assessment (80 Marks) Duration 2.5 Hours, No of Questions: 27	

MODULE WISE MARK DISTRIBUTION	
Module	Marks
Module I: Introduction to probability	20
Module II: Probability distribution	20
Module III: Sampling Distribution and Sampling Methods	16
Module IV: Estimation	12
Module V: Introduction to hypothesis testing	12

REFERENCES:

SYSEMATICS

1. Anderson, D. R., D. J. Sweeney and T. A. Williams (2017), "Statistics for Business and Economics", Cengage Learning India Pvt. Ltd., 13th Edition.
2. Black K (2016). Business Statistics: For Contemporary Decision Making, 9th Edition, Wiley
3. David M. Levine, David F. Stephan, Kathryn A. Szabat and P.K. Viswanatha (2007), Business Statistics: A First Course, Pearson, 2017
4. D. Freedman, R. Pisani and R. Purves (2007), "Statistics," W.W. Norton & Co., New York
5. Freund, J. E., Miller, I., & Miller, M. (2004). John E. Freund's Mathematical Statistics: With Applications. Pearson Education India.
6. Gupta S. P (2007), Statistical Methods, Sultan Chand and Sons, New Delhi.

7. Lind D.A., Marchal W. G., Wathern S.A., Basic Statistics for Business & Economics, 10th ed McGraw Hill
8. Mann S Prem (2012), Introductory statistics, 8th Edition, John Wiley and Sons
9. McClave, J. T., Benson, P. G., Sincich, T., & Sincich, T. (2014). Statistics for business and economics, Boston: Pearson.
10. Murray R. Spiegel (2020), Schaum's Easy Outline of Statistics, Second Edition
11. Murray R. Spiegel, L. J Stephens and Narinder Kumar (2017), Statistics. Schaum's Outline of Statistics, Second Edition
12. Newbold P., Carlson W. L., Thorne B M. (2013) Statistics for business and economics, 8th Ed, Pearson
13. Seymour Lipschutz and John Schiller, Introduction to Probability and Statistics, Schaum's outlines, Tata McGraw Hill

COURSE CODE –BEC4B06**CORE COURSE VI: INDIAN ECONOMIC DEVELOPMENT: NATIONAL AND REGIONAL-II**

Credit	Hours/week	Marks		
		Internal	External	Total
4	4	20	80	100

CO No.	Expected Course Outcome	Learning Domain	PSO No
	Upon completion of this course, students will be able to;		
CO1	Analyze the causes of the present crisis in Indian agriculture, applying the knowledge of trends in production, productivity, and cropping patterns.	Analyse	PSO 4
CO2	Evaluate the impact of the new agricultural strategy of the 1960s (Green Revolution) on production and productivity.	Evaluate	PSO 5
CO3	Create a comparative chart of the industrial pattern in India, before and after the new industrial policy of 1991, using Bloom's Taxonomy level of Synthesis.	Synthesis	PSO 3
CO4	Analyze the trade policies of India, before and after the new trade policy of 1991.	Analyse	PSO 4
CO5	Discuss the economic impact of remittance flow on Kerala, using Bloom's Taxonomy level of Evaluation.	Evaluate	PSO 5
CO6	Design a project proposal for promoting tourism in Kerala, utilizing the knowledge of the tourism sector's contributions to economic growth in Kerala.	Create	PSO 6

COURSE CONTENT**Module I: Indian Agriculture****18 Hours**

Role of Agriculture in the Indian Economy- Cropping pattern - Trends in Production and Productivity-Causes of Present Crisis-Agricultural Marketing: Problems and Government Measures - New Agricultural Strategy of 1960s

(Green Revolution) and its impact on production and productivity – The Need, Scope and Appraisal of Land Reforms in India–Problem of Food Security – FCI, PDS and TPDS –Food Security Act, 2013.

Module II: Indian Industry

15 Hours

Trends in industrial production and growth – Changes in the industrial pattern – Small scale and cottage industries – Large scale industries – Performance and Problems of Public Sector Enterprises – Industrial Sickness – Review of industrial policy prior to 1991 – New industrial policy of 1991 – Privatization and Disinvestment – National manufacturing policy and Make in India.

Module III: India’s External Sector

18 Hours

Trends and composition of India’s Imports – Trends, composition and direction of India’s Exports – Import and Export Policy during Pre-Reform Period. New Trade Policy, 1991 – Trade Policy after 2015–Exchange rate management in India–Convertibility of rupee: Current and Capital Account–FDI and FPI flows – MNCs and Regulations – FERA – FEMA.

Module IV: Migration and Economic Growth in Kerala

13 Hours

Migration – Concepts in migration – Emigration from Kerala: trend and pattern – Remittance flow and economic impact on Kerala–Economic Growth in Kerala: Stagnation and Turn around Phases- Structural Change in Kerala –Agriculture: cropping pattern – Area and production of major crops –Industry: Growth and Structure – Tourism Sector and its Contributions.

MODE OF TRANSACTION

Lecture-based teaching: Deliver lectures on each module to provide students with a thorough understanding of the concepts and principles covered in the syllabus.

Case studies: Use case studies related to each module to demonstrate how the theoretical concepts learned in class are applied in the real world.

Group discussions: Divide students into groups and assign each group a topic related to the modules covered. Students can discuss the topic among themselves and present their views and perspectives in front of the class.

Interactive quizzes: Conduct interactive quizzes related to the modules covered in class to help students revise and retain the information they have learned.

Field trips: Organize field trips to agricultural farms, industries, and other relevant places to provide students with hands-on experience and practical knowledge about the concepts covered in class.

Audio-visual aids: Use audio-visual aids such as videos, presentations, and images to help students better understand the concepts and principles covered in the syllabus.

MODE OF ASSESSMENT

Internal Assessment (20 Marks)

- | | |
|-----------------------------------|--------|
| a. Classroom participation (20%): | 4 Mark |
| b. Test papers I (40%): | 8 Mark |
| c. Assignment (20%): | 4 Mark |
| d. Seminar/ Viva (20%): | 4 Mark |

External Assessment (80 Marks) Duration 2.5 Hours, No of Questions: 27

MODULE WISE MARK DISTRIBUTION

Module	Mark
Module I: Indian Agriculture	25

Module II: Indian Industry	15
Module III: India's External Sector	25
Module IV: Migration and Economic Growth in Kerala	15

REFERENCES:

1. Gaurav Datt and Ashwini Mahajan (2013), Datt&Sundaram Indian Economy, 67th Edition, Sultan Chand and Co, New Delhi.
2. V.K Misra and Puri (2014), Indian Economy, 32nd revised edition, Himalaya Publishing House, New Delhi.
3. Uma Kapila (2014), Indian Economy since Independence, 24th Edition, Academic Foundations, New Delhi.
4. Uma Kapila (2014), Indian Economy Performance and Policies, 14th Edition, Academic Foundations, New Delhi.
5. I.C Dingra (2014), Indian Economic Development, Sulthan Chand and Sons, New Delhi.
6. Ramesh Singh (2015), Indian Economy, for Civil Services Examination, Seventh Edition, McGraw Hill Education Series, New Delhi.
7. Ministry of Finance, Government of India, Economic Survey, Vol.1&2, 2017-18, Oxford University Press.

SEMESTER 5

COURSE CODE – BEC5B07				
CORE COURSE VII: Macroeconomics I				
Credits	Hours/week	Marks		
		Internal	External	Total

4	5	20	80	100
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Course Outcomes

CO No.	Expected Course Outcome	Learning Domain	PSO No
	Upon completion of this course, students will be able to;		
CO1	Recall the context in which Macroeconomics emerged as a separate discipline.	Remember	PSO1
CO2	Demonstrate macroeconomic model building with a suitable example.	Understand	PSO2
CO3	Compute various measures of National income using the data available from secondary sources	Apply	PSO3
CO4	Discriminate Classical and Keynesian theories of income determination	Analyse	PSO4
CO5	Appraise various consumption theories using real life data.	Evaluate	PSO9
CO6	Propose factors determining investment decision in Indian economy.	Analyse	PSO4

COURSE CONTENT

Module I: Introduction to Macroeconomics	20 Hours
<p>Macroeconomics: Meaning, origin and Growth. Scope and Limitations of Macroeconomics- Macroeconomic models – Types of variables: Stock and flow, endogenous and exogenous, ex ante and ex post – Static, comparative static and dynamic analysis – Equilibrium: Partial and General – Circular flow: 2,3,4 sector models and importance – Methods of Estimating national income – Real vs Nominal GNP – Potential versus Actual GNP – Green GNP- GDP Growth Rate. –Difficulties in the Estimation of national income in India.</p>	
Module II: Classical Macro Economic Model	20 Hours
<p>Classical Postulates – Laissez-faire System – Full Employment – Wage-price flexibility – Say’s Law of Markets and its criticisms – Homogeneity Postulates – Classical Dichotomy – Neutrality – Classical theory of Money – Classical theory of interest – Money illusion – Pigou effect– Real Balance Effects – Classical model of output and employment- Criticisms of classical theory.</p>	
Module III: Keynesian Macro Economic Model	20 Hours
<p>Principles of Effective demand – Aggregate demand and supply – Components of Aggregate Demand –Wage Price Rigidity – Under Employment Equilibrium – Keynesian Theory vs Classical Theory – Keynesian Consumption function – APC, MPC, APS, MPS and Multiplier–Determination of Income in two and three sectors (using Keynesian Cross diagrams) – Keynesian theory of demand for Money- Liquidity Trap.</p>	
Module IV: Consumption, Saving and Investment	20 Hours
<p>Absolute income hypothesis – Consumption puzzle of Kuznet – Life Cycle hypothesis – Permanent Income Hypothesis – Relative Income Hypothesis–Classical view and Keynesian View of Saving – Factors Determining size of Saving – Meaning and Types of Investment – Factors determining investment decision – Keynesian Investment Function – MEC and Investment Demand – Factors affecting MEC – Criticisms of MEC – MEI and Aggregate Demand for Capital–Accelerator Theory.</p>	

MODE OF TRANSACTION

Teaching: Mixed Learning approach is proposed for the paper. Lecture-based method and discussions will be used to explain the various concepts, methods and theories. Seminars will be given to students to assess the macroeconomic environment in India and their consequences. Assignments will be given to analyse the trend and composition of national income, trends in investments and savings, fluctuations in exchange rate and changes in monetary policy

Internal Assessment:

- i. Seminar Presentations: Students have to make a seminar presentation on topics included in the syllabus or any topic related to the subject.
- ii. Assignment: Two comprehensive assignments will be given during the term. Students have to do their assignments individually. The assignments will be process based to develop the skills of the students.
- iii. Continuous Assessment Test: A descriptive exam will be given in class during the 10th week of the term, on a date to be arranged. The exam will test students' knowledge and understanding of the important topics included in the syllabus.

MODE OF ASSESSMENT

Internal Assessment (20 Marks)

- | | |
|-----------------------------------|--------|
| a. Classroom participation (20%): | 4 Mark |
| b. Test papers I (40%): | 8 Mark |
| c. Assignment (20%): | 4 Mark |

d. Seminar/ Viva (20%):	4 Mark
External Assessment (80 Marks) Duration 2.5 Hours, No of Questions: 27	

MODULE WISE MARK DISTRIBUTION	
Module	Mark
Module I: Introduction to Macroeconomics	25
Module II: Classical Macro Economic Model	25
Module III: Keynesian Macro Economic Model	25
Module IV: Consumption, Saving and Investment	25

REFERENCES:

1. Gregory Mankiw (2010), Macroeconomics, Sixth Edition, Worth Publishers.
2. Richard T. Froyen (2008), Macroeconomics - Theories and Policies, Tenth Edition, Pearson education.
3. D.N Dwivedi (2016), Macroeconomics: Theory and Policy, Tata McGraw Hill, New Delhi.
4. Maria John Kennedy (2013) Macroeconomic Theory, PHI Learning, New Delhi.
5. Nattrass, Nicoli and VisakhVarma, G (2014): Macroeconomics Simplified: Understanding Keynesian and Neoclassical Macroeconomic Systems, Sage publications India, New Delhi.
6. Errol D'Souza (2008), Macro Economics, Pearson Education.
7. Edward Shapiro (1982), Macroeconomic Analysis, Oxford University press.
8. Eugene Diuto (2010), Macroeconomic Theory, Shaums's Outline Series.

