CENTRAL UNIVERSITY OF TAMIL NADU
DEPARTMENT OF ECONOMICS

DETAILED SYLLABUS AND CURRICULUM
OF
The Integrated Master Programme & Postgraduate Programmes in Economics

Central University of Tamil Nadu
Department of Economics

Course Structure
Integrated MA Economics
(UG part-First six semesters)

Course Code	Course Title	Credits		Total credit
		Theory	**Practical/ Tutorial**	
Semester 1				
ECON-101	Economics core course-1: Understanding economics	4	1	5
ECON-102	Economics core course-2:Statistical Methods-I	4	1	5
ECON-103	Economics core course-3: Mathematical methods-I	4	1	5
	Ability enhancement compulsory course- :English(Communicative English)	3	-	3
	Ability enhancement compulsory course-: Environmental Studies/Science	2	-	2
Semester 2				
ECON-104	Economics core course-4: Principles of Microeconomics-I	4	1	5
ECON-105	Economics core course 5: Statistical Methods-II	4	1	5
ECON-106	Economics core course-6: Mathematical methods-II	4	1	5
	Ability enhancement compulsory course- :English(Communicative English)	3	-	3
	Ability enhancement compulsory course- Media Information literacy (MIL)	2	-	2
Semester 3				
ECON-201	Economics core course-7 – Principles of Microeconomics II	4	1	5
ECON-202	Economics core course-8 Principles of Macroeconomics I	4	1	5
ECON-203	Economics core course-9 :Mathematical Methods-III	4	1	5
	Ability enhancement compulsory course- Language(Tamil/Hindi/Foreign language)	3	-	3
	Ability enhancement compulsory course (Disaster Management-(DM))	2	-	2

	Semester 4			
ECON-204	Economics core course-10 – Principles of Macroeconomics II	4	1	5
ECON-205	Economics core course-11 – International Economics	4	1	5
ECON-206	Economics core course-12: Mathematical Economics	4	1	5
ECON-207	Skill Enhancement Course (SEC) – II: Skills on Field survey	2	-	2
	Ability enhancement compulsory course (Language Other than English-Tamil/Hindi/Foreign language)	3	-	3
	Ability enhancement compulsory course-(Anti-Corruption and Vigilance Awareness)	2	-	2
	Semester 5			
ECON-301	Economics core course-13 - Indian Economy: Issues and Experiences	4	1	5
ECON-302	Economics core course-14 - Growth and Development	4	1	5
ECON-303	Skill Enhancement Course (SEC) – I: Data Analysis with computer Applications	2	-	2
ECON-304	Discipline Specific Elective (DSE) Course I -	4	1	5
ECON-305	Discipline Specific Elective (DSE) Course II	4	1	5
	Semester 6			
ECON-306	Economics core course-14 – History of Economic Thought	4	1	5
ECON-307	Economics core course-15 – Public Finance	4	1	5
ECON-308	Discipline Specific Elective (DSE) Course III -	4	1	5
ECON-309	Discipline Specific Elective (DSE) Course IV -	4	1	5
				124
	Integrated M.A/M.Sc. **PG Part of the course(Semester 7 to 10)**			
	PG part of the course will be compatible with PG programs in Economics offered by the University. Following University regulation, students will opt for one of PG programme in economics and the courses there in for their PG Part of the course and specialization.			72 Credits
			Total	**196 Credits**

Discipline Specific Elective Courses for UG part	
ECON-DSE-01:Economics of health and Education	ECON-DSE-07:Accounting and Financial Management
ECON-DSE-02:Economic History of India(1857-1947)	ECON-DSE-08:Comparative Development Experience
ECON-DSE-03:Introduction to Econometrics	ECON-DSE-09:Contemporary political Economy
ECON-DSE-04: Introduction to Environmental Economics	ECON-DSE-10:Economics of Finance
ECON-DSE-05: Money, Banking and Financial Markets	ECON-DSE-11: Data Management and Analysis Using R **(5 Credits- Theory 3: Lab Pratical -2)**
ECON-DSE-06: Labour Economics	ECON-DSE-12: Dissertation/Project

Notes:
1. Students are required to finalize his/her choices of electives form the bunch of electives offered in each semester by the Department depending on availablitity of specialization and workload. The Department may limit the number of intakes for each electives considering infrastructure availability, in such case students with good merit will get preferences. Students are required to earn 196 credits for Integrated M.A. Economics degree.
2. Students may opt Generic Elective Course / Interdisciplinary electives for exposure offered by other departments like Social work/media/ education/ Mathematics/ Life science/Computer science, etc and acquire additional credits
3. AECC courses are finalised at University level and changes made by the University in this regard form time to time will be implemented by the Department.

❖ **Open Electives Will Be Offered By The Department:**

S.No	Course Code	Course Title	Credits
1.	ECOM-OPE-01	Quantitative Methods for Social Science Research	4
2.	ECOM-OPE-02	Understanding Economics	4
3.	ECOM-OPE-03	Indian Economy	4
4.	ECOM-OPE-04	Introduction to Econometrics	5
5.	ECOM-OPE-05	Introduction to Environmental Economics	5

DEPARTMENT OF ECONOMICS
SCHOOL OF SOCIAL SCIENCE AND HUMANITIES

Integrated MA Economics

A. Vision
Vision Statement of the Department

Vision Statement
The programme is meticulously planned to keep in mind employability and vertical mobility for higher studies like research.

B. Mission
Mission Statements of the Department

M1	Learning the concepts, theory, and applications of Economics.
M2	Use of analytical tools to analyse the economic issues thereby policies.
M3	Developing strong research skills as well as analytical abilities through rigorous studies in economic theory.

C. Program Educational Objective (PEO)
After five years of successful completion of the program, the student will be able to

PEO1	To enrich the academic and research outcomes.
PEO2	To enhance the spirit of inquiry into economic issues and implications.
PEO3	To understand the regional, national, and international economic issues.
PEO4	To address the issues analytically and ensure a sustainable economy.
PEO5	To nurture human capital, employability, and responsible citizens.

D. Graduate Attributes for IMA Economics Program

List a few global qualities in knowledge, attitude, value, and skills that a graduate will possess after undergoing the program.

Knowledge
- Understand and explain the important aspects of a local, regional, national, and international economy.
- Have knowledge about the determinants of aggregate economic activity, including the basics of fiscal and monetary policy and how each affects the economy.
- Learn market economy and how markets allocate society's scarce resources.
- Explain the role of the Government in finding solutions for market failure.

Attitude
- Students are educated with analytical skills, good communication skills, courses in mathematics and statistics, and familiarity with other social sciences.
- Ability to analyze and evaluate the economic issues at the national and international level, critical thinking, problem-solving, forecasting, analysis of market competition, and strategic planning skills.
- Ability to think logically, critically, and creatively.

Value and Skills

- Analysing the cause-and-effect of economic issues.
- Understanding the relationship between variables.
- Application of Statistics, Mathematics, and Econometrics to analyse the problem for policy implications.
- Comparing the linkages and contradictions of the economic theories.
- Making oral presentations in students' seminars and fortnight seminars.
- Taking up an economic issue for the PG projects.
- Having knowledge about their skills in service to the community.
- Present themselves in a professional manner.

E. PEO to Mission Statement Mapping

	PEO1	PEO2	PEO3	PEO4	PEO5
M1	3	3	3	3	3
M2	3	3	3	3	3
M3	3	3	2	2	3

(If the correlation between mission statement and the program-specific outcome is high 3 is assigned, for moderate 2, for low 1, for nil 0 are assigned)

E. Program Outcomes (PO)

On the successful completion of the program, the student will be able to

(Program outcomes are common for all courses in a particular program)

PO1	Students of this program will have an acquaintance with the concepts, theories, and applications of economics.
PO2	Students would have exposure to the current national or international economic policies and issues thereby developing their critical thinking.
PO3	The gap between theory and practice would be educated to contribute new ideas and theories in economics.
PO4	Students would have a foundation in applied econometric analysis and develop skills required for empirical research in economics
PO5	Create awareness of economic issues to become rational and enlightened students so that they can take the responsibility to work for the upliftment of society.

F. PO to PEO Mapping

	PO1	PO2	PO3	PO4	PO5
PEO1	3	3	3	3	2
PEO2	3	3	3	2	3
PEO3	2	3	2	3	3
PEO4	3	3	3	3	3
PEO5	3	2	3	3	3

(If the correlation between mission statement and the program-specific outcome is high 3 is assigned, for moderate 2, for low 1, and for nil 0 are assigned)

SEMESTER - I					
Course Code	**Course Name**	**L**	**T**	**P**	**Credits**
ECON-101	Understanding Economics	4	1	-	5

a. Course Outcome (CO)

On the successful completion of the course, the student will be able to

(Course outcomes are specific for a particular course. CO should be specific, measurable, achievable, realistic, and time-bound)

	Course Outcome	**Level**
CO 1	Students would understand the basic and importance of economic principles.	Remember
CO 2	Linkages between principles and economics ideas/concepts would be describe to the students.	Understand
CO 3	Mathematical application to Support for quantifying economics theory for prove the concepts.	Apply
CO 4	Familiarity with various micro economics competition calculation methods and suggest business policy.	Analyze
CO 5	Knowledge of business environmental with trading related macroeconomics issues and pursuing research for attaining trade development	Skill

b. Syllabus

Units	Content	Hrs.
I	**Unit 1: Exploring the Subject Matter of Economics** Scope of economics, ten principles of Economics, Thinking like an economist, interdependence and gains from Trade. Normative Economics and Positive Economics- –Economies – free market, command and mixed, Introducing different branches of economics.	12
II	**Unit 2: Role of Markets, their Functioning and welfare** Markets and competition-determinants of individual demand/supply, demand/supply schedule and demand/supply curve, market versus individual demand/supply. Shifts in the demand/supply curve-demand/supply together-how prices allocate resources-elasticity and its application – controls on prices –taxes and the costs of taxation-consumer, producers and the efficiency of the markets.	12
III	**Unit 3: The Households The consumption decisions.** Marshallian Utility analysis, Introduction to Hicksian analysis of Indifference curve and Samuelson's Revealed preference analysis– budget constraints, consumption and income/price changes, demand for all other goods and price changes-description of preferences – the investment decision-investment alternatives for a household – desirable attributes of investments – labour supply and savings decision- choice between leisure and consumption – labour force participation – tax policy and labour supply – human capital and education- budget	12

		constraints and savings – savings and interest rate, other factors affecting savings.	
IV		**Unit 4: The firm and perfect Market Structure:** Financing, controlling and managing firms-the firm's legal form, corporate finance-why corporations care about financial structure – takeover and the market for managers –making decisions – centralization and decentralization – the boundaries of the firm, behaviour of profit maximizing firms and the production process-short run costs and output decisions.	12
V		**Unit 5: Introduction to Macroeconomics and National Income Accounting** The roots of macroeconomics-concerns over macroeconomic- the role of government in the macro economy – the components of the macro economy – the methodology of macroeconomics-concepts of national income-approaches to calculating national income-nominal and real income-issues on measurement of national income, the concept of black and green income.	12
		Tasks and Assignments: • Prepare an assignment by comparing the relevance of economic theories and stated preference approach and its impact on business and • Prepare success stories on Environmental Management in India for attaining sustainable development. **References:** • Karl E. Case and Ray C. Fair (2002), Principles of Economics, 6th Edition, Pearson Education Asia Low Price Edition. • Gregory Mankiw, (2002), Principles of Economics, Thomson. • J.E.Stiglitz, and C.E. Walsh (2002), Principles of Economics, 3rd Edition, W.W.Norton& Company, New York. • R.Stone and G.Stone (1962), National income and Expenditure, Bowes and Bowes London. • Paul Hayne (1998), Economic Way of Thinking, Prentice Hall. • Samuelson, P.A. and W.D. Nordhaus (1998), Economics, Tata McGraw Hill, New Delhi.Varian, H.R. (2000), Intermediate Microeconomics: A Modern Approach (5th Edition), East West Press, New Delhi.	

c. Mapping of Program Outcomes with Course Outcomes

	PO1	PO2	PO3	PO4	PO5
CO1	3	3	3	2	2
CO2	3	3	3	3	2
CO3	2	3	3	2	2

CO4	2	3	3	2	3
CO5	3	3	3	3	2

(If the correlation between Programme Outcome with Course Outcome is high 3 is assigned, for moderate 2, for low 1, and for 0 are assigned)

d. Evaluation Scheme

	CO1	CO2	CO3	CO4	CO5	Total
Internal	6	7	10	10	7	40
External	11	13	14	11	11	60
Total	**17**	**20**	**24**	**21**	**18**	**100**

e. Mapping Course Outcome with Internal Assessment (40 Marks)

	CO1	CO2	CO3	CO4	CO5
Assignments	-	-	5	5	-
Seminar	-	-	5	5	-
Test	4	4	4	4	4
Total	4	4	14	14	4

f. Mapping Course Outcome with External Assessment (60 Marks)

Category	CO1	CO2	CO3	CO4	CO5
Part – A **(Short Answer - 5 x 6 = 30 marks)**	6	6	6	6	6
Part – B **(Essay- 3 x 10 = 30 marks)**			10	10	10
Total	**6**	**6**	**16**	**16**	**16**

g. Rubric for Assignments (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	**Content 50%**	Major concept and Ideas are very prompted, as well as quantitative model developed, supported with specific evidence & facts and examples	Mostly the conceptual part is detailed, Quantitate part also Developed well and supported with evidence.	Thoughts are well presented but poor in the Q T Understanding, apparently explore is week.	Over all the pro thought is not accountability.	Not attended	CO2, CO3

2	**Organiza -tion** **50%**	Includes title, introduction, statement of the main idea with illustration and conclusion.	Includes title, introduction, statement of main idea and conclusion.	organizational tools are weak or missing	No organization	Not attended	CO1, CO2, CO5

h. Rubric for Seminar (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	**Knowledge and Understandin g** **50%**	Extraordinary knowledge of contemporary subject, Applications are applied terms, and concepts is avail.	Detailed knowledge of facts, terms, and concepts	Normative subject knowledge. Moderate understanding the facts, terms, and concepts	Minimal knowledge of facts, terms, and concepts	Not Attende d	CO1, CO2
2	**Presentation** **50%**	Sequential Communicate d with logical demonstration . examples, and references	Communicate d with proper sequences	Neutral Communicate d and less logical frequency.	No coherent communicatio n	Not Attende d	CO3, CO4

i. Rubric for Internal Test

Sl.No	Category	Marks	Relation to COs
I	**Internal Test I**		CO1, CO2
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	
4.	**Total**	**60**	
II	**Internal Test II**		CO3, CO4
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	
4.	**Total**	**60**	
III	**Model Exam**		
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	

2.	Part – B (Essay- 3 x 10 = 30 marks)	30	CO1, CO2, CO3, CO4, CO5
4.	**Total**	**60**	
	Test I + Test II + Model Test / 9 (Convert for 20 Marks)	**180/9**	
	Internal Marks	**20**	

j. Model Question Paper

Sl. No.	Model Questions	Specification	Level
	PART – A Short Answer **The answer should not exceed 300 words Marks:5 x 6 = 30**		
1	a) Explain Normative economics and positive economics. [or] b) Examine the methods of measuring the elasticity function of demand.	Explain Examine	Understand
2	a) Describe the Hicksian analysis of the Indifference curve. [or] b) Discuss the Marshallian Utility analysis and its limitations.	Explain Discuss	Analyze
3	a) Why do corporations care about financial structure? [or] b) Write a note on the Efficiency of the market with econometric application.	Identify Recall	Understand
4	a) Explain the role of government in the macro economy [or] b) Write a note on the black and green income method.	Explain Recall	Understand
5	a) Assess the significance of tax policy and labour supply [or] b) Assess the relevance of the perfect market structure	Explain Assess	Skill
	PART – C Essay Answer **The answer should not exceed 400 words Marks: 3 x 10 = 30**		
6	a) Examine Samuelson's Revealed Preference analysis with diagrammatic representation. [or] b) Examine the demand function approach under a hypothetical situation.	Examine	Understand
7	a) Discuss with Marshall and Hicksian analysis of Indifference curve. [or] b) Describe the various stages of centralization and decentralization in the Indian Economy.	Discuss Explain	Analyze
8	a) Assess the macroeconomic policy and economic development [or] b) Explicate the major factors issues in profit maximization on the market economy- give your suggestions.	Assess Identify	Skill

SEMESTER - I					
Course Code	**Course Name**	**L**	**T**	**P**	**Credits**
ECON-102	Statistical Methods - I	4	1	-	5

a. Course Outcome (CO)

On the successful completion of the course, the student will be able to
(Course outcomes are specific for a particular course. CO should be specific, measurable, achievable, realistic, and time-bound)

	Course Outcome	**Level**
CO 1	Students would understand the basic concepts of statistics.	Remember
CO 2	Ability to use measures of central tendency in real life situation.	Understand
CO 3	Applying the measures of dispersion effectively in practice.	Apply
CO 4	Using the index number in economic analysis.	Analyze
CO 5	Assessing time series technique in economic research.	Skill

b. Syllabus

Units	**Content**	**Hrs.**
I	**Unit-1: Introduction to Statistics** Basic concepts: Population, Sample, Parameter, Statistic, frequency distribution, Cumulative frequency distribution; Graphic and diagrammatic representation of data; Techniques of data collection. Sampling vs. Population, primary and secondary data, Cross section data, time series and panel data, Cross tabulation.	12
II	**Unit-2: Central Tendency and Dispersion** Measures of Central tendency: Mean, Median, Mode, Geometric mean, Harmonic mean	12
III	**Unit-3: Measures of dispersion** Range, Quartile deviation Mean deviation, Standard deviation; Skewness and Kurtosis, Measurement of Economic Inequality: Measurement of Economic Inequality – Lorenz Curve and Gini Coefficient.	12
IV	**Unit-4: Index Numbers** Concept, price relative, quantity relative and value relative, Laspeyer's, Paasche's and Fisher's index numbers; Family budget method; Consumer and Wholesale Price Indices in India	12
V	**Unit-5: Time Series** Introduction, Components, Measurements: Secular Trend, Methods of trend determination (Freehand curve fitting, Moving averages, fitting mathematical curves), Non-linear trends, Seasonal fluctuation (monthly averages, ratio to moving averages, ratio to trend), Deseasonilization.	12

Tasks and Assignments:
- Prepare an assignment the collection of data and sampling methods.
- Prepare an assignment the time series analysis in economic research.

References:
- Goon, A.M., M.K. Gupta, and B. Dasgupta, (1968) Fundamentals of Statistics, Vol I, World Press Private limited.
- Levin, Richard I, and David S. Rubin, (1998) Statistics for Management, Pearson.
- McClave, J. T., Benson, P. G., and Sincich, T., (2008) Statistics for business and economics, Pearson International Edition.
- T. Bradley, Essential Statistics for Economics, Business and Management, Wiley.

c. Mapping of Program Outcomes with Course Outcomes

	PO1	PO2	PO3	PO4	PO5
CO1	3	3	3	3	2
CO2	3	3	3	3	2
CO3	3	3	3	2	3
CO4	2	2	3	2	3
CO5	3	3	3	3	2

(If the correlation between Programme Outcome with Course Outcome is high 3 is assigned, for moderate 2, for low 1, and for 0 are assigned)

d. Evaluation Scheme

	CO1	CO2	CO3	CO4	CO5	Total
Internal	8	10	8	6	8	40
External	10	12	13	13	12	60
Total	18	22	21	19	20	100

e. Mapping Course Outcome with Internal Assessment (40 Marks)

	CO1	CO2	CO3	CO4	CO5
Assignments	5	-	-	-	5
Seminar		10	-		
Test	4	4	4	4	4
Total	9	14	4	4	9

f. Mapping Course Outcome with External Assessment (60 Marks)

Category	CO1	CO2	CO3	CO4	CO5
Part – A (Short Answer - 5 x 6 = 30 marks)	6	6	6	6	6
Part – B (Essay- 3 x 10 = 30 marks)	10	10	10		
Total	16	16	16	6	6

g. Rubric for Assignments (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	**Content** 50%	Ideas are detailed, well developed, supported with specific evidence &facts andexamples	Ideas are detailed, Developed and supported with evidence and facts mostly specific.	Ideas are presented but not particularly developed or supported;	The content is not sound	Not attended	CO1, CO2
2	**Organiza -tion** 50%	Includes title, introduction, statement of the main idea with illustration and conclusion.	Includes title, introduction, statement of main idea and conclusion.	organizational tools are weak or missing	No organization	Not attended	CO1, CO4, CO5

h. Rubric for Seminar (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	**Knowledge and Understandin g** 50%	Exceptional knowledge of facts, terms, and concepts	Detailed knowledge of facts, terms, and concepts	Considerable knowledge of facts, terms, and concepts	Minimal knowledge of facts, terms, and concepts	Not Attende d	CO1, CO2
2	**Presentation** 50%	Well Communicate d with logical sequences, examples, and references	Communicate d with sequences	Just Communicate d	No coherent communicatio n	Not Attende d	CO1, CO2

i. Rubric for Internal Test

Sl.No	Category	Marks	Relation to COs
I	**Internal Test I**		
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	CO1, CO2
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	
4.	**Total**	**60**	
II	**Internal Test II**		
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	CO3, CO4
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	
4.	**Total**	**60**	
III	**Model Exam**		
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	CO1, CO2, CO3, CO4, CO5
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	
4.	**Total**	**60**	
	Test I + Test II + Model Test/9 (Convert for 20 Marks)	**180/9**	
	Internal Marks	**20**	

j. Model Question Paper

Sl. No.	Model Questions	Specification	Level
	PART – A Short Answer **The answer should not exceed 300 words Marks:5 x 6 = 30**		
1	a) Explain the cumulative frequency distribution. [or] b) Discuss the Simple Bar Diagram.	Explain Examine	Understand
2	a) From the following data calculate arithmetic mean: 	Marks	0-10	10-20	20-30	30-40	40-50	50-60	 	No. of Students	5	10	25	30	20	10	 [or] b) Explain the empirical relationship between averages	Explain Discuss	Analyse
3	a) Find out the value of quartile deviation and its coefficient from the following data: 	Roll No.	1	2	3	4	5	6	7	 	Marks	20	28	40	12	30	15	50	 [or] b) Compute mean deviation from the following data: 	X	11	12	13	14	 	f	20	28	40	12		Identify Recall	Understand
4	a) Discuss the uses of index number. [or] b) Explain the consumer price index.	Explain Recall	Understand
5	a) State the components of time series. [or] b) Describe the seasonal variations.	Explain Assess	Skill
	PART – B Essay Answer **The answer should not exceed 400 words Marks: 3 x 10 = 30**		

6	a) Classify the various methods of collection of primary data. [or] b) Discuss the probability sampling methods.	Discuss Explain	Understand
7	a) Calculate the median from the following series: 	Marks	10-25	25-40	40-55	55-70	70-85	85-100
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Frequency	6	20	44	26	3	1 | [or] b) Calculate the Standard Deviation from the following data. | Age	20-25	25-30	30-35	35-40	40-45	45-50
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No. of Persons	170	110	80	45	40	35		Examine	Analyse
8	a) Describe the types of Index Numbers. [or] b) Fit a straight line trend by the method of least squares to the following data and estimate the sales for 2023. 	Years	2016	2017	2018	2019	2020
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Sales (Rs. Lkshs)	70	74	80	86	90		Assess Identify	Skill

SEMESTER - I					
Course Code	**Course Name**	**L**	**T**	**P**	**Credits**
ECON-103	Mathematical Methods-I	4	1	-	5

a. Course Outcome (CO)

On the successful completion of the course, the student will be able to
(Course outcomes are specific for a particular course. CO should be specific, measurable, achievable, realistic, and time-bound)

	Course Outcome	**Level**
CO 1	Students would remember the Mathematical methods to solve the problems.	Remember
CO 2	They understand the uses of Mathematical methods in their area of study.	Understand
CO 3	The analytical and problem solving skills of the students that are applied in mathematical economics.	Apply
CO 4	They able to analyze about the solution of system of equations.	Analyze
CO 5	They able to solve all the related problems.	Skill

b. Syllabus

Units	Content	Hrs.
I	**Mathematical Induction:** Well Ordered Principle, first and second principle of mathematical induction, divisibility of integers, Prime integers. Euclid's first and second theorem, unique factorization theorem, Congruences, Linear Congruence's.	12
II	**Complex Numbers:** De-Moivre's Theorem and its applications, Exponential, Sine, Cosine and Logarithm of a complex number, Definition of a^z ($a{\neq}0$), Inverse circular and Hyperbolic functions	12
III	**Polynomials with Real Coefficients :** Fundamental theorem of Classical Algebra, The n-th degree polynomial equation has exactly n-roots, Nature of roots of an equation, Statements of Descartes' rule of signs and of Sturm's Theorem and their applications, Multiple roots, Relation between roots and coefficients, Symmetric functions of roots, Transformation of equations, Reciprocal equations, Cardan's method of solving a cubic equation, Ferrari's method of solving a biquadratic equation, Binomial equation, Special roots	12
IV	**Set, mapping and algebraic structure:** Basic properties of sets including De Morgan's Laws, Cartesian product of sets, Binary relation, Equivalence relation, Relation between equivalence relation and partition. Congruence of integers, Congruence Classes, Mapping: Injection, surjection, bijection, identity and inverse mappings, Binary operations: Commutative and Associative binary operations, Algebraic structure: Concept of algebraic structure, definition (only) of group, ring and field – Real numbers with usual operations as an example.	12
V	**Group Theory and Matrices:**	12

Semigroup, Group, Abelian Group, Examples of groups from number system, root of unity, matrices, symmetries of squares, triangles etc, Groups of congruence classes, Klein's 4 group. Determinants – definition, properties, minors and cofactors-the Laplace expansion-expansion by alien cofactors-singularity and invertibility – Addition of matrices, scalar multiplication, matrix multiplication-the transpose-the inverse of a square matrix – rank, elementary row operations , characteristic roots and Eigen values, Cramer rule, Solving equation though Matrix inversion method.

Tasks and Assignments:
- Have to find the roots of the polynomials of degree less than or equal to four.
- To calculate all Eigenvalues of the matrices and to find the determinant of the matrices.

References:
1. S. Bernard and J.M. Child, Higher Algebra, Maxford Books
2. N. P. Chaudhuri, Abstract Algebra, Tata McGraw Hill
3. T. Sengadir, Discrete Mathematics and combinatorics, Pearson
4. John B. Fraleigh, A first Course in Abstract Algebra, Pearson
5. G. Hadley , Linear Algebra, Addison-Wesley.

c. Mapping of Program Outcomes with Course Outcomes

	PO1	PO2	PO3	PO4	PO5
CO1	3	3	3	3	3
CO2	3	3	3	3	2
CO3	2	3	2	3	2
CO4	3	3	2	3	2
CO5	3	2	2	3	3

(If the correlation between Programme Outcome with Course Outcome is high 3 is assigned, for moderate 2, for low 1, and for 0 are assigned)

d. Evaluation Scheme

	CO1	CO2	CO3	CO4	CO5	Total
Internal	8	8	8	8	8	40
External	12	12	12	12	12	60
Total	20	20	20	20	20	100

e. Mapping Course Outcome with Internal Assessment (40 Marks)

	CO1	CO2	CO3	CO4	CO5
Assignments	-	-	-	-	-
Seminar	-	-	-	-	-
Test	8	8	8	8	8
Attendance	-	-	-	-	-
Total	8	8	8	8	8

f. Mapping Course Outcome with External Assessment (60 Marks)

Category	CO1	CO2	CO3	CO4	CO5
Part – A (Short Answer - 5 x 2 = 10 marks)	2	2	2	2	2
Part – B (Descriptive - 4x 5 = 20marks)	5	5	-	5	5
Total x 2	14	14	4	14	14

g. Rubric for Assignments (0)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs

h. Rubric for Seminar (0)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs

i. Rubric for Internal Test

Sl.No	Category	Marks	Relation to COs
I	**Internal Test I**		
1.	Part – A(Short Answer - 4 x 2 = 8 marks)	8	CO1, CO2
2.	Part – B(Descriptive- 4 x 3 = 12 marks)	12	CO1, CO3, CO4, CO5
	Total	**20**	
II	**Internal Test II**		
1.	Part – A (Descriptive - 4 x 5 = 20 marks)	**20**	CO1, CO2, CO3, CO4, CO5
	Total	**20**	
III	**Internal Test III**		
1.	Part – A (Descriptive - 4 x 5 = 20 marks)	**20**	CO1, CO2, CO3, CO4, CO5
	Total	**20**	
	Internal Marks (Best Two out of Three)	**40**	

j. Model Question Paper

Department of Economics
Central Univesity of Tamil Nadu
Thiruvarur, Tamil Nadu, India
Mathematical Methods - I (ECON 103)
Model Question Paper

Total = 30 marks

Part - A

(Answer **all** questions) $5 \times 2 = 10$ marks

1. Let $f, g : \mathbb{N} \to \mathbb{N}$ be two functions defined by $f(n) = n + 7$ and $g(n) = 2n$ for all $n \in \mathbb{N}$. What is the range of $f \circ g$? What is the range of $g \circ f$?

2. If α, β, γ are the roots of $2x^3 + x^2 - 2x - 1 = 0$, write down the values of $\alpha + \beta + \gamma$, $\alpha\beta + \beta\gamma + \gamma\alpha$, $\alpha\beta\gamma$.

3. If $z = x + iy$, express $\dfrac{z+1}{z-1}$ in the form $a + ib$.

4. An equivalence relation is defined on the set $S = \{0, 1, 2, 3, 4, 5, 6, 7, 11, 12\}$ by: $x \sim y$ means $3 \mid x - y$. List the elements of the equivalence classes of $\sim$.

5. Write down the characteristic polynomial and eigenvalues of the matrix $A = \begin{pmatrix} 1 & 0 \\ 2 & 3 \end{pmatrix}$.

Part - B

(Answer **all** questions) $4 \times 5 = 20$ marks

6. (a) Use Mathematical induction, show that $n^2 \geq 2n + 1$ for all $n \geq 3$.

(OR)

(b) Find the $gcd(247, 91)$ and express it as a linear combination of 247 and 91.

7. (a) If α, β, γ are the roots of $x^3 - x - 1 = 0$, find the equation whose roots are $\frac{1+\alpha}{1-\alpha}, \frac{1+\beta}{1-\beta}, \frac{1+\gamma}{1-\gamma}$. Hence write down the value of $\sum \frac{1+\alpha}{1-\alpha}$.

(OR)

(b) If α, β, γ are the roots of $2x^3 + 3x^2 - x - 1 = 0$, find the equation whose roots are $2\alpha + 3, 2\beta + 3, 2\gamma + 3$. Hence write down the value of $\sum 2\alpha + 3$.

8. (a) Consider the set $S = \mathbb{Z}$ where $x \sim y$ if and only if $2 \mid (x + y)$. Prove that $\sim$ is an equivalence relation on S.

(OR)

(b) Define a relation on $\mathbb{Z}$ by $x \sim y$ if and only if $x + 2y$ is divisible by 3.
Check each axiom for an equivalence relation. If the axiom holds, prove it. If the axiom does not hold, give a specific counterexample.

9. (a) Find the Row Reduced Echelon Form(RREF) of the matrix $A = \begin{pmatrix} 1 & 3 & 1 & 2 \\ 2 & 0 & 1 & 5 \\ 1 & 2 & 3 & 1 \end{pmatrix}$.

(OR)

(b) Which of the following binary operations on the set $\mathbb{Z}$ of integers is associative? Which is commutative? Which has an identity?
(i) Subtraction $x * y = x - y$.
(ii) Exponentiation $x * y = x^y$.
(iii) $x * y = xy - x - y + 2$.