SEMESTER 5

<p>COURSE CODE –BEC5B08</p> <p>CORE COURSE VIII: History of Economic Thought</p>				
Credit	Hours/week	Marks		
		Internal	External	Total
4	4	20	80	100

Course Outcomes

CO No.	Expected Course Outcome	Learning Domain	PSO No
	Upon completion of this course, students will be able to;		
CO1	Critically evaluate the importance and relevance of studying the history of economic thought, and demonstrate an understanding of the economic ideas of Aristotle, Plateau, Ibn Khaldun, St. Thomas Aquinas, Mercantilists, and Physiocrats.	Evaluate	PSO5
CO2	Analyze the major contributions of Adam Smith, David Ricardo, J.B. Say, Malthus, and J.S. Mill to classical economics, including their theories of value, division of labour, law of market, and population theory, as well as the basic tenets of Marxian political economy.	Analyse	PSO4
CO3	Compare and contrast the classical and neo-classical approach to economics, and assess the key ideas of Carl Menger, Leon Walras, Frederich List, Veblen, Pareto, Pigou, and Rostow, with a focus on the importance of Alfred Marshall in neo-classical economics.	Analyse	PSO4

CO4	Evaluate the significance of Keynes as a critic of classical economics and analyze the main themes in his influential works. Also, examine post-Keynesian developments, including monetarism and the rational expectation school.	Evaluate	PSO5
CO5	Analyze the contributions of Indian economic thinkers such as Dadabhai Navroji, Gandhi, Ambedkar, PC Mahalanobis, Amartya Sen, and JN Bhagawathi, and assess the relevance of their economic ideas to contemporary economic debates and policy issues.	Analyse	PSO4
CO6	Develop critical thinking skills and engage in independent research and analysis of economic theories and ideas, to assess their strengths and weaknesses, and apply this knowledge to analyze and evaluate contemporary economic issues and challenges.	Create	PSO6

COURSE CONTENT	
Module 1: Introduction and Early Economic Thought	10 Hours
<p>1.1 Why study History of Economic Thought?</p> <p>1.2 Economic Ideas of Aristotle, Plateau</p> <p>1.3 IbnKhalidun – St. Thomas Aquinas</p> <p>1.4 Main Economic Ideas of Mercantilists and Physiocrats (mention important economists of Mercantalism and Physiocracy and their major works. Need not go into the details)</p>	
Module 2: Classical and Marxian School	30 Hours
<p>2.1 Important contributions of: a Adam Smith – naturalism and optimism, division of labour, theory of value, concept of laissez-faire</p> <p>2.2. David Ricardo – theory of value, stationary state</p> <p>2.3 J.B. Say –law of market</p> <p>2.4 Malthus – population theory and theory of glut</p> <p>2.5 J.S. Mill –reciprocal demand</p> <p>2.6 Jeremy Bentham – utilitarianism</p> <p>2.7 Basic tenets of Marxian Political Economy: stages of development – theory of surplus value, theory of capitalist crisis</p>	
Module 3: Marginalism and Neo-classical School	30 Hours
<p>Difference between classical and neo-classical approach – important ideas of Carl Menger,</p> <p>Leon Walras, Frederich List, Veblen, Wilfredo Pareto, A.C. Pigou, W.W. Rostow.</p> <p>Importance of Alfred Marshall in Neo-classical economics (avoid micro-economic theories)</p> <p>Module IV: Keynes and Post-Keynesians</p> <p>Keynes as a critic of Classical Economics (introduce important books of Keynes). Post-</p>	

Keynesian developments – monetarism, rational expectation school.

Module 4 – Indian Economic Thought

20 Hours

Drain theory of Dadabhai Navroji.-Trusteeship and other economic ideas of Gandhi-
economic ideas of Ambedkar.- Contributions of PC Mahalanobis, Amartya Sen and JN Bhagawathi.

MODE OF TRANSACTION

Face to Face Instruction: This involves attending traditional classroom lectures and participating in in-person discussions and activities with the instructor and fellow students.

Peer to Peer learning: Students have to select a topic in the course and present it in the class which providing opportunity for critical thinking and feedback.

Group Discussion: Group discussion will be conducted based on the relevant topic in the course that will improve students' thinking and help them to construct their own meaning about academic contents.

MODE OF ASSESSMENT

Internal Assessment (20 Marks)

- a. Classroom participation (20%): 4 Mark
- b. Test papers I (40%): 8 Mark
- c. Assignment (20%): 4 Mark
- d. Seminar/ Viva (20%): 4 Mark

External Assessment (80 Marks) Duration 2.5 Hours, No of Questions: 27

MODULE WISE MARK DISTRIBUTION

Module	Mark
Module I: Introduction and Early Economic Thought	15
Module II: Classical and Marxian School	30
Module III: Marginalism and Neo-classical School	25
Module IV: Indian Economic Thought	10

REFERENCES:

1. Bhatia H.L (1994), History of Economic Thought, Vikas Publishing House, New Delhi.
2. Roll, Eric (1992), History of Economic Thought, Faber & Faber, London.
3. Louise Haney (2009), - History of economic Thought – Surjith publication New Delhi
4. Haney, Lewis H. (1977), History of Economic Thought, Macmillan, New York.
5. Shanmugasundaram, V. (1981), Indian Economic Thought and Policy, S. Chand & Co., New Delhi.
6. Ghosh, B. N. and R. Ghosh (1988), Concise History of Economic Thought, Palgrave Macmillan, New Delhi.
7. Ed. Abul Hassan M. Sadeq and Aidit Ghazali (1992), Readings in Islamic Economic Thought, Longman, Malaysia.
8. Scrapanti E and S Zamagiri (2005), An Outline of the Economic thought, OUP, Newdelhi.
9. Hajela T.N (2015), History of Economic Thought – Ane’s Student Edition.

COURSE CODE –BEC5B09				
CORE COURSE IX: BASIC ECONOMETRICS				
Credits	Hours/week	Marks		
		Internal	External	Total
4	5	20	80	100

Course Outcomes

CO No.	Expected Course Outcome	Learning Domain	PSO No
	Upon completion of this course, students will be able to;		
CO1	Explain the subject matter and importance of econometrics, and various steps which are to be followed in an econometric investigation.	Understand	PSO2
CO2	Discuss the method of OLS, its assumption and properties to give a concrete base of econometrics.	Understand	PSO2
CO3	Apply simple and multiple linear regression to a cross-section data and to evaluate and interpret the results	Apply Evaluate	PSO3 PSO5
CO4	Construct a dummy variable to capture the effect of a qualitative variable in an econometric model, and its estimation and interpretation.	Create	PSO6
CO5	Gain knowledge on how to detect and treat violations of OLS assumptions and to explain the problems that arise when the assumptions of OLS are not valid	Analyze Apply	PSO4 PSO3
CO6	demonstrate all the methods using an econometric/spreadsheet package	Understand	PSO2

COURSE CONTENT

Module 1 –Introduction to Econometrics	20 Hours
<ol style="list-style-type: none"> Econometrics: Definition, History, Uses and Importance of of Econometrics Methodology of Econometrics: Theoretical Formulation-Specification stage: Deterministic v/s stochastic-Data collection: cross-section, time series, panel and pooled cross-section- Estimation Stage-Evaluation and Prediction 	

Module 2: The Classical simple Linear Regression Model	30 Hours
<ol style="list-style-type: none"> 1. Introduction to regression: Simple Linear Regression Model- Population and sample regression function-Notation and Explanation in regression Model 2. The method of Ordinary Least Square Estimation (OLS): Derivation, Assumptions and Properties 3. Precision of OLS Estimators-Goodness of fit of the model (r^2) 4. Statistical inference in SLRM: Hypothesis testing, testing the individual coefficient (t-test), Decision based on Confidence interval and 'p' value approach 5. Multiple linear regression model: Three variable regression model-precision of OLS estimators- Goodness of fit (R^2 and adj R^2)- Interpretation of multiple linear regression model-Implications of some frequently observed practical cases 	
Module III: Qualitative Explanatory variable Regression Models	15 Hours
<ol style="list-style-type: none"> 1. Nature, Estimation and interpretation of Dummy Variable Regression-Construction of Dummy Variable (Simple and multiple category)-Dummy Variable Trap 2. Regression with qualitative independent variable (ANOVA)-Regression with qualitative and quantitative Model-(ANCOVA)- Interaction Effects using Dummy variable 3. Uses of Dummy variable in structural change, seasonal data, Piece-wise linear regression 	
Module IV-Critical Evaluation of Classical Linear Regression Model	25 Hours
<ol style="list-style-type: none"> 1. Multicollinearity: Sources, consequences, detection and remedial measures 2. Heteroscedasticity: Sources-consequences, detection and remedial measures 3. Autocorrelation: Sources, Consequences, detection and remedial measures 	

MODE OF TRANSACTION

Teaching: Lecture methods can be used to present theories, concepts, and examples, with students able to ask questions during or after the lecture. Case studies can be used to help students apply their knowledge of Econometrics to real-life situations, with instructors guiding them through the process of using Econometrics to solve a given problem or issue. Group discussions encourage students to share their ideas and opinions about different Econometrics concepts, with instructors dividing the class into groups and providing them with topics or questions to discuss amongst themselves. Finally, practice problems can help students develop their Econometric skills by giving them an opportunity to apply the theories and concepts they have learned.

Internal Assessment: Two comprehensive **assignments** shall be assigned during the term, and each student is expected to complete them individually. The assignments shall be designed to test students' ability to achieve specific goals, rather than simply completing a task.

- i. A descriptive exam shall be administered during the 10th week of the term. The exam should assess students' knowledge and understanding of the important econometrics' principles, methods, and practices covered in the course.
- ii. In addition to assignments and exams, students need to participate in various activities to become familiar with the practical application of econometric tools. These activities may include hands-on exercises, group discussions, and case studies.

MODE OF ASSESSMENT

Internal Assessment (20 Marks)

- | | |
|-----------------------------------|--------|
| e. Classroom participation (20%): | 4 Mark |
| f. Test papers I (40%): | 8 Mark |
| g. Assignment (20%): | 4 Mark |

h. Seminar/ Viva (20%):	4 Mark
External Assessment (80 Marks) Duration 2.5 Hours, No of Questions: 27	

MODULE WISE MARK DISTRIBUTION	
Module	Marks
Module I: Introduction to Econometrics	16
Module II: The Classical Linear Regression Model	26
Module III: Qualitative Explanatory variable Regression Models	20
Module IV: Critical Evaluation of Classical Linear Regression Model	18

REFERENCES

1. Asli K. Ogunc & R. Carter, Using Excel for Principles of Econometrics, Third Edition, Hill, John Wiley & Sons
2. Christopher Dougherty, Introduction to Econometrics, Fourth Edition, Oxford University Press
3. Damodar Gujarati, Basic Econometrics, McGraw Hill
4. Damodar Gujarati, Econometrics by Examples, Palgrave
5. Dominick Salvatore and Derrick Reagle, Statistics and Econometrics, 2nd edition, Schaum's Outline Series
6. G.S Maddala, Introduction to Econometrics, McMillan Publication
7. Jeffrey M. Wooldridge, Introductory Econometrics: A Modern Approach, Cengage Learning
8. Sankar Kumar Bhaumik, Principles of Econometrics: A Modern Approach using EViews, Oxford

COURSE CODE –BEC5B10
CORE COURSE X: Financial Markets

Credit	Hours/week	Marks		
		Internal	External	Total
4	5	20	80	100

Course Outcomes

CO No.	Expected Course Outcome	Learning Domain	PSO No
	Upon completion of this course, students will be able to;		
CO1	Understand the meaning and functions of the financial system and its components.	Understand	PSO2
CO2	Analyze the interactions among the components of the financial system and appraise the elements of a well-functioning financial system.	Evaluate Analyze	PSO5 PSO4
CO3	Describe the characteristics of a developed money market and evaluate the structure and participants of the money market.	Remember Analyze	PSO1 PSO8
CO4	Explain the structure and functions of primary market and secondary market. Examine the trading arrangements in Stock exchanges.	Apply	PSO3
CO5	Summarise the role of Mutual Funds and Securities and Exchange Board of India (SEBI) in the Indian financial system.	Understand	PSO2
CO6	Assess the evolution, and benefits of derivatives and identify the types of derivatives, including forward, futures, options, and swaps.	Analyze	PSO8

COURSE CONTENT

COURSE CONTENT	
Module I: Financial System	20 Hours
Financial System-meaning and functions-Components of Financial System: Financial institutions, Financial Markets, Financial Instruments, Financial services- Interactions among components of financial system- Elements of well-functioning Financial System -Financial System and Economic Development- Weaknesses of Indian Financial system.	
Module II: Financial Markets	25 Hours
Financial Market: Features and Functions. Money Market: Features, Functions and Participants- Characteristics of a Developed Money Market- Structure of Money Market: Treasury Bill Market -Call money Market -Commercial Bill market-Certificates of Deposit- Defects of the Indian Money Market-Capital market: Structure and Functions- Money Market vs Capital Market- Capital market instruments – Equity shares, Debentures or Bonds-Global Financial Instruments: ADR, GDR & FCCB	
Module III Primary and Secondary Market	20 Hours
Industrial securities market- New issue Market-Functions-Origination, Underwriting and Distribution-Method of floating of New issues-Players in NIM- Secondary market and stock Exchanges-Functions-Development of stock exchanges in India- Organisation of stock exchanges-listing of securities-trading:rules, regulations, arrangements and procedure-Depositories and their role – BSE, NSE, OTCEI, stock indices-Mutual Funds-Securities and Exchange Board of India (SEBI).	
Module IV Derivatives	15 Hours
Definition, evolution and benefits of derivatives- Types of Derivatives: Forward-Futures-Options and Swaps-Participants in the derivative markets-Limitations of derivatives.	