SEMESTER - II					
Course Code	**Course Name**	**L**	**T**	**P**	**Credits**
ECON-104	Principles of Microeconomics-I	4	1	-	5

a. Course Outcome (CO)
On the successful completion of the course, the student will be able to
(Course outcomes are specific for a particular course. CO should be specific, measurable, achievable, realistic, and time-bound)

	Course Outcome	**Level**
CO 1	Students would understand the theoretical structure and basic principles of microeconomics.	Remember
CO 2	Understand how the economy achieves partial and general equilibrium.	Understand
CO 3	Knowledge of the theory of cost and production strategy would be enlightened to the students.	Apply
CO 4	Familiarity to apply economic theories and models to execute managerial functions.	Analyze
CO 5	Improve the analytical and problem solving skills of students that are applied in different branches of economics.	Skill

b. Syllabus

Units	Content	Hrs.
I	**Unit 1: Introduction to Microeconomics** Nature and scope of micro economics – important and limitations of micro economics- micro statics- micro dynamics – comparative statics – concept of equilibrium – static, dynamic and neutral equilibrium – Partial Vs. General equilibrium- role and limitation of price mechanisms in a free market economy – frontiers & microeconomics.	12
II	**Unit 2: Consumer Behavior** Assumptions on preference ordering, indifference curve, marginal rate of substitution and convexity of Indifference Curve, budget constraint, consumers' equilibrium – interior and corner, Derivation of Demand Curves, Engel curve, composite good convention, Application: Cash subsidy versus subsidy in kind. Income and price consumption curves, Price effect - substitution effect (Hicks and Slutsky), inferior goods and Giffen goods, income effect, ordinary and compensated demand curves. Consumer surplus	12
III	**Unit 3: Theory of Supply and Production:** Supply and law of supply elasticity of supply – production decision- factors of production – production function – law of variable proportion – returns to scale – economies of scale – Iso quant approach and producer's equilibrium – factor substitution, elasticity of factor substitution. Cobb-Douglas production and its important properties.	12
IV	**Unit 4: Cost structure** Implicit cost, explicit cost, accounting cost, sunk cost, economic cost, fixed cost, variable cost, total, average and marginal cost. Determinants of Short run cost, Cost Curves, cost minimization and expansion path, Short run versus long run cost curves, cost curves and their shapes –	12

	relationship between short run and long run average total cost – elasticity of cost, economies of scope	
V	**Unit 5:Theory of Revenue and Equilibrium** What are revenues – average and marginal revenue – relation between AR and MR Curves AR, MR and elasticity- importance of revenue curves-interactions of cost and revenues conditions of equilibrium of a firm	12
	Tasks and Assignments: • Prepare an assignment on consumer equilibrium using indifference curve analysis. • Prepare an assignment on Cobb-Douglas production function. **References:** • A.Koutsoyannis (1979), Modern Micro Economics, MacMillan Press, London. • H.R.Varian (1993), Intermediate Microeconomics a Modern Approach, 3rd Edition, Affiliated East West Press. • N.G.Mankiw (2009), Economics: Principles and Application Cengage Learning, Printed in India. • R S. Pindyck, D.L. Rubinfeld and Mehta, Microeconomics, Prentice Hall, India.	

c. Mapping of Program Outcomes with Course Outcomes

	PO1	PO2	PO3	PO4	PO5
CO1	3	3	3	3	3
CO2	3	2	3	3	2
CO3	3	3	2	3	3
CO4	2	3	3	2	2
CO5	3	2	3	3	3

(If the correlation between Programme Outcome with Course Outcome is high 3 is assigned, for moderate 2, for low 1, and for 0 are assigned)

d. Evaluation Scheme

	CO1	CO2	CO3	CO4	CO5	Total
Internal	6	10	8	8	8	40
External	10	13	13	12	12	60
Total	**16**	**23**	**21**	**20**	**20**	**100**

e. Mapping Course Outcome with Internal Assessment (40 Marks)

	CO1	CO2	CO3	CO4	CO5
Assignments	-	5	5	-	-
Seminar	-	-	-	-	10
Test	4	4	4	4	4
Total	4	9	9	4	14

f. Mapping Course Outcome with External Assessment (60 Marks)

Category	CO1	CO2	CO3	CO4	CO5
Part – A **(Short Answer - 5 x 6 = 30 marks)**	6	6	6	6	6
Part – B **(Essay- 3 x 10 = 30 marks)**		10	10		10
Total	**6**	**16**	**16**	**6**	**16**

g. Rubric for Assignments (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	**Content** **50%**	Ideas are detailed, well developed, supported with specific evidence & facts and examples	Ideas are detailed, Developed and supported with evidence and facts mostly specific.	Ideas are presented but not particularly developed or supported;	The content is not sound	Not attended	CO1, CO2
2	**Organization** **50%**	Includes title, introduction, statement of the main idea with illustration and conclusion.	Includes title, introduction, statement of main idea and conclusion.	organizational tools are weak or missing	No organization	Not attended	CO1, CO3, CO4

h. Rubric for Seminar (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	**Knowledge and Understanding** **50%**	Exceptional knowledge of facts, terms, and concepts	Detailed knowledge of facts, terms, and concepts	Considerable knowledge of facts, terms, and concepts	Minimal knowledge of facts, terms, and concepts	Not Attended	CO3, CO5
2	**Presentation** **50%**	Well Communicated with logical sequences, examples, and references	Communicated with sequences	Just Communicated	No coherent communication	Not Attended	CO3, CO5

i. Rubric for Internal Test

Sl. No	Category	Marks	Relation to COs
I	**Internal Test I**		
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	CO1, CO2
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	
4.	**Total**	**60**	
II	**Internal Test II**		
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	CO3, CO4
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	
4.	**Total**	**60**	
III	**Model Exam**		CO1, CO2, CO3, CO4, CO5
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	
4.	**Total**	**60**	
	Test I + Test II + Model Test/9 (Convert for 20 Marks)	**180/9**	
	Internal Marks	**20**	

j. Model Question Paper

Sl. No.	Model Questions	Specification	Level
	PART – A Short Answer **The answer should not exceed 300 words Marks:5 x 6 = 30**		
1	a) Explain the nature and scope of microeconomics. [or] b) Examine the different kinds of elasticity of demand.	Explain Examine	Understand
2	a) Explain the properties of indifference curve. [or] b) Discuss marginal rate of substitution with a schedule.	Explain Discuss	Analyse
3	a) Distinguish between short run and long run production function. [or] b) Define increasing returns to scale. Explain the factors that cause increasing returns to scale.	Identify Recall	Understand
4	a) Give reasons for the U-shape of the long run average cost curve. [or] b) State the relationship between average cost and marginal cost.	Explain Recall	Understand
5	a) Prove that the firm achieved profit maximization at MC = MR. [or] b) Assess the conditions of equilibrium of firm under perfect competition.	Evaluate Assess	Skill
	PART – B Essay Answer **The answer should not exceed 400 words Marks: 3 x 10 = 30**		
6	a) Examine the basic economic problems with production possibility frontier. [or] b) Divide the price effect into income and substitution effect for a normal good.	Examine Explain	Understand
7	a) Discuss the laws of returns to scale with relevant diagrams. [or] b) Explain the nature and shape of different cost curves.	Discuss Explain	Analyse
8	a) Evaluate the theory of revenue and equilibrium. [or] b) Critically analyse the profit maximization by the firms in the traditional theory using TC, TR, and MC, MR Curves.	Evaluate Assess	Skill

SEMESTER - II					
Course Code	**Course Name**	**L**	**T**	**P**	**Credits**
ECON-105	Statistical Methods - II	4	1	-	5

a. Course Outcome (CO)

On the successful completion of the course, the student will be able to
(Course outcomes are specific for a particular course. CO should be specific, measurable, achievable, realistic, and time-bound)

	Course Outcome	**Level**
CO 1	Students would understand the basic concepts of probability.	Remember
CO 2	Ability to use rules of probability.	Understand
CO 3	Applying the univariate probability distributions effectively in practice.	Apply
CO 4	Using the bivariate analysis in economic analysis.	Analyze
CO 5	Assessing sampling and testing of hypotheses in economic research.	Skill

b. Syllabus

Units	Content	Hrs.
I	**Unit-1: Probability** Random experiments,, Basics of Permutation and Combination, Concepts associated with Probability, Classical Definition of Probability, Limitations of the Classical definition, Frequency definition, Axiomatic Approach.	12
II	**Unit-2: Rules of Probability** Addition and Multiplication theorem, Conditional Probability and Statistical Independence, Bayes' Rule.	12
III	**Unit-3: Univariate Probability Distributions** Binomial, Poisson, Hypergeometric, Normal and Standard Normal Distribution – Mean Variance, Skewness and Kurtosis, Generating Functions and Limiting Forms: Moment Generating Functions - Limiting forms of Binomial and Poisson Distributions, importance of Normal Distribution in Statistics	12
IV	**Unit-4: Bivariate Analysis** Bivariate Frequency Distribution – Bivariate Data and Scatter Diagram – Joint Probability Distribution – Idea of Independence – Marginal and Conditional Distributions, covariance - measure of association - Coefficient of Simple Correlation - Properties and the method of calculation, Concept of rank correlation -Spearman's Rank Correlation	12
V	**Unit-5: Sampling and Testing of Hypotheses** Random Sample; concept of sampling distribution; Concepts of testing of hypothesis and test of significance; tests of significance of proportion, mean, and variance	12
	Tasks and Assignments: • Prepare an assignment the basic concepts of probability.	

- Prepare an assignment the Correlation analysis in economic research.

References:

- Goon, Gupta, Dasgupta, Fundamentals of Statistics, Vol I, World Press Private limited.
- Earl.K. Bowen and Martin K. Starr, Basic Statistics for Business and Economics. McGraw-Hill International Student Edition.
- Kenney and Keeping, Mathematics of Statistics, Vol.1 (Chapters, 1, 2 and 5), Affiliated East West Press.
- Nagar, A,L. and R.K.Das,(1983) Basic Statistics, Oxford University Press.
- Allen Webster, Applied Statistics for Business and Economics, McGraw-Hill International Edition

c. Mapping of Program Outcomes with Course Outcomes

	PO1	PO2	PO3	PO4	PO5
CO1	3	3	3	3	2
CO2	3	3	3	3	2
CO3	3	3	3	2	3
CO4	3	3	3	3	3
CO5	3	3	3	2	2

(If the correlation between Programme Outcome with Course Outcome is high 3 is assigned, for moderate 2, for low 1, and for 0 are assigned)

d. Evaluation Scheme

	CO1	CO2	CO3	CO4	CO5	Total
Internal	8	8	8	10	6	40
External	12	12	13	13	10	60
Total	20	20	21	23	16	100

e. Mapping Course Outcome with Internal Assessment (40 Marks)

	CO1	CO2	CO3	CO4	CO5
Assignments	5	-	-	5	-
Seminar	-	10	-	-	-
Test	4	4	4	4	4
Total	9	14	4	9	4

f. Mapping Course Outcome with External Assessment (60 Marks)

Category	CO1	CO2	CO3	CO4	CO5
Part – A (Short Answer - 5 x 6 = 30 marks)	6	6	6	6	6
Part – B (Essay- 3 x 10 = 30 marks)		10	10	10	
Total	6	16	16	16	6

g. Rubric for Assignments (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	Content 50%	Ideas are detailed, well developed, supported with specific evidence & facts and examples	Ideas are detailed, Developed and supported with evidence and facts mostly specific.	Ideas are presented but not particularly developed or supported;	The content is not sound	Not attended	CO1, CO2
2	Organiza-tion 50%	Includes title, introduction, statement of the main idea with illustration and conclusion.	Includes title, introduction, statement of main idea and conclusion.	organizational tools are weak or missing	No organization	Not attended	CO4, CO5

h. Rubric for Seminar (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	Knowledge and Understanding 50%	Exceptional knowledge of facts, terms, and concepts	Detailed knowledge of facts, terms, and concepts	Considerable knowledge of facts, terms, and concepts	Minimal knowledge of facts, terms, and concepts	Not Attended	CO1, CO2
2	Presentation 50%	Well Communicated with logical sequences, examples, and references	Communicated with sequences	Just Communicated	No coherent communication	Not Attended	CO1, CO2

i. Rubric for Internal Test

Sl.No	Category	Marks	Relation to COs
I	**Internal Test I**		
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	CO1, CO2
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	
4.	**Total**	**60**	
II	**Internal Test II**		
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	CO3, CO4
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	
4.	**Total**	**60**	
III	**Model Exam**		CO1, CO2, CO3, CO4, CO5
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	
4.	**Total**	**60**	
	Test I + Test II + Model Test/9 (Convert for 20 Marks)	**180/9**	
	Internal Marks	**20**	

j. Model Question Paper

Sl. No.	Model Questions	Specification	Level
	PART – A Short Answer **The answer should not exceed 300 words Marks:5 x 6 = 30**		
1	a) Describe random experiment. [or] b) The number of combinations of 6 things but of 10 is written is symbol as $10C_6$	Explain Examine	Understand
2	a) A bag containing 4 white, 3 black and 5 red balls. What is the probability of getting a white or red ball at random in a single draw? [or] b) Find the probability of drawing a queen, a king and a knave in that order from a pack of Cards in three consecutive draws, the cards drawn not being replaced.	Explain Discuss	Analyse
3	a) The mean of a binomial distribution is 20 and standard deviation is 4. Find out n, p, and q. [or] b) Explain the Properties of the Normal Distribution.	Identify Recall	Understand
4	a) Discuss the Bivariate Frequency Distribution. [or] b) Explain the significance of correlation.	Explain Recall	Understand
5	a) Explain the Null Hypothesis and Alternative Hypothesis. [or] b) Describe the Type I and Type II Errors.	Explain Assess	Skill
	PART – B Essay Answer		

	The answer should not exceed 400 words Marks: 3 x 10 = 30		
6	a) Describe the Classical Probability. [or] b) Explain the additional theorem with proof.	Discuss Explain	Understand

7	a) If the probability of defective bolts is 0.1.
	   i) Find the Mean and Standard Deviation for the distribution of defective bots in total of 500.
	   ii) Find the movement of coefficients of Skewness and Kurtosis of the distribution.
	[or]
	b) a) If the mean of a Poisson distribution is 2.25, find the other constants of the distribution:
	   i) S.D. ii) β_1 iii) β_2 iv) μ_3 and v) μ_4
		Examine	Analyse

8	a) Find Karl Pearson's coefficient of correlation between the values of X and Y given below (Assumed Mean). {table below} [or] b) Examine the one tailed and two-tailed tests.	Assess Identify	Skill

Table for question 8a:

X	78	89	96	69	59	79	68	61
Y	125	137	156	112	107	136	123	108

SEMESTER - II					
Course Code	**Course Name**	**L**	**T**	**P**	**Credits**
ECON-106	Mathematical Methods-II	4	1	-	5

a. Course Outcome (CO)

On the successful completion of the course, the student will be able to
(Course outcomes are specific for a particular course. CO should be specific, measurable, achievable, realistic, and time-bound)

	Course Outcome	**Level**
CO 1	Students would remember the Mathematical methods to solve the problems.	Remember
CO 2	They understand the uses of Mathematical methods in their area of study.	Understand
CO 3	The analytical and problem solving skills of the students that are applied in mathematical economics.	Apply
CO 4	They able to analyze about the limit of the function at a point and also to analyze the differentiability and continuity of a functions .	Analyze
CO 5	They able to solve all the related problems.	Skill

b. Syllabus

Units	Content	Hrs.
I	**Function and Graphs of the function:** Domain, co-domain and range of the function, independent and dependent variables; graph of the function, one to one, onto and bijective function, composite function, invertible function, quadratic, polynomial, power , rational , constant, identity, exponential, logarithmic, hyperbolic function ; sequences, series and convergence ; properties and application to Economics.	12
II	**Limit, Continuity and Differentiability:** Limit of the function, left hand and right hand limits, non existence of limit, theorem on limits(statements only); continuity of function, discontinuity, types of discontinuity; differentiability of a function derivability implying continuity, geometrical interpretation of a derivative; characterisations, properties and application to Economics.	12
III	**Differentiations and Successive Differentiation:** Differentiation of sine, cosine, logarithmic, exponential, hyperbolic, polynomial rational function and product of two function; higher order derivative n^{th} derivative, some standard result; Leibnitz,s theorem : n^{th} derivative of the product of two functions, , properties and application to Economics.	12
IV	**Mean Value Theorems:** Roll's theorem, Lagrange's mean value theorem, meaning of the sign of the derivative, Cauchy's mean value theorem, Taylor's theorem, Maclaurin's theorem and Maclaurin's power series for a given unction, , properties and application to Economics	12
V	**Partial Differentiation:** Function of two variables, limit of the function of two variables, continuity of a function of two variable at a point, limit of a continuous function, partial derivatives, partial derivatives of higher order,	12

homogeneous function, Euler's theorem on homogeneous function, total differentials of composite function and implicit function, properties and application to Economics.

Tasks and Assignments:
- Have to find the limit of the functions and also check differentiability and continuity of the function.
- To calculate all partial derivatives of a functions.

References:
1. Shanti Narayaan, Differential Calculus, S.Chand & Co. Ltd.
2. J.Edwards, An elementary treatise on the Differential Calculus, Radha Publishing House.
3. H.S.Dhami, Differential Calculus, New Age International.
4. Geoge B.Thomas and Ross L. Finny, Calculus and Analytical Geometry, Addison Weswly.
5. Knut Sydsaeter and Peter J.Hammod, Mathematics for Economics Analysis, Pearson Education.
6. Alpha C.Chiang & Kevin Wainwright, Fundamental Methods of Mathematical Economics, McGraw Hill International Edition.

c. Mapping of Program Outcomes with Course Outcomes

	PO1	PO2	PO3	PO4	PO5
CO1	3	3	3	3	3
CO2	3	3	3	3	2
CO3	2	3	2	3	2
CO4	3	3	2	3	2
CO5	3	2	2	3	3

(If the correlation between Programme Outcome with Course Outcome is high 3 is assigned, for moderate 2, for low 1, and for 0 are assigned)

d. Evaluation Scheme

	CO1	CO2	CO3	CO4	CO5	Total
Internal	8	8	8	8	8	40
External	12	12	12	12	12	60
Total	20	20	20	20	20	100

e. Mapping Course Outcome with Internal Assessment (40 Marks)

	CO1	CO2	CO3	CO4	CO5
Assignments	4	4	4	4	4
Seminar	-	-	-	-	-
Test	4	4	4	4	4
Attendance	-	-	-	-	-
Total	8	8	8	8	8

f. Mapping Course Outcome with External Assessment (60 Marks)

Category	CO1	CO2	CO3	CO4	CO5
Part – A	6	6	6	6	6

(Objective - 10 x 3 = 30 marks)					
Part – B (Short Answer - 6 x 5 = 30marks)	6	6	6	6	6
Total	12	12	12	12	12

g. Rubric for Assignments (20)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	**Content** 90%	Detailed solutions are provided with proper explanations given and all important steps in the problem are given.	Detailed solutions are provided with some steps are missing in the problem	Solutions are provided but no proper explanation	Only solutions given	Not attended	CO1, CO2, CO5
2	**Organiza-tion** 10%	Proof are all readable and proper way of writing	Proofs are readable but not proper way of writing	--	--	--	CO1, CO2, CO5

h. Rubric for Seminar (0)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs

i. Rubric for Internal Test

Sl.No	Category	Marks	Relation to COs
I	**Internal Test I**		
1.	Part – A(Short Answer - 3x 4 = 12 marks)	12	CO1, CO2, CO3
2.	Part – B(Descriptive - 4 x 2 = 8 marks)	8	CO4, CO5
	Total	**20**	
II	**Internal Test II**		
1.	Part – A (Short Answer - 2 x 2 = 4 marks)	**4**	CO1, CO2
2.	Part – B (Descriptive - 3 x 2 = 6 marks)	**6**	CO3, CO2
3.	Part – C (Descriptive - 5 x 2 = 10 marks)	**10**	CO4, CO5
	Total	**20**	
	Internal Marks (Convert for 20 Marks)	**40**	

j. Model Question Paper

Part - A

(Answer **all** questions) $10 \times 3 = 30$ marks

1. Investigate the convergence of the following series:
   (i) $\sum_{n=1}^{\infty} \frac{2^n + 5}{3^n}$ (ii) $\sum_{n=1}^{\infty} \frac{1}{2^n - 1}$ (iii) $\sum_{n=1}^{\infty} \frac{2^n}{n^2}$

2. Determine all the numbers c which satisfy the conclusions of the Mean Value Theorem for the function $f(x) = x^3 + 2x^2 - x$ on $[-1, 2]$.

3. Let $f(x) = \sqrt{x}$, $x > 0$, $g(x) = \frac{1}{x^2-1}$, determine $g \circ f$ and $f \circ g$ with their domains.

4. Let the function f be defined as

$$f(x) = \begin{cases} 2x + 3 & \text{if } x \leq 4 \\ 7 + \dfrac{16}{x} & \text{if } x > 4 \end{cases}$$

   Find the value of x (if any) at which f is not continuous.

5. Show that $\lim_{x \to 0} \frac{x - |x|}{x}$ does not exist.

6. Find f_{xx}, f_{yy} and f_{xy} for the function $f(x, y) = e^x \cos y - e^y \sin x$.

7. If $f(x) = x \sin x$, let us find the fourth derivative of f, using Leibniz Theorem.

8. Verify Rolle's theorem for $f(x) = x(x + 3)e^{-x/2}, -3 \leq x \leq 0$.

9. If $z = f(x + ay) + \phi(x - ay)$, prove that $\dfrac{\partial^2 z}{\partial y^2} = a^2 \dfrac{\partial^2 z}{\partial x^2}$.

10. Write down the statement of Lagrange's mean Value theorem.

Part - B

(Answer any **six** questions) $6 \times 5 = 30$ marks

11. (i) Write the first five terms of an arithmetic progression whose third and eleventh terms are 21 and 85, respectively.

    (ii) Find the tenth term of a geometric progression whose third term is 16 and whose seventh term is 1.

12. Verify the Cauchy's mean value theorem for the functions $f(x) = x^2$ and $g(x) = x^3$ in $[1, 2]$ and also find c of this theorem.

13. Find the value of c of Lagrange's mean value theorem for the function $f(x) = (x - 1)(x - 2)(x - 3)$ in $[0, 4]$.

14. If $f : \mathbb{R} \to \mathbb{R}$ is defined by

$$f(x) = \begin{cases} 3x - 2 & \text{if } x < 1 \\ 4x^2 - 3x & \text{if } x > 1 \end{cases}$$

then find $\lim_{x \to 1} f(x)$

15. Determine the constants a and b so that the function f defined below is continuous everywhere

$$f(x) = \begin{cases} 2x + 1 & \text{if } x \le 1 \\ ax^2 + b & \text{if } 1 < x < 3 \\ 5x + 2a & \text{if } x \ge 3 \end{cases}$$

16. For all real numbers, $f(x)$ is given as

$$f(x) = \begin{cases} e^x + a\sin x & \text{if } x < 0 \\ b(x - 1)^2 + x - 2 & \text{if } x \ge 0 \end{cases}$$

Find the values of a and b for which f is differentiable at $x = 0$.

17. Show that $f_{xy}(0, 0) \ne f_{yx}(0, 0)$ for the function $f : \mathbb{R}^2 \to \mathbb{R}$ defined by

$$f(x, y) = \begin{cases} \dfrac{xy^5}{x^2 + y^4} & \text{if } (x, y) \ne (0, 0) \\ 0 & \text{if } (x, y) = (0, 0) \end{cases}$$

18. If $f(x, y) = x^2 \tan^{-1}\left(\frac{y}{x}\right) - y^2 \tan^{-1}\left(\frac{x}{y}\right)$, $x \ne 0$, $y \ne 0$, then prove that

$$\frac{\partial^2 f}{\partial x \partial y} = \frac{x^2 - y^2}{x^2 + y^2}.$$

SEMESTER - III					
Course Code	**Course Name**	**L**	**T**	**P**	**Credits**
ECON-201	Principles of Microeconomics - II	4	1	-	5

a. Course Outcome (CO)

On the successful completion of the course, the student will be able to

(Course outcomes are specific for a particular course. CO should be specific, measurable, achievable, realistic, and time-bound)

	Course Outcome	**Level**
CO 1	Understanding the Structure of the Market.	Understand
CO 2	Ability to know the different Pricing Methods.	Remember
CO 3	Knowing the factor pricing for different factors of production.	Apply
CO 4	Efficiently using the Investment for business.	Analyze
CO 5	Assessing Welfare Economics for economic development.	Skill

b. Syllabus

Units	Content	Hrs.
I	**Unit-1: Market Structure and Equilibrium** Market forms – perfect and Imperfect competition – equilibrium of a firm under perfect competition, monopoly, monopolistic competition, duopoly and oligopoly – importance of time element in price theory – price discrimination and measure of monopoly power-control and regulation of monopoly – Collusive price leadership – kinked demand curve long-run industry supply-– constant, increasing and decreasing cost, Efficiency of competitive equilibrium, Government intervention and dead weight loss, Application – Minimum prices and price supports.	12
II	**Unit-2: Pricing Methods** Mark up pricing-break even pricing – rate of return pricing – variable cost pricing – peak load pricing – going rate pricing- controlled or administered pricing – minimum support price.	12
III	**Unit-3: Factor Pricing** Market for the factors of production-marginal productivity theory of pricing of factor (distribution theory)-Euler's theorem-Linkages among the factors of production – theories of wages – determination-wages and collective bargaining – wage differentials – Rent -Ricardian and modern theories of rent-scarcity-differential rent and quasi rent-interest-classical and Keynesian theories-profit-innovation, risk and uncertainty theories – the concept of nominal profit- monopoly profit.	12
IV	**Unit-4: Investment Analysis** Payback period – average annual rate of return, net present value, internal rate of return, price changes, risk and uncertainty-elements of social cost benefit analysis.	12
V	**Unit-5: Welfare Economics**	12

Meaning of welfare economics-economic and general welfare, problems in measuring welfare – classical welfare economics- pigovian welfare condition – Pareto's Optimality criteria – value judgement – concept of a social welfare function-compensation principle- the Kaldor-Hicks criterion.

Tasks and Assignments:
- Prepare an assignment the structure of the market.
- Prepare an assignment the Factor Pricing.

References:
- Goon, Gupta, Dasgupta, Fundamentals of Statistics, Vol I, World Press Private limited.
- .Koutsoyannis (1979), Microeconomics a Modern Approach, East West Press, New Delhi.
- H.R.Varian (1993), Intermediate Microeconomics, W.W Norton, New York.
- J.J Ryan (1962), Price Theory, MacMillan Press, London.
- N.C.Ray (1998), an Introduction to Microeconomics, MacMillan Press, London.
- N.G.Mankiw (2009), Economics: Principles and Applications, Cengage Learning, Printed in India.
- R S. Pindyck, D.L. Rubinfeld and Mehta, Microeconomics, Prentice Hall, India.
- B.D. Bernheim and M.D. Whinston, Microeconomics, McGraw-Hill International Editions.
- Ferguson and Gould, Microeconomic Theory, All India Traveler Book Sellers.
- G.S. Maddala and E. Miller, Microeconomics. McGraw-Hill International Editions.

c. Mapping of Program Outcomes with Course Outcomes

	PO1	PO2	PO3	PO4	PO5
CO1	3	3	3	3	3
CO2	3	3	3	2	2
CO3	3	3	3	3	3
CO4	3	3	3	2	2
CO5	3	3	3	3	2

(If the correlation between Programme Outcome with Course Outcome is high 3 is assigned, for moderate 2, for low 1, and for 0 are assigned)

d. Evaluation Scheme

	CO1	CO2	CO3	CO4	CO5	Total
Internal	10	6	8	8	8	40
External	13	12	13	10	12	60
Total	**23**	**18**	**21**	**18**	**20**	**100**

e. Mapping Course Outcome with Internal Assessment (40 Marks)

	CO1	CO2	CO3	CO4	CO5
Assignments	5	-	5	-	-
Seminar	-	-	10	-	-
Test	4	4	4	4	4
Total	**9**	**4**	**19**	**4**	**4**

f. Mapping Course Outcome with External Assessment (60 Marks)

Category	CO1	CO2	CO3	CO4	CO5
Part – A **(Short Answer - 5 x 6 = 30 marks)**	6	6	6	6	6
Part – B **(Essay- 3 x 10 = 30 marks)**	10		10		10
Total	**16**	**6**	**16**	**6**	**16**

g. Rubric for Assignments (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	**Content** **50%**	Ideas are detailed, well developed, supported with specific evidence & facts and examples	Ideas are detailed, Developed and supported with evidence and facts mostly specific.	Ideas are presented but not particularly developed or supported;	The content is not sound	Not attended	CO1, CO2
2	**Organiza-tion** **50%**	Includes title, introduction, statement of the main idea with illustration and conclusion.	Includes title, introduction, statement of main idea and conclusion.	organizational tools are weak or missing	No organization	Not attended	CO2, CO3,

h. Rubric for Seminar (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs

1	**Knowledge and Understanding** **50%**	Exceptional knowledge of facts, terms, and concepts	Detailed knowledge of facts, terms, and concepts	Considerable knowledge of facts, terms, and concepts	Minimal knowledge of facts, terms, and concepts	Not Attended	CO2, CO3
2	**Presentation** **50%**	Well Communicated with logical sequences, examples, and references	Communicated with sequences	Just Communicated	No coherent communication	Not Attended	CO2, CO3

i. Rubric for Internal Test

Sl.No	Category	Marks	Relation to COs
I	**Internal Test I**		CO1, CO2
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	
4.	**Total**	**60**	
II	**Internal Test II**		CO3, CO4
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	
4.	**Total**	**60**	
III	**Model Exam**		CO1, CO2, CO3, CO4, CO5
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	
4.	**Total**	**60**	
	Test I + Test II + Model Test/9 (Convert for 20 Marks)	**180/9**	
	Internal Marks	**20**	

j. Model Question Paper

Sl. No.	Model Questions	Specification	Level
	PART – A Short Answer **The answer should not exceed 300 words Marks:5 x 6 = 30**		
1	a) Explain the characteristics of perfect competition. [or] b) Discuss the price discrimination in monopoly.	Explain Examine	Understand

2	a) State the mark-up pricing. [or] b) Explain the breakeven pricing.	Explain Discuss	Analyse
3	a) Discuss the factor pricing and product pricing. **[or]** b) Explain the wage fund theory.	Identify Recall	Understand
4	a) Explain the payback period. [or] b) Describe the average annual rate of return.	Explain Recall	Understand
5	a) Explain the problems in measuring welfare. [or] b) State the value judgement.	Explain Assess	Skill
	PART – B Essay Answer **The answer should not exceed 400 words Marks: 3 x 10 = 30**		
6	a) Assess the Sweezy Model of Oligopoly. [or] b) Describe the Breakeven Pricing and Explain the Advantages and Disadvantages of Breakeven Pricing.	Discuss Explain	Understand
7	a) Discuss the Recardian Theory of Rent. [or] b) Examine the Subsistence Theory of Wages.	Examine	Analyse
8	b) Evaluate the Pay Back Period Method of Investment Projects with merits and demerits. [or] b) Assess the Paretian Criterion and its criticisms.	Assess Identify	Skill

SEMESTER - III					
Course Code	**Course Name**	**L**	**T**	**P**	**Credits**
ECON-202	Principles of Macroeconomics I	4	1	-	5

a. Course Outcome (CO)
On the successful completion of the course, the student will be able to
(Course outcomes are specific for a particular course. CO should be specific, measurable, achievable, realistic, and time-bound)

	Course Outcome	**Level**
CO 1	Students would understand the significance and importance of macroeconomics	Remember
CO 2	Major concepts in macroeconomics would be enlightened to the students.	Understand
CO 3	Students will apply their conceptual understanding to grasp the macroeconomic behaviour of the economy	Apply
CO 4	With their analytical understanding about the macroeconomic issues, they will suggest suitable policy measures to address the problems	Analyze
CO 5	With their understanding, students will have the skill to do high level research in macroeconomic issues	Skill

b. Syllabus

Units	**Content**	**Hrs.**
I	**Unit-1: Nature and scope of Macroeconomics** Distinction between Macroeconomics and Microeconomics, Aggregation and Macroeconomics, Goals and Instruments of Macroeconomics, Supply and Demand in Macroeconomics, Introduction to Economic growth, GNP gap, booms, recessions, depressions, business cycles, fiscal policy, monetary policy, international economic policy, macro equilibrium, exchange rate, inflation and deflation, stagflation, supply shock and tight money, Brief history and Schools of Macroeconomics, Keynesians and Classicals.	12
II	**Unit-2: Accounting Output and Income** The Circular Flow Explication, Measuring Output, Gross National Product, Nominal GNP, Real GNP and GNP Deflator, The Two Approaches to measure GNP, The Final Goods Approach and Income Approach, Intermediate goods and value added approach, Flow Statistics and Stock Statistics, Investment, Consumption, Capital stock, GNP, Gross Domestic product, Net National product, National Income and Disposable Income, GNP and Economic Well Being	12
III	**Unit-3: Consumption and Investment** Consumption and Savings, Income and Saving, Consumption Function, Marginal Propensity to Consume, Marginal Propensity to Save, Determinants of Consumption, Determinants of Investment, Investment Demand Curve and interest rate.	12
IV	**Unit-4: Production and Growth**	12

	History of Economic Growth and Why Growth Matters, Importance of productivity in growth, Determinants of productivity physical capital, human capital, natural resources and technological knowledge, Economic Growth and Public Policy, importance of saving and investment, diminishing returns and catch-up effect, foreign investment, education, property rights and political stability, free trade, population control and research and development.	
V	**Unit-5: Unemployment and Inflation** Definition and Measurement of Unemployment Rate, Counting of Unemployed and Employed, Unemployed, Labour Force, Okun's Law, Economic Costs of High Unemployment, Types of Unemployment, Frictional Unemployment and Job Search, Structural Unemployment and Cyclical Unemployment, Voluntary versus Involuntary Unemployment, Sources of Inflexibility in wages, minimum wages, unions and collective bargaining and efficiency wages, Definition and measurement of Inflation rate, CPI and GNP Deflator, Index-number problems in measuring the cost of living, Types of Inflation, Moderate inflation, Galloping Inflation and hyperinflation, Impact of Inflation, redistribution of Income and Wealth and distortions on output and prices, Correcting economic variables from inflationary effects	12
	Tasks and Assignments: • Prepare an assignment on history and schools of thought in macroeconomics • Prepare a case study on the problem of unemployment and the efforts taken by the government to mitigate it in India since Independence **References:** 1. P Samuelson and W Nordhaus, Economics, McGraw-Hill International Editions 2. Lipsey and Chrystal, Economics, Oxford University Press 3. Gregory, Mankiw, Economics: Principles and Applications. South Western of Cengage Learing 4. Soumyen Sikdar, Macroeconomics, Pearson Education India. 5. R.E Hall and D.H Papell, Macroeconomics, WWW Norton 6. N. Gregory Mankiw, Macroeconomics, Macmillan. 7. Rudiger Dornbusch, Stanley Fischer and Richard Startz, Macroeconomics, McGraw Hill 8. Errol D' Souza, Macroeconomics, Pearson Education India	

c. Mapping of Program Outcomes with Course Outcomes

	PO1	PO2	PO3	PO4	PO5
CO1	3	3	3	3	3
CO2	2	2	3	3	2
CO3	2	3	2	2	3
CO4	3	2	3	3	2
CO5	3	3	3	3	2

(If the correlation between Programme Outcome with Course Outcome is high 3 is assigned, for moderate 2, for low 1, and for 0 are assigned)

d. Evaluation Scheme

	CO1	CO2	CO3	CO4	CO5	Total
Internal	6	8	10	8	8	40
External	10	12	12	13	13	60
Total	**18**	**18**	**20**	**23**	**21**	**100**

e. Mapping Course Outcome with Internal Assessment (40 Marks)

	CO1	CO2	CO3	CO4	CO5
Assignments	-	-	5	-	5
Seminar	-	-	-	-	10
Test	4	4	4	4	4
Total	4	4	9	4	19

f. Mapping Course Outcome with External Assessment (60 Marks)

Category	CO1	CO2	CO3	CO4	CO5
Part – A (Short Answer - 5 x 6 = 30 marks)	6	6	6	6	6
Part – B (Essay- 3 x 10 = 30 marks)			10	10	10
Total	**6**	**6**	**16**	**16**	**16**

g. Rubric for Assignments (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	**Content** 50%	Ideas are detailed, well developed, supported with specific evidence & facts and examples	Ideas are detailed, Developed and supported with evidence and facts mostly specific.	Ideas are presented but not particularly developed or supported;	The content is not sound	Not attended	CO1, CO2
2	**Organiza-tion** 50%	Includes title, introduction, statement of the main idea with illustration and conclusion.	Includes title, introduction, statement of main idea and conclusion.	organizational tools are weak or missing	No organization	Not attended	CO1, CO2, CO5

h. Rubric for Seminar (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	**Knowledge and Understanding** 50%	Exceptional knowledge of facts, terms, and concepts	Detailed knowledge of facts, terms, and concepts	Considerable knowledge of facts, terms, and concepts	Minimal knowledge of facts, terms, and concepts	Not Attended	CO3, CO4
2	**Presentation** 50%	Well Communicated with logical sequences, examples, and references	Communicated with sequences	Just Communicated	No coherent communication	Not Attended	CO3, CO4

i. Rubric for Internal Test

Sl.No	Category	Marks	Relation to COs
I	**Internal Test I**		CO1, CO2
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	
4.	**Total**	**60**	
II	**Internal Test II**		CO3, CO4
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	
4.	**Total**	**60**	
III	**Model Exam**		CO1, CO2, CO3, CO4, CO5
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	
4.	**Total**	**60**	
	Test I + Test II + Model Test / 9 (Convert for 20 Marks)	**180/9**	
	Internal Marks	**20**	

j. Model Question Paper

Sl. No.	Model Questions	Specification	Level
	PART – A Short Answer **The answer should not exceed 300 words Marks:5 x 6 = 30**		
1	a) Write about the distinction between micro and macroeconomics [or] b) Explain about the different schools of thought in macroeconomics	Explain Examine	Understand
2	a) Explain about the two approaches to measure GNP [or] b) Discuss about the GNP and well-being	Explain Discuss	Analyse
3	a) Explain about the nexus between income, consumption and saving [or] b) Write about the determinants of investment and consumption	Identify Recall	Understand
4	a) Discuss about the history of economics growth [or] b) Write about the determinants of productivity	Explain Recall	Understand
5	a) Write about the definition of unemployment [or] b) Write about the different types of inflation	Explain Assess	Skill
	PART – B Essay Answer **The answer should not exceed 400 words Marks: 3 x 10 = 30**		
6	a) Elaborately discuss about the business cycle [or] b) Examine the distinction between GDP and GNP	Examine	Understand
7	a) Describe the relationship between investment and interest rate with the help of investment demand curve [or] b) Write about the importance of saving and investment in achieving sustainable economic development	Discuss Explain	Analyse
8	a) Write about the different types of unemployment [or] b) Elucidate the causes and consequences of inflation	Assess Identify	Skill

SEMESTER - III					
Course Code	**Course Name**	**L**	**T**	**P**	**Credits**
ECON-203	Mathematical Methods-III	4	1	-	5

a. Course Outcome (CO)

On the successful completion of the course, the student will be able to

(Course outcomes are specific for a particular course. CO should be specific, measurable, achievable, realistic, and time-bound)