MODE OF TRANSACTION

Teaching: Mixed Learning approach is proposed for the paper. Lecture-based method and discussions will be used to explain the various concepts and structure and functions of various financial markets. Seminars will be given to students to assess the performance of various financial markets. Assignments will be given to analyse the movements of stock market indices and share prices.

Internal Assessment:

- i. Seminar Presentations: Students have to make a seminar presentation on topics included in the syllabus or any topic related to the subject.
- j. Assignment: Two comprehensive assignments will be given during the term. Students have to do their assignments individually. The assignments will be goal-specific rather than task-specific.
- k. Continuous Assessment Test: A descriptive exam will be given in class during the 10th week of the term, on a date to be arranged. The exam will test students' knowledge and understanding of the important topics included in the syllabus.

MODE OF ASSESSMENT

Internal Assessment (20 Marks)

- | | |
|-----------------------------------|--------|
| a. Classroom participation (20%): | 4 Mark |
| b. Test papers I (40%): | 8 Mark |
| c. Assignment (20%): | 4 Mark |
| d. Seminar/ Viva (20%): | 4 Mark |

External Assessment (80 Marks) Duration 2.5 Hours, No of Questions: 27

MODULE WISE MARK DISTRIBUTION

Module	Marks
Module I: Financial System	20
Module II: Financial Markets	25
Module III: Primary and Secondary Market	25
Module IV: Derivatives	10

REFERENCES:

1. Bharati V Pathak (2014). Indian Financial System, 4th ed., Pearson, Delhi.
2. Guru Swamy, S (2009): Financial Markets and Institutions, 3rd ed, Vijay Nicole Imprints Pvt Ltd, Chennai, TATA Mc Graw Hills Co Ltd, New Delhi.
3. Faboozi, J Frank, Modigliani Franco (2008): Capital Markets-Institution and Instruments, 4th ed, Pearson Education, New Delhi (PHI).
4. Gordan K. Natarajan , Financial Markets and Services, Himalaya Publishing House, Mumbai
5. Guru Swamy, S (2006): Capital Markets, 2nd ed, Vijay Nicole Imprints Pvt Ltd, Chennai,
6. M.Y. Khan (2016), Indian Financial System, Tata McGraw Hill Education Private Limited, New Delhi.
7. Keith, P Ibeam (2005): Finance and Financial Markets, 2nd ed, Palgrave Mc Milan.
8. Bhole, L M (1999): Financial Institutions and Markets, TATA Mc Graw Hill Co Ltd, New Delhi
9. S.S.S Kumar (2012). Financial Derivatives, PHI Learning Pvt Ltd, New Delhi.

COURSE CODE –BEC6B11**CORE COURSE XI: Macroeconomics II**

Credit	Hours/week	Marks		
		Internal	External	Total
4	5	20	80	100

Course Outcomes

CO No.	Expected Course Outcome	Learning Domain	PSO No
	Upon completion of this course, students will be able to;		
CO1	Explain the meaning, causes and the effects of inflation.	Understand	PSO2
CO2	Calculate consumer price index (CPI) using the real-life data collected from their locality for different time periods.	Apply	PSO4
CO3	Illustrate the trade-off between inflation and unemployment using scatter diagram.	Analyse	PSO4
CO4	Show the derivation of IS-LM curves and use the framework to explain the working of an economy	Apply Understand	PSO3
CO5	Assess the impact of changes in monetary policy in India.	Evaluate	PSO5
CO6	Categorize the fluctuations in national income into different phases of business cycle.	Analyse	PSO8

COURSE CONTENT

Module I: Theories of Inflation and Unemployment	20 Hours
<p>Inflation, Disinflation and Deflation - Types of Inflation – Causes and Effects of Inflation - Disinflation and Sacrifice ratio - Measurement of inflation- Price Index Numbers: CPI and WPI – GDP deflator- Measures to control inflation - Demand pull versus cost push inflation- Mixed inflation – Expected Inflation - Stagflation - Inflationary gap and deflationary gap – Inflation and Interest Rate – Fisher Effect - Interest rate: Real vs Nominal – Meaning and types of unemployment - Okun’s law – Phillips curve: Short run and Long run</p>	
Module II: Money	20 Hours
<p>Nature of money-types-functions-time preference-interest rate: real and nominal- bond- relationship between bond price and interest rate-Theories of Demand for money-Liquidity Preference theory-Friedman’s re-statement of Quantity Theory of Money. RBI measures of money supply – Credit creation -money multiplier, currency deposit ratio and high powered money. Monetary policy in India: Meaning, Goals, Quantitative and qualitative Instruments</p>	
Module III Elementary IS-LM Model	20 Hours
<p>Goods Market and IS Curve - Keynesian Cross - Government Purchase Multiplier - Tax Multiplier- Derivation of IS curve - Slope and Shifts of IS curve- Money Market and LM Curve-The liquidity Preference and derivation of LM curve – Slope and Shifts of LM curve - Short-run equilibrium.</p>	
Module IV: Macro economic Instability	20 Hours

Business Cycle- meaning- types and phases- Great Depression and Interpretations- Keynesian Effective demand Hypothesis - The monetary approach of Friedman- Trade cycle theories: Hawtrey, Hayek and Schumpeter - Global recession of 2008: Genesis and impact over various countries.

MODE OF TRANSACTION

Teaching: Mixed Learning approach is proposed for the paper. Lecture-based method and discussions will be used to explain the various concepts, methods and theories. Seminars will be given to students to assess the macroeconomic environment in India and their consequences. Assignments will be given to analyse the trends in inflation, fluctuations in GDP and changes in monetary policy.

Internal Assessment:

- a. Seminar Presentations: Students have to make a seminar presentation on topics included in the syllabus or any topic related to the subject.
- b. Assignment: Two comprehensive assignments will be given during the term. Students have to do their assignments individually. The assignments will be process based to develop the skills of the students.
- c. Continuous Assessment Test: A descriptive exam will be given in class during the 10th week of the term, on a date to be arranged. The exam will test students' knowledge and understanding of the important topics included in the syllabus.

MODE OF ASSESSMENT

Internal Assessment (20 Marks)

- | | |
|-----------------------------------|--------|
| e. Classroom participation (20%): | 4 Mark |
| f. Test papers I (40%): | 8 Mark |
| g. Assignment (20%): | 4 Mark |
| h. Seminar/ Viva (20%): | 4 Mark |

External Assessment (80 Marks) Duration 2.5 Hours, No of Questions: 27

MODULE WISE MARK DISTRIBUTION	
Module	Marks
Module I: Theories of Inflation and Unemployment	26
Module II: Money	17
Module III: Elementary IS-LM Model	16
Module IV: Macroeconomic Instability	21

REFERENCES:

1. Gregory Mankiw (2010), Macroeconomics, Sixth Edition, Worth Publishers.
2. Richard T. Froyen (2008), Macroeconomics - Theories and Policies, Tenth Edition, Pearson education.
3. D.N Dwivedi (2016), Macroeconomics: Theory and Policy, Tata McGraw Hill, New Delhi.
4. Maria John Kennedy (2013) Macroeconomic Theory, PHI Learning, New Delhi.
5. Nattrass, Nicoli and VisakhVarma, G (2014): Macroeconomics Simplified: Understanding Keynesian and Neoclassical Macroeconomic Systems, Sage publications India, New Delhi.
6. Errol D'Souza (2008), Macro Economics, Pearson Education.
7. Edward Shapiro (1982), Macroeconomic Analysis, Oxford University press.
8. Eugene Diuto (2010), Macroeconomic Theory, Shaums's Outline Series.

COURSE CODE –BEC6B12				
CORE COURSE XII: International Economics				
Credit	Hours/week	Marks		
		Internal	External	Total
4	5	20	80	100

Course Outcomes

CO No.	Expected Course Outcome	Learning Domain	PSO No
	Upon completion of this course, students will be able to;		
CO1	Students identify the basic difference between inter-regional and international trade and evaluate how international trade promotes economic development.	Understand Analyse	PSO1 PSO5
CO2	Students compare and contrast different trade theories and understand the ways in which free trade and restrictive trade policies could be practiced.	Apply	PSO3
CO3	Students analyse the functioning of foreign exchange markets in the world and relate different exchange rate systems.	Analyse	PSO4 PSO9
CO4	Students identify concepts of the Balance of payments (BOPs) and assess the bop of various nations and analyse different instruments to clear BOP disequilibrium.	Understand, Apply, Analyse	PSO1, PSO5
CO5	Students understand the role of international agencies in promoting world trade and economic cooperation.	Understand	PSO2

COURSE CONTENT	
Module I: Introduction to International Economics	10 Hours
<p>Subject matter and importance of International Economics - Internal trade and international trade -Importance of International trade - International trade and economic development -Basic concepts - Terms of trade</p>	
Module II: Theories of International Trade:	25 Hours
<p>Mercantilist approach to trade - Classical Theory: Absolute and Comparative Cost Advantage theories - Hecksher - Ohlin Theory and Leontief Paradox.</p>	
Module III: Theory of Commercial Policy	25 Hours
<p>Free trade - Arguments for and against free trade GAAT and WTO and Major Agreements - Protection - Arguments for and against protection - Methods of Trade Restriction: Tariff and non-tariff trade barriers - Types of tariffs - New protectionism - export subsidy and countervailing duties - Dumping and anti-dumping duties - Economic Integration -EU, NAFTA, ASEAN, SAARC</p>	
Module IV: Foreign Exchange	15 Hours
<p>Foreign exchange market - functions - Defining foreign exchange and exchange rate - Exchange rate concepts - exchange rate changes (devaluation, revaluation, depreciation, appreciation-overvaluation and undervaluation)-Different systems of exchange rate determination - fixed and flexible exchange rate - Hybrid exchange rate systems - Managed floating - Theories of exchange rate - Mint Parity theory - Purchasing Power Parity Theory -</p>	

Balance of Payments Theory - Foreign exchange market: functions, participants and transactions.

Module V: Balance of Payments:

15 Hours

Balance of payments- Components- Balance of Trade and Balance of Payments - Accounting Principles- Basic balance- Overall balance of payment- Accounting balance of payment- Autonomous and Accommodating transactions- BoP Surplus and deficit- BoP Adjustment and Settlement- Equilibrium and disequilibrium in BOP - Policies to correct BOP disequilibrium - International financial flows -, IMF-IBRD, Role and Functions

MODE OF TRANSACTION

Face to Face Instruction: This involves attending traditional classroom lectures and participating in in-person discussions and activities with the instructor and fellow students.

Peer to Peer learning: Students have to select a topic in the course and present it in the class which providing opportunity for critical thinking and feedback.

Group Discussion: Group discussion will be conducted based on the relevant topic in the course that will improve students' thinking and help them to construct their own meaning about academic contents.

MODE OF ASSESSMENT

Internal Assessment (20 Marks)

- a. Classroom participation (20%): 4 Mark
- b. Test papers I (40%): 8 Mark

c. Assignment (20%):	4 Mark
d. Seminar/ Viva (20%):	4 Mark
External Assessment (80 Marks) Duration 2.5 Hours, No of Questions: 27	

MODULE WISE MARK DISTRIBUTION	
Module	Marks
Module I: Introduction to International Economics	14
Module II: Theories of International Trade	14
Module III: Theory of Commercial Policy	18
Module IV: Theory of Commercial Policy	16
Module V: Balance of Payments	18

REFERENCES:

1. Salvatore, Dominic. (1997), International Economics, PHI, New York
2. Paul Krugman and Maurice Obstfeld (2002), International Economics: Theory and policy, PHI, Newyork.
3. Dwivedi DN (2013), International economics Theory and policy, S.Chand (G/L) & Company Ltd; First edition
4. Prakash G (2013), International finance 2/e PB, McGraw Hill Education India
5. Soderstein and Geoffrey Reed (1999), International Economics, Palgrave.
6. Francis Cherumilam (2008), International Economics, McGraw Hill Education India Private Limited.
7. Mannur, H.G (1999). International Economics, 2nd Edition S.Chand (G/L) & Company Ltd; .
8. Robert J Carbaugh (2008), International Economics, 12th edition, South western Cenegage,

COURSE CODE –BEC6B13**CORE COURSE XIII: Development Economics**

Credit	Hours/week	Marks		
		Internal	External	Total
4	4	20	80	100

Course Outcomes

CO No.	Expected Course Outcome	Learning Domain	PSO No
	Upon completion of this course, students will be able to;		
CO1	Evaluate different measures of development, including GDP, PCI, PQLI, HDI, HPI, GDI, GEM, and Multi-Dimensional Poverty Index, to assess the level of economic and social development in a given country or region.	Evaluate	PSO5
CO2	Analyze the problems of under-developed countries, such as the vicious circle of poverty and low-level equilibrium trap, and critically assess different theories of development, such as the Big Push theory, balanced versus Unbalanced growth theory, and Stage theories proposed by Marxian and Rostow.	Analyse	PSO4
CO3	Apply economic planning concepts and techniques to formulate and evaluate development plans, taking into account the role of globalization and the challenges of implementing these plans.	Apply	PSO3
CO4	Assess the impact of population growth on economic development, using theoretical frameworks such as the Malthusian theory of Population, Theory of Demographic Transition, and Human Capital approach, and apply Sen's Capability Approach to evaluate the role of education and health in promoting economic development.	Evaluate Apply	PSO9 PSO3
CO5	Identify and analyze key issues in development, such as inequality, poverty, and environmental degradation, and evaluate policy options to address these issues and promote sustainable development.	Analyse	PSO5

CO6	Develop critical thinking skills and engage in independent research and analysis to assess the strengths and weaknesses of different development theories and policies, and make informed recommendations for future action.	Evaluate	PSO5
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COURSE CONTENT	
Module 1 – Perspectives on Development Economics	15 Hours
<p>The subject matter of Development economics – Meaning of Growth and Development – measurements of development – GDP, PCI, PQLI, HDI, HPI, GDI, GEM, Multi-Dimensional Poverty index – Happiness Index</p>	
Module 2 – Theories of Development	26 Hours
<p>Problems of under-developed countries, vicious circle of poverty, Low-level equilibrium trap, critical minimum effort, Big Push theory, Balanced versus Unbalanced growth theory, Stage theories – Marxian and Rostow</p>	
Module 3 – Economic Planning	10 Hours
<p>Concept, meaning and types of planning, Relevance of planning in the context of globalization</p>	
Module 4: Population Growth and Economics development	15 Hours
<p>Population and Economic Development: Conflicting Views – Malthusian theory of Population and its criticisms – Theory of demographic transition – Demographic dividend – Human capital approach to economic development – Role of education and health – Sen’s Capability Approach.</p>	

Module 5: Issues in development	15 Hours
<p>Poverty – measurement and classification, Inequality and its measurement (Kuznet’s inverted U Hypothesis, Lorenz curve and Gini coefficient), Trickle-down theory and its failures – Gender issues – the concept of missing women. Environment versus development – the concept of sustainable development, limits to growth, global warming.</p>	

MODE OF TRANSACTION
<p>Face to Face Instruction: This involves attending traditional classroom lectures and participating in in-person discussions and activities with the instructor and fellow students.</p> <p>Peer to Peer learning: Students have to select a topic in the course and present it in the class which providing opportunity for critical thinking and feedback.</p> <p>Group Discussion: Group discussion will be conducted based on the relevant topic in the course that will improve students’ thinking and help them to construct their own meaning about academic contents.</p>

MODE OF ASSESSMENT								
<p>Internal Assessment (20 Marks)</p> <table> <tr> <td>a. Classroom participation (20%):</td> <td>4 Mark</td> </tr> <tr> <td>b. Test papers I (40%):</td> <td>8 Mark</td> </tr> <tr> <td>c. Assignment (20%):</td> <td>4 Mark</td> </tr> <tr> <td>d. Seminar/ Viva (20%):</td> <td>4 Mark</td> </tr> </table>	a. Classroom participation (20%):	4 Mark	b. Test papers I (40%):	8 Mark	c. Assignment (20%):	4 Mark	d. Seminar/ Viva (20%):	4 Mark
a. Classroom participation (20%):	4 Mark							
b. Test papers I (40%):	8 Mark							
c. Assignment (20%):	4 Mark							
d. Seminar/ Viva (20%):	4 Mark							
<p>External Assessment (80 Marks) Duration 2.5 Hours, No of Questions: 27</p>								

MODULE WISE MARK DISTRIBUTION	
Module	Marks
Module I: Perspectives on Development Economics	15
Module II: Theories of Development	35
Module III: Economic Planning	5
Module IV: Population Growth and Economics development–	15
Module V: Issues in development	10

REFERENCES:

1. Todaro, Michael P and Stephen C Smith(2014): Economic Development, Pearson, New Delhi
2. Ghatak, Subrata (2003): Introduction to Development Economics, 4th ed, Routledge, London.
3. Somasekhar, N T (2007): Development Economics, New Age International, New Delhi.
4. Taneja, M L and Myer R M (2014): The economics of Development and Planning, Vishal Publishing, Punjab.
5. Thirlwal, A P (2011): Growth and Development with special reference to developing Economies, Palgrave MacMillan, London.
6. Hayami, Yujiro and Yoshihisa Godo (2014): Development Economics–from Poverty of nations to the wealth of Nations, Oxford University Press, New Delhi.
7. Ray, Debraj (2014): Development Economics, Oxford University Press, New Delhi.
8. Perkins, et al (2001): Economics of Development, W.W Norton Company, USA.

COURSE CODE –BEC6B14

CORE COURSE XIV: Public Finance

Credit	Hours/week	Marks		
		Internal	External	Total
4	5	20	80	100

Course Outcomes

CO No.	Expected Course Outcome	Learning Domain	PSO No
	Upon completion of this course, students will be able to;		

CO1	Appraise the need for government intervention and also capitalist and mixed economies.	Evaluate	PSO5
CO2	Examine the implications of principle of maximum social advantage.	Apply	PSO3
CO3	Explain the principles, objective and classification of taxation.	Understand	PSO2
CO4	Distinguish between the impact of direct and indirect taxes	Analyse	PSO4
CO5	To identify various methods raising revenue by the government.	Remember	PSO1
CO6	Assess the causes and consequences of increasing public expenditure and public debt.	Evaluate	PSO5
CO7	Judge the implications central and state budgets	Apply	PSO9

COURSE CONTENT	
Module 1: Introduction to Public Finance	20 Hours
<p>Meaning and scope of public finance - Musgrave's three function of government –Need for Government Intervention in capitalist and mixed economies - Public and Private Finance – Principles of Maximum Social Advantage: Approaches of Dalton and Musgrave – Public Goods, Private Goods, Mixed Goods and Merit Goods (Concept only)</p>	
Module 2: Public Revenue	20 Hours
<p>Meaning and Sources of Public Revenue – Tax: Definition, Features and objectives – features of good tax system – Various classifications of taxes – Canons of Taxation – Principle of equity: Horizontal and Vertical –Principles of taxation: cost of service, ability to pay and benefit principles– Impact and incidence of tax–Tax Shifting and its influencing factors–Effects of Taxation– Laffer Curve – Taxable</p>	

capacity–Tax Buoyancy and Tax Elasticity – Indian Tax System: Features and Problems–Major direct and Indirect Taxes in India.	
Module 3: Public Expenditure and Public debt	20 Hours
Canons and classification of Public expenditure–Theories of public expenditure – Wagner’s law – Peacock-Wiseman Hypothesis –Effects of Public Expenditure–Causes for the growth of public expenditure in India –Public Debt: Meaning, Types of Public Debt, Debt Redemption methods.	
Module 4: Basics of Budgeting and Fiscal policy	10 Hours
Meaning of Budget–Procedures of Budgetary in India–Actual, Budget, and Revised Estimates –Development and non-development expenditure- Revenue Receipts and Revenue Expenditure- Capital Receipts and Capital Expenditure –Budget Deficit – Revenue deficit – Effective Revenue deficit –Fiscal Deficit – Primary Deficit- Golden Rule of Deficit – Deficit Financing–Fiscal policy: objectives and instruments–Gender Budgeting in India.	
Module 5: Federal Finance	10 Hours
Meaning, Principles and need of Federal Finance – constitutional distribution of functions and revenues between centre and state–Meaning of vertical and horizontal imbalances- Functions of Finance commission–Local Finance: Functions and Revenues.	

MODE OF TRANSACTION

Teaching: Mixed Learning approach is proposed for the paper. Lecture-based method and discussions will be used to explain the various concepts, theories and methods of taxation, budgeting and expenditure. Seminars will be given to students to assess the implications of budgets of the central and state governments. Assignments will be given to analyse the trend and composition of public revenue and expenditure.

Internal Assessment:

- a. Seminar Presentations: Students have to make a seminar presentation on topics included in the syllabus or any topic related to the subject.
- b. Assignment: Two comprehensive assignments will be given during the term. Students have to do their assignments individually. The assignments will be process based to develop the skills of the students.
- c. Continuous Assessment Test: A descriptive exam will be given in class during the 10th week of the term, on a date to be arranged. The exam will test students' knowledge and understanding of the important topics included in the syllabus.

MODE OF ASSESSMENT

Internal Assessment (20 Marks)

- | | |
|-----------------------------------|--------|
| a. Classroom participation (20%): | 4 Mark |
| b. Test papers I (40%): | 8 Mark |
| c. Assignment (20%): | 4 Mark |
| d. Seminar/ Viva (20%): | 4 Mark |

External Assessment (80 Marks) Duration 2.5 Hours, No of Questions: 27

MODULE WISE MARK DISTRIBUTION

Module	Marks
Module I: Introduction to Public Finance	14
Module II: Public Revenue	22
Module III: Public Expenditure and Public debt	16
Module IV: Basics of Budgeting and Fiscal policy	16
Module V: Federal Finance	12

REFERENCES:

1. Kennedy, Maria John (2012): Public Finance, Prentice Hall of India.
2. Om Prakash (2012): Public Economic Theory and Practice, Vishal Publishing Co, Jalandhar,
3. Musgrave and Musgrave (1976): Public Finance Theory and Practice, Mc Graw-Hill, Kogakhusa, Tokyo.
4. Dalton, Hume (1971): Principles of Public Finance, Routledge and Kegan Paul Limited, London.
5. Herber, B. P (1976): Modern Public Finance, Richard D Irwin, Homewood.
6. Hindrick, Jean and Gareth D Myles (2006): Intermediate Public Economics, Prentice Hall of India
7. N. Radhakrishnan (2012), Public Finance, Theory and Approach. Vrinda Publications.
8. Lekhi, R K (2003): Public Finance, Kalyani Publications, New Delhi.