	Course Outcome	**Level**
CO 1	Students would remember the Mathematical methods to solve the problems.	Remember
CO 2	They understand the uses of Mathematical methods in their area of study.	Understand
CO 3	The analytical and problem solving skills of the students that are applied in mathematical economics.	Apply
CO 4	They able to analyze about the solutions of Ordinary Differential equations.	Analyze
CO 5	They able to solve all the related problems.	Skill

b. Syllabus

Units	Content	Hrs.
I	**The Integral and Technique of Integration:** Antiderivatives, Introduction of differential equation, Sum and sigma notation, The Definite Integral, The First and Second fundamental theorem of calculus, The Mean value theorem for integrals. Integration by substitution, trigonometric substitutions, Integration by parts, measuring area under the curve	12
II	**Ordinary differential equation:** Introduction of Differential equation, Geometrical and physical consideration, Ordinary differential equation, Order, Degree of differential equation , Linear and nonlinear differential equation, Homogeneous and nonhomogeneous differential equation, Formation of differential equation, Solution of differential equation, General solution and particular solution, Initial value problem, Methods of solving a first order first degree differential equation, Economics applications of ordinary differential equation	12
III	**Higher order linear differential equation with constant coefficient:** Complementary function, Particular integral, Methods of undetermined coefficients, Methods of variation of parameters, Exact Equation, Euler's homogeneous equation and reduction to an equation of constant coefficients, Economics applications of ordinary differential equation	12
IV	**Second order linear differential equation with variable coefficients:** Reduction of order when one solution of the homogeneous part is known, Complete solution, Methods of variation of parameters, Reduction to Normal form, Change of independent variables, Operational factors, Mathematical economics applications of ordinary differential equation.	12

V	**Linear Programming Problems:** Linear Programming problems, Graphical Solution, Simplex Methods, Introduction to input output analysis	12
	Tasks and Assignments: - Have to determine the solutions of ordinary differential equations - Have to solve the LPP using graphical method. **References:** - D.Varberg, E.J. Purcell, S.E. Rigdon. Calculus, Prentice Hall. - S.L.Ross, Differential Equation, John Wiley. - H.B.Phillips, Differential Equation, John Wiley & Sons. S. G. Deo, V.Lakshmikantham & V.Raghavendra, Text Book of Ordinary Differential Equation, Tata McGraw Hill. - H.S.Dhami, Differential Calculus, New Age International - B.C. Das & B.N Mukherjee, Integral Calculus. - G.Simmons, Differential equation, Tata McGraw Hill. - Alpha C.Chiang & Kevin Wainwright, Fundamental Methods of Mathematical Economics, McGraw Hill International Edition. - Man Mohan Kanti Swarup,Pk Gupta, Operation Reseach, Sulthan Chan Publishers	

c. Mapping of Program Outcomes with Course Outcomes

	PO1	PO2	PO3	PO4	PO5
CO1	3	3	3	3	3
CO2	3	3	3	3	2
CO3	2	3	2	3	2
CO4	3	3	2	3	2
CO5	3	2	2	3	3

(If the correlation between Programme Outcome with Course Outcome is high 3 is assigned, for moderate 2, for low 1, and for 0 are assigned)

d. Evaluation Scheme

	CO1	CO2	CO3	CO4	CO5	Total
Internal	8	8	8	8	8	40
External	12	12	12	12	12	60
Total	**20**	**20**	**20**	**20**	**20**	**100**

e. Mapping Course Outcome with Internal Assessment (40 Marks)

	CO1	CO2	CO3	CO4	CO5
Assignments	-	-	-	-	-
Seminar	-	-	-	-	-
Test	4	4	4	4	4
Attendance	-	-	-	-	-
Total	4	4	4	4	4

f. Mapping Course Outcome with External Assessment (60 Marks)

Category	CO1	CO2	CO3	CO4	CO5
Part – A (Objective - 5 x 2 = 10 marks)	2	2	2	2	2
Part – B (Descriptive - 4 x 5 = 20 marks)	5	5	-	5	5
Total x 2	14	14	4	14	14

g. Rubric for Assignments (0)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs

h. Rubric for Seminar (0)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs

i. Rubric for Internal Test

Sl.No	Category	Marks	Relation to COs
I	**Internal Test I**		
1.	Part – A(Descriptive - 6x 5 = 30 marks)	30	CO1, CO2, CO3, CO4, CO5
	Total	**30**	
II	**Internal Test II**		
1.	Part – A (Descriptive - 6x 5 = 30 marks)	**30**	CO1, CO2, CO3, CO4, CO5
	Total		
III	**Internal Test III**		
1.	Part – A (Objective - 10 x 2 = 20 marks)	**20**	CO1, CO2, CO3
2.	Part – B (Short Answer - 5 x 2 = 10 marks)	**10**	CO4, CO5
	Total	**30**	
	Internal Marks (Convert for 20 Marks and take Best two out of three)		

j. Model question paper

Department of Economics
Central Univesity of Tamil Nadu
Thiruvarur, Tamil Nadu, India
Mathematical Methods - III (ECON 203)
Modal Question Paper

Part - A

(Answer **all** questions) $5 \times 2 = 10$ marks

1. Find $\int \sin(3x) \cos(5x) dx$.

2. Find the Wronskian of the functions $f(x) = 3\cos(2x)$ and $g(x) = 3 - 6\sin^2(x)$.

3. Given the ordinary differential equation $y' + y = e^{-x}$ with initial condition $y(0) = 5$. Which of the following is the correct solution to this problem:
   (a) $y(x) = (x - 5)e^{2x}$
   (b) $y(x) = (x + 5)e^{-x}$
   (c) $y(x) = e^x - e^{-x}$

4. Write down the general homogeneous Euler's differential equation.

5. An animal feed company produce 200 kg of mixture consisting of ingredients x_1 and x_2. x_1 costs Rs. 3 per kg and x_2 Rs. 8 per kg. No more than 80 kg of x_1 can be used and atleast 60 kg of x_2 must be used. Write down the LP model to optimize the cost.

Part - B

(Answer **all** questions) $4 \times 5 = 20$ marks

6. (a) Solve $2y'' + 8y' - 10y = e^{-5x}$.

(OR)

   (b) Solve $y'' - 6y' + 25y = e^{2x} + \sin x + x$.

7. (a) Solve $y'' + 4y' + 4y = 3\sin x + 4\cos x$, $y(0) = 1$ and $y'(0) = 0$.

(OR)

   (b) Using the method of variation of parameters, solve $y'' + 4y = \tan(2x)$.

8. (a) Solve $x^2 \dfrac{d^2 y}{dx^2} - 4x \dfrac{dy}{dx} + 6y = x^2$.

(OR)

   (b) Solve $xy'' + (1 - x)y' - y = e^x$ by method of operational factors.

9. (a) Use the graphical method to solve the following LP problem:
   $$Min\, z = 40x_1 + 36x_2$$

   $$
   \begin{aligned}
   5x_1 + 3x_2 &\geq 45 \\
   x_1 &\leq 8 \\
   x_2 &\leq 10 \\
   x_1, x_2 &\geq 0.
   \end{aligned}
   $$

(OR)

   (b) Use Simplex method to solve:
   $$Max\, z = 3x_1 + 2x_2$$

   $$
   \begin{aligned}
   -x_1 + 2x_2 &\leq 4 \\
   3x_1 + 2x_2 &\leq 14 \\
   x_1 - x_2 &\leq 3 \\
   x_1, x_2 &\geq 0.
   \end{aligned}
   $$

SEMESTER - IV					
Course Code	**Course Name**	**L**	**T**	**P**	**Credits**
ECON-204	Principles of Macroeconomics II	4	1	-	5

a. Course Outcome (CO)

On the successful completion of the course, the student will be able to

(Course outcomes are specific for a particular course. CO should be specific, measurable, achievable, realistic, and time-bound)

	Course Outcome	**Level**
CO 1	Students will understand the classical and Keynesian analysis on macroeconomic issues	Remember
CO 2	Theories on consumption and investment will be enlightened to the students.	Understand
CO 3	Students will apply their theoretical knowledge to understand the India's BoP position	Apply
CO 4	Students will analyse the macroeconomic problems from the classical and Keynesian perspective	Analyze
CO 5	With their conceptual and theoretical knowledge, students will have the skill to deeply analyse the macroeconomic problems	Skill

b. Syllabus

Units	Content	Hrs.
I	**Unit-1: The Economy in the Long Run** The classical analysis of determination of employment, income and interest rate, money and prices: quantity theory of money, classical aggregate demand and supply curves.	8
II	**Unit-2: The Economy in the Short Run** Simple Keynesian analysis of aggregate demand, components of aggregate demand and multiplier. Keynesian system of money, interest and income: IS-LM, fiscal and monetary policy, IS-LM model, Keynesian system of Aggregate demand and, Flexible and fixed money wage and price model, Sticky wage model and Imperfect Information Model, Phillips curve, Inflation and Unemployment trade off, short run and long run Phillips curve, Keynesian aggregate supply.	16
III	**Unit-3: Balance of Payments and Exchange Rate** Economic Openness with an emphasis on Indian economy, BOP, current and capital accounts. Exchange rate concepts, Determination of exchange rate, Types of exchange rate: fixed, flexible and managed. Importance of Foreign Currency Reserves with reference to India, Domestic Adjustment, BOP Crisis and Speculative Attack, Internal and External Balance under Fixed Rate, Advantages of Flexible exchange and Fixed Rates, Devaluation and inflation, purchasing power parity principle and Foreign exchange market reforms in India.	18
IV	**Unit-4: Theories of Consumption and Investment** Consumption: Keynes consumption function, inter-temporal choice, life cycle and permanent income hypothesis, Investment: business fixed investment, neo-classical approach, Tobin's q, Residential investment and accelerator model of inventories.	10

V	Unit-5: Quantity theory of Money Demand for money: Classical, Keynesian, Portfolio theory of money demand and Baumol Tobin analysis of cash management.	8
	Tasks and Assignments: • Prepare an assignment on theoretical underpinning of classical and Keynesian macroeconomics. • Prepare a case study on India's BoP position. **References:** **1.** Richard Froyen, Macroeconomics, Pearson Education. **2.** N. Gregory Mankiw, Macroeconomics, Macmillan. **3.** R.E. Hall and D.H. Papell, Macroeconomics, WWW Norton. **4.** Rudiger Dornbusch, Stanley Fischer and Richard Startz, Macroeconomics, McGraw Hill. **5.** Rosalind Levacic and Alexander Rebmann, Macroeconomics: An Introduction to Keynesian- Neoclassical Controversies, Macmillan. **6.** Soumyen Sikdar, Principles of Macroeconomics, Oxford University Press **7.** Paul A. Samuelson and William D. Nordhaus, Macroeconomics, McGraw Hill Higher Education **8.** Errrol D'Souza, Macroeconomics, Kindle edition, Pearson.	

c. Mapping of Program Outcomes with Course Outcomes

	PO1	PO2	PO3	PO4	PO5
CO1	3	3	3	3	3
CO2	3	3	3	3	2
CO3	2	3	3	2	3
CO4	2	2	2	2	3
CO5	3	2	2	3	2

(If the correlation between Programme Outcome with Course Outcome is high 3 is assigned, for moderate 2, for low 1, and for 0 are assigned)

d. Evaluation Scheme

	CO1	CO2	CO3	CO4	CO5	Total
Internal	6	8	8	10	8	40
External	12	10	12	13	13	60
Total	**18**	**18**	**20**	**23**	**21**	**100**

e. Mapping Course Outcome with Internal Assessment (40 Marks)

	CO1	CO2	CO3	CO4	CO5
Assignments	-	-	5	-	5
Seminar			10		
Test	4	4	4	4	4
Total	4	4	19	4	9

f. Mapping Course Outcome with External Assessment (60 Marks)

Category	CO1	CO2	CO3	CO4	CO5
Part – A **(Short Answer - 5 x 6 = 30 marks)**	6	6	6	6	6
Part – B **(Essay- 3 x 10 = 30 marks)**			10	10	10
Total	**6**	**6**	**16**	**16**	**16**

g. Rubric for Assignments (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	**Content** **50%**	Ideas are detailed, well developed, supported with specific evidence & facts and examples	Ideas are detailed, Developed and supported with evidence and facts mostly specific.	Ideas are presented but not particularly developed or supported;	The content is not sound	Not attended	CO1, CO2
2	**Organiza -tion** **50%**	Includes title, introduction, statement of the main idea with illustration and conclusion.	Includes title, introduction, statement of main idea and conclusion.	organizational tools are weak or missing	No organization	Not attended	CO1, CO2, CO5

h. Rubric for Seminar (10)

Sl. No	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	**Knowledge and Understandin g** **50%**	Exceptional knowledge of facts, terms, and concepts	Detailed knowledge of facts, terms, and concepts	Considerable knowledge of facts, terms, and concepts	Minimal knowledge of facts, terms, and concepts	Not Attended	CO3, CO4
2	**Presentation** **50%**	Well Communicated with logical sequences, examples, and references	Communicated with sequences	Just Communicated	No coherent communicatio n	Not Attended	CO3, CO4

i. Rubric for Internal Test

Sl.No	Category	Marks	Relation to COs
I	**Internal Test I**		CO1, CO2
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	
4.	**Total**	**60**	
II	**Internal Test II**		CO3, CO4
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	
4.	**Total**	**60**	
III	**Model Exam**		CO1, CO2, CO3, CO4, CO5
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	
4.	**Total**	**60**	
	Test I + Test II + Model Test / 9 (Convert for 20 Marks)	**180/9**	
	Internal Marks	**20**	

j. Model Question Paper

Sl. No.	Model Questions	Specification	Level
	PART – A Short Answer **The answer should not exceed 300 words Marks:5 x 6 = 30**		
1	a) Explain the determination of employment and income in classical analysis [or] b) Discuss about classical demand and supply curves	Explain Examine	Understand
2	a) Explain about the importance aggregate demand in Keynesian economics [or] b) Discuss about the Phillips curve	Explain Discuss	Analyse
3	a) Delineate about the economic openness in the post reform India [or] b) Discuss about foreign exchange market reforms in India	Identify Recall	Understand
4	a) Discuss about the Keynesian consumption fuction [or] b) Write a note on the Tobin's q investment theory	Explain Recall	Understand
5	a) Discuss about the demand for money in classical analysis [or] b) Delineate about the portfolio theory of money demand	Explain Assess	Skill
	PART – B Essay Answer **The answer should not exceed 400 words Marks: 3 x 10 = 30**		
6	a) Discuss in detail about the quantity theory of money [or] b) Discuss about the IS-LM model	Examine	Understand
7	a) Describe the different types of exchange rate [or] b) Delineate about the BoP crisis and speculative attack	Discuss Explain	Analyse
8	a) Discuss about the consumption theories [or] b) Elucidate about the Keynesian demand for money	Assess Identify	Skill

SEMESTER - IV					
Course Code	**Course Name**	**L**	**T**	**P**	**Credits**
ECON-205	International Economics	4	1	-	5

a. Course Outcome (CO)

On the successful completion of the course, the student will be able to

(Course outcomes are specific for a particular course. CO should be specific, measurable, achievable, realistic, and time-bound)

	Course Outcome	**Level**
CO 1	Students would learn the theories of the international trade and economic relevance of the subject.	Remember
CO 2	Classical theories to modern theories Linkages between international trade and contemporary trade economy would be enlightened to the students.	Understand
CO 3	With use of mathematical modelling to accurate the outreach of monetary value on forex.	Apply
CO 4	Acquaintance with various trading theories and modelling and it will emphasis on new international trade policy.	Analyze
CO 5	Knowledge of numerous international trade issues and policies are following research for getting economic development.	Skill

b. Syllabus

Units	Content	Hrs.
I	**Unit-1: Comparative Advantage and International Equilibrium** Comparative advantage: Sources of comparative advantage (production and demand bias); gains from tradeand decomposition, Offer curve analysis: Construction of Offer curves, international equilibrium and determination of terms of trade, stability of equilibrium: Marshall – Lerner condition	12
II	**Unit-2: Ricardian Model of Trade: One factor economy** Production possibility frontier, relative demand and relative supply and autarkic terms oftrade, Trade in Ricardian world: determination of international terms of trade, complete specialization and gains from trade, Extensions of Ricardian model	12
III	**Unit-3: Factor Endowment and trade** Definition of factor abundance, factor intensity ranking, one to one correspondence between commodity priceratio and factor price ratio (Stolper- Samuelson theorem), one to one correspondence between endowmentratio and production proportion (Rybscznski theorem), Difference in endowment ratio as source of comparative advantage, effects of trade on factor price and incomedistribution – factor price equalization; factor intensity reversal and factor price equalization, Empirical studies– Leontief Paradox.	12
IV	**Unit-4: Accounting Structure, Income Determination and Trade Balance** Balance of payment accounts; national income accounting in an open economy; monetary account; Determination of national income, multiplier analysis, the transfer problem, introduction of foreign country	12

	and repercussion effect, Effect of devaluation (with J curve effect), tariff and export subsidy on output and trade balance; Intermediate goods and non-traded goods, Internal and external balance and assignment problem with fiscal policy and exchange rate.

V	**Unit-5: Foreign Exchange Market and Asset Approach** Working of foreign exchange market, forward rate and spot rate, interest rate parity and risk premium, Mundell- Fleming model under fixed and flexible exchange rate (with perfect and imperfect capital mobility), Assignment problem with fiscal and monetary policy.	12
	Tasks and Assignments: • Formulate an assignment by using classical to modern comparing the discovered and quantified preference of new methods and its meticulousness over improving international economics ideas and policy. • Prepare comparative empirical understanding on international trade in India for getting standard growth rate. **References:** • Paul R. Krugman & Maurice Obstfeld: International Economics, Pearson Education • Dornbusch: Open Economy Macro Economy, Basic Books, New York • Caves Frankel & Jones: World Trade & Payments: An Introduction, Pearson Education • Feenstra. R., *Advanced International Trade: Theory and Evidence,* PrincetonUniversity Press, 2009. • Bhagwati, J., A. Panagariya, and T. Srinivasan. *Lectures on International Trade* (2ndedition), MIT Press, 1998 • Rajat Acharyya, 'International Economics: An Introduction to Theory and Policy', Oxford, 2013.	

c. Mapping of Program Outcomes with Course Outcomes

	PO1	PO2	PO3	PO4	PO5
CO1	3	3	3	3	3
CO2	2	3	3	3	2
CO3	2	3	3	3	3
CO4	2	2	3	3	3
CO5	3	2	3	3	3

(If the correlation between Programme Outcome with Course Outcome is high 3 is assigned, for moderate 2, for low 1, and for 0 are assigned)

d. Evaluation Scheme

	CO1	CO2	CO3	CO4	CO5	Total
Internal	6	8	8	10	8	40
External	10	12	12	13	13	60
Total	**16**	**20**	**20**	**23**	**21**	**100**

e. Mapping Course Outcome with Internal Assessment (40 Marks)

	CO1	CO2	CO3	CO4	CO5

Assignments	-	-	5	5	-
Seminar			5	5	
Test	4	4	4	4	4
Total	4	4	19	19	4

f. Mapping Course Outcome with External Assessment (60 Marks)

Category	CO1	CO2	CO3	CO4	CO5
Part – A (Short Answer - 5 x 6 = 30 marks)	6	6	6	6	6
Part – B (Essay- 3 x 10 = 30 marks)		10	10	10	
Total	**6**	**16**	**16**	**16**	**6**

g. Rubric for Assignments (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	**Content** 50%	Ideas are detailed, well developed, supported with specific evidence & facts and examples	Ideas are detailed, Developed and supported with evidence and facts mostly specific.	Ideas are presented but not particularly developed or supported;	The content is not sound	Not attended	CO1, CO2
2	**Organiza-tion** 50%	Includes title, introduction, statement of the main idea with illustration and conclusion.	Includes title, introduction, statement of main idea and conclusion.	organizational tools are weak or missing	No organization	Not attended	CO2, CO3, CO5

h. Rubric for Seminar (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	**Knowledge and Understanding** 50%	Exceptional knowledge of facts, terms, and concepts	Detailed knowledge of facts, terms, and concepts	Considerable knowledge of facts, terms, and concepts	Minimal knowledge of facts, terms, and concepts	Not Attended	CO3, CO4

2	**Presentation** **50%**	Well Communicated with logical sequences, examples, and references	Communicated with sequences	Just Communicated	No coherent communication	Not Attended	CO3, CO4

i. Rubric for Internal Test

Sl.No	Category	Marks	Relation to COs
I	**Internal Test I**		
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	CO1, CO2
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	
	Total	**60**	
II	**Internal Test II**		
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	CO3, CO4
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	
	Total	**60**	
III	**Model Exam**		
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	CO1, CO2, CO3, CO4, CO5
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	
	Total	**60**	
	Test I + Test II + Model Test / 9 (Convert for 20 Marks)	**180/9**	
	Internal Marks	**20**	

j. Model Question Paper

Sl. No.	Model Questions	Specification	Level
	PART – A Short Answer **The answer should not exceed 300 words Marks:5 x 6 = 30**		
1	a) Explain the gains from international trade with homogeneous and heterogeneous agents. [or] b) Examine the Leontief Paradox in global context?	Explain Examine	Understand
2	a) Explain the forms of dumping also antidumping and international price discrimination [or] b) Why is the Mundell Fleming model crucial in international Economics? - Discuss	Explain Discuss	Analyse
3	a) Identify How the Comparative advantage theory is useful and improves in international economics? [or] b) Describe the Classical theory of international trade	Identify Recall	Understand
4	a) Explain the understanding of world strategic trade policy- Recent evidence. [or] b) Write a note on Marshall-Lerner Condition.	Explain Recall	Understand
5	a) Evaluation of devaluation and BOP Crisis. [or]	Explain	Skill

	b) Assess the terms of trade concepts – Explain with Indian context.	Assess	

PART – C Essay Answer
The answer should not exceed 400 words   Marks: 3 x 10 = 30

6	a) Examine the Determinants of factor –price equalization theorem in International Economics. [or] b) Tariffs and welfare dynamics for large countries. -Explain with different approaches.	Examine	Understand
7	a) Empirically Discussion on the Heckshor –Ohlin Model in International Economics. [or] b) Discuss the Nexus between Monetary policy and Fiscal policy in India.	Discuss Explain	Analyse
8	a) Evaluation of devaluation and BOP Crisis in international economy. [or] b) Marshall-Lerner Condition – why it's very crucial in international Economics.	Assess Identify	Skill

SEMESTER - IV					
Course Code	**Course Name**	**L**	**T**	**P**	**Credits**
ECON-206	**MATHEMATICAL ECONOMICS**	4	1	-	5

a. Course Outcome (CO)

On the successful completion of the course, the student will be able to
(Course outcomes are specific for a particular course. CO should be specific, measurable, achievable, realistic, and time-bound)

	Course Outcome	**Level**
CO 1	Students would remember the methods to solve the problems related to Linear Algebra.	Remember
CO 2	They understand the uses of LPP in their area of study.	Understand
CO 3	The analytical and problem solving skills of the students that are applied in mathematical economics.	Apply
CO 4	They able to analyze the real life problems and they converted to LPP.	Analyze
CO 5	They able to solve LPP and NLP related problems.	Skill

b. Syllabus

Units	Content	Hrs.
I	**Simple Application of derivatives:** The derivative and slope of the function, Deriving marginal functions, Differentials and Elasticity of demand, Instantaneous rate of growth, Relationship between average and marginal cost curves, first and higher order derivative test and analysis of nature of the curve, stationary and point of inflection, concavity and convexity of a function, and relative maxima and minima.	12
II	**Unconstrained Optimization:** General Structure, derivation of first order and second order conditions, envelope theorem, Applications: Profit maximization in different markets	12
III	**Constrained Optimization:** General Structure with two independent variables, derivation of first order and second order conditions, envelope theorem. Applications: Utility maximization and derivation of demand function and some extensions of consumer behaviour including consumption-labour choice and intertemporal choice; cost minimization and derivation of factor demand function; Pareto optimality conditions without and with public goods.	12
IV	**Duality Approach:** Duality in the theory of consumer behaviour: Indirect Utility Function and Roy's identity, expenditure function and its properties, derivation of Slutsky equation, Properties of cost function and Shepard's Lemma, duality between production and cost, Properties of profit function and Hotelling's Lemma, Properties of factor demand function under	12

		profitmaximization, Slutsky equation for factor demands	
V		**Simple application of integral calculus:** Deriving total function from marginal function, Investment and capital function, Area under the curve, Consumer surplus and Producer Surplus.	12
		Tasks and Assignments: • Have to solve unconstrained optimization problem and find the profit maximum of a real life problem. • To solve constrained optimization problem and find the utility maximum of a real life problem.. **References:** 1. Alpha C. Chiang & Kevin Wainwright, Fundamental Methods of Mathematical Economics, McGraw Hill International Edition 2. Hoy, Livernois, McKenna, Rees and Stengos, Mathematics for Economics, 2nd Edition Prentice Hall of India, Chapters 18, 20, 21 and 22 3. Eugene Silberberg and Wing Suen, The Structure of Economics: A Mathematical Analysis, Irwin McGraw Hill 4. Knut Sydsaeter and Peter J. Hammod, Mathematics for Economic Analysis, Pearson Education	

c. Mapping of Program Outcomes with Course Outcomes

	PO1	PO2	PO3	PO4	PO5
CO1	3	3	3	3	3
CO2	3	3	3	3	2
CO3	2	3	2	3	2
CO4	3	3	2	3	2
CO5	3	2	2	3	3

(If the correlation between Programme Outcome with Course Outcome is high 3 is assigned, for moderate 2, for low 1, and for 0 are assigned)

d. Evaluation Scheme

	CO1	CO2	CO3	CO4	CO5	Total
Internal	8	8	8	8	8	40
External	12	12	12	12	12	60
Total	**20**	**20**	**20**	**20**	**20**	**100**

e. Mapping Course Outcome with Internal Assessment (40 Marks)

	CO1	CO2	CO3	CO4	CO5
Assignments	-	-	-	-	-
Seminar	-	-	-	-	-
Test	8	8	8	8	8
Attendance	-	-	-	-	-
Total	8	8	8	8	8

f. Mapping Course Outcome with External Assessment (60 Marks)

Category	CO1	CO2	CO3	CO4	CO5
Part – A (Short Answer - 10 x 3 = 30 marks)	6	6	6	6	6
Part – B (Descriptive- 6 x 5 = 30 marks)	6	6	6	6	6
Total	12	12	12	12	12

g. Rubric for Assignments (0)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs

h. Rubric for Seminar (0)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs

i. Rubric for Internal Test

Sl.No	Category	Marks	Relation to COs
I	**Internal Test I**		
1.	Part – A(Descriptive - 5 x 4 = 20 marks)	20	CO2, CO4
	Total	20	
II	**Internal Test II**		
1.	Part – A (Descriptive - 4 x 2 = 8 marks)	8	CO3, CO5
2	Part – A (Descriptive - 6 x 2 = 12 marks)	12	
	Total	20	
	Internal Marks	40	

j. Model Question Paper

Department of Economics
Central Univesity of Tamil Nadu
Thiruvarur, Tamil Nadu, India
Mathematical Economics (ECON 206)
Model Question Paper

Part - A

(Answer **all** questions) $10 \times 3 = 30$ marks

1. Write down the first order conditions of constraint optimization problem of three variables with one equality constraint.

2. Define convex, quasi-convex, concave and quasi-concave function.

3. State expenditure minimization problem and define the expenditure function $e(p, u)$.

4. Write down the Hessian matrix of the function $f(x, y) = x^2 - 3xy + y^2 + 5x - 3y$.

5. Use the Lagrange-multiplier method to find the stationary values of $f(x, y) = x^2 - 3x - xy$ subject to $x + 2y = 4$.

6. Write down the relation between marginal revenue and elasticity demand.

7. If $f(x) = (5x^2 + 3)^4$, find the value of $f''(2)$ and $f''(3)$.

8. Let $y_1 = x_1^2 + 2x_2 + x_2x_3$, $y_2 = x_1 + 3x_2 + x_3^3$ and $y_3 = 2x_1 + 3x_2^2 + x_3$. Write down the Jacobian matrix and find its determinant.

9. Let $f(x, y) = 3xy$ subject to $x + 3y = 2$. Find the determinant of the Bordered Hessian matrix of the Lagrange function $L(x, y, \lambda)$.

10. Write down the Roy's Identity and Slutsky Equation.

Part - B

(Answer any **six** questions) $6 \times 5 = 30$ marks

11. Minimize $f(x, y, z) = x^2 + 2y^2 + 3z^2$ subject to the constraints $g_1(x, y) = x - y - 2z \leq 12$, $g_2(x, y) = x + 2y - 3z \leq 8$ using Kuhn-Tucker conditions.

12. Find the extreme point, also check maximum of

$$\max z = -4x_1^2 - 2x_1x_2 - 2x^2 - x_1 - x_2.$$

13. Prove that the indirect utility function $v(p, m)$ is quasi-convex in p and m.

14. Find the extrema of $f(x, y) = xy$ subject to the constraint $x + y = 4$.

15. Find the optimal input and optimal output via Hotelling's lemma of the profit function

$$\pi(p, w_1, w_2) = \frac{p^2 + w_1^2 + w_2^2 + w_1 w_2 - 2pw_1 - w_2}{p}.$$

16. (a) Write down the properties of the profit function $\pi(p, w)$.
    (b) The demand function of company is $p = 4 - 0.01x$ and cost function is $c(x) = 3x + 100$, where x is the number of units demanded. Find the marginal profit function.

17. Maximize utility $u = xy + 3x$ subject to a budget constraint equal to $x + 2y = 10$ by
    (a) finding the critical values $\bar{x}, \bar{y}$ and
    (b) using the bordered Hessian $\bar{H}$ to test the second-order condition.

18. If Demand Function is $D = 20 - 0.025x$ and cost function is $C = 5x + 0.025x^2$, find the value of x for which the profit revenue is maximum level.

SEMESTER - IV					
Course Code	**Course Name**	**L**	**T**	**P**	**Credits**
ECON-207	Skill Enhancement Course (SEC) – II: Skills on Field Survey	2	-	-	2

a. Course Outcome (CO)
On the successful completion of the course, the student will be able to
(Course outcomes are specific for a particular course. CO should be specific, measurable, achievable, realistic, and time-bound)

	Course Outcome	**Level**
CO 1	Students would understand of field survey, data collection methods, and sample design.	Remember
CO 2	Students understand the sampling methods and sampling error and their application to research.	Understand
CO 3	Ability to construct the questionnaire for primary data collection.	Apply
CO 4	It is expected to gain an overview of experience in field work and data collection methods.	Analyze
CO 5	Students will be able to carry out field work and research project.	Skill

b. Syllabus

Units	Content	Hrs.
I	**Unit-1: Survey Methodology** Meaning, nature and scope of statistical survey, Forms of survey-Cross-sectional and longitudinal surveys, Modes of administrating surveys and their relative merits and demerits - Field survey and importance of field survey.	6
II	**Unit-2: Techniques of Sampling** Meaning and types of sampling, Sample design & sampling error.	6
III	**Unit-3: Questionnaire Construction** Data collection, essentials of a questionnaire, writing questions, evaluating questions, Response rates & nonresponse error, Understanding, reading and making model questionnaires.	6
IV	**Unit-4: Implementing Survey** Survey interviewing, alternative questionnaire delivery, and ethical issues and methods for improving the number and accuracy of responses to surveys, Post-collection processing of survey data.	6
V	**Unit-5: Group Projects and Field work** A survey research project, identifying research problem, constructing questionnaire and conducting a field survey.	6
	Tasks and Assignments: • Draft a sample questionnaire for analysing socio-economic conditions of people living in slums. • Carry out group projects and field work. **References:** • Dillman, D. A. (2006). Mail and internet surveys: The tailored design method (2nd Ed.). New York: John Wiley and Sons.	

- Groves, R. M., Fowler, F. J. J., Couper, M. P., Lepkowski, J. M., Singer, E., & Tourangeau, R. (2004). Survey methodology. Hoboken, NJ: Wiley-Interscience.
- Stimpson, Robert J. (2014) Handbook of Research Methods and Applications in spatially integrated Social science, Northampton: Edward Elgar.
- Stage, Farnces K. and Kathleen Manning (2016), Research In the College Context: Approaches and Methods, New York: Routledge.

c. Mapping of Program Outcomes with Course Outcomes

	PO1	PO2	PO3	PO4	PO5
CO1	3	3	3	3	3
CO2	3	2	3	3	2
CO3	3	3	3	2	3
CO4	3	3	2	2	3
CO5	3	3	3	3	2

(If the correlation between Programme Outcome with Course Outcome is high 3 is assigned, for moderate 2, for low 1, and for 0 are assigned)

d. Evaluation Scheme

	CO1	CO2	CO3	CO4	CO5	Total
Internal	5	5	8	7	15	40
External	12	10	13	10	15	60
Total	17	15	21	17	30	100

e. Mapping Course Outcome with Internal Assessment (40 Marks)

	CO1	CO2	CO3	CO4	CO5
Assignments	-	-	5	-	5
Seminar					10
Test	4	4	4	4	4
Total	4	4	9	4	19

f. Mapping Course Outcome with External Assessment (60 Marks)

Category	CO1	CO2	CO3	CO4	CO5
Part – A (Short Answer - 5 x 6 = 30 marks)	6	6	6	6	6
Part – B (Essay- 3 x 10 = 30 marks)	10		10		10
Total	16	6	16	6	16

g. Rubric for Assignments (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs

1	**Content 50%**	Ideas are detailed, well developed, supported with specific evidence & facts and examples	Ideas are detailed, Developed and supported with evidence and facts mostly specific.	Ideas are presented but not particularly developed or supported;	The content is not sound	Not attended	CO3, CO5
2	**Organization 50%**	Includes title, introduction, statement of the main idea with illustration and conclusion.	Includes title, introduction, statement of main idea and conclusion.	organizational tools are weak or missing	No organization	Not attended	CO1, CO2, CO5

h. Rubric for Seminar (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	**Knowledge and Understanding 50%**	Exceptional knowledge of facts, terms, and concepts	Detailed knowledge of facts, terms, and concepts	Considerable knowledge of facts, terms, and concepts	Minimal knowledge of facts, terms, and concepts	Not Attended	CO3, CO5
2	**Presentation 50%**	Well Communicated with logical sequences, examples, and references	Communicated with sequences	Just Communicated	No coherent communication	Not Attended	CO3, CO5

i. Rubric for Internal Test

Sl.No	Category	Marks	Relation to COs
I	**Internal Test I**		CO1, CO2
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	
4.	**Total**	**60**	
II	**Internal Test II**		CO3, CO4
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	
4.	**Total**	**60**	
III	**Model Exam**		
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	

Sl. No.		Marks	
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	CO1, CO2, CO3, CO4, CO5
4.	**Total**	**60**	
	Test I + Test II + Model Test/9 (Convert for 20 Marks)	**180/9**	
	Internal Marks	**20**	

j. Model Question Paper

Sl. No.	Model Questions	Specification	Level
	PART – A Short Answer **The answer should not exceed 300 words Marks:5 x 6 = 30**		
1	a) Define research and state its significance. [or] b) Elucidate the different types of research.	Explain Elucidate	Understand
2	a) State the qualities of a good research. [or] b) Discuss the steps in social science research.	Explain Discuss	Analyse
3	a) Design the steps in statistical survey. [or] b) Briefly explain the steps involved in a research process.	Identify Recall	Skill
4	a) Discuss the principles of drafting a questionnaire. [or] b) Write short notes on Pilot study and pre-testing.	Discuss Recall	Understand
5	a) Assess the ethical issues in social science research. [or] b) Critically examine the case study method of data collection.	Assess Examine	Skill
	PART – B Essay Answer **The answer should not exceed 400 words Marks: 3 x 10 = 30**		
6	a) Enumerate various types of social science research and the qualities of a good research. [or] b) Describe various methods of collecting primary data and comment on their relative merits and demerits.	Enumerate Assess	Understand
7	a) How do you define a research problem? Give an example to illustrate your answer. [or] b) Write short notes on the followings: Data adjusting, Data cleaning, Questionnaire checking	Analyse Recall	Analyse
8	a) Describe the precautionary steps to be taken while conducting a field survey. [or] b) Construct a sample questionnaire for analysing socio-economic conditions of people living in rural area.	Explain Identify	Skill

SEMESTER - V					
Course Code	**Course Name**	**L**	**T**	**P**	**Credits**
ECON-301	Indian Economy: Issues and Experiences	4	1	-	5

a. Course Outcome (CO)

On the successful completion of the course, the student will be able to

(Course outcomes are specific for a particular course. CO should be specific, measurable, achievable, realistic, and time-bound)

	Course Outcome	**Level**
CO 1	To make the students to understand intricacies of the Indian economy	Remember
CO 2	Various aspects of the Indian economy will be enlightened to the students.	Understand
CO 3	Students will be trained to apply their theoretical knowledge in economics to understand the working of the Indian economy	Apply
CO 4	Students will have deep analytical knowledge about the various issues concerned with development of the Indian economy	Analyze
CO 5	With their sound knowledge in Indian economy, students will have the skill and ability to suggest suitable policy measures to take Indian economy forward	Skill

b. Syllabus

Units	Content	Hrs.
I	**Unit-1: Economic Development since Independence** Major features of the economy at independence; growth and development under different policy regimes-goals, constraints, institutions and policy framework; an assessment of performance-sustainability and regional contrasts; structural change, savings and investment.	12
II	**Unit-2: Economic crises in Post independent era and reforms** Dilemma of development: agriculture Vrs Industry, Food Crisis: Food crisis during sixties, green revolution and government intervention in food grain market with special reference to agricultural price, PDS and priority sector lending, Poverty alleviation: Public intervention for poverty alleviation, Economic crises during Eighties: external debt crisis, fiscal imbalance, balances of payment problems and inflation. , New Economic Policy and Continual reform initiatives.	14
III	**Unit-3: Development Experience under Reforms** External sector, Fiscal and Monetary sectors: Balance of payments—trend and composition; currency convertibility and exchange rate movements; exim policy and WTO related issues; portfolio investment and foreign direct investment, Growth and social sector developments, Poverty, inequality and unemployment.	12
IV	**Unit-4: Population and Human Development** Demographic trends and issues; education; health and malnutrition. Development Experience	10
V	**Unit-5: Contemporary development Challenges**	12

Need for pushing reforms in Fiscal and monetary front, Tax reforms and measures; pension reforms, Trade liberalization and economic cooperation, Reviving agricultural and economic growth, public sector reforms, Sustainable development challenges, labour laws and labour markets, and infrastructure needs.

Tasks and Assignments:
- Prepare an assignment on India's development experience since independence.
- Prepare a case study on India's performance under economic reforms.

References:
1. Pramit Chaudhuri: The Indian Economy, Poverty and Development, Vikas Publishing House
2. Bhagwati and Desai: India Planning for Industrialization, Oxford University Press
3. Bimal Jalan: India's Economic Crisis – The Way Ahead, Oxford University Press
4. Sukhomoy Chakraborty: Development Planning – The Indian Experience, Oxford University Press
5. Raja J. Chelliah: Towards Sustainable Development – Essays in Fiscal and Financial Sector Reforms in India, Oxford University Press
6. C. Rangarajan: Indian economy – Essays on Money and Finance, UBS Publishers' Distributors Ltd
7. Uma Kapila (Edited): Indian Economy since Independence, different volumes, Academic Foundation
8. Economic Survey, different volumes India Infrastructure Report, Different Volumes

c. Mapping of Program Outcomes with Course Outcomes

	PO1	PO2	PO3	PO4	PO5
CO1	3	3	3	3	3
CO2	3	3	3	3	2
CO3	2	2	3	2	3
CO4	2	2	3	2	3
CO5	2	2	2	3	2

(If the correlation between Programme Outcome with Course Outcome is high 3 is assigned, for moderate 2, for low 1, and for 0 are assigned)

d. Evaluation Scheme

	CO1	CO2	CO3	CO4	CO5	Total
Internal	6	8	8	10	8	40
External	12	10	12	13	13	60
Total	18	18	20	23	21	100

e. Mapping Course Outcome with Internal Assessment (40 Marks)

	CO1	CO2	CO3	CO4	CO5
Assignments	-	-	5	-	5
Seminar			10		

Test	4	4	4	4	4
Total	4	4	19	4	9

f. Mapping Course Outcome with External Assessment (60 Marks)

Category	CO1	CO2	CO3	CO4	CO5
Part – A **(Short Answer - 5 x 6 = 30 marks)**	6	6	6	6	6
Part – B **(Essay- 3 x 10 = 30 marks)**			10	10	10
Total	**6**	**6**	**16**	**16**	**16**

g. Rubric for Assignments (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	**Content** **50%**	Ideas are detailed, well developed, supported with specific evidence & facts and examples	Ideas are detailed, Developed and supported with evidence and facts mostly specific.	Ideas are presented but not particularly developed or supported;	The content is not sound	Not attended	CO1, CO2
2	**Organiza-tion** **50%**	Includes title, introduction, statement of the main idea with illustration and conclusion.	Includes title, introduction, statement of main idea and conclusion.	organizational tools are weak or missing	No organization	Not attended	CO1, CO2, CO5

h. Rubric for Seminar (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	**Knowledge and Understanding** **50%**	Exceptional knowledge of facts, terms, and concepts	Detailed knowledge of facts, terms, and concepts	Considerable knowledge of facts, terms, and concepts	Minimal knowledge of facts, terms, and concepts	Not Attended	CO3, CO4

2	Presentation 50%	Well Communicated with logical sequences, examples, and references	Communicated with sequences	Just Communicated	No coherent communication	Not Attended	CO3, CO4

i. Rubric for Internal Test

Sl.No	Category	Marks	Relation to COs
I	**Internal Test I**		
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	CO1, CO2
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	
4.	**Total**	**60**	
II	**Internal Test II**		
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	CO3, CO4
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	
4.	**Total**	**60**	
III	**Model Exam**		
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	CO1, CO2, CO3, CO4, CO5
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	
4.	**Total**	**60**	
	Test I + Test II + Model Test / 9 (Convert for 20 Marks)	**180/9**	
	Internal Marks	**20**	

j. Model Question Paper

Sl. No.	Model Questions	Specification	Level
	PART – A Short Answer **The answer should not exceed 300 words Marks:5 x 6 = 30**		
1	a) Write about the state of Indian economy at the time of independence [or] b) Examine the state of savings and investment in India	Explain Examine	Understand
2	a) Write a note about the Green Revolution [or] b) Discuss about the PDS	Explain Discuss	Analyse
3	a) Write about the India's BoP trend and composition [or] b) Write about the development social sector in India	Identify Recall	Understand
4	a) Delineate about the demographic trends in India [or] b) Discuss about the problem of malnutrition in India	Explain Recall	Understand
5	a) Assess the India's pension reforms [or] b) Write about the importance of infrastructure in India	Explain Assess	Skill
	PART – C Essay Answer **The answer should not exceed 400 words Marks: 3 x 10 = 30**		

6	a) Delineate about the India's development experience under different policy regime [or] b) Discuss in detail about the poverty alleviation in India	Examine	Understand
7	a) Discuss in detail about the New Economic Policy and its impact on Indian economy [or] b) Describe about the WTO and its implication for India	Discuss Explain	Analyse
8	a) Discuss about India's development challenges with the problem of population explosion [or] b) Elucidate about the India's public sector reforms	Assess Identify	Skill

	Semester - 5				
Course Code	**Course Name**	**L**	**T**	**P**	**Credits**
ECON-302	**Growth and Development**	5	-	-	5

Course objective

The course examines the various models of growth and development and understands different economic issues.

Learning outcome

Understand the relevance of growth and development models in addressing various economic issues.

	Course Outcome	**Level**
CO 1	To learn the measures of development	Remember
CO 2	Theories of development	Understand
CO 3	Application of growth models	Apply
CO 4	Practical applications of development models	Analyze
CO 5	Examining growth and development models in the context of different countries	Skill

b. Syllabus

Units	Content	Hrs.
I	**Growth and development: differences** Concepts and measures of development –measures of economic development- Purchasing power parity and Per capita income- poverty measurement- PQLI and human development index. Demography and development – Theory of demographic transition –migration issues.	12
II	**Classical theories of development** Contributions of Adam Smith, Ricardo, Karl Marx and Schumpeter.	10
III	**Growth Models** Harrod and Domar: Instability of equilibrium; Neo-Classical Growth Models: Solow and Meade; Growth Models of Joan Robinson, Kaldor and Pasinetti.	12
IV	**Technological Progress Embodied and Disembodied** Neutral and Non-Neutral (Hicks and Harrod); Endogenous Growth Theory: Role of learning, education and research; Accumulation of Human Capital.	10
V	**Environment and Sustainable development** Development and environment – Renewable energy source - Climate change – environmental externalities and legislations.	10
	Tasks and Assignments: Assignment on growth and development models and assign topics on development indicators	
	References: 1. Banerjee, Abhijit; E. Duo, R. Glennerster, and C.G. Kinnan (2015): The Miracle of Microfinance? Evidence from a Randomized Evaluation, American Economic Journal: Applied Economics, 7(1), 22-53. 2. Perkins, Radelet, Lindauer and Block (2012), Economics of Development (seventh edition), W.W.Norton & Company.	

3. Agenor, P-R., and P. J. Montiel (2008) Development Macroeconomics, Princeton University Press.
4. Abhijit V. Banerjee, Esther Duflo (2019) Good Economics for Hard Times, PublicAffairs
5. Michael P. Todaro, Stephen C Smith (2015), Economic Development, Pearson
6. Thirlwall, A.P (1989), Growth and Development, With Special Reference to Developing Economies, Palgrave McMillan
7. Ray, Debraj (1998) Development Economics, Oxford University Press, New Delhi.

8. Meier, GM and J.E. Rauch (2005), Leading Issues in Economic Development, Oxford University Press.
9. Yujiro Hayami and Yoshihisa Godo (2005), development Economics Oxford University Press.
10. Alex Mourmouras, Peter Rangazas, and Sibabrata Das (2015), Economic Growth and Development: A Dynamic Dual Economy Approach, springer.
11. Matthew McCartney (2015), Economic Growth and Development: A Comparative Introduction, palgrave

d. Evaluation Scheme

	CO1	CO2	CO3	CO4	CO5	Total
Internal	8	8	8	8	8	40
External	12	12	12	12	12	60
Total	**20**	**20**	**20**	**20**	**20**	**100**

e. Mapping Course Outcome with Internal Assessment (40 Marks)

	CO1	CO2	CO3	CO4	CO5
Assignments	2	2	2	2	2
Seminar	2	2	2	2	2
Test	4	4	4	4	4
Total	8	8	8	8	8

f. Mapping Course Outcome with External Assessment (60 Marks)

Category	CO1	CO2	CO3	CO4	CO5
Essay- 6 x 10 = 60 marks	12	12	12	12	12
Total	12	12	12	12	12

g. Rubric for Assignments (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	Content 50%	Ideas are detailed, well developed, and supported with specific evidence & facts and examples	Ideas are detailed, Developed and supported with evidence and facts mostly specific.	Ideas are presented but not particularly developed or supported;	The content is not sound	Not attended	CO1, CO2, CO5
2	Organiza-tion 50%	Includes title, introduction, statement of the main idea with illustration and conclusion.	Includes title, introduction, statement of main idea and conclusion.	organizational tools are weak or missing	No organization	Not attended	CO1, CO2, CO5

h. Rubric for Seminar (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	Knowledge and Understanding 50%	Exceptional knowledge of facts, terms, and concepts	Detailed knowledge of facts, terms, and concepts	Considerable knowledge of facts, terms, and concepts	Minimal knowledge of facts, terms, and concepts	Not Attended	CO3, CO4
2	Presentation 50%	Well Communicated with logical sequences, examples, and references	Communicated with sequences	Just Communicated	No coherent communication	Not Attended	CO3, CO4

i. Rubric for Internal Test

Sl.No	Category	Marks	Relation to COs
	Internal Test I		
	(Essay- 2 x 10 = 20 marks)	20	CO1, CO2
	Total		
	Internal Test II	**20**	CO3 CO4
	(Essay- 2 x 10 = 30 marks)		
	Total		
	Model Exam		
	(Essay- 6 x 10 = 60 marks)	**60**	CO!,CO2, CO3,CO4,CO5
	Total		
	Internal Marks (Convert for 20 Marks)		

j. Model Question Paper

Sl. No.	Model Questions	Specification	Level
	Answer Any Six **Marks: 6 x 10 = 60**		
	1. Examine the various development indicators. How does the capability approach distinct from other approaches to development? **Or** 2. Write a note on PPP and HDI. 3. How does Harrod - the Domar growth model explains the economy's growth rate in terms of the level of saving and capital? **Or** 4. Economic growth is primarily the result of endogenous and not external forces. Explain the endogenous growth model. 5. How the 'Capital-output ratio' is significant for economic development. **Or** 6. Critically analyses the applicability of the 'neo-classical framework' in environmental analysis.	Explanation	Understand Understand Analyse Analyse Skill

SEMESTER - V					
Course Code	Course Name	L	T	P	Credits
ECON-303	Data Analysis with computer Applications	2	-	-	2

a. Course Outcome (CO)

On the successful completion of the course, the student will be able to
(Course outcomes are specific for a particular course. CO should be specific, measurable, achievable, realistic, and time-bound)

	Course Outcome	Level
CO 1	This course will introduce the students some of quantitative and qualitative methods of data analysis	Remember
CO 2	students will understand the principles of data analysis with the help of computer applications	Understand
CO 3	Ability to apply data analysis in the field of economics	Apply
CO 4	Able to use some of the statistical packages	Analyze
CO 5	Will help to apply the preliminary estimation process in research.	Skill

b. Syllabus

Units	Content	Hrs.
I	**Introduction about Data** Characteristics and Types – Importance of Data in Social Science Research Approach to Statistical Investigation – Methods of Data Analysis.	12
II	**Introduction to Microsoft Excel** Data Processing Using Microsoft Excel – Fundamentals of Spreadsheets – Data Sorting and Filter – Specific Functions – Frequencies – Charts and Chart Options – Mathematical Functions – Transformations – Matrices – Measures of Central Tendencies and Dispersions – Description of Numerical or Categorical Univariate Data –Linear Programming Using Excel Solver – Statistical Functions – Data Analysis – Correlation and Regression	12
III	**Fundamental of Statistical Software's** Reading Different File Formats – Data Editing Features and Transformations – Descriptive Statistics – Regression and Correlation.	12
IV	**Introduction to GRETL** Creating Work File and Importing Data – Creating New Series – Menu and Options – Simple Graph and Calculations – Simple Statistical and Econometric Tools.	12
	Tasks and Assignments: • Write assignments using Microsoft Excel ad GRETL **References:** 1. Myers, J.L., & Well, A.D., &Lorch, R.F.,Jr. (2010). Research Design and Statistical Analysis (3rd Edition). Mahwah, NJ: Erlbaum. ISBN: 978-0-8058-6431-1 2. Urdan, T. (2010) Statistics in Plain English, 3rd Edition. New York: Routledge Psychology Press.	

	3. June Jamrich Parsons; Dan Oja; Patrick Carey; Carol A Desjardins "New Perspectives Microsoft Office 365 & Excel 2016 : Comprehensive"Boston, MA : Cengage Learning, 2017 4. Manuals – Eviews, SPSS and STATA	

c. Mapping of Program Outcomes with Course Outcomes

	PO1	PO2	PO3	PO4	PO5
CO1	3	3	3	3	-
CO2	3	3	3	3	-
CO3	3	3	3	3	-
CO4	3	2	2	3	-
CO5	-	-	-	-	-

(If the correlation between Programme Outcome with Course Outcome is high 3 is assigned, for moderate 2, for low 1, and for 0 are assigned)

d. Evaluation Scheme

	CO1	CO2	CO3	CO4	CO5	Total
Internal	10	10	10	10	-	40
External	15	15	15	15	-	60
Total	25	25	25	25	-	100

e. Mapping Course Outcome with Internal Assessment (40 Marks)

	CO1	CO2	CO3	CO4	CO5
Assignments	2	2	-	2	-
Seminar	-	-	4	4	-
Test	5	6	6	5	-
Attendance	-	-	-	-	-
Total	7	8	12	11	-

f. Mapping Course Outcome with External Assessment (60 Marks)

Category	CO1	CO2	CO3	CO4	CO5
Part – A (Objective - 10 x 1 = 10 marks)	2	2	2	2	-
Part – B (Short Answer - 5 x 4 = 20 marks)	3	3	3	3	-
Part – C (Essay- 3 x 10 = 30 marks)	10	10	10	10	-
Total	15	15	15	15	-

g. Rubric for Assignments (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	Content 50%	Ideas are detailed, well developed, supported with specific evidence & facts and examples	Ideas are detailed, Developed and supported with evidence and facts mostly specific.	Ideas are presented but not particularly developed or supported;	Content is not sound	Not attended	CO1, CO2, CO3, CO4

2	**Organiza-tion 50%**	Includes title, introduction, statement of the main idea with illustration and conclusion.	Includes title, introduction, statement of main idea and conclusion.	organizational tools are weak or missing	No organization	Not attended	CO2, CO3, CO4

h. Rubric for Seminar (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	**Knowledge and Understanding 50%**	Exceptional knowledge of facts, terms, and concepts	Detailed knowledge of facts, terms, and concepts	Considerable knowledge of facts, terms, and concepts	Minimal knowledge of facts, terms, and concepts	Not Attended	CO3, CO4
2	**Presentation 50%**	Well Communicated with logical sequences, examples, and references	Communicated with sequences	Just Communicated	No coherent communication	Not Attended	CO1, CO2, CO3, CO4,

i. Rubric for Internal Test

Sl. No	Category	Marks	Relation to COs
I	**Internal Test I**		
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	CO1, CO2
3.	**Total**	**60**	
4.	**Internal Test II**		
II	Part – A (Short Answer - 5 x 6 = 30 marks)	30	
1.	Part – B (Essay- 3 x 10 = 30 marks)	30	CO3, CO4
2.	**Total**	**60**	
3.	**Model Exam**		
4.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	
III	Part – B (Essay- 3 x 10 = 30 marks)	30	CO1, CO2, CO3, CO4
	Total	**60**	
	Test I + Test II + Model Test / 9 (Convert for 20 Marks)	**180/9**	
	Internal Marks	**20**	

Model Question Paper

Sl. No.	Model Questions	Specification	Level
	Part – A: Objective Type **Multiple Choice** **Marks: 10 x 1 = 10**	Identify Recall	Understand
1	The graphs of a variables with nonlinear relation are in_____form a) quadratic b) hyperbola c) quadratic d) all of the above	Identify Recall	Understand

2	If two variables are correlated, then the relationship between the variables may be_____ in functional form. a) linear b) non-linear c) any d) none of these	Identify Recall	Understand
3	A correlation between age and fitness of a person found to be -1.85. What is going to be the inference from this coefficient? a) age is good predictor of fitness b) age is poor predictor of fitness c) both are possible d) none of these	Identify Recall	Understand
4	An estimation of a simple, two variable linear regression model will obtained_____ coefficients a) two b) three c) both a and b are possible d) both are not possible	Identify Recall	Understand
5	Which of the following statement is true? In a linear regression model, including an additional variable may a) increases only R-Squared b) increases only adj-R c) decreases both d) increases both	Identify Recall	Understand
6	Which one of the following variables is not categorical? a) age b) gender c) marital status d) none	Identify Recall	Understand
7	Dummy variables can take the value of only a) 0 b) 1 c) 0 to 1 d) none	Identify Recall	Understand
8	An index number is called a simple index when it is computed from_____ a) single variable b) bi-variable c) multiple variables d) none	Identify Recall	Understand
9	If all the values are not of given equal importance, then it is called as_____ index number a) simple b) unweighted c) weighted d) none	Identify Recall	Understand
10	In Index numbers, base period is always taken as_____ a) zero b) one c) ten d) hundred	Identify Recall	Understand
	PART – B Short Answer **The answer should not exceed 200 words Marks:5 x 4 = 20**		
21	a) Let's assume an environmentalist wants to know the future expected water needs of the people living in river belt and approach you to help in this task. As a researcher what type of data you will collect and what methodology you will adopt to draw conclusion about their expected future water demand. Discuss (or) b) Why Splicing is required in index numbers– Give an appropriate example	Explain Examine	Understand
22	a) What are the different components of Time series data – Brief it. (or) b) Visualization of data is very important precondition before doing any analysis	Explain Discuss	Analyze
23	a) Define; Statistic and Parameter and explain role of 'p', 't' and 'F' values in regression models (or) b) Type I and Type II errors d) role R, R^2 and adjusted R square	Identify Recall	Understand
24	a) Role of descriptive statistics and dispersion in understanding the nature of the data (or) b) Spurious regression is not useful for statistical claim – Why?	Explain Recall	Understand

	PART – C Essay Answer		
	The answer should not exceed 400 words Marks: 3 x 10 = 30		
25	a) By using the following data, calculate the Laspeyres and Paasche index numbers index number for the year 2018 by taking 2010 as a base year **Year** 2010 2011 2012 2013 2014 2015 2016 2017 2018 **price** 100 110 125 130 142 150 155 167 180	Examine	Understand

26	a) Define the following notions with an appropriate examples
	   i. Primary and Secondary data and its sources
	   ii. Different types measurement scales in data
	                          (or)
	b) Explain the following questions in detail
	   i. Why categorical data type is important in data analysis – Give an example
	   ii. What is meant by dummy variable trap – Explain
		Discuss Explain	Analyze

27	Draw a very detailed inference from the following regression results Dependent Variable: PCE Method: Least Squares Date: 02/02/18 Time: 03:56 Sample: 1960 2009 Included observations: 50 	Variable	Coefficient	Std. Error	t-Statistic	Prob.
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C	-31.88846	18.22720	-1.749498	0.0866
INCOME	0.819232	0.003190	256.7871	0.0000 | |			
R-squared	0.999273	Mean dependent var	3522.160
Adjusted R-squared	0.999257	S.D. dependent var	3077.678
S.E. of regression	83.86681	Akaike info criterion	11.73551
Sum squared resid	337614.8	Schwarz criterion	11.81200
Log likelihood	-291.3879	Hannan-Quinn criter.	11.76464
F-statistic	65939.59	Durbin-Watson stat	0.568044
Prob(F-statistic)	0.000000				Assess Identify	Skill

SEMESTER - VI					
Course Code	**Course Name**	**L**	**T**	**P**	**Credits**
ECON-306	History of Economic Thought	5	-	-	5

Course Objective
The course historically examines the economic ideas of different people
Learning outcome
Create a strong foundation of different economic ideas to students, which sharpen different economic concepts.

	Course Outcome	**Level**
CO 1	Historically remember about the various economic ideas	Remember
CO 2	Pre-classical, classical, utilitarian concepts in economics	Understand
CO 3	How economic thoughts relevant in resolving contemporary economic issues especially in India	Apply
CO 4	Analyse the economic ideas for a better economic order	Analyze
CO 5	Developing the skill of the application of economic ideas today	Skill

Units	**Content**	**Hrs.**
I	**Economic ideas before Adam Smith:** Early mercantilist views on values and profit; later mercantilist thought on individualism. Beginning of classical theory of prices and profits - Physiocrats- Quesnay's economic ideas.	12
II	**Classical Economic thoughts** Adam Smith- value theory-TR.Malthus- the economics of exchange and Class conflict- Theory of Gluts- David Ricardo- The theory of rent and first approach to profit, J S Mill: Theory of Value, Views on Production and Distribution. Classical Stationary State with special reference to Mill's views.	10
III	**Utilitarianism** Economic ideas of Jevons, Menger and Walras. Neoclassical theory of the firm and income distribution: Marshal's contribution to utility theory. Clark and Marginal Productivity theory of distribution.	12
IV	**Karl Marx** Critique of Classical economics – commodities, value, use value and exchange value. Surplus value, exchange and the sphere of circulation. The labour theory of value.	10
V	**Indian economic Thought** Early economic ideas: Kautilya, Valluvar – Modern economic ideas: Naroji, Ranade and M.N.Roy – Economic ideas of Gandhi: Village, swadeshi, place of machine and labour, cottage industries, trusteeship- Early approaches to planning- cooperation as a strategy – Contribution of VKRV Rao –	10

	Economic thoughts of Dr.Ambedkar. Contributions of Amartya Sen and *Abhijit* V.*Banerjee.*	
	Tasks and Assignments: Assignment on historically relevant economic thoughts	
	1.Dobb, Maurice (1975), Theories of Value and Distribution since Adam Smith - Ideology and Economic Theory, Cambridge University Press. 2.Paul M. Sweezy (1962), the Theory of Capitalist Development, Denis Dobson Ltd., London 3.Blaug, M (1985). Economic Theory in Retrospect, Cambridge University Press Eric Roll, A History of Economic Thought, Rupa & Co. 4. DasGupta, Ajit (2002), A History of Indian Economic Thought, The Routledge. 5.Ganguli.B.N (1977) Indian Economic Thought: A Nineteenth-Century Perspective. TMH. New Delhi 6.Das Gupta, Ajit, A History of Indian Economic Thought, The Routledge. 7.Ganguli.B.N (19977) Indian Economic Thought: A Nineteenth-Century Perspective. TMH. New Delhi. 8.Robert L.Heilbroner (1999), The Worldly Philosophers: The Lives, Times and Ideas of the Great Economic Thinkers, Touchstone. 9.Steven Pressman (2006), Fifty major economists, Routledge, Milton Park, Abingdon, Oxon OX14 10.Sweezy, Paul M.(1942), The Theory of Capitalist Development, Denis Dobson Ltd., London, 11.Angrist, Jand J. S. Pischke (2010): \The credibility revolution in empirical economics: How better research design is taking the con out of econometrics", Journal of Economic Perspectives, 24(2): 3-30. 12.Otto Eckstein (1967), Evolution of modern economics, Prentice hall Inc, Harvard University	

d. Evaluation Scheme

	CO1	CO2	CO3	CO4	CO5	Total
Internal	8	8	8	8	8	40
External	12	12	12	12	12	60
Total	**20**	**20**	**20**	**20**	**20**	**100**

e. Mapping Course Outcome with Internal Assessment (40 Marks)

	CO1	CO2	CO3	CO4	CO5
Assignments	2	2	2	2	2
Seminar	2	2	2	2	2
Test	4	4	4	4	4
Total	8	8	8	8	8

f. Mapping Course Outcome with External Assessment (60 Marks)

Category	CO1	CO2	CO3	CO4	CO5
Essay- 6 x 10 = 60 marks	**12**	**12**	**12**	**12**	**12**
Total	**12**	**12**	**12**	**12**	**12**

g. Rubric for Assignments (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	**Content** 50%	Ideas are detailed, well developed, supported with specific evidence & facts and examples	Ideas are detailed, Developed and supported with evidence and facts mostly specific.	Ideas are presented but not particularly developed or supported;	Content is not sound	Not attended	CO1, CO2, CO5
2	**Organiza -tion** 50%	Includes title, introduction, statement of the main idea with illustration and conclusion.	Includes title, introduction, statement of main idea and conclusion.	organizational tools are weak or missing	No organization	Not attended	CO1, CO2, CO5

h. Rubric for Seminar (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	**Knowledge and Understandin g** 50%	Exceptional knowledge of facts, terms, and concepts	Detailed knowledge of facts, terms, and concepts	Considerable knowledge of facts, terms, and concepts	Minimal knowledge of facts, terms, and concepts	Not Attended	CO3, CO4
2	**Presentation** 50%	Well Communicated with logical sequences, examples, and references	Communicated with sequences	Just Communicated	No coherent communication	Not Attended	CO3, CO4

i. Rubric for Internal Test

Sl.No	Category	Marks	Relation to COs
I	**Internal Test I**		
3.	(Essay- 2 x 10 = 20 marks)	20	CO1, CO2
4.	**Total**		
II	**Internal Test II**	**20**	CO3 CO4
3.	(Essay- 2 x 10 = 30 marks)		
4.	**Total**		
III	**Model Exam**		
3.	(Essay- 6 x 10 = 60 marks)	**60**	CO!,CO2, CO3,CO4,CO5
4.	**Total**		
	Internal Marks (Convert for 20 Marks)		

	Specification	
Answer All Questions (a) Classical thoughts; (b) Physiocrats; (c) Protestantism; (d) Individualism 2. The first major book published by Adam Smith (a) Principles of political economy; (b) The Wealth of Nations; (c) The Fable of the Bees; (d) The Theory of the Moral Sentiments. 3. Theory of economic "gluts," or 'depressions' was examined by (a) Malthus; (b) Ricardo; (c)Smith; Mill 4. Net produce according to Ricardo (a) Total expenditure; (b)Total surplus value; (c) Total wages; (d) Total rent 5. Jevons is noted for his theory (a) Marginal utility and exchange; (b) General equilibrium; (c) Perfect competition; (d) None of the above 6. Theory of general economic equilibrium was the contribution of (a) Menger; (b); Walras; (c) Mill; (d) Jevons 7. Marshall's theories generally supported partial equilibrium analysis (a) True; (b) False 8. According to Bohm-Bawerk two original factors of productions are	Recall	Understand

(a) Capital and labour (b) labour and capital; (c) land and labour; (d) None of the above 9. Dain theory was the major contribution by (a) Mahatma Gandhi; (b) Ambedkar; (c) Ranade; (d)Naoji 10. Write the name of the book written by J.M Keynes in the year 1936.		
Answer Any Five (5x10=50 Marks) 11.What are the economic ideas of Quesnay?. Explain 12. Examine the 'value theory' of Smith. 13.According to Ricardo, 'rent is the first approach to profit.' Illustrate. 14.How theory of 'Gluts' explained by Malthus? 15.What are the contributions of Jevons , Menger? 16. Illustrate Marshall's contributions to theory of firms. 17. How the economic ideas of Naroji influence in shaping modern India?	Explain	Analyse Skill

SEMESTER - VI					
Course Code	**Course Name**	**L**	**T**	**P**	**Credits**
ECON 307	Public Finance	4	1	-	5

a. Course Outcome (CO)

On the successful completion of the course, the student will be able to

	Course Outcome	**Level**
CO 1	Develop a comprehensive understanding of theories of public expenditure.	Remember
CO 2	Thoroughly comprehend concepts and theories related to public policy and rational choice.	Understand
CO 3	Identify differences in processes, revenue sources, and budgetary challenges that exist between different levels of government.	Apply
CO 4	Integrate public revenues into the fiscal and tax system.	Analyze
CO 5	Classify public revenues and expenditures through the budget and analyze the instruments and objectives of budgetary policy	Skill

b. Syllabus

Units	Content	Hrs.
I	**Role of Government** Nature and scope of public finance-Rationale for government intervention-Musgrave's three function of Government; -allocation, distribution and stabilization, – types of government intervention-production versus provision-regulation of markets – sources of public revenue –deficit financing, Market failure and public provision of Public goods, Merit goods and club goods. Pricing of public goods: vertical summation.	12
II	**Taxation** Canons of taxation, Theories of taxation-ability and benefit principles of taxation (Lindhal) – principle of maximum social advantage – taxable capacity – shifting and incidence – types of taxes-characteristics of good tax system.	12
III	**Public Expenditure** Causes of rising public expenditure, Theories of public expenditure-wagner's Law-Peacock-wiseman's hypothesis-Samuelson theory of public goods – basics of cost benefit analysis.	12
IV	**Fiscal Decentralization** Rationale for decentralization – economic, administrative and political – assignment of taxes and expenditure between various tiers of a federal government – rationale and role of local governments.	12
V	**Deficit Financing** Deficit financing: Concept of deficits, Need and impact of deficit Financing,- monetarist versus Keynesian views on deficit financing – pattern of deficit financing-public – debt management and implication for growth, inflation and interest rate.	12
	Tasks and Assignments: • Discuss various types of taxes and characteristics of a good tax system.	

- Critically examine the Monetarist versus Keynesian views on deficit financing.

References:
- Goode, Richard (1986) Government Finance in Developing Countries, Brooking Institution Press
- Jha.R. (1998).Modern Public Economics, Rutledge, London
- Musgrave.R.A.and P.B Musgrave (1976), Public Finance in Theory and Practice McGraw
- Hill, Kogakusha, Tokyo
- Atkinson, A.B and J.E Stiglitz (1980), Lecture on Public Economics, MH Newyork
- Herber, B.P (1967), Modern Public Finance, Richyard D.Irwin, Homewood.
- Bagchi, Amaresh (edited), Readings in Public Finance, Oxford University Press.

c. Mapping of Program Outcomes with Course Outcomes

	PO1	PO2	PO3	PO4	PO5
CO1	3	3	3	3	3
CO2	3	2	3	3	2
CO3	2	3	2	2	3
CO4	2	2	2	2	3
CO5	3	2	3	3	2

(If the correlation between Programme Outcome with Course Outcome is high 3 is assigned, for moderate 2, for low 1, and 0 are assigned)

d. Evaluation Scheme

	CO1	CO2	CO3	CO4	CO5	Total
Internal	10	8	8	6	8	40
External	13	10	13	12	12	60
Total	23	18	21	18	20	100

e. Mapping Course Outcome with Internal Assessment (40 Marks)

	CO1	CO2	CO3	CO4	CO5
Assignments	-	-	5	-	5
Seminar	2	2	2	2	2
Test	4	4	4	4	4
Total	6	6	11	6	11

f. Mapping Course Outcome with External Assessment (60 Marks)

Category	CO1	CO2	CO3	CO4	CO5
Part – A (Short Answer - 5 x 6 = 30 marks)	6	6	6	6	6
Part – B (Essay- 3 x 10 = 30 marks)	10			10	10
Total	16	6	6	16	16

g. Rubric for Assignments (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	**Content** **50%**	Ideas are detailed, well developed, and supported with specific evidence and facts.	Ideas are detailed and specific.	Ideas are presented but not Supported.	The content does not cover the topic.	Not attended	CO1, CO2
2	**Organization** **50%**	The assignment is very exact and well written and organized as expected.	The assignment is well organized.	The organization of the Assignment is not Meaningful.	No organization	Not attended	CO1, CO2, CO5

h. Rubric for Seminar (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	**Knowledge and Understanding** **50%**	Exceptional knowledge of facts, terms, and concepts	Detailed knowledge of facts, terms, and concepts	Considerable knowledge of facts, terms, and concepts	Minimal knowledge of facts, terms, and concepts	Not Attended	CO3, CO4
2	**Presentation** **50%**	Well Communicated with logical sequences, examples, and references	Communicated with sequences	Just Communicated	No coherent communication	Not Attended	CO3, CO4

i. Rubric for Internal Test

Sl.No	Category	Marks	Relation to COs
I	**Internal Test I**		
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	CO1, CO2
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	
II	**Internal Test II**		
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	CO3, CO4
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	

III	Model Exam		CO1, CO2,
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	CO3, CO4,
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	CO5
	Test I + Test II + Model Test / 9 **(Convert for 20 Marks)**	**180/9**	
	Internal Marks	**20**	

j. Model Question Paper

Sl. No.	Model Questions	Specification	Level
	PART – A Short Answer **The answer should not exceed 300 words Marks:5 x 6 = 30**		
1	a) Explain the nature and scope of public finance. b) Distinguish between club and merit goods with an illustration.	Explain Distinguish	Understand
2	a) What are the various sources of public revenue? b) Discuss the principle of maximum social advantage.	What Discuss	Analyse Understand
3	a) Write a note on Samuelson's theory of public goods. b) Elucidate the taxable capacity and its relevance.	Note Elucidate	Understand
4	a) Positive and negative economic consequences of public debt- Discuss. b) What is the need and impact of deficit financing?	Discuss What	Analyse Understand
5	a) Write a note on debt management and its implication for economic growth. b) What is the relationship between debt, inflation, and interest rate?	Note What	Understand
	PART – C Essay Answer **The answer should not exceed 500 words Marks: 3 x 10 = 30**		
6	a) Discuss the Adam Smith and Charles F. Bastable canons of taxation. b) Examine the various types of tax and characteristics of a good tax.	Discuss Examine	Understand
7	a) Explain Wagner's law of public expenditure and its limitation. b) Explain the financial relations between union and state government.	Explain	Understand
8	a) Discuss the various challenges of local government in India. b) Relevance of monetarist and Keynesian views on deficit financing- Comment.	Discuss Comment	Analyse

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Open Electives – Integrated MA					
Course Code	**Course Name**	**L**	**T**	**P**	**Credits**
ECON-DSE-01	**Economics of Health and Education**	4	-	-	4

	Course Outcome	**Level**
CO 1	Role of Health and Education in Human Development	Remember
CO 2	Microeconomic Foundations of Health Economics	Understand
CO 3	Evaluation of Health Programs	Evaluation/Apply
CO 4	Education: Investment in Human Capital	Analyze
CO 5	Education and health Sectors in India	Skill

Course Objectives:
The objective of the course is to examine the role of health education from the perspective of economic parameters.