ELECTIVE COURSE SYLLABUS

SEMESTER 6

COURSE CODE –BEC6E01				
ELECTIVE COURSE I: Research Methodology and Data Sources				
Credit	Hours/week	Marks		
		Internal	External	Total
3	3	15	60	75

Course Outcomes

CO No.	Expected Course Outcome	Learning Domain	PSO No
	Upon completion of this course, students will be able to;		

CO1	Define the meaning and significance of research in economics and describe the characteristics of scientific research.	Remember	PSO1
CO2	Differentiate between various types of research methodologies.	Understand	PSO2
CO3	Develop research steps to identify research topics and develop research proposals and interpret economic data from surveys and statistical sources.	Analyse	PSO3 PSO4
CO4	Design and develop a comprehensive research report, including title, abstract, introduction, methodology, results, discussion, and bibliography.	Analyse	PSO5, PSO10

COURSE CONTENT	
Module I: Introduction to Research Methodology	12 Hours
<p>Research meaning and significance - Characteristics of scientific Research - Type of research: pure, applied, analytical, exploratory, Descriptive, surveys, Case-study - Research process - Topic identification - literature review and note taking - Role of computer technology in research - Writing a Research Proposal</p>	
Module II: Indian Data Sources and Concepts	20 Hours
<p>National Accounts statics (NAS) and Macro-economic Aggregates, NSSO Consumer Expenditure Survey (Concepts: MPCE, URP, MRP, MMRP) Employment and Unemployment Survey (Concepts: Activity status by reference period, types of employment status, LFPR, WPR, PU and UR) Census of India (Concepts: Vital statistics, work and classification of work) NFHS and Measurement of Nutrition status, Structure and contents of Economic Survey, Kerala Economic Review and Panjayat level statistics</p>	
Module III: Report Writing	16 Hours

Format of a Research Report: Title to Bibliography – Citation and Referencing using APA Style – Analysing economics in the news and writing reports for news paper

MODE OF TRANSACTION

Face to Face Instruction: This involves attending traditional classroom lectures and participating in in-person discussions and activities with the instructor and fellow students.

Peer to Peer learning: Students have to select a topic in the course and present it in the class which providing opportunity for critical thinking and feedback.

Group Discussion: Group discussion will be conducted based on the relevant topic in the course that will improve students' thinking and help them to construct their own meaning about academic contents.

MODE OF ASSESSMENT

Internal Assessment (15 Marks)

- e. Classroom participation (20%): 3 Mark
- f. Test papers I (40%): 6 Mark
- g. Assignment (20%): 3 Mark
- h. Seminar/ Viva (20%): 3 Mark

External Assessment (60 Marks) Duration 2 Hours, No of Questions: 21

MODULE WISE MARK DISTRIBUTION

Module	Marks
Module I: Introduction to Research Methodology	15

Module II: Indian Data Sources and Concepts	25
Module III: Report Writing	20

REFERENCES:

- 1- Krishnaswamy, O.R. Methodology of Research in Social Sciences, Himalya publishing House, 1993.
- 2- William J Goode and Paul K Hatt (1981): Methods in Social Research- McGraw- Hill.
- 3- Pauline V Young: Scientific Social Surveys and Research- Prentice Hall India Pvt Ltd.
- 4- Wilkinson and Bhandarkar (2002) Methodology and Techniques of Social Research-Himalaya Publishing House.
- 5- Marc Blaug: The Methodology of Economics, or How Economics Explain- Cambridge University Press.
- 6- Wilkinson and Bhadarkar: Research Methodology.
- 7- C.R Kothari (2004), Research Methodology: Methods and Techniques- New Age International, New Delhi
- 8- Ranjith Kumar (2011), Research Methodology a Step- by- Step Guide for Beginners, Sage Publications New Delhi.
- 9- Christopher F. Baum (2006) An Introduction to Modern Econometrics Using Stata. Stata Press.
- 10- MOSPI (2014), Level and Pattern of Consumer Expenditure 2011-12, NSSO, Government of India
- 11- MOSPI (2014), Employment and Unemployment Situation in India, 68th Round, NSSO, Government of India

COURSE CODE –BEC6E02**ELECTIVE COURSE II: Behavioural Economics**

Credit	Hours/week	Marks		
		Internal	External	Total
3	3	15	60	75

Course Outcomes

CO No.	Expected Course Outcome	Learning Domain	PSO No
	Upon completion of this course, students will be able to;		
CO1	Understand the concept of Behavioral Economics and distinguish it from Standard Economic Models.	Understand	PSO1 PSO2 PSO3
CO2	Critically evaluate different economic theories from a Behavioral Economics perspective.	Evaluate	PSO5
CO3	Discuss the history and evolution of the Neoclassical Approach and the resurgence of Psychology.	Understand	PSO2 PSO3 PSO5

CO4	Identify the key features of Bounded Rationality and explain its emergence.	Remember	PSO1 PSO2 PSO3
CO5	Analyze Ecological Bounded Rationality and Fast and Frugal Heuristics.	Analyse	PSO4
CO6	Understand the concept of Decision-making Under Risk and Uncertainty.	Understand	PSO2
CO7	Explain Expected Utility Theory (Axioms) and its anomalies.	Understand	PSO1 PSO2 PSO3
CO8	Analyze Prospect Theory and its components - Editing Phase and Comments - Evaluation Phase - Reference Point - Loss Aversion.	Analyse	PSO4
CO9	Apply the concepts of Behavioural Economics to real-life decision-making scenarios.	Apply	PSO1 PSO3

COURSE CONTENT	
Modules 1. Introduction to Behavioural Economics	16 Hours
Introduction to Behavioral Economics; What is Behavioral Economics? Behavioral Economics and the Standard Economic Models (The Neoclassical Repairshop); Evaluating Economic Theories; History and Evolution: The Neoclassical Approach; The Resurgence of Psychology. Birth of Behavioral Economics as we know it; Methodology and Data Sources (Economics and Psychology)	
Module 2. Rationality	10 Hours
Bounded Rationality; The notion of Bounded Rationality- The emergence of bounded rationality; Ecological Bounded Rationality; Fast and Frugal Heuristics	
Module 3. Decision making	12 Hours
Decision-making Under Risk and Uncertainty; Expected Utility Theory (Axioms); Anomalies in Expected Utility Theory; Prospect Theory - Editing Phase and Comments - Evaluation Phase - Reference Point - Loss Aversion.	

MODE OF TRANSACTION

Interactive Lectures: The instructor can deliver engaging and interactive lectures, where students are encouraged to ask questions and participate in class discussions. The lectures can be supplemented with case studies, examples, and real-world scenarios to make the material more relatable.

Class Debates: The instructor can organize class debates on controversial topics in behavioral economics, such as the validity of expected utility theory or the effectiveness of prospect theory. This can encourage critical thinking and help students to develop their analytical skills.

Online resources: The instructor can provide students with online resources such as videos, podcasts, and articles related to behavioural economics. This method allows students to learn at their own pace and provides additional resources to support their learning.

Class discussions: The instructor can facilitate class discussions on various topics related to behavioral economics. This method encourages critical thinking and allows students to share their views and opinions on various topics.

MODE OF ASSESSMENT

Internal Assessment (15 Marks)

- | | |
|-----------------------------------|--------|
| i. Classroom participation (20%): | 3 Mark |
| j. Test papers I (40%): | 6 Mark |
| k. Assignment (20%): | 3 Mark |
| l. Seminar/ Viva (20%): | 3 Mark |

External Assessment (60 Marks) *Duration:2 Hours, No of Questions: 21*

MODULE WISE MARK DISTRIBUTION	
Module	Marks
Module I: Introduction to Behavioural Economics.	26
Module II: Rationality	15
Module III: Decision making	19

REFERENCES:

1. Dhami, S. (2016). The Foundations of Behavioral Economic Analysis. Oxford University Press.
2. Camerer, C. F., Loewenstein, G., & Rabin, M. (Eds.). (2004). Advances in Behavioral Economics. Princeton University Press.
3. Rabin, M., & DellaVigna, S. (Eds.). (2018). Handbook of Behavioral Economics: Foundations and Applications 1. Elsevier.
4. Gigerenzer, G. (2008). Gut Feelings: Short Cuts to Better Decision Making. Penguin UK.
5. Gigerenzer, G., & Selten, R. (Eds.). (2001). Bounded Rationality. CogNet.
6. Sunstein, C. R., & Thaler, R. H. (2014). Nudge: Improving Decisions about Health, Wealth, and Happiness. Penguin Books.
7. Ariely, D., & Jones, S. (2008). Predictably Irrational. Harper Audio.
8. Kahneman, D. (2011). Thinking, Fast and Slow. Farrar, Straus and Giroux.
9. Duhigg, C. (2012). The Power of Habit: Why We Do What We Do in Life and Business. Random House.
10. Thaler, R. H., & Sunstein, C. R. (2008). Nudge: Improving decisions about health, wealth, and happiness. Yale University Press.

COURSE CODE –BEC6E03**ELECTIVE COURSE III: DATA ANALYSIS USING MS EXCEL**

Credit	Hours/week	Marks		
		Internal	External	Total
3	3	15	60	75

Course Outcomes

CO No.	Expected Course Outcome	Learning Domain	PSO No
	Upon completion of this course, students will be able to;		
CO1	Understand Microsoft Excel, including its features, uses, and the different components of the spreadsheet window pane.	Understand	PSO2
CO2	Demonstrate proficiency in using MS Excel to organize, clean, and analyze economic data sets effectively.	Understand	PSO2
CO3	Apply various data analysis techniques, such as descriptive statistics, regression analysis, and hypothesis testing, to draw meaningful insights from economic data.	Apply	PSO3
CO4	Create clear and visually appealing charts, graphs, and tables using MS Excel to evaluate economic data and analysis results in a comprehensible manner.	Create Evaluate	PSO6 PSO5
CO5	Apply advanced mathematical techniques in MS Excel to solve complex economic problems, optimize economic objectives subject to constraints, and make informed financial decisions using time value of money concepts and financial functions.	Apply	PSO3
CO6	Gain hands-on experience in conducting economic research using real-world datasets, honing their abilities to identify relevant economic questions and apply appropriate	Apply	PSO3

	data analysis methods in MS Excel to answer them.		
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COURSE CONTENT	
Module 1 –Microsoft Excel as a tool for data analysis	10 Hours
<ul style="list-style-type: none"> • Excel, Spreadsheet window pane, Menus in Excel, • Data Entry, Cleaning, and Manipulation-Importing and data validation techniques Sorting, filtering, and managing datasets in Excel • Columns & Rows- Cell and Cell reference- Functions- • Advance Formulas: Concatenate, Vlookup, Hlookup, Match, Countif, 	
Module 2: Mathematical Applications in Excel	25 Hours
<ul style="list-style-type: none"> • Basic Mathematical Operations in Excel-Exploring order of operations and parentheses in Excel formulas • Creating graphs using MS Excel-Applying Excel's built-in functions for numerical calculations-Solving linear and nonlinear equations using Excel Solver • Basic matrix operations in MS Excel-Determining the inverse of square matrices using Excel-Solving Systems of Linear Equations in matrix form-Using Excel to find eigenvalues and eigenvectors of square matrices • Optimization Techniques in Economics: Solving optimization problems using Excel Solver add-in Applying Solver to maximize/minimize economic objectives subject to constraints • Calculating marginal functions and derivatives using Excel • Financial Mathematics in Excel: Time value of money concepts (e.g., present value, future value) in economics-Applying financial functions (PV, FV, NPV) in Excel for economic decision-making 	
Module 3. Statistical Applications in Excel	25 Hours
<ul style="list-style-type: none"> • Data Visualization in Excel, creating frequency distributions and histograms in Excel- • Pivot Tables: Creating and Manipulating a PivotTable 	

- Descriptive Statistics and Data Summarization
- Performing correlation and regression analysis
- Conducting one-sample and two-sample t-tests in Excel
- Applying moving averages and exponential smoothing for forecasting
- Generating random numbers and random samples in Excel
- Fitting Binomial and Poisson distribution using MS Excel

MODE OF TRANSACTION

Teaching: This course employs an interactive and hands-on mode of teaching, encompassing lectures, practical sessions, and group discussions to equip students with essential skills in data analysis, mathematical applications, and statistical techniques using Microsoft Excel. In Module 1, students learn about Excel's functionalities, data manipulation, and advanced formulas like Vlookup and Countif. Module 2 focuses on mathematical applications, covering matrix operations, optimization, and financial mathematics. Module III delves into statistical applications, including data visualization, Pivot Tables, correlation, regression, t-tests, forecasting, and distribution fitting. Throughout the course, students engage in active learning through Excel-based assignments and real-world case studies, enabling them to make informed economic decisions and develop practical expertise in data analysis.