Learning **Outcome**
Understand the role of health education from an economic perspective. The course helps in understanding the relevance of health education, investment in education, the economic cost of education, investment in human capital and health programmes.

Units	Contents	Hours
Unit-1	**Role of Health and Education in Human Development:** Meaning, nature, and scope of Health economics and economics of education, Importance of education and health in poverty alleviation; health and education outcomes and their relationship with macroeconomic performance.	12
Unit-2	**Microeconomic Foundations of Health Economics:** Demand for health; uncertainty and health insurance market; alternative insurance mechanisms; market failure and rationale for public intervention; equity and inequality.	10
Unit-3	**Evaluation of Health Programs:** Costing, cost-effectiveness and cost-benefit analysis; burden of disease.	12
Unit-4	**Education: Investment in Human Capital** Rate of return to education: private and social; quality of education; signalling or human capital; theories of discrimination; gender and caste discrimination in India.	10
Unit-5	**Education and health Sectors in India:** An Overview Health outcomes; health systems; health financing. Literacy rates, school participation, and school quality measures.	10
	Reference List:	

1. William, Jack, Principles of Health Economics for Developing Countries, World 24 Bank Institute Development Studies, 1999.
2. World Development Report, Investing in Health, the World Bank, 1993.
3. Ronald G., Ehrenberg and Robert S., Smith, Modern Labor Economics: Theory and Public Policy, Addison Wisley, 2005

d. Evaluation Scheme

	CO1	CO2	CO3	CO4	CO5	Total
Internal	8	8	8	8	8	40
External	12	12	12	12	12	60
Total	**20**	**20**	**20**	**20**	**20**	**100**

e. Mapping Course Outcome with Internal Assessment (40 Marks)

	CO1	CO2	CO3	CO4	CO5
Assignments	2	2	2	2	2
Seminar	2	2	2	2	2
Test	4	4	4	4	4
Total	8	8	8	8	8

f. Mapping Course Outcome with External Assessment (60 Marks)

Category	CO1	CO2	CO3	CO4	CO5
Essay- 6 x 10 = 60 marks	**12**	**12**	**12**	**12**	**12**
Total	**12**	**12**	**12**	**12**	**12**

g. Rubric for Assignments (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	**Content** 50%	Ideas are detailed, well developed, and supported with specific evidence & facts and examples	Ideas are detailed, Developed and supported with evidence and facts mostly specific.	Ideas are presented but not particularly developed or supported;	The content is not sound	Not attended	CO1, CO2, CO5
2	**Organiza-tion** 50%	Includes title, introduction, statement of the main idea with illustration and conclusion.	Includes title, introduction, statement of main idea and conclusion.	organizational tools are weak or missing	No organization	Not attended	CO1, CO2, CO5

h. Rubric for Seminar (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	**Knowledge and Understanding** **50%**	Exceptional knowledge of facts, terms, and concepts	Detailed knowledge of facts, terms, and concepts	Considerable knowledge of facts, terms, and concepts	Minimal knowledge of facts, terms, and concepts	Not Attended	CO3, CO4
2	**Presentation** **50%**	Well Communicated with logical sequences, examples, and references	Communicated with sequences	Just Communicated	No coherent communication	Not Attended	CO3, CO4

i. Rubric for Internal Test

Category	Marks	Relation to COs
Internal Test I		
(Essay- 2 x 10 = 20 marks)	20	CO1, CO2
Total		
Internal Test II	**20**	CO3 CO4
(Essay- 2 x 10 = 30 marks)		
Total		
Model Exam		
(Essay- 6 x 10 = 60 marks)	**60**	CO!,CO2, CO3,CO4,CO5
Total		
Internal Marks (Convert for 20 Marks)		

Answer any 6 out of 8 Questions

SL NO	Model Questions	Specification	Level
1	What is meant by cost–benefit in healthcare? Evaluate the practicability of using cost-benefit analysis to make healthcare decisions.		Skill
2	What is healthcare financing? Explain the trends of healthcare financing by the Centre and States in India.		Understand

3	Explain the importance of education and health in poverty alleviation.	Explanation	Analyze
4	Define market failure. Illustrate the causes of market failure in healthcare.		Understand
5	Explain the importance of health insurance.		Understand
6	Demand for healthcare is derived from the demand. Explain.		Analyze
7	Write short notes on a) Equity in access to healthcare b) Signalling c) Human Capital theory		Understand
8	Analyze the current trends in health and education in India. Elaborate on the current government policies toward healthcare and education.		Skill

Open Electives – Integrated MA					
Course Code	**Course Name**	**L**	**T**	**P**	**Credits**
ECON-DSE-02	Economic History of India (1857-1947)	4	1	-	5

a. Course Outcome (CO)
On the successful completion of the course, the student will be able to
(Course outcomes are specific for a particular course. CO should be specific, measurable, achievable, realistic, and time-bound)

	Course Outcome	**Level**
CO 1	Students will understand the economic history of colonial India	Remember
CO 2	Students will be enlightened about the transformation of the Indian economy under the colonial rule	Understand
CO 3	Students will apply their knowledge to understand how the colonial exploitation adversely affected the India's economic development	Apply
CO 4	Students will have depth analytical knowledge about the India's development experience under the colonial rule	Analyze
CO 5	With their knowledge about the colonial economic history of India, they will have the practical knowledge and skill about what needs to be done for the economic development of India	Skill

b. Syllabus

Units	Content	Hrs.
I	**Unit-1: Overview of Colonial economy** Why study economic history, the problems in interpreting India' past, the state of the Indian Economy on the eve of independence, Indian Economy in the mid-nineteenth century, growth of the empire and systems of land settlements in the Colonial India.	12
II	**Unit-2: Transformation of the traditional village** Economy during the British rule, Commercialization of agriculture – its causes and consequences, Emergence of agricultural labour as a category, movement of agricultural wages and prices during the period – problems of rural indebtedness.	12
III	**Unit-3: The state of industrial development in mid-nineteenth century India** The deindustrialization thesis –its statement and validity, emergence of modern capitalist industrial enterprise in India – Textile (Jute and Cotton), Iron & Steel, Cement, Coal, Tea.	12
IV	**Unit-4: Infrastructure and development of education** Development of railway, port, transport and communication infrastructure, infrastructure for education and development of education.	10
V	**Unit-5: Foreign capital in Colonial India** its extent and impact; foreign-trade-growth and composition; 'guided under-development' of India under the British rule; evolution of	14

	provincial finance, the nature and problem of public debt; Economic drain from India - form, extent and consequences.	
	Tasks and Assignments: • Prepare an assignment on colonial exploitation in India. • Prepare a case study on land settlement in colonial India. **References:** 1. G. Kaushal, Economic History of India- 1757 to 1966, Kalyani Publishers, New Delhi. 2. Lakshmi Subramanian, "History of India 1707-1857", Orient Blackswan, 2010, Chapter 4. 3. Tirthankar Roy, The Economic History of India 1857-1947, Oxford University Press, 3rd edition, 2011. 4. V B Singh (ed.), Economic History of India 1857-1956. Allied Publications Private Limited, Bombay, 1965.	

c. Mapping of Program Outcomes with Course Outcomes

	PO1	PO2	PO3	PO4	PO5
CO1	3	3	3	3	3
CO2	3	3	3	3	2
CO3	2	3	3	2	3
CO4	2	2	3	2	3
CO5	3	2	3	3	2

(If the correlation between Programme Outcome with Course Outcome is high 3 is assigned, for moderate 2, for low 1, and for 0 are assigned)

d. Evaluation Scheme

	CO1	CO2	CO3	CO4	CO5	Total
Internal	6	8	8	10	8	40
External	12	10	12	13	13	60
Total	**18**	**18**	**20**	**23**	**21**	**100**

e. Mapping Course Outcome with Internal Assessment (40 Marks)

	CO1	CO2	CO3	CO4	CO5
Assignments	-	-	5	-	5
Seminar			10		
Test	4	4	4	4	4
Total	4	4	19	4	9

f. Mapping Course Outcome with External Assessment (60 Marks)

Category	CO1	CO2	CO3	CO4	CO5
Part – A (Short Answer - 5 x 6 = 30 marks)	6	6	6	6	6
Part – B (Essay- 3 x 10 = 30 marks)			10	10	10
Total	**6**	**6**	**16**	**16**	**16**

g. Rubric for Assignments (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	**Content** **50%**	Ideas are detailed, well developed, supported with specific evidence & facts and examples	Ideas are detailed, Developed and supported with evidence and facts mostly specific.	Ideas are presented but not particularly developed or supported;	The content is not sound	Not attended	CO1, CO2
2	**Organiza -tion** **50%**	Includes title, introduction, statement of the main idea with illustration and conclusion.	Includes title, introduction, statement of main idea and conclusion.	organizational tools are weak or missing	No organization	Not attended	CO1, CO2, CO5

h. Rubric for Seminar (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	**Knowledge and Understandin g** **50%**	Exceptional knowledge of facts, terms, and concepts	Detailed knowledge of facts, terms, and concepts	Considerable knowledge of facts, terms, and concepts	Minimal knowledge of facts, terms, and concepts	Not Attende d	CO3, CO4
2	**Presentation** **50%**	Well Communicate d with logical sequences, examples, and references	Communicate d with sequences	Just Communicate d	No coherent communicatio n	Not Attende d	CO3, CO4

i. Rubric for Internal Test

Sl.No	Category	Marks	Relation to COs
I	**Internal Test I**		
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	CO1, CO2
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	
4.	**Total**	**60**	
II	**Internal Test II**		
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	CO3, CO4
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	
4.	**Total**	**60**	
III	**Model Exam**		
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	CO1, CO2, CO3, CO4, CO5
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	
4.	**Total**	**60**	
	Test I + Test II + Model Test / 9 (Convert for 20 Marks)	**180/9**	
	Internal Marks	**20**	

j. Model Question Paper

Sl. No.	Model Questions	Specification	Level
	PART – A Short Answer **The answer should not exceed 300 words Marks:5 x 6 = 30**		
1	a) Explain the importance of studying economic history [or] b) Explain the problems in interpreting India's past	Explain Examine	Understand
2	a) Describe the state of the economy during colonial rule [or] b) Write about the causes and consequences of commercialization of agriculture in the colonial rule	Explain Discuss	Analyse
3	a) Examine the validity of the deindustrialization thesis during British rule in India [or] b) Write about the development of textile industry in colonial India	Identify Recall	Understand
4	a) Write about the development railways in colonial India [or] b) Write about the development of education in colonial India	Explain Recall	Understand
5	a) Write about the role of foreign capital in colonial India [or] b) Explain about the guided underdevelopment of India under the British rule	Explain Assess	Skill
	PART – B Essay Answer **The answer should not exceed 400 words Marks: 3 x 10 = 30**		
6	a) Examine the state of the economy at the time of independence [or] b) Delineate about the system of land settlements in colonial India	Examine	Understand
7	a) Explain in detail about the rural indebtedness in colonial India [or] b) Write about the development modern capitalist industries in India under the British rule	Discuss Explain	Analyse
8	a) Delineate about the development infrastructures in British India [or] b) Elucidate the economic drain from India under British raj	Assess Identify	Skill

Open Electives – Integrated MA						
Course Code	**Course Name**	**L**	**T**	**P**	**Credits**	
ECON-DSE-03	**Introduction to Econometrics**	5	-	1	5	

a. Course Outcome (CO)
On the successful completion of the course, the student will be able to
(Course outcomes are specific for a particular course. CO should be specific, measurable, achievable, realistic, and time-bound)

	Course Outcome	**Level**
CO 1	This course is designed to introduce to the students to the basic tools of econometric analysis	Remember
CO 2	The students will understand the basic principles of econometrics.	Understand
CO 3	Will help to apply these techniques in the basic empirical research.	Apply
CO 4	Provide the knowledge of applications in economic decision making.	Analyze
CO 5	Will help to understand the intermediate econometric research.	Skill

b. Syllabus

Units	Content	Hrs.
I	**Simple Linear Regression:** Specifications of the Model, Assumptions, Ordinary Least Squares (OLS) Estimation, properties of OLS and Gauss Markov Theorem, Estimation of the Error Variance, Functional forms.	12
II	**Statistical Inference in the Linear Regression Model:** Confidence Intervals for the Estimated Parameters and the Testing of Hypotheses, Coefficient of Determination, Prediction with the Simple Regression model.	12
III	**Linear Multiple regression analysis:** Estimation of parameters; goodness of fit - adjusted R2; partial regression coefficients; testing hypotheses – individual and joint significance. Omission of a relevant variable; inclusion of irrelevant variable; tests of specification	12
IV	**Problems in OLS Methods:** Analysis of Residuals: Heteroscedasticity and Autocorrelation, Problem of Multicollinerairy-their Consequences, Detection and Remedies.	12
V	**Introducing dummy variables** Nature of dummy variables, variables with two categories and more than two categories, dummy variable trap, dummy dependent variable, problems of Linier Probability Model (LPM), Introducing statistical packages for analysis of Econometrics.	12
	Tasks and Assignments: • Write assignments about OLS and dummy variable models **References:** 1. Gujarati and Porter, Basic Econometrics, Fifth Edition, McGraw Hill/Irwin, 2009. 2. Greene, William H. Econometric Analysis. 6th Edition, Prentice Hall. 2008.	

3. Johnston J. and Dinardo, J. Econometric Methods. 4th Ed. McGraw-Hill 1997.Greene
4. Ramanathan, Ramu, Introductory Econometrics with Applications, 5th edition, 2002, Thomson Asia Pte Ltd., Singapore.
5. Stock, James H., and Mark W. Watson (2006): Introduction to Econometrics, Second Edition, (Addison-Wesley Series in Economics).
6. Wooldridge, J., Introductory Econometrics: A Modern Approach, 2015, Nelson Education.
7. Earl K. Bowen & Martin K. Starr, Basic Statistics for Business and Economics, McGraw Hill International Student Edition
8. G.S. Maddala – Introduction to Econometrics. Wiley Publishers (Indian edition)
1. 9. Christopher Dougherty, Introduction to Econometrics, Oxford University Press, 3rd edition, Indian edition, 2007.

c. Mapping of Program Outcomes with Course Outcomes

	PO1	PO2	PO3	PO4	PO5
CO1	3	3	3	3	3
CO2	3	3	3	3	3
CO3	3	3	3	3	3
CO4	3	2	2	3	3
CO5	3	3	3	3	3

(If the correlation between Programme Outcome with Course Outcome is high 3 is assigned, for moderate 2, for low 1, and for 0 are assigned)

d. Evaluation Scheme

	CO1	CO2	CO3	CO4	CO5	Total
Internal	8	8	10	8	6	40
External	13	13	14	14	6	60
Total	**21**	**21**	**24**	**22**	**12**	**100**

e. Mapping Course Outcome with Internal Assessment (40 Marks)

	CO1	CO2	CO3	CO4	CO5
Assignments	2	2	-	2	2
Seminar	-	-	4	4	-
Test	5	6	6	5	2
Attendance	-	-	-	-	-
Total	**7**	**8**	**12**	**11**	**4**

f. Mapping Course Outcome with External Assessment (60 Marks)

Category	CO1	CO2	CO3	CO4	CO5
Part – A (Objective - 10 x 1 = 10 marks)	2	2	2	2	2
Part – B (Short Answer - 5 x 4 = 20 marks)	4	4	4	4	4
Part – C (Essay- 3 x 10 = 30 marks)	10	-	10	10	-
Total	**16**	**6**	**16**	**16**	**6**

g. Rubric for Assignments (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	**Content 50%**	Ideas are detailed, well developed, supported with specific evidence & facts and examples	Ideas are detailed, Developed and supported with evidence and facts mostly specific.	Ideas are presented but not particularly developed or supported;	Content is not sound	Not attended	CO1, CO2, CO3, CO5
2	**Organiza-tion 50%**	Includes title, introduction, statement of the main idea with illustration and conclusion.	Includes title, introduction, statement of main idea and conclusion.	organizational tools are weak or missing	No organization	Not attended	CO2, CO3, CO4

h. Rubric for Seminar (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	**Knowledge and Understanding 50%**	Exceptional knowledge of facts, terms, and concepts	Detailed knowledge of facts, terms, and concepts	Considerable knowledge of facts, terms, and concepts	Minimal knowledge of facts, terms, and concepts	Not Attended	CO3, CO4
2	**Presentation 50%**	Well Communicated with logical sequences, examples, and references	Communicated with sequences	Just Communicated	No coherent communication	Not Attended	CO1, CO2, CO3, CO4, CO5

i. Rubric for Internal Test

Sl. No	Category	Marks	Relation to COs
I	**Internal Test I**		
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	CO1, CO2
3.	**Total**	**60**	
4.	**Internal Test II**		
II	Part – A (Short Answer - 5 x 6 = 30 marks)	30	
1.	Part – B (Essay- 3 x 10 = 30 marks)	30	CO3, CO4
2.	**Total**	**60**	
3.	**Model Exam**		
4.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	
III	Part – B (Essay- 3 x 10 = 30 marks)	30	

	Total	60	CO1, CO2, CO3, CO4, CO5
	Test I + Test II + Model Test / 9 (Convert for 20 Marks)	180/9	
	Internal Marks	**20**	

j. Model Question Paper

Sl. No.	Model Questions	Specification	Level
	Part – A: Objective Type **Multiple Choice Marks: 10 x 1 = 10**		
1	In hypothesis testing, the hypothesis tentatively assumed to be true is a. the alternative hypothesis b. the null hypothesis c. either the null or the alternative d. none of the above		
2	The CLRM assumes that the sample average of the OLS residuals as a. some positive number b. some negative number c. zero d. unobservable		
3	In a regression model with no constant, when the estimated slope coefficient (β) is zero, then a. $r2 = 1$ b. $0 < r2 < 1$. c. $r2 = 0$. d. $r2 > (SSR/TSS)$		
4	When the exogenous variable 'x' is large than the number of observations 'n', then the r2 will be_____ the adjusted r2 a. higher than b. smaller than c. equal to d. both a and b are possible		
5	The adjusted r2 is adjusted for a. mean b. Variance standard deviation d. none of the above		
6	What would be then consequences for the OLS estimator if heteroskedasticity is present in a regression model but ignored? a. It will be biased b. It will be inconsistent c. It will be inefficient d. all of (a), (b) and (c) will be true.		
7	If the successive values of the error terms are correlated, then that problem is called as a. homoscedasticity b. heteroskedasticity c. autocorrelation d. multicollinearity		
8	Which of the following statement is wrong? a. A under fit model will leads to forecast error b. A over fit model will not affect BLUE c. If r2 is zero, then the F value is infinite d. All of the above		
9	Dummy variable is a_____ scale analysis a. ratio b. interval c. nominal d. ordinal		
10	In dummy variable model, the benchmark category measures a. the effect of excluded category b. the effect of included categories c. the effect of the errors d. all of the above		

	PART – B Short Answer **The answer should not exceed 200 words Marks:5 x 4 = 20**		
21	a)Discuss Gauss-Markov theorem with an example (or) b) Explain the following concepts in detail with an example i) Type I and Type II error, and ii) Partial regression coefficients	Explain Examine	Understand

22	a) Define the following concepts
	  i) BLUE ii) DW statistic and GLS method
	                (or)
	 b) Discuss the role of Confidence Intervals in regression models
		Explain
		Discuss
			Analyze

23	a) Explain the problem of autocorrelation, its causes (or) (or) b) Discuss the role of functional forms in estimations	Identify Recall	Understand
24	a) Write a detail note on dummy variable trap. (or) b) Explain the problems of LPM.	Explain Recall	Understand
	PART – C Essay Answer **The answer should not exceed 400 words Marks: 3 x 10 = 30**		
25	a) Write the CLRM assumptions with an appropriate examples (or) b) Define the following concepts with an example i) Null and Alternative Hypothesis ii) R^2 and Adjusted R^2; iii) Point and Interval Estimation; iv) F test and t test	Examine	Understand
26	a) An omission of relevant variable as well as inclusion of inappropriate variables leads to model mis-specification bias – Discuss (or) b) Write a note on different types of functional forms with practical example	Discuss Explain	Analyze
27	a) Write a detail note on dummy variable and its usefulness in econometric analysis with an example (or) b) Explain heteroskedasticity, its causes, consequences and the techniques to resolve the problem	Assess Identify	Skill

Open Electives – Integrated MA					
Course Code	**Course Name**	**L**	**T**	**P**	**Credits**
ECON-DSE-04	Introduction to Environmental Economics	4	1	-	5

a. Course Outcome (CO)

On the successful completion of the course, the student will be able to
(Course outcomes are specific for a particular course. CO should be specific, measurable, achievable, realistic, and time-bound)

	Course Outcome	**Level**
CO 1	Students would understand the significance and economic relevance of the subject.	Remember
CO 2	Linkages between environment and economy would be enlightened to the students.	Understand
CO 3	Ability to use quantitative techniques for valuing environmental goods for management.	Apply
CO 4	Familiarity with various pollution controlling methods and suggest apt environmental policy.	Analyze
CO 5	Knowledge of various environmental issues and pursuing research for attaining sustainable development	Skill

b. Syllabus

Units	Content	Hrs.
I	**Unit-1: Nature and scope of environmental Economics** Circular flow model and the environment- Sustainable development – Measurement of Sustainable Development: Green GDP -Environmental Kuznets curve Hypothesis	12
II	**Unit-2: Theories of public goods** public goods, private goods, common pool resources, common property resources-Concept of Total Economic Value- Types of Externalities. Social benefit-cost analysis-Net present value, benefit-cost ratio, internal rate of return and issues related to social discount rate	12
III	**Unit-3: Economic Valuation of environmental benefits** a) Revealed preference method: Production function approach, defensive expenditure approach, travel cost method, Hedonic pricing method – b) stated preference approach-contingent valuation method and choice experiment.	12
IV	**Unit-4: Environmental policy** Command and control method –market-based instruments (MBIs)–Tax, subsidy, tradable rights, and payment for ecosystem services. (PES)	12
V	**Unit-5: India's environmental Problems** cost of depletion and degradation of water resources, air pollution, soil erosion, deforestation, and global climate change-related issues – management of the environment and India's sustainable development.	12
	Tasks and Assignments: • Prepare an assignment by comparing the revealed and stated preference approach and its exactness over valuing environmental goods.	

- Prepare success stories on Environmental Management in India for attaining sustainable development.

References:

- Charles Kolstad, Intermediate Environmental Economics, Oxford University Press, 2nd edition, 2010.
- Robert N. Stavins (ed.), Economics of the Environment: Selected Readings, W.W. Norton, 5th edition, 2005.
- Roger Perman, Yue Ma, James McGilvray and Michael Common, Natural Resource and Environmental Economics, Pearson Education/Addison Wesley, 3rd edition, 2003.
- Maureen L. Cropper and Wallace E. Oates, 1992, ―Environmental Economics: A Survey, Journal of Economic Literature, Volume 30:675-740.
- Champ, Patricia et al., A Primer on Nonmarket Valuation, Springer, 2003.

c. Mapping of Program Outcomes with Course Outcomes

	PO1	PO2	PO3	PO4	PO5
CO1	3	3	3	3	3
CO2	3	3	3	3	2
CO3	2	3	3	2	3
CO4	2	2	3	2	3
CO5	3	2	3	3	2

(If the correlation between Programme Outcome with Course Outcome is high 3 is assigned, for moderate 2, for low 1, and for 0 are assigned)

d. Evaluation Scheme

	CO1	CO2	CO3	CO4	CO5	Total
Internal	6	8	8	10	8	40
External	12	10	12	13	13	60
Total	**18**	**18**	**20**	**23**	**21**	**100**

e. Mapping Course Outcome with Internal Assessment (40 Marks)

	CO1	CO2	CO3	CO4	CO5
Assignments	-	-	5	-	5
Seminar			10		
Test	4	4	4	4	4
Total	4	4	19	4	9

f. Mapping Course Outcome with External Assessment (60 Marks)

Category	CO1	CO2	CO3	CO4	CO5
Part – A (Short Answer - 5 x 6 = 30 marks)	6	6	6	6	6
Part – B (Essay- 3 x 10 = 30 marks)			10	10	10
Total	**6**	**6**	**16**	**16**	**16**

g. Rubric for Assignments (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	**Content** **50%**	Ideas are detailed, well developed, supported with specific evidence & facts and examples	Ideas are detailed, Developed and supported with evidence and facts mostly specific.	Ideas are presented but not particularly developed or supported;	The content is not sound	Not attended	CO1, CO2
2	**Organiza -tion** **50%**	Includes title, introduction, statement of the main idea with illustration and conclusion.	Includes title, introduction, statement of main idea and conclusion.	organizational tools are weak or missing	No organization	Not attended	CO1, CO2, CO5

h. Rubric for Seminar (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	**Knowledge and Understandin g** **50%**	Exceptional knowledge of facts, terms, and concepts	Detailed knowledge of facts, terms, and concepts	Considerable knowledge of facts, terms, and concepts	Minimal knowledge of facts, terms, and concepts	Not Attende d	CO3, CO4
2	**Presentation** **50%**	Well Communicate d with logical sequences, examples, and references	Communicate d with sequences	Just Communicate d	No coherent communicatio n	Not Attende d	CO3, CO4

i. Rubric for Internal Test

Sl.No	Category	Marks	Relation to COs
I	**Internal Test I**		
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	CO1, CO2
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	
4.	**Total**	**60**	
II	**Internal Test II**		
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	CO3, CO4
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	
4.	**Total**	**60**	
III	**Model Exam**		
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	CO1, CO2, CO3, CO4, CO5
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	
4.	**Total**	**60**	
	Test I + Test II + Model Test / 9 (Convert for 20 Marks)	**180/9**	
	Internal Marks	**20**	

j. Model Question Paper

Sl. No.	Model Questions	Specification	Level
	PART – A Short Answer **The answer should not exceed 300 words Marks:5 x 6 = 30**		
1	a) Explain the circular flow model and environment. [or] b) Examine the methods of measuring sustainable development.	Explain Examine	Understand
2	a) Describe the measurement of sustainable development. [or] b) Discuss the Environmental Kuznets curve Hypothesis and its limitation.	Explain Discuss	Analyse
3	a) In what ways does market failure leads to environmental externalities? [or] b) Write a note on the concept of total economic value.	Identify Recall	Understand
4	a) Explain NPV, CBR, and IRR. [or] b) Write a note on the command-and-control method.	Explain Recall	Understand
5	a) Assess the significance Pigouvian Tax for pollution control. [or] b) Assess the relevance of the production function approach.	Explain Assess	Skill
	PART – C Essay Answer **The answer should not exceed 400 words Marks: 3 x 10 = 30**		
6	a) Examine the positive and negative externalities with diagrammatic representation. [or] b) Examine the production function approach under a hypothetical situation.	Examine	Understand
7	a) Describe the travel cost method and its limitation. [or] b) Describe the various stages involved in contingent valuation.	Discuss Explain	Analyse
8	a) Assess the relevance of payment for ecosystem services. [or] b) Elucidate the major environmental issues in India and give your suggestions.	Assess Identify	Skill

Open Electives – Integrated MA					
Course Code	**Course Name**	**L**	**T**	**P**	**Credits**
ECON-DSE-06	Labour Economics	4	1	-	5

a. Course Outcome (CO)

On the successful completion of the course, the student will be able to

(Course outcomes are specific for a particular course. CO should be specific, measurable, achievable, realistic, and time-bound)

	Course Outcome	**Level**
CO 1	Students would understand the conceptual clarity on various concepts and measurements related to labour market, employment and unemployment, labour force participate rate, human capital investment and wages.	Remember
CO 2	Understand the importance of labour on development.	Understand
CO 3	Relates the basic economic theory and principles to current labour issues and evaluate related public policy.	Apply
CO 4	Comprehend the types of unemployment and reasons for unemployment in developing countries.	Analyze
CO 5	Develop research skills in the field of labour economics.	Skill

b. Syllabus

Units	Content	Hrs.
I	**Unit 1: Labour and Workforce:** Concepts, types and measurement of labour force, workforce participation rates, employment and unemployment, wages, labour market.	12
II	**Unit 2: Labour Supply:** Choice between work and leisure (work-leisure trade off), labour supply schedule, backward bending labour supply curve, income effect, substitution effect, factors affecting labour supply.	12
III	**Unit 3: Labour Demand and Equilibrium**: Labour demand function, wage elasticity of demand for labour, labour market equilibrium.	12
IV	**Unit 4: Investment in Education**: Theory of human capital, spending on education, returns to education, education and training.	12
V	**Unit 5: Features of labour market in India:** Employment and unemployment scenario, labour migration, minimum wages, labour laws in India.	12
	Tasks and Assignments: • Prepare an assignment on Labour Migration in developing countries like India. • Prepare an assignment on Unemployment in India. **References:** • Ronald G. Ehrenberg and Robert Smith (2005): Modern Labour Economics, 5th Edition. New York: McGraw-Hill. • Ehrenberg, R. G. and Smith, R. S. (2018): Modern Labour Economics: Theory and Public Policy, Routledge.	

- Borjas, G. J. (2010): Labor Economics, McGraw-Hill/Irwin, Boston MA (5th edition).
- Card, D., and Ashebfelrer, O. (2011): Handbook of Labour Economics, Vol.4 A&B, Elsevier Articles from journals and working papers.
- Abraham, K.G. and R.B. Mckersie (edited), New Developments in Labour Market: Toward a New Institutional Paradigm, MIT Press.
- Akerlof, G.A. and J.L. Yellen (edited), Efficiency Wage Models of the Labour Market, Cambridge University Press.
- Ash Amin, (edited), Post-Fordism – A Reader, Blackwell, Oxford.
- Anil Verma et al (edited), Employment Relations in the Growing Asian Economics, Routledge.
- Bagchi, A.K., (edited), New Technology and the Workers' Response, Sage Publications.
- Becker, G.S., Human Capital (2nd Edition), NBER Cambridge
- Bowles, S.M. et al (edited), Democracy and Markets, Cambridge University Press.

c. Mapping of Program Outcomes with Course Outcomes

	PO1	PO2	PO3	PO4	PO5
CO1	3	3	3	3	3
CO2	3	3	3	3	2
CO3	2	3	3	2	3
CO4	2	2	3	2	3
CO5	3	2	3	3	2

(If the correlation between Programme Outcome with Course Outcome is high 3 is assigned, for moderate 2, for low 1, and for 0 are assigned)

d. Evaluation Scheme

	CO1	CO2	CO3	CO4	CO5	Total
Internal	8	8	8	8	8	40
External	12	12	12	12	12	60
Total	20	20	20	20	20	100

e. Mapping Course Outcome with Internal Assessment (40 Marks)

	CO1	CO2	CO3	CO4	CO5
Assignments	-	5	5	-	-
Seminar					10
Test	4	4	4	4	4
Total	4	9	9	4	14

f. Mapping Course Outcome with External Assessment (60 Marks)

Category	CO1	CO2	CO3	CO4	CO5
Part – A (Short Answer - 5 x 6 = 30 marks)	6	6	6	6	6
Part – B (Essay- 3 x 10 = 30 marks)		10		10	10
Total	**6**	**16**	**6**	**16**	**16**

g. Rubric for Assignments (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	**Content 50%**	Ideas are detailed, well developed, supported with specific evidence & facts and examples	Ideas are detailed, Developed and supported with evidence and facts mostly specific.	Ideas are presented but not particularly developed or supported;	The content is not sound	Not attended	CO1, CO2
2	**Organization 50%**	Includes title, introduction, statement of the main idea with illustration and conclusion.	Includes title, introduction, statement of main idea and conclusion.	organizational tools are weak or missing	No organization	Not attended	CO1, CO2, CO5

h. Rubric for Seminar (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	**Knowledge and Understanding 50%**	Exceptional knowledge of facts, terms, and concepts	Detailed knowledge of facts, terms, and concepts	Considerable knowledge of facts, terms, and concepts	Minimal knowledge of facts, terms, and concepts	Not Attended	CO3, CO5
2	**Presentation 50%**	Well Communicated with logical sequences, examples, and references	Communicated with sequences	Just Communicated	No coherent communication	Not Attended	CO3, CO5

i. Rubric for Internal Test

Sl.No	Category	Marks	Relation to COs
I	**Internal Test I**		
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	CO1, CO2
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	
4.	**Total**	**60**	
II	**Internal Test II**		
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	CO3, CO4
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	
4.	**Total**	**60**	
III	**Model Exam**		CO1, CO2, CO3, CO4, CO5
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	
4.	**Total**	**60**	
	Test I + Test II + Model Test/9 (Convert for 20 Marks)	**180/9**	
	Internal Marks	**20**	

j. Model Question Paper

Sl. No.	Model Questions	Specification	Level
	PART – A Short Answer **The answer should not exceed 300 words Marks:5 x 6 = 30**		
1	a) "Labour is a unique factor of productions" – Elucidate. [or] b) Discuss the characteristic features of Indian labour.	Explain Discuss	Understand
2	a) Examine the classical theory of employment. [or] b) Analyse the factors determining demand for labour.	Examine Analyse	Analyse
3	a) Discuss the short run demand curve for labour. [or] b) Critically examine the Neo-classical theory of labour market.	Discuss Assess	Understand
4	a) Write short notes on living wage, fair wage and minimum wage.[or] b) Examine theory of human capital.	Recall Examine	Understand
5	a) Comment on the marginal productivity theory of wage. [or] b) Evaluate the subsistence theory of wage.	Assess Evaluate	Skill
	PART – B Essay Answer **The answer should not exceed 400 words Marks: 3 x 10 = 30**		
6	a) Examine the concept of workers participation in management. [or] b) Critically examine the labour market in India.	Examine	Understand
7	a) Explain the 'trade-off' between work and leisure. [or] b) Discuss economics of education.	Explain Discuss	Analyse
8	a) Critically evaluate theory of human capital. [or] b) Discuss the problem of unemployment in India. Suggest remedies.	Assess Identify	Skill

Open Electives – Integrated MA					
Course Code	**Course Name**	**L**	**T**	**P**	**Credits**
ECON-DSE-07	Accounting and Financial Management	4	1	-	5

a. Course Outcome (CO)
On the successful completion of the course, the student will be able to
(Course outcomes are specific for a particular course. CO should be specific, measurable, achievable, realistic, and time-bound)

	Course Outcome	**Level**
CO 1	Various financial concepts would be enlightened to the students.	Remember
CO 2	Students would gain knowledge of financial aspects which an economist must be aware for planning and decision making.	Understand
CO 3	Familiarize with methods of preparing trading and profit and loss account and balance sheet.	Apply
CO 4	Familiarity with various techniques available to evaluate various proposals.	Analyze
CO 5	Determine the impact of capital budgeting and cost of capital in an organization.	Skill

b. Syllabus

Units	**Content**	**Hrs.**
I	**Unit-1: Meaning and Scope of Accounting** Accounting concepts and conventions. Double entry system of accounting, Preparation of Journal, Ledger and Trial Balance.	12
II	**Unit-2: Balance Sheet: Distinction between Capital and Revenue items** Preparation of trading and profit and loss account and balance sheet.	12
III	**Unit-3: Cost Accounting** Meaning and Scope. Distinction between cost accounting and financial accounting, Advantages of cost accounting and financial accounting. Elements of cost: material, labour, overheads, Preparation of Cost Sheet.	12
IV	**Unit-4: Objectives and Functions of Financial Management** Long-term financing, cost of capital, dividend policy, mergers and acquisitions, bankruptcy and reorganization, the globalization of finance.	12
V	**Unit-5: Evaluation of Investment Projects** Capital budgeting techniques to evaluate alternative investment projects, evaluating the sources of long term capital needs, Optimal capital structure of the firm.	12
	Tasks and Assignments: • Prepare an assignment on trading and profit and loss account and balance sheet. • Prepare an assignment by distinction between cost accounting and financial accounting. **References:** • S.N. Maheshwari, An Introduction to Accounting, Vikas Publishing.	