Internal Assessment: Two comprehensive **assignments** shall be assigned during the term, and each student is expected to complete them individually. The assignments shall be designed to test students' ability to achieve specific goals, rather than simply completing a task.

- i. A practical **exam** shall be administered during the 10th week of the term. The exam should assess students' practical understanding of the important methods, and practices covered in the course.
- ii. In addition to assignments and exams, students need to participate in various activities to become familiar with the practical application of mathematical and statistical tools in MS Excel.

MODE OF ASSESSMENT	
Internal Assessment (15 Marks)	
a. Classroom participation (20%):	3 Mark
b. Test papers I (40%):	6 Mark
c. Assignment (20%):	3 Mark
d. Seminar/ Viva (20%):	3 Mark
External Assessment (60 Marks) Duration 2 Hours, No of Questions: 21	

MODULE WISE MARK DISTRIBUTION	
Module	Marks
Module I: Microsoft Excel as a tool for data analysis	10
Module II: Mathematical Applications in Excel	25
Module III: Statistical Applications in Excel	25

REFERENCES:

1. Anita Meehan, C. Bruce Warner, Elementary Data Analysis Using Microsoft Excel, McGraw Hill
2. Bill Jelen, Power Excel 2019 with MrExcel: Master Pivot Tables, Subtotals, VLOOKUP, Power Query, Dynamic Arrays & Data Analysis, Holy Macros Books
3. Dan Remenyi, George Onofrei and Joseph English, An Introduction to Statistics using Microsoft Excel, ACPII Publication
4. David Levine, David Stephan and Kathryn Szabat, Statistics for Managers Using Microsoft Excel, Pearson, 8th Edition
5. Keith Resendes, Excelling With Data: Descriptive Statistics Using MS Excel, CreateSpace Independent Publishing Platform
6. Ken Black and David Eldredge, Business and Economic Statistics Using Microsoft Excel 1st Edition, South-Western College Publication
7. Linda Herkenhoff and John Fogli, Applied Statistics for Business and Management using Microsoft Excel, Springer

8. Lisa Koster, Using Excel in Business Math, Creative Commons Attribution-Non-Commercial
9. Manisha Nigam, Data Analysis with Excel: Tips and tricks to kick start your excel skills, BPB Publications
10. Michael Alexander, Excel 2019 Bible, 1th edition, Wiley
11. Michael R. Middleton, Data Analysis Using Microsoft Excel, Cengage, 3rd Edition
12. MG Martin, Excel Pivot Tables: Basic Beginners Guide to Learn Excel Pivot Tables for Data Analysis and Modeling
13. Neil J. Salkind and Bruce B. Frey, Statistics for People Who (Think They) Hate Statistics: Using Microsoft Excel, Sage, Fifth Edition
14. Wayne Winston, Microsoft Excel 2019 Data Analysis and Business Modeling, 6th Edition, Microsoft

COURSE CODE –BEC6E04				
ELECTIVE COURSE IV: Environmental Economics				
Credit	Hours/week	Marks		
		Internal	External	Total
3	3	15	60	75

Course Outcomes

CO No.	Expected Course Outcome	Learning Domain	PSO No
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	Upon completion of this course, students will be able to;		
CO1	Describe the meaning and scope of environmental economics	Remember	PSO1
CO2	Illustrate the relationship between environment and economy	Understand	PSO2
CO3	Choose renewable and non-renewable resources	Apply	PSO3
CO4	Compare direct and indirect methods of environmental valuation	Analyse	PSO4
CO5	Appraise environmental regulations implemented in India	Evaluate	PSO5
CO6	Develop environmental protection initiatives among students.	Create	PSO10

COURSE CONTENT	
Module I: Introduction to Environmental Economics	18 Hours
Environmental Economics – origin – development – Scope – Ecology and eco systems – Material balance model – Economics of natural resources – relationship between environment and economy – Resources taxonomy – renewable and non-renewable resources – common property resources – tragedy of commons.	
Module II: Externalities, Market Failure and Environmental Valuation	15 Hours
Public Goods – Externality – Market Failure – Pigovian Tax and Subsidies – Property rights and Coase theorem – valuation of environmental benefits and costs – direct and indirect methods of environmental valuation – cost benefit analysis – Net Present value – Contingent valuation method – travel cost method – hedonic price method – Averting expenditure method – market and non market benefits of pollution control – Environmental impact Assessment.	
Module III: Environmental Policy	15 Hours

Instruments of Environmental Policy – CAC – price based and quantity based instruments – permit system – Choice among policy instruments – The Indian experience – Criteria for evaluating environmental policies – environmental regulations and local economic activity.

MODE OF TRANSACTION

Lectures: Lectures can be used to discuss the theories and methods.

Seminar Presentations: students will be asked to make a presentation on topics related syllabus.

Case studies and real-life examples: These can be used to examine the impact of environmental degradation on the livelihood people.

Group discussions and debates: These can be used to discuss the international environmental agreements.

Problem-solving exercises and simulations: These are used to carry out environmental valuations.

MODE OF ASSESSMENT

Internal Assessment (15 Marks)

- | | |
|-----------------------------------|--------|
| e. Classroom participation (20%): | 3 Mark |
| f. Test papers I (40%): | 6 Mark |
| g. Assignment (20%): | 3 Mark |
| h. Seminar/ Viva (20%): | 3 Mark |

External Assessment (60 Marks) Duration 2 Hours, No of Questions: 21

MODULE WISE MARK DISTRIBUTION

Module	Marks

Module I: Introduction to Environmental Economics	20
Module II: Externalities, Market Failure and Environmental Valuation	25
Module III: Environmental Policy	15

REFERENCES:

1. Ashwani Mahajan (2010), Environmental Economics, Centrem Press.
2. Charles D Kolstad (2012), Environmental Economics, Oxford University Press.
3. Dhingra I. C (2012), Indian Economy: Environment and Policy, Sultan Chand & Sons, New Delhi.
4. Eugene T, (2006), Environment Economics, Vrinda Publication New Delhi
5. Katar Singh and Anil Shishodia (2007), Environmental Economics, Theory and Applications, Sage Publications, New Delhi
6. Nick Hanley et al (2007), Environmental Economics: Theory and Practice, Palgrave Macmillan.
7. Paul Aekins (2000), Economic Growth and Environmental Sustainability, Routledge, London.
8. R N Bhattacharya (2002), Environmental Economics, An Indian Perspective, Oxford University Press, New Delhi.
9. Fisher, A.C. (1981), Resource and Environmental Economics, Cambridge University Press, Cambridge.
10. Hussen, A.M. (1999), Principles of Environmental Economics, Routledge, London.
11. Kolstad, C.D. (1999), Environmental Economics, Oxford University Press, New Delhi.

OPEN COURSE SYLLABUS

SEMESTER 5

COURSE CODE –BEC5D01				
OPEN COURSE I: ECONOMICS IN EVERYDAY LIFE				
Credit	Hours/week	Marks		
		Internal	External	Total
3	3	15	60	75

Course Outcomes

CO No.	Expected Course Outcome	Learning Domain	PSO No
	Upon completion of this course, students will be able to;		
CO1	Explain the fundamental concepts of economics and its scope	Understand	PSO2
CO2	Identify the core principles of economics and use economic models to analyze economic issues.	Remember Analyze	PSO2 PSO4
CO3	Compare the different types of markets, including the factor, goods, labour, and financial markets	Analyze	PSO4
CO4	Measure and interpret economic figures, such as GDP, price indices, and analyze the concepts of inflation, unemployment, HDI, and exchange rates etc	Evaluate Analyze	PSO5 PSO4
CO5	Examine the objectives, meaning, and instruments of fiscal and monetary policies	Apply	PSO3
CO6	Apply economic principles and concepts to evaluate public policies and their impact on the economy.	Apply	PSO3

COURSE CONTENT

Module 1: Introduction to Economics	10 Hours
<ol style="list-style-type: none"> 1. Meaning of economics-Nature and Scope of economics-Microeconomics and Macroeconomics- 2. Individual Choice: The core of Economics-Four Principles- 3. Economic Models: Circular flow and Production Possibility Frontier-Production possibilities and opportunity cost 	
Module 2: How Markets Works	15 Hours

1. Meaning of Market-Types of market- factor market, goods market-labour market, financial market-
2. Four market structure (Concept only)- perfect, monopoly, monopolistic and oligopoly
3. Demand -Law of demand, Shifts and market demand-
4. Supply, Law of Supply, Shifts and market Supply-
5. Market equilibrium-
6. Elasticity of Demand: Types and determinants -Income and cross price elasticity

Module 3: Measuring and interpreting economic figures

15 Hours

1. Importance of interpretation of economic figures-Aggregate output and income- GDP- nominal and real GDP, GDP deflator, GNP, Per Capita income, GDP growth rate- meaning of sustainable economic growth
2. Price indices and inflation rate- Deflation, Hyperinflation, and Disinflation,
3. Unemployment-HDI – its calculations and interpretations- Sensex and Nifty, exchange rate- spot and forward (concept only)

Module 4: Public Policies

14 Hours

1. Fiscal and monetary policies: objectives, meaning and instruments, bank rate, repo rates, reverse repo rate. (concepts only).
2. Budget - Revenue Budget and Capital Budget – Deficit: Revenue Deficit, Fiscal Deficit

MODE OF TRANSACTION

Teaching: Various teaching methods can be used to teach economics, including lecture method, case study method, group discussion method, role-playing method, project-based learning method, debating method, and multimedia method. The lecture method is the most common, and the teacher can use visual aids to make it more interesting. The case study method presents real-life situations to help students understand the practical applications of economic concepts. Group discussion, role-playing, and debating methods encourage students to express their ideas and opinions and develop critical thinking skills. The project-based learning method assigns projects based on economic concepts, while the multimedia method uses videos, animations, and simulations to make learning interactive and engaging.

Internal Assessment:

- a. Assignment: Two comprehensive assignments will be given during the term. Students have to do their assignments individually. The assignments will be goal-specific rather than task-specific.
- b. Continuous Assessment Test: A descriptive exam will be given in class. The exam will test students' knowledge and understanding of the important statistical principles, methods and practices covered in the course.
- c. Activities: Apart from assignment different activities will be given in order to make the students acquainted with the practicability of various statistical tools.