- Pandey, I.M., Financial Management.
- Ghosh, P.K., Cost Accounting, National Publishing House, New Delhi.
- Prasad, N.K., Principles and Practices of Cost Accounting, Book Syndicate.

c. Mapping of Program Outcomes with Course Outcomes

	PO1	PO2	PO3	PO4	PO5
CO1	3	3	3	3	3
CO2	3	3	2	3	2
CO3	2	3	3	3	3
CO4	2	2	3	2	3
CO5	3	2	3	3	2

(If the correlation between Programme Outcome with Course Outcome is high 3 is assigned, for moderate 2, for low 1, and for 0 are assigned)

d. Evaluation Scheme

	CO1	CO2	CO3	CO4	CO5	Total
Internal	8	8	8	8	8	40
External	12	12	12	12	12	60
Total	20	20	20	20	20	100

e. Mapping Course Outcome with Internal Assessment (40 Marks)

	CO1	CO2	CO3	CO4	CO5
Assignments	-	5	5	-	-
Seminar					10
Test	4	4	4	4	4
Total	4	9	9	4	14

f. Mapping Course Outcome with External Assessment (60 Marks)

Category	CO1	CO2	CO3	CO4	CO5
Part – A (Short Answer - 5 x 6 = 30 marks)	6	6	6	6	6
Part – B (Essay- 3 x 10 = 30 marks)	10			10	10
Total	16	6	6	16	16

g. Rubric for Assignments (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	**Content 50%**	Ideas are detailed, well developed, supported with specific evidence & facts and examples	Ideas are detailed, Developed and supported with evidence and facts mostly specific.	Ideas are presented but not particularly developed or supported;	The content is not sound	Not attended	CO1, CO2
2	**Organization 50%**	Includes title, introduction, statement of the main idea with illustration and conclusion.	Includes title, introduction, statement of main idea and conclusion.	organizational tools are weak or missing	No organization	Not attended	CO1, CO2, CO5

h. Rubric for Seminar (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	**Knowledge and Understanding 50%**	Exceptional knowledge of facts, terms, and concepts	Detailed knowledge of facts, terms, and concepts	Considerable knowledge of facts, terms, and concepts	Minimal knowledge of facts, terms, and concepts	Not Attended	CO3, CO4
2	**Presentation 50%**	Well Communicated with logical sequences, examples, and references	Communicated with sequences	Just Communicated	No coherent communication	Not Attended	CO3, CO4

i. Rubric for Internal Test

Sl.No	Category	Marks	Relation to COs
I	**Internal Test I**		
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	CO1, CO2
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	
4.	**Total**	**60**	
II	**Internal Test II**		
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	CO3, CO4
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	
4.	**Total**	**60**	
III	**Model Exam**		CO1, CO2, CO3, CO4, CO5
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	
4.	**Total**	**60**	
	Test I + Test II + Model Test/9 (Convert for 20 Marks)	**180/9**	
	Internal Marks	**20**	

j. Model Question Paper

Sl. No.	Model Questions	Specification	Level
	PART – A Short Answer **The answer should not exceed 300 words Marks:5 x 6 = 30**		
1	a) Discuss the nature and scope of Accounting. [or] b) Examine double entry system of accounting.	Discuss Examine	Understand
2	a) Examine the various techniques of analysis of financial statements. [or] b) Discuss the features of the various methods of financial analysis.	Examine Discuss	Analyse
3	a) State the advantages of cost accounting and financial accounting [or] b) Discuss the nature and scope of business finance.	Identify Discuss	Understand
4	a) Assess elements of cost. [or] b) Evaluate the sources of long term capital needs.	Assess	Skill
5	a) Explain the objectives and functions of financial management. [or] b) Enumerate in detail the administrative aspects in capital budgeting.	Explain Enumerate	Understand
	PART – B Essay Answer **The answer should not exceed 400 words Marks: 3 x 10 = 30**		
6	a) Examine accounting concepts and conventions. [or] b) Describe the relationship of financial management to Economics and Accounting.	Examine	Understand
7	a) Discuss the different techniques of analysis and interpretation of financial statements [or] b) Distinguish between cost accounting and financial accounting.	Discuss Recall	Analyse
8	a) Financial management as an integral part of the overall management is not totally independent area – Discuss. [or] b) How does inflation impact capital budgeting? How will you correct it?	Discuss Identify	Skill

Open Electives – Integrated MA					
Course Code	**Course Name**	**L**	**T**	**P**	**Credits**
ECON-DSE-08	Comparative Development Experience	4	1	-	5

a. Course Outcome (CO)

On the successful completion of the course, the student will be able to
(Course outcomes are specific for a particular course. CO should be specific, measurable, achievable, realistic, and time-bound)

	Course Outcome	**Level**
CO 1	Students will understand international economic development experiences	Remember
CO 2	Students will be enlightened to different forms of economic system	Understand
CO 3	Student will apply their knowledge to understand the global economic problems.	Apply
CO 4	Students will have analytical understanding about the working mechanism of the present market driven capitalist economies	Analyze
CO 5	Students will have knowledge and skill in doing advanced research on global economic problems	Skill

b. Syllabus

Units	Content	Hrs.
I	**Unit-1: International comparisons of development:** Differences in initial conditions of development of less developed countries and present day developed countries, Nature of development gap prevailing at present between developed and less developed countries	10
II	**Unit-2: Genesis of capitalism** Different types of social organization, feudalism, pre-capitalist societies other than feudalism, capitalism in the West, development of the Third World, Industrial revolution in Great Britain - Causes – Why Great Britain became the pioneer? – Characteristics – Effects	10
III	**Unit-3: Industrialization Experiences in 20th Century** The Great Debate in Soviet Union on the assignment of priority on development of heavy industry in the process of planned economic development, The Great Depression of the 1930's and recovery – Experiences of USA and Great Britain, Global Change, Welfare state and mixed economy, Post-War global institutions: International Monetary Fund, World Bank, United Nations Conference on Trade and Development, Trade and Strategies of Development: Infant industry, Import substitution versus export promotion in less developed countries, Illustrations from South Asia, Latin America and East Asia, Foreign Finance, Investment and Development: Private foreign direct investment and Multinational Corporations, private portfolio investment, development assistance debate	16
IV	**Unit-4: Evolution of New international economic order** Neo liberalism, Washington consensus, North-South Divide, Recasting of IMF and World Bank, General Agreements on Tariff and Trade	12

	(GATT) and the Dunkel Draft controversy-World Trade Organization (WTO), Economic Integration and Regional Trading Blocs, Global Polarization	
V	**Unit-5: Development policies and role of the state** Nature of Development planning, Rationale for development planning, Washington Consensus, New Consensus and the State, Some Recent Development Experiences: (i) China, (ii) Brazil (iii) India.	12
	Tasks and Assignments: • Prepare an assignment on Industrial Revolution. • Prepare a case study on the impact of Great Depression on the global economy. **References:** 1. A.P. Thirlwall, Growth and Development, Palgrave McMillan 2. M.P. Todaro and S.C. Smith, Economic Development, Pearson Education 3. G.M. Meier and J.E. Rauch, Leading Issues in Economic Development, Oxford University Press 4. Sunanda Sen, Globalisation and Development, National Book Trust, India 5. C. Roe Goddard, Patrick Cronin and Kishore C. Dash. (ed), International Political Economy. Viva Books Private Limited. (articles by Theotonio dos Santos and Samir Amin) 6. Maurice Dobb, Soviet Economic Development since 1917, Routledge and Kegan Paul 7. A.K. Bagchi, The Political Economy of Underdevelopment, Orient Longman	

c. Mapping of Program Outcomes with Course Outcomes

	PO1	PO2	PO3	PO4	PO5
CO1	3	3	3	3	3
CO2	3	3	3	3	2
CO3	2	3	3	2	3
CO4	2	3	3	2	3
CO5	3	2	2	3	2

(If the correlation between Programme Outcome with Course Outcome is high 3 is assigned, for moderate 2, for low 1, and for 0 are assigned)

d. Evaluation Scheme

	CO1	CO2	CO3	CO4	CO5	Total
Internal	6	8	8	10	8	40
External	12	10	12	13	13	60
Total	**18**	**18**	**20**	**23**	**21**	**100**

e. Mapping Course Outcome with Internal Assessment (40 Marks)

	CO1	CO2	CO3	CO4	CO5
Assignments	-	-	5	-	5

			10		
Seminar			10		
Test	4	4	4	4	4
Total	4	4	19	4	9

f. Mapping Course Outcome with External Assessment (60 Marks)

Category	CO1	CO2	CO3	CO4	CO5
Part – A **(Short Answer - 5 x 6 = 30 marks)**	6	6	6	6	6
Part – B **(Essay- 3 x 10 = 30 marks)**			10	10	10
Total	**6**	**6**	**16**	**16**	**16**

g. Rubric for Assignments (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	**Content** **50%**	Ideas are detailed, well developed, supported with specific evidence & facts and examples	Ideas are detailed, Developed and supported with evidence and facts mostly specific.	Ideas are presented but not particularly developed or supported;	The content is not sound	Not attended	CO1, CO2
2	**Organiza-tion** **50%**	Includes title, introduction, statement of the main idea with illustration and conclusion.	Includes title, introduction, statement of main idea and conclusion.	organizational tools are weak or missing	No organization	Not attended	CO1, CO2, CO5

h. Rubric for Seminar (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs

Sl.No	Category					Relation to COs
1	**Knowledge and Understanding** 50%	Exceptional knowledge of facts, terms, and concepts	Detailed knowledge of facts, terms, and concepts	Considerable knowledge of facts, terms, and concepts	Minimal knowledge of facts, terms, and concepts	Not Attended	CO3, CO4
2	**Presentation** 50%	Well Communicated with logical sequences, examples, and references	Communicated with sequences	Just Communicated	No coherent communication	Not Attended	CO3, CO4

i. Rubric for Internal Test

Sl.No	Category	Marks	Relation to COs
I	**Internal Test I**		CO1, CO2
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	
4.	**Total**	**60**	
II	**Internal Test II**		CO3, CO4
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	
4.	**Total**	**60**	
III	**Model Exam**		CO1, CO2, CO3, CO4, CO5
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	
4.	**Total**	**60**	
	Test I + Test II + Model Test / 9 (Convert for 20 Marks)	**180/9**	
	Internal Marks	**20**	

j. Model Question Paper

Sl. No.	Model Questions	Specification	Level
	PART – A Short Answer **The answer should not exceed 300 words Marks:5 x 6 = 30**		
1	a) Explain your understanding about development. [or] b) Examine the difference between development and under-development	Explain Examine	Understand
2	a) Explain about feudalism [or] b) Briefly explain about capitalism.	Explain Discuss	Analyse

3	a) Explain about Russia's heavy industrialization led economic development [or] b) Explain about the welfare state	Identify Recall	Understand
4	a) Explain about neo-liberalism [or] b) Write a note on WTO.	Explain Recall	Understand
5	a) Explain about development planning. [or] b) Write a note on Washington Consensus	Explain Assess	Skill
PART – B Essay Answer **The answer should not exceed 400 words Marks: 3 x 10 = 30**			
6	a) Examine the difference and development gap prevailing among dev eloped and less developed countries. [or] b) Examine why Britain became superpower after the Industrial Revolution	Examine	Understand
7	a) Discuss in detail about post war global institutions and their role in development. [or] b) Describe about the proliferation of MNCs and their economic importance	Discuss Explain	Analyse
8	a) Explain in detail about north-south divide. [or] b) Elucidate about the development story of China, Brazil and India	Assess Identify	Skill

Open Electives – Integrated MA					
Course Code	**Course Name**	**L**	**T**	**P**	**Credits**
ECON-DSE-09	Contemporary Political Economy	4	1	-	5

a. Course Outcome (CO)

On the successful completion of the course, the student will be able to
(Course outcomes are specific for a particular course. CO should be specific, measurable, achievable, realistic, and time-bound)

	Course Outcome	**Level**
CO 1	Students will understand the contemporary economic issues	Remember
CO 2	Students will be enlightened about the various approaches to economic development	Understand
CO 3	Students will apply their knowledge to address the contemporary socio and economic problems of the today's world	Apply
CO 4	Students will analyse the socio and economic problems of the contemporary world	Analyze
CO 5	Students will have the ability and skill to do advanced research on the economic issues of contemporary importance	Skill

b. Syllabus

Units	Content	Hrs.
I	**Unit-1: Approaches to Political Economy** Classical Liberalism, Marxism, Welfarism, Neo-liberalism and Gandhian approach	12
II	**Unit-2: 0 Capitalist Transformation** European Feudalism and Transition to Capitalism, Globalization: Transnational Corporations, World Trade Organization, Non-governmental Organizations (their role in development), The Changing Role of Finance in capital accumulation and corporate structure; finance and globalisation - financial liberalisation and financial crisis.	14
III	**Unit-3: Issues in Development** Culture: Media and Television, Big Dams and Environmental Concerns, Military: Global Arms Industry and Arms Trade and Knowledge Systems	12
IV	**Unit-4: Globalization and Development Dilemmas** IT revolution and Debates on Sovereignty, Gender, Racial and Ethnic Problems and Migration	10
V	**Unit-5: The Social Dimension** Globalization and uneven development – growth, inequality and exclusion, the changing nature of job security, Sustainable issues and the road ahead.	12
	Tasks and Assignments: • Prepare an assignment about the various approaches to political economy. • Prepare a case study on globalization and uneven development **References:**	

1. Michel Beaud, A History of Capitalism, 1500-2000, trans. by Tom Dickman and Anny Lefebvre, New York: Monthly Review Press, 2001.
2. S. Hymer, "The Multinational Corporation and the Law of Uneven Development", in H. Radice (ed.) International Firms and Modern Imperialism, Penguin Books, 1975.
3. Narasimha Reddy, ―Economic Globalisation, Past and Present – The Challenges
4. David Harvey, A Brief History of Neoliberalism, OUP, 2005
5. Amartya Sen, 'The Idea of Justice' Cambridge, 2009
6. Andrew Glyn, ―Challenges to Capital‖, in Capitalism Unleashed: Finance, Globalization and Welfare, Oxford: Oxford University Press, (Ch. One, pp. 1-24), 2006.
7. GaryDymsky, 2005, ―Financial Globalization, Social Exclusion and Financial Crisis‖, International Review of Applied Economics, Vol. 19: 439–457.

c. Mapping of Program Outcomes with Course Outcomes

	PO1	PO2	PO3	PO4	PO5
CO1	3	3	3	3	3
CO2	3	3	3	3	2
CO3	2	3	3	2	3
CO4	2	2	3	2	3
CO5	3	2	3	3	2

(If the correlation between Programme Outcome with Course Outcome is high 3 is assigned, for moderate 2, for low 1, and for 0 are assigned)

d. Evaluation Scheme

	CO1	CO2	CO3	CO4	CO5	Total
Internal	6	8	8	10	8	40
External	12	10	12	13	13	60
Total	18	18	20	23	21	100

e. Mapping Course Outcome with Internal Assessment (40 Marks)

	CO1	CO2	CO3	CO4	CO5
Assignments	-	-	5	-	5
Seminar			10		
Test	4	4	4	4	4
Total	4	4	19	4	9

f. Mapping Course Outcome with External Assessment (60 Marks)

Category	CO1	CO2	CO3	CO4	CO5
Part – A (Short Answer - 5 x 6 = 30 marks)	6	6	6	6	6
Part – B (Essay- 3 x 10 = 30 marks)			10	10	10
Total	6	6	16	16	16

g. Rubric for Assignments (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	**Content** 50%	Ideas are detailed, well developed, supported with specific evidence & facts and examples	Ideas are detailed, Developed and supported with evidence and facts mostly specific.	Ideas are presented but not particularly developed or supported;	The content is not sound	Not attended	CO1, CO2
2	**Organiza-tion** 50%	Includes title, introduction, statement of the main idea with illustration and conclusion.	Includes title, introduction, statement of main idea and conclusion.	organizational tools are weak or missing	No organization	Not attended	CO1, CO2, CO5

h. Rubric for Seminar (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	**Knowledge and Understanding** 50%	Exceptional knowledge of facts, terms, and concepts	Detailed knowledge of facts, terms, and concepts	Considerable knowledge of facts, terms, and concepts	Minimal knowledge of facts, terms, and concepts	Not Attended	CO3, CO4
2	**Presentation** 50%	Well Communicated with logical sequences, examples, and references	Communicated with sequences	Just Communicated	No coherent communication	Not Attended	CO3, CO4

i. Rubric for Internal Test

Sl.No	Category	Marks	Relation to COs
I	**Internal Test I**		
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	CO1, CO2
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	
4.	**Total**	**60**	
II	**Internal Test II**		
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	CO3, CO4
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	
4.	**Total**	**60**	
III	**Model Exam**		CO1, CO2, CO3, CO4, CO5
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	
4.	**Total**	**60**	
	Test I + Test II + Model Test / 9 (Convert for 20 Marks)	**180/9**	
	Internal Marks	**20**	

j. Model Question Paper

Sl. No.	Model Questions	Specification	Level
	PART – A Short Answer **The answer should not exceed 300 words Marks:5 x 6 = 30**		
1	a) Discuss about the classical liberalism [or] b) Write about the Gandhian approach to economic development	Explain Examine	Understand
2	a) Describe about European feudalism. [or] b) Write about the transnational corporations	Explain Discuss	Analyse
3	a) Write about the role of culture in development [or] b) Write about the difference between modern and indigenous knowledge system	Identify Recall	Understand
4	a) Explain about the IT revolution [or] b) Write about the gender disparity in development.	Explain Recall	Understand
5	a) Discuss about globalization. [or] b) Discuss about the challenges for sustainable development	Explain Assess	Skill
	PART – B Essay Answer **The answer should not exceed 400 words Marks: 3 x 10 = 30**		
6	a) Discuss in detail about the relevance of Marxism today [or] b) Examine the role of NGOs in development.	Examine	Understand
7	a) Delineate about the global financial crisis. [or] b) Discuss in detail about the construction of big dams and its environmental impacts.	Discuss Explain	Analyse
8	a) Write about the global racial and ethnic conflicts. [or] b) Discuss in detail about growth and inequality.	Assess Identify	Skill

Open Electives – Integrated MA					
Course Code	**Course Name**	**L**	**T**	**P**	**Credits**
ECON-DSE-10	Economics of Finance	4		-	4

a. Course Outcome (CO)
On the successful completion of the course, the student will be able to
(Course outcomes are specific for a particular course. CO should be specific, measurable, achievable, realistic, and time-bound)

	Course Outcome	**Level**
CO 1	Understanding the Corporate Finance in business.	Understand
CO 2	Analyzing the welfare economics for economic development. Assessing the Financial Markets in India.	Remember
CO 3	Examining the Derivatives and Markets.	Apply
CO 4	Ability to know the Depositories and Custodians.	Analyze
CO 5	Assessing the security Analysis.	Skill

b. Syllabus

Units	Content	Hrs.
I	**Unit-1: Corporate Finance:** Structure of corporate governance, financial instruments and financial structure; Financial statement and ratioanalysis; time value of money; investment decisions and net present value; capital budgeting-weightedaverage cost of capital and different methods; corporate restructuring: mergers, acquisitions, amalgamations, divestments-meaning, motives and strategies.	14
II	**Unit-2: Financial Markets in India:** Indian Financial System in the post reform period, Money market and instruments, Capital Market, Brief history, and major reforms in primary and secondary capital market	12
III	**Unit-3: Derivatives and Markets:** Forward, future, options: types of option-put option and call option and valuation, Derivative trading and regulatory framework and Credit Rating.	10
IV	**Unit-4: Depositories and Custodians** The Depository System, the National Securities Depository Limited, the Central Depository Services (India) Limited, Custodians, the Stock Holding Corporation of India Limited.	12
V	**Unit-5: An Introduction to security Analysis** Concept of risk and return; portfolio theory, capital asset pricing model, arbitrage pricing theory; efficientmarket hypothesis-basic concepts.	12
	Tasks and Assignments: • Prepare an assignment the **Corporate Finance.** • Prepare an assignment the **Financial Markets in India.** **References:**	

- Brealey, Myers, Allen and Mohanty, Principles of Corporate Finance, Tata Mcgraw-Hill Company Limited.
- Pathak, I., Indian Financial System, Pearson Education, relevant chapters.
- Bhole, LM and Mahakud, Jitendra., Financial Institutions and Markets, Tata Mcgraw-Hill Company Limited.
- Stonehill, Moffett and Pandey, Multinational Business Finance, Pearson Education.
- One Financial Daily – The Business Line/Mint/Business Standard/Economic Times – Editorials to be read on a daily basis.

c. Mapping of Program Outcomes with Course Outcomes

	PO1	PO2	PO3	PO4	PO5
CO1	3	3	3	2	3
CO2	3	3	3	2	3
CO3	3	3	3	2	3
CO4	3	3	3	3	2
CO5	3	3	2	3	2

(If the correlation between Programme Outcome with Course Outcome is high 3 is assigned, for moderate 2, for low 1, and for 0 are assigned)

d. Evaluation Scheme

	CO1	CO2	CO3	CO4	CO5	Total
Internal	10	8	8	8	6	40
External	13	12	13	12	10	60
Total	23	20	21	20	16	100

e. Mapping Course Outcome with Internal Assessment (40 Marks)

	CO1	CO2	CO3	CO4	CO5
Assignments	5	5	-	-	-
Seminar	-	10	-	-	-
Test	4	4	4	4	4
Total	9	19	4	4	4

f. Mapping Course Outcome with External Assessment (60 Marks)

Category	CO1	CO2	CO3	CO4	CO5
Part – A (Short Answer - 5 x 6 = 30 marks)	6	6	6	6	6
Part – B (Essay- 3 x 10 = 30 marks)	10	10	10		
Total	16	16	16	6	6

g. Rubric for Assignments (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs

1	**Content** **50%**	Ideas are detailed, well developed, supported with specific evidence & facts and examples	Ideas are detailed, Developed and supported with evidence and facts mostly specific.	Ideas are presented but not particularly developed or supported;	The content is not sound	Not attended	CO1, CO2
2	**Organiza -tion** **50%**	Includes title, introduction, statement of the main idea with illustration and conclusion.	Includes title, introduction, statement of main idea and conclusion.	organizational tools are weak or missing	No organization	Not attended	CO1, CO2, CO5

h. Rubric for Seminar (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	**Knowledge and Understandin g** **50%**	Exceptional knowledge of facts, terms, and concepts	Detailed knowledge of facts, terms, and concepts	Considerable knowledge of facts, terms, and concepts	Minimal knowledge of facts, terms, and concepts	Not Attende d	CO2, CO3
2	**Presentation** **50%**	Well Communicate d with logical sequences, examples, and references	Communicate d with sequences	Just Communicate d	No coherent communicatio n	Not Attende d	CO2, CO3, CO4, CO5

i. Rubric for Internal Test

Sl.No	Category	Marks	Relation to COs
I	**Internal Test I**		CO1, CO2
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	

4.	**Total**	**60**		
II	**Internal Test II**			
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	CO3, CO4	
2.	Part – B (Essay- 3 x 10 = 30 marks)	30		
4.	**Total**	**60**		
III	**Model Exam**			
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	CO1, CO2, CO3, CO4, CO5	
2.	Part – B (Essay- 3 x 10 = 30 marks)	30		
4.	**Total**	**60**		
	Test I + Test II + Model Test/9 (Convert for 20 Marks)	**180/9**		
	Internal Marks	**20**		

j. Model Question Paper

Sl. No.	Model Questions	Specification	Level
	PART – A Short Answer **The answer should not exceed 300 words Marks:5 x 6 = 30**		
1	a) Explain the Structure of corporate governance. [or] b) Discuss the investment decisions.	Explain Examine	Understand
2	a) State the money market and instruments. [or] b) Describe the major reforms in primary in Capital Market.	Explain Discuss	Analyse
3	a) Explain the Derivative trading. [or] b) discuss the Credit Rating.	Identify Recall	Understand
4	a) State the Depository System. [or] b) Explain the National Securities Depository Limited.	Explain Recall	Understand
5	a) Discribe the toncept of risk and return. [or] b) Explain the efficient market hypothesis-basic concepts.	Explain Assess	Skill
	PART – B Essay Answer **The answer should not exceed 400 words Marks: 3 x 10 = 30**		
6	a) Examine the financial instruments and financial structure. [or] b) Assess the capital budgeting-weighted average cost of capital and different methods.	Discuss Explain	Understand
7	a) Analyse the Financial System in Indian during post reform period. [or] b) Classify the types of option-put option and call option and valuation.	Examine	Analyse
8	a) Analyse the Stock Holding Corporation of India Limited. [or] b) Examine the capital asset pricing model.	Assess Identify	Skill

Open Electives – Integrated MA						
Course Code	**Course Name**	**L**	**T**	**P**	**Credits**	
ECON-DSE-11	**DATA MANAGEMENT AND ANALYSIS USING R**	4	-	1	5	

a. Course Outcome (CO)

On the successful completion of the course, the student will be able to

(Course outcomes are specific for a particular course. CO should be specific, measurable, achievable, realistic, and time-bound)

	Course Outcome	**Level**
CO 1	This course will introduce the students about R statistical software	Remember
CO 2	The students will understand the introductory statistical applications using R	Understand
CO 3	Ability to work in the basics of R statistical software	Apply
CO 4	Able to make applications of these methods for economic decisions and research.	Analyze
CO 5	Will understand data management and presentation in R statistical software,	Skill

b. Syllabus

Units	Content	Hrs.
I	**Introduction** Installing R and R Studio: R Versions, Download and install R, Installing Packages, Loading Packages, Updating R and its Packages. User Interface, Packages and Help: The R Console, R Studio, Getting Help, R Packages: Listing Packages in Local Libraries, Loading Packages, Package Repositories, Finding and Installing Packages inside R and other Repositories.	12
II	**The R Language** Overview: Expressions, Objects, Symbols, Functions, Special Values, R Objects: Vectors, Integers, Character, Logical, Complex and Raw, Attributes of Objects, Matrices, Arrays, Class, Dates and Time, Factors, Coercion, Lists, Data Frames, Changing values, Logical Sub setting, Boolean Operators, Missing Information and removing NAs, R Environment: Symbols, Working with Environments, The Global Environment.	12
III	**Working with data** Loading and saving data in R: Entering Data within R, Data Editor (R Studio), Datasets in R, Working Directory, the read Family, HTML data links, R Files, Saving R Files, Excel Spreadsheets and R, Loading files from other programs, Preparing Data: Combining, Transforming, Binning, Sub setting, Cleaning, Sorting and Summarizing Data..	12
IV	**Graphics Base Graphics:** Scatter Plots, Time Series Plots, Bar Plots, Histogram, Box-Plots, Customizing Charts.	12
V	**Basic Statistical and Econometric Analysis using R:** Descriptive Statistics, Arithmetic Mean, Standard Deviation, Range, test of hypothesis, t-test, ANOVA, Correlation, Simple and multiple	12

	regression analysis.
	Tasks and Assignments:
	• Write assignments about econometric methods and estimations using R package
	References:
	1. Adler, J. 2012 "R In A Nutshell", O'Reilly Media Inc., 2ed.
	2. Grolemund, G. 2014 "Hands-On Programming with R", O'Reilly Media Inc.
	3. Hilfiger, J. 2016 "Graphing Data with R", O'Reilly Media Inc.versity Press
	4. Statistical Analysis in Simple Steps Using R, Kiran Pandya, Prashant Joshi, Smruti Bulsari, sage publication.
	5. Regression Analysis with R, Ciaburro Giuseppe, Packt Publishing Limited
	6. Using R and RStudio for Data Management, Statistical Analysis, and Graphics, Nicholas J. Horton, Ken Kleinman, Chapman and Hall/CRC; 2 edition (27 April 2015)
	7. Data Analytics with R, Bharti Motwani, Wiley (2019),

c. Mapping of Program Outcomes with Course Outcomes

	PO1	PO2	PO3	PO4	PO5
CO1	3	3	3	3	3
CO2	3	3	3	3	3
CO3	3	3	3	3	3
CO4	3	2	2	3	3
CO5	3	3	3	3	3

(If the correlation between Programme Outcome with Course Outcome is high 3 is assigned, for moderate 2, for low 1, and for 0 are assigned)

d. Evaluation Scheme

	CO1	CO2	CO3	CO4	CO5	Total
Internal	3	2	5	15	15	40
External				30	30	60
Total	18	16	16	25	25	100

e. Mapping Course Outcome with Internal Assessment (40 Marks)

	CO1	CO2	CO3	CO4	CO5
Assignments	-	-	-	-	10
Seminar	-	-	-	-	10
Test	-	-	-	10	10
Attendance	-	-	-	-	-
Total	-	-	-	10	30

f. Mapping Course Outcome with External Assessment (60 Marks)

Category	CO1	CO2	CO3	CO4	CO5
Part – A (Objective - 10 x 1 = 10 marks)	-	-	-	-	-
Part – B (Short Answer - 5 x 4 = 20 marks)	-	-	5	10	10
Part – C (Essay- 3 x 10 = 30 marks)	-	-	5	15	15
Total	-	-	10	25	25

g. Rubric for Assignments (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	**Content 50%**	Ideas are detailed, well developed, supported with specific evidence & facts and examples	Ideas are detailed, Developed and supported with evidence and facts mostly specific.	Ideas are presented but not particularly developed or supported;	Content is not sound	Not attended	CO1, CO2, CO3, CO4
2	**Organiza-tion 50%**	Includes title, introduction, statement of the main idea with illustration and conclusion.	Includes title, introduction, statement of main idea and conclusion.	organizational tools are weak or missing	No organization	Not attended	CO4, CO5

h. Rubric for Seminar (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	**Knowledge and Understanding 50%**	Exceptional knowledge of facts, terms, and concepts	Detailed knowledge of facts, terms, and concepts	Considerable knowledge of facts, terms, and concepts	Minimal knowledge of facts, terms, and concepts	Not Attended	CO3, CO5
2	**Presentation 50%**	Well Communicated with logical sequences, examples, and references	Communicated with sequences	Just Communicated	No coherent communication	Not Attended	CO1, CO2, CO3, CO4, CO5

j. Model Question Paper

Sl. No.	Model Questions	Specification	Level
	PART – A Short Answer **The answer should not exceed 200 words Marks: 4 x 5 = 20**		
21	Loading files from other programs- Excel Spreadsheets and R - Practical's	Examine	Skill
22	Preparing Data: Combining, Transforming, Binning, Sub setting, Cleaning, Sorting and Summarizing Data - Practical	Examine	Skill
23	Scatter Plots, Time Series Plots, Bar Plots- Practical's	Examine	Skill
24	Histogram, Box-Plots, Customizing Charts- Practical's	Examine	Skill
	PART – C Essay Answer **The answer should not exceed 400 words Marks: 2 x 15 = 30**		
25	Estimate the descriptive statistics of the above data, plot it and interpret the same in R package.	Examine	Understand
26	Using R Crane, estimate the correlation statistics, simple and multiple regression for above data and interpret the results.	Discuss Explain	Analyze

Central University of Tamil Nadu
Department of Economics

M.A Economics

Semester	Course Code	Course Title	Credits
First	ECOM 101	Microeconomics-I	4
	ECOM 102	Macroeconomics-I	4
	ECOM 103	Statistical Methods	4
	ECOM 104	Mathematical Economics	4
	ECOM 105	History of Economic Thought	4
Second	ECOM 201	Microeconomics-II	4
	ECOM 202	Macroeconomics-II	4
	ECOM 203	Econometrics-I	4
	ECOM 204	Economic Growth and Development	4
	ECOM 205	Elective-I*	4
Third	ECOM 301	International Economics	4
	ECOM 302	Econometrics-II	4
	ECOM 303	Indian Economic Issues	4
	ECOM 304	Public Economics	4
	ECOM 305	Elective-II*	4
Fourth	ECOM 401	Resources and Environmental Economics	4
	ECOM 402	Elective-III*	4
	ECOM D	Elective-IV*/ Dissertation (3+1)	4
Total			**72**

Note: * Electives can be selected from the given list. The number of electives will be offered in a given semester will be decided by the Department depending on Faculty Specialisation in the Department at any given time and workload.

❖ **Discipline Specific Electives:**

ECOM-DSE-01: Agricultural Economics	ECOM-DSE-10:Money and Banking
ECOM-DSE-02: Monetary Economics	ECOM-DSE-11: Research Methodology
ECOM-DSE-03: Economic Demography	ECOM-DSE-12: Regional Economics
ECOM-DSE-04: Economics of Education	ECOM-DSE-13: Behavioural Economics
ECOM-DSE-05: Financial Economics and Portfolio Management	ECOM-DSE-14- Economics of Gender
ECOM-DSE-06: Institutional Economics	ECOM-DSE-15: Applied Panel data econometrics
ECOM-DSE-07: Health Economics	ECOM-DSE-16: Game theory and Information
ECOM-DSE-08: Industrial Economics	ECOM-DSE-17: Optimization techniques for Economists
ECOM-DSE- 09- Tamil Nadu Economy	ECOM-DSE-18: Applications of Statistical software's in Economics
	ECOM-DSE-19-Economics of Rural Development

Note:

Students may choose open electives from other Departments / or from SWAYAM / e-PG Pathasala / NPTEL for audit / credit courses, following University guidelines for acquiring additional credits. But the credits obtained from these courses will not be counted towards the minimum credit requirements of the programme.

Department of Economics
School of Social Science and Humanities

A. Vision

Vision Statement of the Department

Vision Statement
The programme is meticulously planned to keep in mind employability and vertical mobility for higher studies like research.

B. Mission

Mission Statements of the Department

M1	Learning the concepts, theory, and applications of Economics.
M2	Use of analytical tools to analyse the economic issues thereby policies.
M3	Developing strong research skills as well as analytical abilities through rigorous studies in economic theory.

C. Program Educational Objective (PEO)

After five years of successful completion of the program, the student will be able to

PEO1	To enrich the academic and research outcomes.
PEO2	To enhance the spirit of inquiry into economic issues and implications.
PEO3	To understand the regional, national, and international economic issues.
PEO4	To address the issues analytically and ensure a sustainable economy.
PEO5	To nurture human capital, employability, and responsible citizens.

D. Graduate Attributes for MA Economics Program

List a few global qualities in knowledge, attitude, value, and skills that a graduate will possess after undergoing the program.