MODE OF ASSESSMENT

Internal Assessment (15 Marks)

- a. Classroom participation (20%): 3 Mark
- b. Test papers I (40%): 6 Mark
- c. Assignment (20%): 3 Mark
- d. Seminar/ Viva (20%): 3 Mark

External Assessment (60 Marks) Duration 2 Hours, No of Questions: 21

MODULE WISE MARK DISTRIBUTION	
Module	Mark in
Module I: Introduction to Economics	13
Module II: How Markets Works	18
Module III: Measuring and interpreting economic figures	15
Module IV: Public Policies	14

REFERENCES:

COURSE CODE –BEC5D02				
OPEN COURSE II: INTERNATIONAL TRADE AND FINANCE				
Credit	Hours/week	Marks		
		Internal	External	Total
3	3	15	60	75

Course Outcomes

CO No.	Expected Course Outcome	Learning Domain	PSO No
	Upon completion of this course, students will be able to;		
CO1	Students will be able to recall the importance of international trade, the concept of trade as an engine of growth, arguments for and against free trade, and the components of foreign exchange.	Remember	PSO1
CO2	Students will be able to explain the basic theories of international trade including absolute and comparative cost advantage theories, the Hecksher – Ohlin Theory, and the Leontief Paradox.	Understanding	PSO 2
CO3	Students will be able to apply the concepts of protection, tariff and non-tariff trade barriers, export subsidies, countervailing duties, and dumping and anti-dumping duties to different scenarios.	Apply	PSO 3

CO4	Students will be able to analyze the methods of trade restriction, types of tariffs, and new protectionism, as well as explain the forms of economic integration.	Analyse	PSO 4
CO5	Students will be able to evaluate arguments for and against protection, and explain the impact of devaluation, revaluation, appreciation, and depreciation of currency on the balance of payments.	Evaluate	PSO 5
CO6	Students will be able to create a plan to correct the disequilibrium in the balance of payments.	Create	PSO 6

COURSE CONTENT	
Module I: Introduction to International Trade	10 Hours
<p>Importance of International Trade - Inter-dependence among countries - The concept of Trade as an engine of Growth - Arguments for and against free trade - Terms of trade</p>	
Module II: Basic Theories of International Trade	15 Hours
<p>Absolute and Comparative Cost Advantage theories - Heckscher - Ohlin Theory and Leontief Paradox.</p>	
Module III: Theory of Commercial Policy	15 Hours
<p>Protection - Arguments for and against protection - Methods of Trade Restriction: Tariff and non-tariff trade barriers - Types of tariffs - New protectionism - export subsidy and countervailing duties - Dumping and anti-dumping duties - Forms of Economic Integration.</p>	
Module IV: Foreign Exchange and Balance of Payment	14 Hours

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

MODE OF TRANSACTION

Lecture-based method: The instructor can deliver lectures to introduce the concepts and theories of international trade, commercial policy, foreign exchange, and balance of payment. This method can be used to provide a broad understanding of the topics and highlight key concepts and ideas.

Case study method: The instructor can present case studies to help students apply the concepts they have learned to real-world scenarios. Case studies can help students understand the complexities of international trade, commercial policy, foreign exchange, and balance of payment in practice.

Simulation method: The instructor can use simulations or games to provide students with hands-on experience in international trade and foreign exchange. This method can help students develop problem-solving skills, critical thinking, and decision-making abilities.

Group discussion method: The instructor can divide the students into small groups and assign them topics related to the course content. The groups can then discuss their assigned topics and present their findings to the class. This method can help students develop communication and teamwork skills, as well as gain a deeper understanding of the course material.

MODE OF ASSESSMENT

Internal Assessment (15 Marks)

e. Classroom participation (20%):	3 Mark
f. Test papers I (40%):	6 Mark
g. Assignment (20%):	3 Mark
h. Seminar/ Viva (20%):	3 Mark

External Assessment (60 Marks) Duration 2 Hours, No of Questions: 21**MODULE WISE MARK DISTRIBUTION**

Module	Mark
Module I: Introduction to International Trade	12
Module II: Basic Theories of International Trade	20
Module III: Theory of Commercial Policy	16
Module IV: Foreign Exchange and Balance of Payment	12

REFERENCES:

1. Salvatore, Dominic. (1997), International Economics, PHI, New York
2. Paul Krugman and Maurice Obstfeld (2002), International Economics: Theory and policy, PHI, Newyork.
3. Dwivedi DN (2013), International economics Theory and policy, S.Chand (G/L) & Company Ltd; First edition
4. Prakash G (2013), International finance 2/e PB, McGraw Hill Education India
5. Soderstein and Geoffrey Reed (1999), International Economics, Palgrave.
6. Francis Cherumilam (2008), International Economics, McGraw Hill Education India Private Limited.
7. Mannur, H.G (1999). International Economics, 2nd Edition S. Chand (G/L) & Company Ltd.
8. Robert J Carbaugh (2008), International Economics, 12th edition, South western Cenegage,

COMPLEMENTARY COURSE SYLLABUS

SEMESTER 1

COURSE CODE: BEC1C01				
COMPLEMENTARY COURSE I: Mathematical Methods for Economics-I				
Credit	Hours/week	Marks		
		Internal	External	Total
2	3	10	40	50

Course Outcomes

CO No.	Expected Course Outcome	Learning Domain	PSO No
	Upon completion of this course, students will be able to;		
CO1	Allows for the memory or replication of mathematical knowledge and abilities learned in school, as well as their future development and improvement.	Remember	PSO1
CO2	Understand the properties of the real number system, concept of fractions, ratios, proportions, and percentages.	Understand	PSO1 PSO2
CO3	Understand the operations of addition, subtraction, multiplication and division of fractions	Understand	PSO1 PSO2
CO4	Examine how problems involving fractions, ratios, proportions, and percentages were resolved.	Apply	PSO1 PSO3
CO5	Apply algebraic concepts to solve problems related to exponents, linear and quadratic equations, and solution methods for quadratic and simultaneous equations.	Apply	PSO3
CO6	Students understand mathematical models and generalize various functions in economics.	Understand	PSO2

CO7	Students will learn how to solve various economic problems using equations, graphs and set theory.	Apply	PSO3
CO8	Apply the concepts of sets, Venn diagrams, Cartesian products, relations, and functions to solve problems.	Apply	PSO3
CO9	Compare and contrast several kinds of linkages and functions	Evaluate	PSO4
CO10	Evaluate the solutions of problems related to relations and functions	Evaluate	PSO5

COURSE CONTENT	
Module I: Basic Mathematical Concepts	12 Hours
1.1 The real number system-Properties of real number system 1.2 Fractions: Addition, subtraction, multiplication and division of fractions 1.3 Ratios, Proportions and Percentages: Meaning, Problems and Solutions	
Module II- Algebra	16 Hours
2.1 Meaning of algebra 2.2 Exponents-meaning and rules 2.3 Equations-Linear and quadratic 2.4 solution to Quadratic Equation-Quadratic Formula-Factorization method-completing the square method 2.5 Solution to simultaneous equations (Up to three unknowns)	
Module III-Theory of Sets	20 Hours
3.1 Kinds of sets 3.2 Operations of sets 3.3 Laws of sets 3.4 Venn Diagrams 3.5 Problems based on intersection and union 3.6 Cartesian Products 3.7 Relations – Types of Relations	

3.8 Functions-one-to-one, many to one, surjective, bijection

3.9 Graphs of functions- constant, identity, linear and quadratic functions.

3.10 How Graphs Work- Two-Variable Graphs, curves on a Graph, linear and non-linear relationship, the slope of linear and non-linear curve (concept only)

MODE OF TRANSACTION

Lectures: The instructor will deliver lectures on mathematical concepts and methods.

Problem sets and assignments: Students may be given assignments to complete on their own or in groups

Group work and collaboration: In this method, students work together in groups to solve problems and complete assignments, encouraging teamwork and collaboration

In-class exercises: The instructor may provide in-class exercises to help students practice and apply the concepts learned during lectures.

Flipped classroom: In this approach, students are asked to review the material before coming to class, with class time being used for group work, problem-solving, and hands-on activities.

MODE OF ASSESSMENT

Internal Assessment (10 Marks)

- a. Classroom participation (20%): 2 Mark
- b. Continuous Assessment Test (40%): 4 Mark
- c. Assignment (20%): 2 Mark
- d. Seminar/ Viva (20%): 2 Mark

External Assessment (40 Marks) Duration 2 Hours, No of Questions: 21

MODULE WISE MARK DISTRIBUTION	
Module	Mark
Module I: Basic Mathematical Concepts Research	9
Module II: Algebra	10
Module III: Theory of Sets:	21

REFERENCES:

1. Dowling, E. T. (2011). Introduction to mathematical economics (3rd ed.). McGraw- Hill.
2. Chiang, A. C., & Wainwright, K. (2005). Fundamental methods of mathematical economics (4th ed.). McGraw-Hill.
3. Renshaw, G. (2011). Maths for economics (3rd ed.). Oxford University Press.
4. Rosser, M. (1993). Basic mathematics for economists. Routledge.
5. Krugman, P., & Wells, R. (2009). Microeconomics (2nd ed.). Worth Publishers.
6. Parkin, M. (2011). Microeconomics (10th ed.). Pearson.
7. Sydsaeter, K., Hammond, P., Strom, A., & Carvajal, A. (2017). Essential mathematics for economic analysis (5th ed.). Pearson.
8. Bradley, T., & Patton, P. (2011). Essential mathematics for economics and business (4th ed.). Wiley & Sons
9. Strang, G. (2016). Introduction to linear algebra (5th ed.). Wellesley-Cambridge Press.
10. Anton, H., Bivens, I., & Davis, S. (2013). Calculus (10th ed.). Wiley.
11. Lial, M. L., Hornsby, J., Schneider, D., & Daniels, C. (2016). Precalculus (6th ed.). Pearson.

SEMESTER 2

COURSE CODE –BEC2C02				
COMPLEMENTARY COURSE II: Mathematical Methods for Economics-II				
Credit	Hours/week	Marks		
		Internal	External	Total
2	3	10	40	50

Course Outcomes

CO No.	Expected Course Outcome	Learning Domain	PSO No
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	Upon completion of this course, students will be able to;		
CO1	To recall the definitions of sequence, series, arithmetic progression, geometric progression, and harmonic progression.	Remember	PSO1
CO2	To explain the difference between arithmetic, geometric, and harmonic progressions and identify the arithmetic mean, geometric mean, and harmonic mean of a given sequence.	Understand	PSO2
CO3	To solve problems involving arithmetic and geometric progressions, including finding the sum of a series and determining the present value and future value of a series.	Apply	PSO3
CO4	To use mathematical sequences and series in business and financial analysis to assist in decision-making and find the best solution to a given problem.	Analyse Evaluate Synthesizing	PSO4 PSO5 PSO7
CO5	Recall the definitions and terms related to matrices, determinants, and inverse matrices.	Remember	PSO1
CO6	To explain the concept of matrix inversion and how it is used to solve linear equations, as well as apply Cramer's rule for matrix solutions.	Understand	PSO2
CO7	To analyze matrices and use the properties of determinants to determine the rank of a matrix.	Analyse	PSO4
CO8	To recall the concepts of limits and continuity, and the definition of a derivative.	Remember	PSO1
CO9	To explain the rules of differentiation and implicit differentiation, as well as calculate higher-order derivatives.	Understand	PSO2
CO10	To apply the rules of differentiation and implicit differentiation to solve problems involving the derivative	Apply	PSO3

COURSE CONTENT	
Module I: Sequence and Series	12 Hours

1.1. Sequence-series and Progression	
1.2. Arithmetic progression	
1.3. Arithmetic Mean	
1.4. Geometric Progression	
1.5. Geometric mean	
1.6. Harmonic progression	
1.7. Present value and future value (basic only)	
Module II: Matrices	20 Hours
2.1 Matrices - Definitions, terms and types	
2.2 Addition and Subtraction of Matrices	
2.3 Multiplication of Matrices	
2.4 Determinants	
2.5 Properties of a Determinant	
2.6 Rank of a matrix	
2.7 Inverse of a matrix	
2.8 Solving Linear Equations with the Inverse	
2.9 Cramer's Rule for Matrix Solutions.	
Module III: The Derivative: One independent variable	16 Hours
3.1 Limits	
3.2 Continuity (Concept only)	
3.3 The Concept of derivative	
3.4 Rules of Differentiation	
3.5 Higher-Order Derivatives	
3.6 Implicit Differentiation	

MODE OF TRANSACTION

Lectures: The instructor will deliver lectures on mathematical concepts and methods.

Problem sets and assignments: Students may be given assignments to complete on their own or in groups

Group work and collaboration: In this method, students work together in groups to solve problems and complete assignments, encouraging teamwork and collaboration

In-class exercises: The instructor may provide in-class exercises to help students practice and apply the concepts learned during lectures.

Flipped classroom: In this approach, students are asked to review the material before coming to class, with class time being used for group work, problem-solving, and hands-on activities.