Knowledge
- Understand and explain the important aspects of a local, regional, national, and international economy.
- Have knowledge about the determinants of aggregate economic activity, including the basics of fiscal and monetary policy and how each affects the economy.
- Learn market economy and how markets allocate society's scarce resources.
- Explain the role of the Government in finding solutions for market failure.

Attitude
- Students are educated with analytical skills, good communication skills, courses in mathematics and statistics, and familiarity with other social sciences.
- Ability to analyze and evaluate the economic issues at the national and international level, critical thinking, problem-solving, forecasting, analysis of market competition, and strategic planning skills.
- Ability to think logically, critically, and creatively.

Value and Skills
- Analysing the cause-and-effect of economic issues.
- Understanding the relationship between variables.
- Application of Statistics, Mathematics, and Econometrics to analyse the problem for policy implications.

- Comparing the linkages and contradictions of the economic theories.
- Making oral presentations in students' seminars and fortnight seminars.
- Taking up an economic issue for the PG projects.
- Having knowledge about their skills in service to the community.
- Present themselves in a professional manner.

E. PEO to Mission Statement Mapping

	PEO1	PEO2	PEO3	PEO4	PEO5
M1	3	3	3	3	3
M2	3	3	3	3	3
M3	3	3	2	2	3

(If the correlation between mission statement and the program-specific outcome is high 3 is assigned, for moderate 2, for low 1, and for nil 0 are assigned)

E. Program Outcomes (PO)

On the successful completion of the program, the student will be able to
(Program outcomes are common for all courses in a particular program)

PO1	To understand the interlinkages between economy, policy, and society.
PO2	To critically examine the core, interdisciplinary, and applied learnings.
PO3	To use quantitative and qualitative techniques to address various economic issues.
PO4	To undertake research activities to address national and global issues.
PO5	To enrich human capital through transferring skills and knowledge to society.

F. PO to PEO Mapping

	PO1	PO2	PO3	PO4	PO5
PEO1	3	3	3	3	3
PEO2	3	3	3	3	2
PEO3	3	3	3	3	3
PEO4	2	3	2	3	3
PEO5	3	2	3	3	3

(If the correlation between mission statement and the program-specific outcome is high 3 is assigned, for moderate 2, for low 1, and for nil 0 are assigned)

SEMESTER - I					
Course Code	**Course Name**	**L**	**T**	**P**	**Credits**
ECOM 101	Microeconomics I	4		-	4

a. Course Outcome (CO)

On the successful completion of the course, the student will be able to

(Course outcomes are specific for a particular course. CO should be specific, measurable, achievable, realistic, and time-bound)

	Course Outcome	**Level**
CO 1	Understanding the Consumer Behaviour in day to life.	Understand
CO 2	Ability to know the Utility in risk situations.	Remember
CO 3	Assessing the Production and Cost and profit in a firm.	Apply
CO 4	Knowing to fix the output and price in perfect market. Efficiently using the Investment for business.	Analyze
CO 5	Assessing the Imperfect Competition market.	Skill

b. Syllabus

Units	Content	Hrs.
I	**Unit-1: Consumer Behaviour and Demand Consumer preferences** Opportunity sets, optimum choices, indirect utility demand functions, income and substitution effects, Slutsky equation, normal versus inferior goods, types of demand functions, elasticity, welfare evaluation, consumer surplus, equivalent variation and compensating variation, revealed preference (weak and strong axioms)	12
II	**Unit-2:Utility Functions and Expected Utility Theorem** Expected utility function, measures of risk aversion, state- preference approach, portfolio theory and pricing of risk, present discounted value approach to investment decisions, adjustments for risk	12
III	**Unit-3: Production and Cost** Production functions, types of production functions (Cobb-Douglas, CES, etc.), marginal products, rate of technical substitution, technical progress, cost functions, average and marginal costs, short-run versus long-run costs, economies of scale and scope, profit maximization, cost minimization, derivation of input demand	12
IV	**Unit-4: Competitive Markets** Assumptions of perfect market, competitive markets–demand and supply, demand and supply curves of individual firms, short-run versus long-run, competitive market equilibrium, tax incidence analysis, price-controls and shortages.	12
V	**Unit-5: Imperfect Competition** Market failure, imperfect markets, sources of monopoly power, monopoly market equilibrium, price discrimination–first, second and third degree, tax incidence, oligopoly, Cournot Model, Stackelberg model, Bertrand Model, Monopolistic Competition.	12

Tasks and Assignments:
- Prepare an assignment the demand Analysis
- Prepare an assignment the production function.

References:

- Goon, Gupta, Dasgupta, Fundamentals of Statistics, Vol I, World Press Private limited.
- Varian, H. R., Microeconomic Analysis (2009), Indian edition, W.W. Norton and Co., 1992.
- Mas-collel, Whinston and Green (1995): Micro-economic Theory, OUP.
- Gravelle, H and R. Rees: Microeconomics, Pearson Education, 3rd Edition, 2004.
- Henderson, M. and R.E. Quandt, Microeconomic Theory: Mathematical Approach, McGraw Hill, 3rd edition.
- Koutsoyiannes. A. Modern Microeconomics, Macmillan Press Limited, New York.
- Varian, H. R., Intermediate Microeconomics: A Modern Approach, third edition, 2010.
- Nicholson, W., Microeconomic Theory: Basic Principles and Extensions, eighth edition, South Western Thomson Learning, 2002.
- Salvatore, Dominick (2003): Micro Economics Theory & Applications, Oxford University Press, Inc. 198 Madison Avenue. New York.
- Sen, Anindya (1999): Micro Economic Theory and Applications, Oxford University Press,New Delhi.
- Stigler. G. (1996): Theory of Price (4th Edition), Prentice Hall of India, New Delhi.
- Roy Choudhary, K Microeconomics, Vol 1.
- Gravelle, Hand R. Rees:Microeconomics, Pearson Education,3rd Edition, 2004.

c. Mapping of Program Outcomes with Course Outcomes

	PO1	PO2	PO3	PO4	PO5
CO1	3	3	3	3	3
CO2	3	3	3	2	2
CO3	3	3	3	3	3
CO4	3	3	3	3	2
CO5	3	3	3	3	3

(If the correlation between Programme Outcome with Course Outcome is high 3 is assigned, for moderate 2, for low 1, and for 0 are assigned)

d. Evaluation Scheme

	CO1	CO2	CO3	CO4	CO5	Total
Internal	10	6	8	8	8	40
External	13	10	13	12	12	60
Total	**23**	**16**	**21**	**20**	**20**	**100**

e. Mapping Course Outcome with Internal Assessment (40 Marks)

	CO1	CO2	CO3	CO4	CO5
Assignments	5	-	5	-	-
Seminar	-	-	10	-	-
Test	4	4	4	4	4
Total	**9**	**4**	**19**	**4**	**4**

f. Mapping Course Outcome with External Assessment (60 Marks)

Category	CO1	CO2	CO3	CO4	CO5
Part – A **(Short Answer - 5 x 6 = 30 marks)**	6	6	6	6	6
Part – B **(Essay- 3 x 10 = 30 marks)**	10		10		10
Total	**16**	**6**	**16**	**6**	**16**

g. Rubric for Assignments (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	**Content** **50%**	Ideas are detailed, well developed, supported with specific evidence & facts and examples	Ideas are detailed, Developed and supported with evidence and facts mostly specific.	Ideas are presented but not particularly developed or supported;	The content is not sound	Not attended	CO1, CO2
2	**Organiza-tion** **50%**	Includes title, introduction, statement of the main idea with illustration and conclusion.	Includes title, introduction, statement of main idea and conclusion.	organizational tools are weak or missing	No organization	Not attended	CO1, CO3, CO5

h. Rubric for Seminar (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs

1	Knowledge and Understanding 50%	Exceptional knowledge of facts, terms, and concepts	Detailed knowledge of facts, terms, and concepts	Considerable knowledge of facts, terms, and concepts	Minimal knowledge of facts, terms, and concepts	Not Attended	CO1, CO3, CO4, CO5
2	Presentation 50%	Well Communicated with logical sequences, examples, and references	Communicated with sequences	Just Communicated	No coherent communication	Not Attended	CO1, CO3, CO4, CO5

i. Rubric for Internal Test

Sl.No	Category	Marks	Relation to COs
I	**Internal Test I**		
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	CO1, CO2
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	
4.	**Total**	**60**	
II	**Internal Test II**		
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	CO3, CO4
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	
4.	**Total**	**60**	
III	**Model Exam**		
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	CO1, CO2, CO3, CO4, CO5
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	
4.	**Total**	**60**	
	Test I + Test II + Model Test/9 (Convert for 20 Marks)	**180/9**	
	Internal Marks	**20**	

j. Model Question Paper

Sl. No.	Model Questions	Specification	Level
	PART – A Short Answer **The answer should not exceed 300 words Marks:5 x 6 = 30**		
1	a) Explain the Properties of Indifference Curve. [or] b) State Consumer's Surplus.	Explain Examine	Understand

2	a) Explain the expected utility function. [or] b) State the preference approach.	Explain Discuss	Analyse
3	a) Sate the Law of returns to scale. [or] b) Explain the Relationship Between AC and MC.	Identify Recall	Understand
4	a) Describe the Characteristics of Perfect Competition. [or] b) Explain the tax incidence analysis.	Explain Recall	Understand
5	a) Discuss the price discrimination in monopoly. [or] b) Discuss the Cournot Model.	Explain Assess	Skill
PART – B Essay Answer **The answer should not exceed 400 words Marks: 3 x 10 = 30**			
6	a) Evaluate the methods of measuring Price Elasticity of Demand. [or] b) Analysis the Hicks's Substitution Effect.	Discuss Explain	Understand
7	a) Assess the Risk-averter, Risk-lover and Risk-neutral by Neumann - Morgenstern Utility Theory. [or] b) Explain the Properties of Cobb – Douglas Production Function.	Examine	Analyse
8	a) Examine the perfect competition. [or] b) Illustrate how Price and Output is determined under Monopoly Market.	Assess Identify	Skill

SEMESTER - I					
Course Code	**Course Name**	**L**	**T**	**P**	**Credits**
ECOM 102	**MACROECONOMICS –I**	4	-	-	4

a. Course Outcome (CO)

On the successful completion of the course, the student will be able to

(Course outcomes are specific for a particular course. CO should be specific, measurable, achievable, realistic, and time-bound)

	Course Outcome	**Level**
CO 1	Have an overview of an important aspects of macroeconomics	Remember
CO 2	Understand the core area of macroeconomics at intermediate level.	Understand
CO 3	Ability to use quantitative methods to access macroeconomic issues.	Apply
CO 4	Familiarity with various theories on macroeconomics.	Analyze
CO 5	Intermediate Knowledge about the various macroeconomic issues and pursuing research in macro modelling	Skill

b. Syllabus

Units	Content	Hrs.
I	**National Income Accounting** Accounting Structure – Key Concepts in Accounting – Gross National Product, Gross Domestic Product, Net National Product, National Income, GDP Deflator Balance of Payments, Circular Flow of Income, and Computational Methods of GDP- Expenditure Approach, Income Approach and Value Added Approach of Measurement – comparison of computation methods with other developed countries.	12
II	**Aggregate Demand and Aggregate Supply** Aggregate Demand - The Aggregate Demand Cure and The Income-Expenditure Model – Shifts In Aggregate Demand Curve – Aggregate Supply – The Short Run and Long Run Aggregate Supply Cure – Shifts In Aggregate Supply Curve – Aggregate Demand and Supply Model – Short Run and Long Run Macroeconomic Equilibrium.	12
III	**Theories of Consumption** The Psychological Law of Consumption – Kuznets's Consumption Puzzle – Fisher's Inter-Temporal Choice Model – Permanent Income Hypothesis – Life Cycle Hypothesis – Relative Income Cycle Hypothesis.	12
IV	**Theories of Investment** The Neoclassical Theory of Investment – Capital Theory and Theory of the Firm – Finance and the Cost of Capital – The Accelerator Theory of Investment – The Stock Market And Tobin'S Q Theory – Inflation and Investment – Policies Affecting Investment**.**	12
V	**Neoclassical and Keynesian Macroeconomic Models** The Neoclassical and Keynesian Version of IS-LM Model – Fiscal and Monetary Policy in ISLM Model – Fiscal Policy and Crowding Out – Ricardian Equivalence – The Relative Efficacy of Fiscal and Monetary Policy – The Aggregate Supply in Short and Long Run – Aggregate Demand and Price Determination – Pigou Effect and Real Balance	12

Effect in IS-LM Model – Aggregate Demand in the Open Economy – The Mundell-Fleming Model – The Fiscal and Monetary Policy Operation Under Fixed and Floating Exchange Rate Regime.

Tasks and Assignments:
- Write assignments about different theories proposed by various schools of economic thought on consumption and investment.
- Prepare notes on Classical and Keynesian version of macroeconomic models to understand equilibrium in the markets

References:
1. David Romer (2012) "Advanced Macroeconomics", 4th edition, McGraw-Hill Irwin.
2. Brian Snowdon and Howard R. Vane (2005). Modern Macroeconomics: It's Origins, Development and Current State, Edward Elgar, UK
3. Mankiw, N. Gregory (2014), Principals of Macroeconomics, Seventh edition, Cengage Learning.
4. D'souza Errol (2008) Macroeconomics: Person Publication, New Delhi.
5. Blanchard, O., and S. Fischer (1989) "Lectures on Macroeconomics". Cambridge, MA: MIT Press
6. Taylor, Lance (2004) Reconstructing Macroeconomics - Structuralist Proposals and Critiques of the Mainstream, Harvard University Press, Cambridge,Massachusetts
7. Obstfeld, M., and K. Rogoff (1996). Foundations of International Macroeconomics. Cambridge, MA: MIT Press.
8. Dornbusch et al (2008): Macroeconomics 10th ed, Tata McGraw Hill, New Delhi
9. Scarth, W. (2007), Macroeconomics: An Introduction to Advanced Methods, third edition, Thomson,
10. R T Froyen (2008), Macroeconomics, Theory and policies, Prentice Hall.

c. Mapping of Program Outcomes with Course Outcomes

	PO1	PO2	PO3	PO4	PO5
CO1	3	3	3	3	3
CO2	3	3	3	3	3
CO3	3	3	3	3	3
CO4	3	2	2	3	3
CO5	3	3	3	3	3

(If the correlation between Programme Outcome with Course Outcome is high 3 is assigned, for moderate 2, for low 1, and for 0 are assigned)

d. Evaluation Scheme

	CO1	CO2	CO3	CO4	CO5	Total
Internal	6	8	8	6	12	40
External	12	10	14	10	14	60
Total	18	18	22	16	26	100

e. Mapping Course Outcome with Internal Assessment (40 Marks)

	CO1	CO2	CO3	CO4	CO5
Assignments	2	2	-	2	2
Seminar	-	-	4	4	-
Test	5	5	4	5	5
Attendance					
Total	7	7	8	11	7

f. Mapping Course Outcome with External Assessment (60 Marks)

Category	CO1	CO2	CO3	CO4	CO5
Part – A (Objective - 10 x 1 = 10 marks)	2	2	2	2	2
Part – B (Short Answer - 5 x 4 = 20 marks)	4	4	4	4	4
Part – C (Essay- 3 x 10 = 30 marks)	10	-	-	10	10
Total	**16**	**6**	**6**	**16**	**16**

g. Rubric for Assignments (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	**Content 50%**	Ideas are detailed, well developed, supported with specific evidence & facts and examples	Ideas are detailed, Developed and supported with evidence and facts mostly specific.	Ideas are presented but not particularly developed or supported;	Content is not sound	Not attended	CO1, CO2, CO5
2	**Organiza-tion 50%**	Includes title, introduction, statement of the main idea with illustration and conclusion.	Includes title, introduction, statement of main idea and conclusion.	organizational tools are weak or missing	No organization	Not attended	CO3, CO5

h. Rubric for Seminar (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	**Knowledge and Understanding 50%**	Exceptional knowledge of facts, terms, and concepts	Detailed knowledge of facts, terms, and concepts	Considerable knowledge of facts, terms, and concepts	Minimal knowledge of facts, terms, and concepts	Not Attended	CO3, CO5
2	**Presentation 50%**	Well Communicated with logical sequences, examples, and references	Communicated with sequences	Just Communicated	No coherent communication	Not Attended	CO1, CO2, CO3, CO5

i. Rubric for Internal Test

Sl. No	Category	Marks	Relation to COs
I	**Internal Test I**		
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	CO1, CO2
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	
3.	**Total**	**60**	
4.	**Internal Test II**		
II	Part – A (Short Answer - 5 x 6 = 30 marks)	30	CO3, CO4
1.	Part – B (Essay- 3 x 10 = 30 marks)	30	
2.	**Total**	**60**	
3.	**Model Exam**		
4.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	CO1, CO2, CO3, CO4, CO5
III	Part – B (Essay- 3 x 10 = 30 marks)	30	
	Total	**60**	
	Test I + Test II + Model Test / 9 (Convert for 20 Marks)	**180/9**	
	Internal Marks	**20**	

j. Model Question Paper

Sl. No.	Model Questions	Specification	Level
	Part – A: Objective Type **Multiple Choice** **Marks: 10 x 1 = 10**		
1	The net value of GDP after deducting depreciation from GDP is a) GDP minus indirect Tax plus subsidies b) GNP minus indirect Tax plus subsidies c) GNP Plus indirect Tax minus subsidies d) GDP Plus indirect Tax minus subsidies	Identify Recall	Understand
2	Which one of the following statement is wrong? a) CPI measures prices of goods and services both b) CPI is the index of prices paid by consumers c) the measurement of inflation in CPI is at the final stage d) none of the above	Identify Recall	Understand
3	According to the life-cycle hypothesis, consumption is related to a) Current income b) Expected life time income c) Past peak income d) Price expectations over one's life time	Identify Recall	Understand
4	In Classical Theory, the supply for labour a) is positively related to the real wages (W/P) b) is negatively related to the real wages (W/P) c) is positively related to the nominal wages (W) d) is negatively related to the nominal wages (W)	Identify Recall	Understand
5	James Tobin said that firms should not accumulate more capital when: a)Q > 1 b)Q < 1 c)Q = 0 d)all of the above	Identify Recall	Understand
6	The speculative demand for money is a function of a)Level of income b) Level of prices c) Level of profits d) Rate of interest	Identify Recall	Understand
7	The higher the reserve-deposit ratio, then the value of	Identify	Understand

		Recall	
	monetary base is: a) zero b) constant c) lower d)higher		
8	The buffer stock model of money demand is associated with a) Keynes b) Bamoul c) Friedman d)Laidler	Identify Recall	Understand
9	The slope of IS curve is determined by a) interest elasticity of investment and money demand b) mpc and income elasticity of money demand c) interest elasticity of investment demand and the mpc d) none of the above	Identify Recall	Understand
10	An expansionary monetary policy would lead to a a) rightward shift of the IS curve b) Leftward shift of the LM curve c) Leftward shift of the IS curve d) Rightward shift of the LM curve	Identify Recall	Understand
	PART – B Short Answer **The answer should not exceed 200 words Marks:5 x 4 = 20**		
21	a) Discuss the three sector model of circular flow in detail with appropriate an appropriate chart. [or] b) Discuss the factors that shifts the IS curves in detail.	Explain Examine	Understand
22	a) Write a brief note on CPI and WPI. [or] b) What are the major difference between CPI and WPI?	Explain Discuss	Analyze
23	a) Discuss briefly about the Keynes Psychological law of consumption. [or] b) Discuss the factors that shifts the LM curves in detail.	Identify Recall	Understand
24	a) Write a note on Buffer stock model and high powered money, its sources of variation. [or] b) Write a detailed note on crowding out effect	Explain Recall	Understand
	PART – C Essay Answer **The answer should not exceed 400 words Marks: 3 x 10 = 30**		
25	a) Discuss various methods of computing GDP in detail. [or] b) Why is it important to use real values than of nominal values while measuring aggregate income?	Examine	Understand
26	a) In Neoclassical approach, what are the factors determine the output and employment? Discuss it with an appropriate diagrams. [or] b) Discuss Baumol inventory theory approach and Friedman's Re-Statement of the Quantity Theory of Money in detail.	Discuss Explain	Analyze
27	a) Discuss Kuznets's Consumption Puzzle and Fisher's Inter-temporal choice models [or] b) Explain the monetary and fiscal policy operation under fixed exchange rate regime	Assess Identify	Skill

SEMESTER – I					
Course Code	**Course Name**	**L**	**T**	**P**	**Credits**
ECOM-103	Statistical Methods	4	-	-	4

a. Course Outcome (CO)
On the successful completion of the course, the student will be able to
(Course outcomes are specific for a particular course. CO should be specific, measurable, achievable, realistic, and time-bound)

	Course Outcome	**Level**
CO 1	Students would thoroughly understand the different approaches to probability theory, calculation of probability in different situations, probability distribution, bi-variate distribution, correlation and process of testing hypothesis, estimation and inferential statistics and their applications.	Remember
CO 2	Sampling methods and sampling distributions and their application to economics would be enlightened to the students.	Understand
CO 3	Ability to deal with numerical and quantitative issues in Economics and Business.	Apply
CO 4	Students will be able to use these statistical tools for analyzing data and research.	Analyze
CO 5	Students will be able to appreciate the concepts, methods of probability, theoretical distribution, and testing of hypothesis. Further they will be able to make applications of these methods for economic decisions and research.	Skill

b. Syllabus

Units	Content	Hrs.
I	**Unit-1: Probability Theory** Concepts of probability, Addition and Multiplication theorems of probability, conditional probability and Bayes' theorem; Random variables –discrete and continuous, Density and distribution functions.	12
II	**Unit-2: Probability Distributions** Discrete versus continuous distribution, uniform, binomial, Poisson, hyper-geometric, exponential, and normal distribution. Bi-variate probability distribution, marginal and conditional distribution, statistical independence, characteristic function and moment generating function, functions of random variables.	12
III	**Unit-3: Sampling Methods and Sampling distributions** Probability and non-probability sampling, Simple random sampling: with and without replacement, stratified random sampling, statistic and sample moments, sampling distributions: Standard Normal (Z), Student's-t, Chi-square and F-distribution, determinants of sample size, law of large numbers and Central Limit theorem.	12
IV	**Unit-4: Estimation** Point estimation of population mean for large sample and small sample, estimation of population proportion and population variance, introducing alternate estimation techniques, properties of good estimators: unbiasedness, consistency, efficiency, sufficiency, Interval estimation.	12

	Unit-5: Hypothesis Testing	
V	Statistical hypothesis, simple versus composite hypothesis, critical region, types and size of error – type-I and type-II error, power of a test, p-value, Hypothesis test about: a population mean, population proportions, difference between two population means, difference between two proportions, a population variance, the ratio of two population variances, Tests of goodness of fit, the analysis of contingency tables (Chi-square test for testing independence of two-classification criteria), test for correlation.	12

Tasks and Assignments:
- Prepare an assignment by comparing the probability and non-probability sampling.
- Prepare an assignment on techniques of Analysis of Variance.

References:
- Allen Webster, Applied Statistics for Business and Economics, McGraw-Hill International Edition, 1998.
- Nagar, A.L. and R.K Das, Basic Statistics, Oxford University Press, 1983.
- Ken Black, Business statistics, John Wiley, student edition, 2004.
- Hogg, R. and A. Craig, J., Introduction to Mathematical Statistics, McGraw-Hill, 1965.
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- Mood, A. M., R. A. Graybill and R.C. Boes, Introduction to the Theory of Statistics, McGraw-Hill, 1974.
- Earl.K. Bowen and Martin K. Starr, Basic Statistics for Business and Economics.
- McGraw-Hill International Student Edition, 1982 Kenney and Keeping, Mathematics of Statistics, Vol.1 (Chapters, 1, 2 and 5), Affiliated East West Press.
- Clark, Megan J. and John A. Randal ,A First Course in Applied Statistics, Pearson education, New Zealand, 2011.
- Cochran W.G, samplings Techniques, John wiley, New York, 1977.
- Levin R.I, Statistics for management, Prentice hall Inc, Paperback, 2008.
- Montgomery, DC and George. C Runger, Applied Statistics and probability for Engineers, Wiley publications, sixth edition.

c. Mapping of Program Outcomes with Course Outcomes

	PO1	PO2	PO3	PO4	PO5
CO1	3	3	3	3	3
CO2	3	3	3	3	3
CO3	2	3	3	3	3
CO4	2	2	3	2	3
CO5	3	3	3	3	2

(If the correlation between Programme Outcome with Course Outcome is high 3 is assigned, for moderate 2, for low 1, and for 0 are assigned)

d. Evaluation Scheme

	CO1	CO2	CO3	CO4	CO5	Total
Internal	8	8	8	8	8	40
External	12	12	12	12	12	60
Total	**20**	**20**	**20**	**20**	**20**	**100**

e. Mapping Course Outcome with Internal Assessment (40 Marks)

	CO1	CO2	CO3	CO4	CO5
Assignments	-	-	5	-	5
Seminar	10	-	-	-	-
Test	4	4	4	4	4
Total	14	4	9	4	9

f. Mapping Course Outcome with External Assessment (60 Marks)

Category	CO1	CO2	CO3	CO4	CO5
Part – A **(Short Answer - 5 x 6 = 30 marks)**	6	6	6	6	6
Part – B **(Essay- 3 x 10 = 30 marks)**		10		10	10
Total	**6**	**16**	**6**	**16**	**16**

g. Rubric for Assignments (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	**Content** **50%**	Ideas are detailed, well developed, supported with specific evidence & facts and examples	Ideas are detailed, Developed and supported with evidence and facts mostly specific.	Ideas are presented but not particularly developed or supported;	The content is not sound	Not attended	CO2, CO5
2	**Organization** **50%**	Includes title, introduction, statement of the main idea with illustration and conclusion.	Includes title, introduction, statement of main idea and conclusion.	organizational tools are weak or missing	No organization	Not attended	CO1, CO2, CO5

h. Rubric for Seminar (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	**Knowledge and Understanding** **50%**	Exceptional knowledge of facts, terms, and concepts	Detailed knowledge of facts, terms, and concepts	Considerable knowledge of facts, terms, and concepts	Minimal knowledge of facts, terms, and concepts	Not Attended	CO1, CO5
2	**Presentation** **50%**	Well Communicated with logical sequences, examples, and references	Communicated with sequences	Just Communicated	No coherent communication	Not Attended	CO1, CO5

i. Rubric for Internal Test

Sl.No	Category	Marks	Relation to COs
I	**Internal Test I**		CO1, CO2
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	
4.	**Total**	**60**	
II	**Internal Test II**		CO3, CO4
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	
4.	**Total**	**60**	
III	**Model Exam**		CO1, CO2, CO3, CO4, CO5
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	
4.	**Total**	**60**	
	Test I + Test II + Model Test/9 (Convert for 20 Marks)	**180/9**	
	Internal Marks	**20**	

j. Model Question Paper

Sl. No.	Model Questions	Specification	Level
	PART – A Short Answer **The answer should not exceed 300 words Marks:5 x 6 = 30**		
1	a) Define probability and give an example. [or] b) Describe addition theorem on probability.	Explain Describe	Understand
2	a) In a sample of 500 students from CUTN, 280 are found to be rice eaters and the rest wheat eaters. Can we assume that both the food articles are equally popular? [or] b) Distinguish between small and large samples.	Analyse Identify	Analyse
3	a) Bring out the application of 't' distribution. [or] b) The mean weight of 500 male students in CUTN is 151 lb, and the standard deviation is 15 lb. Assuming the weights are normally distributed find how many students weight (i) between 120 and 155 lb. and (ii) more than185 lb.	Recall Analyse	Analyse
4	a) Explain the uses of χ^2 estimates. [or] b) Elucidate how level of significance is interpreted.	Explain Elucidate	Understand
5	a) State the consequences of Type II error. [or] b) Give an example for one-way classification.	Explain Assess	Skill
	PART – B Essay Answer **The answer should not exceed 400 words Marks: 3 x 10 = 30**		
6	a) State and prove Bayes' theorem.[or] b) Examine the properties of normal distribution.	Assess Examine	Understand
7	a) Write a short note on:- (a) t-test, (b) F-distribution. [or] b) Critically examine the stratified random sampling method with suitable example.	Recall Assess	Analyse
8	a) Elucidate the procedure of testing hypothesis. [or] b) Enumerate techniques of Analysis of Variance.	Elucidate Enumerate	Skill

SEMESTER - I					
Course Code	**Course Name**	**L**	**T**	**P**	**Credits**
ECOM 104	**MATHEMATICAL ECONOMICS**	3	1	-	4

a. Course Outcome (CO)

On the successful completion of the course, the student will be able to

(Course outcomes are specific for a particular course. CO should be specific, measurable, achievable, realistic, and time-bound)

	Course Outcome	**Level**
CO 1	Students would remember the methods to solve the problems related to Linear Algebra.	Remember
CO 2	They understand the uses of LPP in their area of study.	Understand
CO 3	The analytical and problem solving skills of the students that are applied in mathematical economics.	Apply
CO 4	They able to analyze the real life problems and they converted to LPP.	Analyze
CO 5	They able to solve LPP and NLP related problems.	Skill

b. Syllabus

Units	Content	Hrs.
I	**Differential Calculus** Introduction to Functions and Real Analysis; Derivatives – partial and total, economic applications, marginal and elasticity concepts, functions of several variables, implicit function theorem, higher order derivatives and Young's theorem, Taylor's approximation, convex sets, convex and concave functions, properties of linear homogenous functions, Euler's theorem.	12
II	**Linear Algebra** Vectors, matrices, inverse, simultaneous linear equations, Cramer's rule for solving system of linear equations, input-output model, Hawkin -Simon condition, open and closed models quadratic equation, characteristic (eigen) roots and vectors	12
III	**Classical Optimization and Applications** Introduction to quadratic forms, unconstrained optimization, constrained optimization with equality constraints, Lagrangian method, Hessian and Jacobian matrices, applications – utility maximization, cost minimization, profit – output maximization.	12
IV	**Linear and Non-linear Optimization** Duality theory, constrained optimization with inequality and non-negativity constraints, Kuhn-Tucker formulation, linear programming – formulation, primal and dual, solutions using graphical and Simplex methods, applications from economics and finance	12
V	**Dynamics** Definite and indefinite integrals, applications – measuring consumer and producer surplus, continuous interest – discount calculations, difference and differential equations, phase diagrams, Cobweb model, multiplier accelerator, Harrod-Domar and Solow model.	12

Tasks and Assignments:
- Have to find the Eigen values and determinant of matrices.
- To convert real life problem into Linear Programming Problem and find the solutions.

References:
1. Simon, C. and L. Blume, Mathematics for Economists, Norton, London, 1994
2. Chiang, A. C., Fundamental Methods of Mathematical Economics,
3. McGraw-Hill, 1984 Ok, E.A., Real Analysis with Economic Applications, Princeton University Press, 2007
4. Knut Sydsaeter and Peter J. Hammond, Mathematics for Economic Analysis, Pearson Education Asia, 1995
5. M.D. Intriligator, Mathematical Optimization and Economic Theory, Prentice-Hall, 1971 Roberts B. and D.L. Schultze, Modern Mathematics and Economic Analysis, W.W. Norton and Company, 1973.

c. Mapping of Program Outcomes with Course Outcomes

	PO1	PO2	PO3	PO4	PO5
CO1	3	3	3	3	3
CO2	3	3	3	3	2
CO3	2	3	2	3	2
CO4	3	3	2	3	2
CO5	3	2	2	3	3

(If the correlation between Programme Outcome with Course Outcome is high 3 is assigned, for moderate 2, for low 1, and for 0 are assigned)

d. Evaluation Scheme

	CO1	CO2	CO3	CO4	CO5	Total
Internal	8	8	8	8	8	40
External	12	12	12	12	12	60
Total	20	20	20	20	20	100

e. Mapping Course Outcome with Internal Assessment (40 Marks)

	CO1	CO2	CO3	CO4	CO5
Assignments	-	-	-	-	-
Seminar	-	-	-	-	-
Test	8	8	8	8	8
Attendance	-	-	-	-	-
Total	8	8	8	8	8

f. Mapping Course Outcome with External Assessment (60 Marks)

Category	CO1	CO2	CO3	CO4	CO5
Part – A	6	6	6	6	6

(Short Answer - 10 x 3 = 30 marks)					
Part – B (Descriptive- 6 x 5 = 30marks)	6	6	6	6	6
Total	12	12	12	12	12

g. Rubric for Assignments (0)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs

h. Rubric for Seminar (0)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs

i. Rubric for Internal Test

Sl.No	Category	Marks	Relation to COs
I	**Internal Test I**		
1.	Part – A(Descriptive - 5 x 4 = 20 marks)	20	CO2, CO4
	Total	**20**	
II	**Internal Test II**		
1.	Part – A (Descriptive - 4 x 5 = 20 marks)	**20**	CO3, CO5
	Total	**20**	
	Internal Marks	**40**	

j. Model Question Paper

Department of Economics
Central Univesity of Tamil Nadu
Thiruvarur, Tamil Nadu, India
Mathematical Economics (ECOM 104)
Modal Question Paper

Part - A

(Answer **all** questions) $10 \times 3 = 30$ marks

1. Write down the first order conditions of constraint optimization problem with one equality constraint.

2. Define convex, strictly convex, concave and strictly concave function.

3. Find the sum and product of the eigenvalues of $\begin{pmatrix} 1 & 1 & 1 \\ 1 & 1 & 1 \\ 1 & 1 & 1 \end{pmatrix}$

4. Write down the Hessian matrix of the function $f(x,y) = 2x^2 - 2xy + \frac{1}{2}y^2 + 3x - y$.

5. Use the Lagrange-multiplier method to find the stationary values of $f(x,y) = x - 3x - xy$ subject to $x + y = 6$.

6. Find f_{xx}, f_{yy} and f_{xy} for the function $f(x,y) = e^x \cos y - e^y \sin x$.

7. Write the quadratic form $Q(x,y,z) = x^2 + 2y^2 + 3z^2 + 4xy - 6xz + 8yz$ in the matrix form.

8. Let $f(x,y) = xy$ and $g(x,y) = x + 2y$. Write down the Jacobian matrix.

9. Let $f(x,y) = xy$ subject to $x + \frac{y}{3} = 2$. Find the determinant of the Bordered Hessian matrix of the Lagrange function L.

10. Prove that the product of two homogeneous function is homogeneous.

Part - B

(Answer any **six** questions) $6 \times 5 = 30$ marks

11. Minimize $f(x,y) = x^2 + 2y^2 + 3z^2$ subject to the constraints $g_1(x,y) = x - y - 2z \leq 12$, $g_2(x,y) = x + 2y - 3z \leq 18$ using Kuhn-Tucker conditions.

12. If $f(x,y) = 2xy + 2x - x^2 - 2y^2$, find the optimum of $f(x,y)$.

13. Let $S_1 = \{(x,y) \in \mathbb{R}^2 \mid x + y \leq 1, x \geq 0\}$, $S_2 = \{(x,y) \in \mathbb{R}^2 \mid x - y \geq 0, x \leq 1\}$ and $S = S_1 \cup S_2$. Prove that S_1 and S_2 are convex sets and that S is not convex.

14. Find the extrema of $f(x,y) = xy$ subject to the constraint $x + y = 4$.

15. Solve $x + 2y + 3z = 4, 2x + 3y + 6y = 2, 7x + y + 5z = 3$ by Cramer's rule.

16. Minimize $z = 5x + 6y$ subject to
    $3x + 2y \geq 3, \ 2x + 3y \geq 4, \ x + 2y \geq 1$ and $x \geq 0, y \geq 0$ by graphical method.

17. Maximize $z = 1600x + 1000y$ subject to
    $2x + y \leq 7, \ 2x + 2y \leq 8$ and $x \geq 0, y \geq 0$ by graphical method.