MODE OF ASSESSMENT

Internal Assessment (10 Marks)

- | | |
|-----------------------------------|--------|
| a. Classroom participation (20%): | 2 Mark |
| b. Test papers I (40%): | 4 Mark |
| c. Assignment (20%): | 2 Mark |
| d. Seminar/ Viva (20%): | 2 Mark |

External Assessment (40 Marks) Duration 2 Hours, No of Questions: 21

MODULE WISE MARK DISTRIBUTION

Module	Mark
Module I: Sequence and Series	12
Module II: Matrices	16
Module III: The Derivative: One independent variable	12

REFERENCES:

1. Edward T. Dowling (2011), Introduction to Mathematical Economics (3rd Edition), Schaum's Outline Series, McGraw-Hill
2. Alpha. C. Chiang and Kevin Wainwright Fundamental Methods of Mathematical Economics, McGraw Hill
3. Geoff Renshaw, (2011) Maths for economics, 3rd edition, Oxford University Press.
4. Mike Rosser (1993), Basic Mathematics for Economists, Routledge
5. Barnett, R., Ziegler, M., & Byleen, K. (2011). College mathematics for business, economics, life sciences, and social sciences (12th ed.). Pearson.
6. Thomas, G. B., & Weir, M. D. (2018). Thomas' calculus (14th ed.). Pearson.
7. Knut Sydsaeter, Peter Hammond, Arne Strom, Andrés Carvajal ,Essential Mathematics for Economic Analysis. Pearson.
8. Teresa Bradley. and Paul Patton, Essential mathematics for economics and business. New York: Wiley & Sons.
9. Lial, M. L., Hornsby, J., Schneider, D., & Daniels, C. (2016). Precalculus (6th ed.). Pearson.
10. Anton, H., Bivens, I., & Davis, S. (2013). Calculus (10th ed.). Wiley.

SEMESTER 3

COURSE CODE –BEC3C03				
COMPLEMENTARY COURSE III: Mathematical Methods for Economics–III				
Credits	Hours/week	Marks		
		Internal	External	Total
2	3	10	40	50

Course Outcomes

CO No.	Expected Course Outcome	Learning Domain	PSO No
	Upon completion of this course, students will be able to;		
CO1	Develop a strong understanding of the concept of derivatives and their applications in Mathematics and Economics	Understand Analyse	PSO4 PSO1 PSO3
CO2	Analyze and identify the increasing and decreasing functions using the first derivative test.	Analyse	PSO4
CO3	Evaluate the concavity and convexity of a function using the second derivative test.	Evaluate	PSO5
CO4	Recognize the relative extrema of a function and apply optimization techniques to solve real-world problems.	Create	PSO6

CO5	Interpret and analyze the inflection points of a function.	Analyse Understand	PSO4 PSO2
CO6	Understand the concept of derivatives and its role in Economics.	Understand	PSO2
CO7	Analyze and calculate the total, average, and marginal cost of production.	Analyse Apply	PSO4 PSO3
CO8	Apply the concept of elasticity to analyze the relationship between price and demand.	Apply	PSO3
CO9	Interpret and analyze the total revenue and marginal revenue of a firm.	Understand Analyse	PSO2 PSO4
CO10	Solve optimization problems related to profit maximization and cost minimization in Economics.	Apply	PSO3
CO11	Understand the concept of multivariable functions and partial derivatives.	Understand	PSO2
CO12	Solve optimization problems related to multivariable functions.	Apply	PSO3
CO13	Apply the concept of Lagrange multipliers to solve constrained optimization problems.	Apply	PSO3
CO14	Analyze and interpret the significance of differentials and total derivatives in Calculus.	Analyse Understand	PSO4 PSO2
CO15	Develop critical thinking and problem-solving skills through real-world problem-solving using Calculus and Economics.	Analyse Evaluate	PSO4 PSO5

COURSE CONTENT	
Module I: Uses of derivatives in Mathematics	10 Hours
1.1 Increasing and Decreasing Functions 1.2 Concavity and Convexity 1.3 Relative Extreme-maxima and minima 1.4 Inflection Points 1.5 Optimization of Function	
Module II: Uses of derivatives in Economics	22 Hours
2.1 Total cost – average cost – marginal cost 2.2 Relationship between MC and AC. 2.3 Total revenue and marginal revenue 2.4 The market demand function	

<p>2.5 Demand, total and marginal revenue with perfect competition</p> <p>2.6 Profit maximisation</p> <p>2.7 Cost minimisation.</p> <p>2.8 Elasticity – price elasticity of demand.</p>	
Module III: Calculus and Multivariable Functions	16 Hours
<p>3.1 Functions of Several Variables and Partial Derivatives</p> <p>3.2 Rules of Partial Differentiation</p> <p>3.3 Second-Order Partial Derivatives</p> <p>3.4 Optimization of Multivariable Functions</p> <p>3.5 Constrained Optimization with Lagrange Multipliers</p> <p>3.6 Significance of the Lagrange Multiplier</p> <p>3.7 Differentials - Concept of Total and Partial Differentials</p> <p>3.8 Concept of Total Derivatives</p>	

MODE OF TRANSACTION
<p>Lectures: The instructor will deliver lectures on mathematical concepts and methods.</p> <p>Problem sets and assignments: Students may be given assignments to complete on their own or in groups</p> <p>Group work and collaboration: In this method, students work together in groups to solve problems and complete assignments, encouraging teamwork and collaboration</p> <p>In-class exercises: The instructor may provide in-class exercises to help students practice and apply the concepts learned during lectures.</p>

Flipped classroom: In this approach, students are asked to review the material before coming to class, with class time being used for group work, problem-solving, and hands-on activities.

MODE OF ASSESSMENT

Internal Assessment (10 Marks)

- | | |
|-----------------------------------|--------|
| a. Classroom participation (20%): | 2 Mark |
| b. Test papers I (40%): | 4 Mark |
| c. Assignment (20%): | 2 Mark |
| d. Seminar/ Viva (20%): | 2 Mark |

External Assessment (40 Marks) Duration 2 Hours, No of Questions: 21

MODULE WISE MARK DISTRIBUTION

Module	Mark
Module I: Uses of derivatives in Mathematics	8
Module II: Uses of derivatives in Economics	18
Module III: Calculus and Multivariable Functions	14

REFERENCES:

1. Edward T. Dowling (2011), Introduction to Mathematical Economics (3rd Edition), Schaum's Outline Series, McGraw-Hill
2. Alpha. C. Chiang and Kevin Wainwright Fundamental Methods of Mathematical Economics, McGraw Hill
3. Geoff Renshaw, (2011) Maths for economics, 3rd edition, Oxford University Press.
4. Mike Rosser (1993), Basic Mathematics for Economists, Routledge
5. Barnett, R., Ziegler, M., & Byleen, K. (2011). College mathematics for business, economics, life sciences, and social sciences (12th ed.). Pearson.
6. Thomas, G. B., & Weir, M. D. (2018). Thomas' calculus (14th ed.). Pearson.

7. Knut Sydsaeter, Peter Hammond, Arne Strom, Andrés Carvajal ,Essential Mathematics for Economic Analysis. Pearson.
8. Teresa Bradley. and Paul Patton, Essential mathematics for economics and business. New York: Wiley & Sons.
9. Lial, M. L., Hornsby, J., Schneider, D., & Daniels, C. (2016). Precalculus (6th ed.). Pearson.
10. Anton, H., Bivens, I., & Davis, S. (2013). Calculus (10th ed.). Wiley.

COURSE CODE –BEC4C04				
COMPLEMENTARY COURSE IV: Mathematical Methods for Economics-IV				
Credit	Hours/week	Marks		
		Internal	External	Total
2	3	10	40	50

Course Outcomes

CO No.	Expected Course Outcome	Learning Domain	PSO No
	Upon completion of this course, students will be able to;		
CO1	Analyze and evaluate marginal concepts in economics, such as marginal productivity of labour and capital, marginal rate of technical substitution, and marginal rate of substitution using calculus techniques.	Analyse Evaluate	PSO4 PSO5
CO2	Apply elasticity concepts, including price, cross, and income elasticity of demand, using calculus tools to interpret and analyze the economic phenomena.	Apply Analyse	PSO3 PSO4
CO3	Analyze and evaluate optimization of multivariable functions in economics, including constrained optimization and the equilibrium of discriminating monopoly, using calculus techniques.	Analyse Evaluate	PSO4 PSO5
CO4	Demonstrate a comprehensive understanding of integration, including rules of integration, initial and boundary conditions, and integration by substitution and parts.	Understand	PSO2
CO5	Apply indefinite integrals to solve economic problems, such as finding total cost and profit functions.	Apply	PSO3
CO6	Use definite integrals to analyze and solve economic problems such as producer's surplus and consumer's surplus	Analyse Apply	PSO4 PSO3
CO7	Define and describe the meaning and objective of linear programming, including its applications in economics.	Remember	PSO1

CO8	Formulate linear programming problems and solve them using graphical methods.	Create	PSO6
CO9	Analyze and evaluate the advantages and disadvantages of linear programming as a problem-solving technique in economics.	Analyse Evaluate	PSO4 PSO5
CO10	Analyze and evaluate marginal concepts in economics, such as marginal productivity of labour and capital, marginal rate of technical substitution, and marginal rate of substitution using calculus techniques.	Analyse Evaluate	PSO4 PSO5

COURSE CONTENT

COURSE CONTENT	
Module I: Application of Calculus of Multivariable Functions in Economics.	16 Hours
1.1.1 Marginal concepts – marginal productivity of labour and capital 1.1.2 Marginal rate of technical substitution, 1.1.3 Marginal rate of substitution 1.1.4 Elasticity concepts – price/cross/income elasticity of demand 1.1.5 Optimisation of multivariable functions in economics 1.1.6 Equilibrium of discriminating monopoly- 1.1.7 Constrained optimisation	
Module II: Integral Calculus	20 Hours
2.1 Integration – Rules of Integration 2.2 Initial Conditions and Boundary Conditions 2.3 Integration by Substitution 2.4 Integration by parts 2.5 Economic Applications of indefinite integrals. 2.6 The Definite Integrals 2.7 Properties of definite integrals 2.8 Economic applications of definite integrals	
Module III: Linear Programming Problem	12 Hours
3.1 Meaning and Objective of LP 3.2 Applications of LP 3.3 Basic terms in LPP 3.4 Formulation linear programming problems 3.5 Solution to LPP (Graphical solution only)-Advantages and disadvantages of LP	

MODE OF TRANSACTION

Lectures: The instructor will deliver lectures on mathematical concepts and methods.

Problem sets and assignments: Students may be given assignments to complete on their own or in groups

Group work and collaboration: In this method, students work together in groups to solve problems and complete assignments, encouraging teamwork and collaboration

In-class exercises: The instructor may provide in-class exercises to help students practice and apply the concepts learned during lectures.

Flipped classroom: In this approach, students are asked to review the material before coming to class, with class time being used for group work, problem-solving, and hands-on activities.

MODE OF ASSESSMENT

Internal Assessment (10 Marks)

- | | |
|-----------------------------------|--------|
| a. Classroom participation (20%): | 2 Mark |
| b. Test papers I (40%): | 4 Mark |
| c. Assignment (20%): | 2 Mark |
| d. Seminar/ Viva (20%): | 2 Mark |

External Assessment (40 Marks): Duration 2 Hours, No of Questions: 21

MODULE WISE MARK DISTRIBUTION

Module	Mark
Module I: Application of Calculus of Multivariable Functions in Economics.	16
Module II: Integral Calculus	13
Module III: Linear Programming Problem	11

REFERENCES:

1. Edward T. Dowling (2011), Introduction to Mathematical Economics (3rd Edition), Schaum's Outline Series, McGraw-Hill
2. Alpha. C. Chiang and Kevin Wainwright Fundamental Methods of Mathematical Economics, McGraw Hill
3. Geoff Renshaw, (2011) Maths for economics, 3rd edition, Oxford University Press.
4. Mike Rosser (1993), Basic Mathematics for Economists, Routledge
5. Barnett, R., Ziegler, M., & Byleen, K. (2011). College mathematics for business, economics, life sciences, and social sciences (12th ed.). Pearson.
6. Thomas, G. B., & Weir, M. D. (2018). Thomas' calculus (14th ed.). Pearson.
7. Knut Sydsaeter, Peter Hammond, Arne Strom, Andrés Carvajal ,Essential Mathematics for Economic Analysis. Pearson.
8. Teresa Bradley. and Paul Patton, Essential mathematics for economics and business. New York: Wiley & Sons.
9. Lial, M. L., Hornsby, J., Schneider, D., & Daniels, C. (2016). Precalculus (6th ed.). Pearson.
10. Anton, H., Bivens, I., & Davis, S. (2013). Calculus (10th ed.). Wiley.