SEMESTER - I					
Course Code	**Course Name**	**L**	**T**	**P**	**Credits**
ECOM-105	**HISTORY OF ECONOMIC THOUGHT**	4	-	-	4

Course Objective:
This course examines the various economic ideas historically.

Learning Outcomes:
Develop critical thinking about economic ideas and understand different economic concepts.

	Course Outcome	**Level**
CO 1	Major Economic ideas –before and after Smith	Remember
CO 2	Surplus value and its relevance	Analyse
CO 3	The concepts of utilitarianism	Understand
CO 4	Neo-classical thoughts	Apply
CO 5	Learn the economic ideas and its contemporary application	Skill

	Course Outcome	**Level**
CO 1	**Economic ideas before and after Adam smith** Mercantilist Writing on Value and Profits. Beginnings of the Classical Theory of Prices and Profits. Physiocrats – Quesnay's economic ideas. Adam Smith's value theory - David Ricardo: Theory of rent and first approach to the profit-labour theory of value. Malthus – economic exchange of class conflict.	Remember
CO 2	**Marx critique of classical economics**: Surplus value and Exchange. The labour theory of value- capital accumulation and economic concentration.	Understand
CO 3	**Utilitarianism**: Jevons's Theory of Marginal Utility and Exchange. Menger's Theory of Marginal Utility, Prices, and Income Distribution. Walras's Theory of General Economic Equilibrium.	Apply
CO 4	**Neoclassical Theories of the Firm and Income Distribution:** The Contributions of Marshall, Clark, and Biihm-Bawerk. Microeconomic Theory, and Welfare Economics. Pareto Optimality and criticism.	Analyze
CO 5	**Contemporary Economic ideas:** Origin of Development Economics (Arthur Lewis). Paul A. Samuelson Vs Milton Friedman. Market with asymmetric information (Joseph E Stiglitz; Georn A Akerlof). Behavioural Economics (Richard Thaler). Capability approach of A.K Sen. Experimental approach: Abhijit Banergy. **Modern economic ideas of India**: Naroji, Ranade. R.c. Dutt, Mahatma Gandhi and Ambedkar	Skill
	References	

1. J. R. Hicks (1946). Value and Capital.
2. Lionel Robbins (2000), A History of Economic Thought, Princeton University Press.
3. John Kenneth Galbraith (1998), History of Economics: The Past as the Present, Penguin Books
4. Linda Yueh (2008), The Great Economists: How Their Ideas Can Help Us Today, Viking
5. Smith. (1776). An Inquiry Into the Nature and Causes of the Wealth of Nations.
6. Niall Kishtainy (2017), A Little History of Economics (Little Histories), Yale University Press.
7. Bowles, S.: Microeconomics: Behavior, Institutions, Evolution. New Delhi, Oxford University Press (2004).
8. J. M. Keynes (1936). The general theory of employment, interest and money.
9. J. E. Stiglitz. Whither Socialism? Cambridge, Massachusetts, MIT Press.
10. Haunt, E.K and Mark Lutzenheiser (2011) History of Economics a Critical Perspective, M.E.Sharpe Armonk, New York.
11. DasGupta, Ajit (1993), A History of Indian Economic Thought, The Routledge.
12. Ganguli.B.N (1997) Indian Economic Thought: A Nineteenth-Century Perspective. TMH. New Delhi.
13. Robert L.Heilbroner (1999), The Worldly Philosophers: The Lives, Times and Ideas of the Great Economic Thinkers, Touchstone.
14. Steven Pressman (2006), Fifty major economists, Routledge, Milton Park, Abingdon, Oxon OX14
15. Sweezy, Paul M.(1942), The Theory of Capitalist Development, Denis Dobson Ltd., London,
16. Angrist, J and J. S. Pischke (2010): \The credibility revolution in empirical economics: How better research design is taking the con out of econometrics", Journal of Economic Perspectives, 24(2): 3-30.
17. Otto Eckstein (1967), Evolution of modern economics, Prentice hall Inc, Harvard University

d. Evaluation Scheme

	CO1	CO2	CO3	CO4	CO5	Total
Internal	8	8	8	8	8	40
External	12	12	12	12	12	60
Total	20	20	20	20	20	100

e. Mapping Course Outcome with Internal Assessment (40 Marks)

	CO1	CO2	CO3	CO4	CO5
Assignments	2	2	2	2	2
Seminar	2	2	2	2	2

Test	4	4	4	4	4
Total	**8**	**8**	**8**	**8**	**8**

f. Mapping Course Outcome with External Assessment (60 Marks)

Category	CO1	CO2	CO3	CO4	CO5
Essay- 6 x 10 = 60 marks	**12**	**12**	**12**	**12**	**12**
Total	**12**	**12**	**12**	**12**	**12**

g. Rubric for Assignments (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	**Content** **50%**	Ideas are detailed, well developed, and supported with specific evidence & facts and examples	Ideas are detailed, Developed and supported with evidence and facts mostly specific.	Ideas are presented but not particularly developed or supported;	The content is not sound	Not attended	CO1, CO2, CO5
2	**Organiza -tion** **50%**	Includes title, introduction, statement of the main idea with illustration and conclusion.	Includes title, introduction, statement of main idea and conclusion.	organizational tools are weak or missing	No organization	Not attended	CO1, CO2, CO5

h. Rubric for Seminar (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	**Knowledge and Understandin g** **50%**	Exceptional knowledge of facts, terms, and concepts	Detailed knowledge of facts, terms, and concepts	Considerable knowledge of facts, terms, and concepts	Minimal knowledge of facts, terms, and concepts	Not Attende d	CO3, CO4

2	Presentation 50%	Well Communicated with logical sequences, examples, and references	Communicated with sequences	Just Communicated	No coherent communication	Not Attended	CO3, CO4

i. Rubric for Internal Test

Sl.No	Category	Marks	Relation to COs
	Internal Test I		
	(Essay- 2 x 10 = 20 marks)	20	CO1, CO2
	Total		
	Internal Test II	**20**	CO3 CO4
	(Essay- 2 x 10 = 30 marks)		
	Total		
	Model Exam		
	(Essay- 6 x 10 = 60 marks)	**60**	CO!,CO2, CO3,CO4,CO5
	Total		
	Internal Marks (Convert for 20 Marks)		

j. Model Question Paper

Sl. No.	Model Questions	Specification	Level
	Answer Any Six **Marks: 6 x 10 = 60**		
	1. How did Quesnay's ideas influence shaping an economic system?		Understand
	2. 'The first approach to profit was the theory of rent'. Elaborate.	Explain	Understand
	3. How did Karl Marx calculated surplus value? Illustrate.		
	4. How Marginalists defended 'the concept of Marginal Utility. Explain with suitable examples.		Analyse
	5. Explain Walras's theory of General Economic Equilibrium.		Analyse
	6. How Marshall's contributions are unique in explaining neo-classical theories of the firm.		Analyse
	7. How does Joseph E Stiglitz illustrate the market with asymmetric information? Elucidate with suitable examples.		Analyse
	8. Write a note about the 'Capability Approach' of A.K Sen.		Skill
			Skill

SEMESTER - II					
Course Code	**Course Name**	**L**	**T**	**P**	**Credits**
ECOM 201	Microeconomics - II	4		-	4

a. Course Outcome (CO)

On the successful completion of the course, the student will be able to

(Course outcomes are specific for a particular course. CO should be specific, measurable, achievable, realistic, and time-bound)

	Course Outcome	**Level**
CO 1	Understanding the general equilibrium and welfare economics	Understand
CO 2	Analyzing the welfare economics for economic development.	Remember
CO 3	Assessing the Market Failure in the economy.	Apply
CO 4	Ability to know the Asymmetric Information.	Analyze
CO 5	Assessing the Game strategies for business.	Skill

b. Syllabus

Units	Content	Hrs.
I	**Unit 1: General Equilibrium and Welfare Economics** Partial Equilibrium versus General Equilibrium analysis, absolute versus relative prices, perfectly competitive price and general equilibrium models – with and without production, uniqueness and determinacy, Edgeworth box - contract curve, Pareto improvement and efficiency, Walrasian equilibrium, money in general equilibrium.	12
II	**Unit 2: Welfare Economics** Arrow-Debreu economy, welfare theorems, existence of Walrasian equilibrium, fixed-point theorem, core and core convergence, general equilibrium with time and uncertainty, Jensen's Inequality, social welfare function, transfer efficiency; Kaldor-Hicks-Samuelson criterion, Rawl's theory of social justice	12
III	**Unit 3: Market Failure and Public Goods** Reasons for market failure – market imperfections, public goods, externality, macro-economic factors; types of public goods, theory of public goods – provision and pricing, government intervention, second-best solution, free riding, types of externalities – production and consumption externalities, Pigovian and Coasian solutions.	12
IV	**Unit 4: Asymmetric Information** Moral hazard problem, adverse selection, principal agent problem, market for lemon, credit market, implications of asymmetric information, market signaling, hidden information modeling, efficiency wage theory.	12
V	**Unit-5: Game Theory** Sequential and simultaneous games, extensive forms and normal forms, dominant strategies and elimination of dominated strategies, Nash equilibrium, Dynamic games, backward induction, sub-game perfect equilibrium, applications with oligopoly markets: Cournot, Bertrand, Stackleberg and cartel.	12
	Tasks and Assignments:	

- Prepare an assignment the Pareto's optimality.
-
- Prepare an assignment the reasons for Market Failure.

References:

- Goon, Gupta, Dasgupta, Fundamentals of Statistics, Vol I, World Press Private limited.
- Varian, H. R., Microeconomic Analysis (2009), Indian edition, W.W. Norton andCo., 1992.
- Mas-collel, Whinston and Green (1995): Micro-economic Theory, OUP.
- Gravelle, H and R. Rees: Microeconomics, Pearson Education, 3rd Edition, 2004.
- Henderson, M. and R.E. Quandt, Microeconomic Theory: Mathematical Approach, McGraw Hill, 3rd edition.
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- Salvatore, Dominick (2003): Micro Economics Theory & Applications, Oxford University Press, Inc. 198 Madison Avenue. New York.
- Sen, Anindya (1999): Micro Economic Theory and Applications, Oxford University Press,New Delhi.
- Stigler. G. (1996): Theory of Price (4th Edition), Prentice Hall of India, New Delhi.
- Roy Choudhary, K Microeconomics, Vol 1.

c. Mapping of Program Outcomes with Course Outcomes

	PO1	PO2	PO3	PO4	PO5
CO1	3	3	3	2	3
CO2	3	3	3	2	3
CO3	3	3	3	2	3
CO4	3	3	3	3	2
CO5	3	3	3	3	2

(If the correlation between Programme Outcome with Course Outcome is high 3 is assigned, for moderate 2, for low 1, and for 0 are assigned)

d. Evaluation Scheme

	CO1	CO2	CO3	CO4	CO5	Total
Internal	6	10	8	8	8	40
External	13	12	13	12	10	60
Total	19	22	21	20	18	100

e. Mapping Course Outcome with Internal Assessment (40 Marks)

	CO1	CO2	CO3	CO4	CO5

Assignments	5	-	5	-	-
Seminar	-	-	10	-	-
Test	4	4	4	4	4
Total	**9**	**4**	**19**	**4**	**9**

f. Mapping Course Outcome with External Assessment (60 Marks)

Category	CO1	CO2	CO3	CO4	CO5
Part – A **(Short Answer - 5 x 6 = 30 marks)**	6	6	6	6	6
Part – B **(Essay- 3 x 10 = 30 marks)**	10		10	10	
Total	**16**	**6**	**16**	**16**	**6**

g. Rubric for Assignments (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	**Content** **50%**	Ideas are detailed, well developed, supported with specific evidence & facts and examples	Ideas are detailed, Developed and supported with evidence and facts mostly specific.	Ideas are presented but not particularly developed or supported;	The content is not sound	Not attended	CO1, CO2
2	**Organiza-tion** **50%**	Includes title, introduction, statement of the main idea with illustration and conclusion.	Includes title, introduction, statement of main idea and conclusion.	organizational tools are weak or missing	No organization	Not attended	z

h. Rubric for Seminar (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	**Knowledge and Understanding** **50%**	Exceptional knowledge of facts, terms, and concepts	Detailed knowledge of facts, terms, and concepts	Considerable knowledge of facts, terms, and concepts	Minimal knowledge of facts, terms, and concepts	Not Attended	CO3, CO4,

2	**Presentation** **50%**	Well Communicated with logical sequences, examples, and references	Communicated with sequences	Just Communicated	No coherent communication	Not Attended	CO3, CO4, CO5

i. Rubric for Internal Test

Sl.No	Category	Marks	Relation to COs
I	**Internal Test I**		
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	CO1, CO2
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	
4.	**Total**	**60**	
II	**Internal Test II**		
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	CO3, CO4
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	
4.	**Total**	**60**	
III	**Model Exam**		
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	CO1, CO2, CO3, CO4, CO5
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	
4.	**Total**	**60**	
	Test I + Test II + Model Test/9 (Convert for 20 Marks)	**180/9**	
	Internal Marks	**20**	

j. Model Question Paper

Sl. No.	Model Questions	Specification	Level
	PART – A Short Answer **The answer should not exceed 300 words Marks:5 x 6 = 30**		
1	a) Distinguish between the Partial Equilibrium and General Equilibrium. [or] b) explain the Edgeworth box.	Explain Examine	Understand
2	a) State the Kaldor- Hicks Criterion. [or] b) Describe the Arrow's Impossibility Theorem.	Explain Discuss	Analyse
3	a) Explain the market failure by imperfect markets. [or] b) Discuss the external economies and diseconomies of production	Identify Recall	Understand
4	a) Explain the Moral hazard problem. [or] c) Discuss the Principal-Agent Problem.	Explain Recall	Understand
5	a) State the Nash equilibrium. [or] b) Explain the sub-game perfect equilibrium.	Explain Assess	Skill

	PART – B Essay Answer The answer should not exceed 400 words Marks: 3 x 10 = 30		
6	a) Analyze the Walrasian equilibrium. [or] b) Examine the Paretian Criterion.	Discuss Explain	Understand
7	a) Assess the Kaldor- Hicks Criterion. [or] b) Examine the Market Failure by Imperfect Markets.	Examine	Analyse
8	a) Discuss the Shrinking Theory. [or] b) Analyse the Two-Person Constant-Sum Game.	Assess Identify	Skill

SEMESTER - II					
Course Code	**Course Name**	**L**	**T**	**P**	**Credits**
ECOM 202	**MACROECONOMICS –I I**	4	-	-	4

a. Course Outcome (CO)

On the successful completion of the course, the student will be able to
(Course outcomes are specific for a particular course. CO should be specific, measurable, achievable, realistic, and time-bound)

	Course Outcome	**Level**
CO 1	This course will deliver an overall understanding of modern macroeconomics	Remember
CO 2	Understand the core area of macroeconomics at advance level.	Understand
CO 3	Ability to use advance econometric techniques to acces macroeconomic issues.	Apply
CO 4	Familiarity with various theories on modern macroeconomics.	Analyze
CO 5	Advance knowledge about the various macroeconomic issues and pursuing research in macro modelling	Skill

b. Syllabus

Units	Content	Hrs.
I	**The Labour Market** Introducing Unemployment – Unemployment, GDP and the Okun'S Law; Profit Maximization and Labour Demand – Utility and Labour Supply – Neoclassical Labour Market Equilibrium – Aggregate Supply Curve in Flexible and Variable Price Money Wage Models – The Keynesian Underemployment Equilibrium.	12
II	**Inflation and Unemployment** The Classical Model of Money and Prices – Theoretical Underpinnings of Phillip's Curve – The Short-Run Phillips Curve – Inflation Expectations and the Short-Run Phillips Curve Natural Rate Hypothesis – The Long Run Phillips Curve – The Natural Rate of Unemployment – The Cost of Disinflation – The Rational Expectation and Lucas Supply Function – Policy Ineffective Theorem – The Lucas Critique – Rational Expectation and Implications of Monetary Policy.	12
III	**Theories of Business Cycles** Multiplier-Accelerator Interaction Model – Monetarists Interpretation of Business Cycles – Real Business Cycle Theory – Political Business Cycle Model.	12
IV	**The Post Keynesian Macroeconomics** Walrasian and Keynesian Adjustment Mechanism – Reinterpretation of Keynes – Dual Decision Hypothesis – Neo-Keynesian Quantity Constraint Models – Micro Theoretic Foundations for Wage and Price Rigidity – Small Menu Cost – Efficient Wage Theory – Staggered Wage Setting – Insider-Outsider Model – Models of Coordination Failure – Keynesian Reappraisal School (Clower, Leijonhufvud and Malinvaud)	12

		Macroeconomic Policy Issues	
V		Macroeconomic Policy Issues – Targets, Indicators and Instruments – Gradualism Versus Shock Therapy – The Debate Over Rules Vs. Discretion – Taylor's Rule and Monetary Policy – Role of Credibility – Dynamic Inconsistency Problem – Inflation Targeting – Issues Relating to Inflation Targeting.	12
		Tasks and Assignments: • Write assignments about different theories proposed by various schools of economic thought on labour markets, inflation and unemployment associations and business cycles. • Prepare notes on Post Keynesian version of macroeconomic models to understand price and wage rigidities. **References:** 11. David Romer (2012) "Advanced Macroeconomics", 4th edition, McGraw-Hill Irwin. 12. Olivier Blanchard, Raghuram Rajan, K. Rogoff and L. H. Summers (2016) "Progress and Confusion: The State of Macroeconomic Policy" (ed), MIT Press 13. Blanchard, O., and S. Fischer (1989) "Lectures on Macroeconomics". Cambridge, MA: MIT Press. 14. Stephen D. Williamson (2013), Macroeconomics, 5th edition, Pearson; International ed of 5th revised edition 15. Barro, R.J., (1997), Macroeconomics, Fifth edition, MIT Press 16. Sargent, T., (1987) Macroeconomic Theory, Academic Press. 17. Barro, Robert J. and Sala-i-Martin, Xavier (2007). Economic Growth, Prentice Hall of India Private Limited, 2nd edition. 18. Joseph E. Stiglitz (2010) "Freefall: America, Free Markets, and the Sinking of the World Economy" W. W. Norton & Company	

c. Mapping of Program Outcomes with Course Outcomes

	PO1	PO2	PO3	PO4	PO5
CO1	3	3	3	3	3
CO2	3	3	3	3	3
CO3	3	3	3	3	3
CO4	3	2	2	3	3
CO5	3	3	3	3	3

(If the correlation between Programme Outcome with Course Outcome is high 3 is assigned, for moderate 2, for low 1, and for 0 are assigned)

d. Evaluation Scheme

	CO1	CO2	CO3	CO4	CO5	Total
Internal	6	8	8	6	12	40
External	12	10	14	10	14	60
Total	**18**	**18**	**22**	**16**	**26**	**100**

e. Mapping Course Outcome with Internal Assessment (40 Marks)

	CO1	CO2	CO3	CO4	CO5
Assignments	2	2	-	2	2

Seminar	-	-	4	4	-
Test	5	5	4	5	5
Attendance					
Total	7	7	8	11	7

f. Mapping Course Outcome with External Assessment (60 Marks)

Category	CO1	CO2	CO3	CO4	CO5
Part – A (Objective - 10 x 1 = 10 marks)	2	2	2	2	2
Part – B (Short Answer - 5 x 4 = 20 marks)	4	4	4	4	4
Part – C (Essay- 3 x 10 = 30 marks)	10	-	-	10	10
Total	**16**	**6**	**6**	**16**	**16**

g. Rubric for Assignments (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	**Content 50%**	Ideas are detailed, well developed, supported with specific evidence & facts and examples	Ideas are detailed, Developed and supported with evidence and facts mostly specific.	Ideas are presented but not particularly developed or supported;	Content is not sound	Not attended	CO1, CO2, CO3, CO4
2	**Organiza-tion 50%**	Includes title, introduction, statement of the main idea with illustration and conclusion.	Includes title, introduction, statement of main idea and conclusion.	organizational tools are weak or missing	No organization	Not attended	CO2, CO3, CO5

h. Rubric for Seminar (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	**Knowledge and Understanding 50%**	Exceptional knowledge of facts, terms, and concepts	Detailed knowledge of facts, terms, and concepts	Considerable knowledge of facts, terms, and concepts	Minimal knowledge of facts, terms, and concepts	Not Attended	CO3, CO5
2	**Presentation 50%**	Well Communicated with logical sequences, examples, and references	Communicated with sequences	Just Communicated	No coherent communication	Not Attended	CO1, CO2, CO3, CO4, CO5

i. Rubric for Internal Test

Sl. No	Category	Marks	Relation to COs
I	**Internal Test I**		CO1, CO2

1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30		
2.	Part – B (Essay- 3 x 10 = 30 marks)	30		
3.	**Total**	**60**		
4.	**Internal Test II**			
II	Part – A (Short Answer - 5 x 6 = 30 marks)	30	CO3, CO4	
1.	Part – B (Essay- 3 x 10 = 30 marks)	30		
2.	**Total**	**60**		
3.	**Model Exam**			
4.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	CO1, CO2, CO3, CO4, CO5	
III	Part – B (Essay- 3 x 10 = 30 marks)	30		
	Total	**60**		
	Test I + Test II + Model Test / 9 (Convert for 20 Marks)	**180/9**		
	Internal Marks	**20**		

Sl. No.	Model Questions	Specification	Level
	Part – A: Objective Type **Multiple Choice Marks: 10 x 1 = 10**		
1	Which one of the following statements is correct? a) Keynes advocate demand creates its own supply b) Keynes attribute unemployment is due to lack demand c) Keynes theory is a demand deficiency theory d) All of the above are correct	Identify Recall	Understand
2	In Okun's law, if there is a_____ in real activity, then the actual unemployment is_____ than its natural rate a) expansion and lower b) expansion and higher c) reduction and lower d) all are possible	Identify Recall	Understand
3	An increase in real wage rate will increase the working hrs when the_____ dominates a) income effects b) substitution effect c) both the effects d) all are possible	Identify Recall	Understand
4	In adaptive expectation model, in the past, if inflation was higher than expected, then the anticipated future inflation will be_____ a) lower b) higher c) both a and b are possible d) zero	Identify Recall	Understand
5	An anticipated increase in the money supply will___ the price level and have_____effect on real output and employment a) raise and positive b) raise and negative c) raise and no d) none of the above	Identify Recall	Understand
6	According to Monetarists, the major source of cyclical fluctuations in economic activity is caused by_____ a) trade cycles b) growth of money supply c) technological shocks d) political instability	Identify Recall	Understand
7	Real Business cycle theories assumes that the path of aggregate output over a period of time will determine by_____ a) real shocks b) nominal shocks c) both a and b d) none	Identify Recall	Understand
8	In Walrasian models, the imbalances in the equilibrium will adjusted by_____ a) prices b) output c) both a and b d) none of the above	Identify Recall	Understand

9	In sticky price models, price are_____ when the cost associated with the price changes outweighed the_____ a) sticky and benefits b) sticky and losses c) flexible and benefits d) flexible and losses	Identify Recall	Understand
10	The wage efficiency models, the firm will increase the real wage rate up to the point where the elasticity of efficiency equals to a) zero b) four c) infinity d) none of the above	Identify Recall	Understand
PART – B Short Answer **The answer should not exceed 200 words Marks:5 x 4 = 20**		
21	a) Discuss the Neoclassical of labour leisure choice model [or] b) Discuss the principles of effective demand.	Explain Examine	Understand
22	a) Explain the original Phillips curve in detail [or] b) Explain policy ineffective theorem	Explain Discuss	Analyze
23	a) Write a description about rational expectation hypothesis [or] b) Discuss Lucas supply function	Identify Recall	Understand
24	a) Explain Small Menu cost theory and Insider-Outsider model [or] b) Write a detailed note on Subprime lending crisis	Explain Recall	Understand
PART – C Essay Answer **The answer should not exceed 400 words Marks: 3 x 10 = 30**		
25	a) Discuss the Keynesian underemployment equilibrium [or] b) Discuss the debate over Rules based policy vs Discretion policy measures from Kyland's time inconsistency problem	Examine	Understand
26	a) Explain the monetarist and adaptive expectation versions of Philips cure with proper diagrams [or] b) Write a detailed note on Walrasian and Keynesian adjustment mechanism.	Discuss Explain	Analyze
27	a) Describe the difference between the monetarist version of business cycles and RBC theories. [or] b) Write a note on the impact of global financial crisis and sub-prime lending crisis on Indian macroeconomic environment.	Assess Identify	Skill

SEMESTER - II					
Course Code	**Course Name**	**L**	**T**	**P**	**Credits**
ECOM 203	**ECONOMETRICS-I**	4	-	-	4

a. Course Outcome (CO)

On the successful completion of the course, the student will be able to

(Course outcomes are specific for a particular course. CO should be specific, measurable, achievable, realistic, and time-bound)

	Course Outcome	**Level**
CO 1	This course will introduce the students about the basic tools of econometric analysis.	Remember
CO 2	The students will understand the basic principles, concepts, theory and tools of econometrics	Understand
CO 3	Ability to work in CLRM model, regression analysis, dummy variables, and Limited dependent variable models	Apply
CO 4	Able to make applications of these methods for economic decisions and research.	Analyze
CO 5	Will help to understand advanced econometrics/ applied econometrics.	Skill

b. Syllabus

Units	Content	Hrs.
I	**The Linear Regression Analysis** Bi-variate and multi variate linear regression models, CLRM assumptions, Ordinary Least Squares estimation, Properties of OLS and the Gauss-Markov theorem. General and confidence approach to hypothesis testing, goodness of fit, ANOVA and testing of overall significance of sample regression, matrix approach to linear regression models.	12
II	**Functional forms of regression models** Choice of functional forms-Log-linear, Double log and lin-Log models, Reciprocal and polynomial models, Choice of functional form, Interpreting coefficients in different functional forms and applications, Specification error and tests for specification error.	12
III	**Relaxation of CLRM Assumptions and Problems in Regression** Violation of CLRM assumptions and its consequences, detection and remedial measures of multicollinearity, heteroskedasticity and autocorrelation.	12
IV	**Regression with qualitative/ dummy variables** The nature of dummy variables, Regression on dummy (qualitative) variables with two categories, with more than two categories-intercept shifters, dummy variable trap, interaction of two categorical variables, interaction of categorical and continuous (quantitative) variables-slope shifters, piecewise linear regression model, Chow test for cross-section data and for time-series data	12
V	**Discrete Response Models** Introduction to binary and limited dependent variable, Limitation of the linear probability model (LPM), Method of maximum likelihood estimation and its properties (including consistency), Probit, Logit	12

	models, Multinomial models, ordinal models.	
	Tasks and Assignments: • Write assignments about econometric methods and estimations methods in the context of simultaneous equation frame work, dynamic and autoregressive models **References:** 1. Greene, William H. Econometric Analysis. 6th Edition, Prentice Hall. 2008. 2. Johnston J. and DiNardo, J. Econometric Methods. 4th Ed. McGraw-Hill 1997. 3. Greene Ramanathan, Ramu, Introductory Econometrics with Applications, 5th edition, 2002, Thomson Asia Pvt Ltd., Singapore. 4. Gujarati, D and Porter, Basic Econometrics, Fifth Edition, McGraw Hill/Irwin, 2009 5. Stock, James H., and Mark W. Watson (2006): Introduction to Econometrics, Second Edition, (Addison-Wesley Series in Economics). 6. Wooldridge, J., Introductory Econometrics: A Modern Approach, 2015, Nelson Education. 7. G.S. Maddala – Introduction to Econometrics. Wiley Publishers (Indian edition) 8. Christopher Dougherty, Introduction to Econometrics, Oxford University Press, 3rd edition, Indian edition, 2007.	

c. Mapping of Program Outcomes with Course Outcomes

	PO1	PO2	PO3	PO4	PO5
CO1	3	3	3	3	3
CO2	3	3	3	3	3
CO3	3	3	3	3	3
CO4	3	2	2	3	3
CO5	3	3	3	3	3

(If the correlation between Programme Outcome with Course Outcome is high 3 is assigned, for moderate 2, for low 1, and for 0 are assigned)

d. Evaluation Scheme

	CO1	CO2	CO3	CO4	CO5	Total
Internal	8	8	10	8	6	40
External	13	13	14	14	6	60
Total	**21**	**21**	**24**	**22**	**12**	**100**

e. Mapping Course Outcome with Internal Assessment (40 Marks)

	CO1	CO2	CO3	CO4	CO5
Assignments	2	2	-	2	2
Seminar	-	-	4	4	-
Test	5	6	6	5	2
Attendance	-	-	-	-	-
Total	**7**	**8**	**12**	**11**	**4**

f. Mapping Course Outcome with External Assessment (60 Marks)

Category	CO1	CO2	CO3	CO4	CO5
Part – A (Objective - 10 x 1 = 10 marks)	2	2	2	2	2
Part – B (Short Answer - 5 x 4 = 20 marks)	4	4	4	4	4
Part – C (Essay- 3 x 10 = 30 marks)	10	-	10	10	-
Total	**16**	**6**	**16**	**16**	**6**

g. Rubric for Assignments (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	**Content 50%**	Ideas are detailed, well developed, supported with specific evidence & facts and examples	Ideas are detailed, Developed and supported with evidence and facts mostly specific.	Ideas are presented but not particularly developed or supported;	Content is not sound	Not attended	CO1, CO2, CO3, CO4
2	**Organiza-tion 50%**	Includes title, introduction, statement of the main idea with illustration and conclusion.	Includes title, introduction, statement of main idea and conclusion.	organizational tools are weak or missing	No organization	Not attended	CO2, CO3, CO5

h. Rubric for Seminar (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	**Knowledge and Understanding 50%**	Exceptional knowledge of facts, terms, and concepts	Detailed knowledge of facts, terms, and concepts	Considerable knowledge of facts, terms, and concepts	Minimal knowledge of facts, terms, and concepts	Not Attended	CO3, CO5
2	**Presentation 50%**	Well Communicated with logical sequences, examples, and references	Communicated with sequences	Just Communicated	No coherent communication	Not Attended	CO1, CO2, CO3, CO4, CO5

i. Rubric for Internal Test

Sl. No	Category	Marks	Relation to COs
I	**Internal Test I**		CO1, CO2
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	

Sl. No.			
3.	**Total**	**60**	
4.	**Internal Test II**		
II	Part – A (Short Answer - 5 x 6 = 30 marks)	30	
1.	Part – B (Essay- 3 x 10 = 30 marks)	30	CO3, CO4
2.	**Total**	**60**	
3.	**Model Exam**		
4.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	CO1, CO2,
III	Part – B (Essay- 3 x 10 = 30 marks)	30	CO3, CO4,
	Total	**60**	CO5
	Test I + Test II + Model Test / 9 (Convert for 20 Marks)	**180/9**	
	Internal Marks	**20**	

j. Model Question Paper

Sl. No.	Model Questions	Specification	Level
	Part – A: Objective Type **Multiple Choice** **Marks: 10 x 1 = 10**		
1	In $Y_i = \beta_1 + \beta_2 X_i + u_i$, u_i_____ a) Represents the missing values of Y b) Acts as proxy for all the omitted variables that may affect Y c) Acts as proxy for important variable that affect Y d) Represents measurement errors	Identify Recall	Understand
2	In regression model $Y_i = \beta_1 + \beta_2 X_{2i} + \beta_3 X_{3i} + u_i$ testing the overall significance of the model using F-test, degrees of freedom used is (k-1), (n-k), where k is equal to a) 2 b) 3 c) 4 d) Sample size	Identify Recall	Understand
3	For Cobb-Douglas production function given as $Y_t = \beta_1 X_{2t}^{\beta_2} X_{3t}^{\beta_3} e^{u_i}$, Y=output, X_2=labour input and X_3=capital input; the test for constant returns to scale hypothesis is stated as a) $H_0: \beta_1 + \beta_2 + \beta_3 = 1$ b) $H_0: \beta_2 + \beta_3 = 1$ c) $H_0: \beta_1 + \beta_2 + \beta_3 = 0$ d) $H_0: \beta_1 = \beta_2 = \beta_3 = 1$	Identify Recall	Understand
4	In trying to test that females earn less than their male counterparts we estimate the following model: $Y_i = \beta_1 + \beta_2 D_i$, where Y=average earnings per day in Rs, D = 1 for females and 0 otherwise. β_2 here refers to a) Average earnings of male b) Average earnings of female c) Differential intercept coefficient for male earnings d) Differential intercept coefficient for female earnings	Identify Recall	Understand
5	If for set of explanatory variables X_2 and X_3, the coefficients of correlation is equal to 1, this means that between X_2 and X_3, there exits_____ collinearity a) No b) Low level c)Perfect d) High	Identify Recall	Understand
6	As a remedy to multicollinearity, doing this may lead to specification bias	Identify Recall	Understand

	a) Transforming the variables b) Adding new data c) Dropping one of the collinear variables d) First differencing the successive values of the variable		
7	Hetroscedasticity may arise due to various reasons. Which one of these is NOT a reason a) Extremely low or high values of X and Y coordinates in the dataset b) Correlation of variables over time c) Incorrect specification of the functional form of the model d) Incorrect transformation of variables	Identify Recall	Understand
8	A time series sample data is considered stationary if the following characteristics of the series are time invariant: a) Mean b) Variance c) Covariance d) All of the above	Identify Recall	Understand
9	The *d*-statistics value is limited to a) 0 to 2 b) 2 to 4 c) 0 to 4 d) 4 ± 2	Identify Recall	Understand
10	The slope coefficient in logit model measures a) The change in the average value of the regress and for a unit change of regressor b) The change in the probability of an event occurring as a result of a unit change in value of a regressor c) Elasticity of change d) The change in the log of the offs associated with a unit change in value of a regressor	Identify Recall	Understand
	PART – B Short Answer **The answer should not exceed 200 words Marks:5 x 4 = 20**		
21	a) Discuss in briefly the following with proper equations: (i) log-linear model (ii) semi-log model (or) b) (i) reciprocal model (ii) logarithmic reciprocal model.	Explain Examine	Understand
22	a) (or) b)	Explain Discuss	Analyze
23	a) (or) b)	Identify Recall	Understand
24	a) (or) b)	Explain Recall	Understand
	PART – C Essay Answer **The answer should not exceed 400 words Marks: 3 x 10 = 30**		
25	a) Elaborate the assumptions of CLRM with the help of equations. (or) b) Examine the methodology of econometrics.	Examine	Understand
26	a) Discuss the nature, causes and practical consequences of Multicollinearity (or) b) Define autocorrelation. Explain the Durbin-Watson d statistic for detecting autocorrelation.	Discuss Explain	Analyze
27	a) Define interactive dummy and explain its uses in regression analysis with the appropriate interpretation. (or) b) Examine the nature of Qualitative Response Models with an example.	Assess Identify	Skill

	Semester - II				
Course Code	**Course Name**	**L**	**T**	**P**	**Credits**
ECOM-204	**Economic Growth And Development**	4	-	-	4

Course Objectives:
The objective of the course is to elaborate on the different models of growth and development and discusses various development issues in terms of poverty, human resources, environment and health.

Learning **Outcome**
The course will provide an understanding of growth and development models and enable the students to operationalise the important concepts.

	Course Outcome	**Level**
CO 1	To learn the growth models	Remember
CO 2	Theories of economic development	Understand
CO 3	Indicators of Economic Development (PQLI, HDI, SDGs) and Social sector development related to different countries	Apply
CO 4	Human Resources and Labour Markets Analysis	Analyze
CO 5	Growth models	Skill

Units	Contents	Hours
Unit-1	**Growth models:** Harrod Domar-knife edge equilibrium problem, Cambridge models-Joan Robinson, Kaldor, Neoclassical growth models- Solow Swan Model–the emergence of endogenous growth models. Technological progress embodied and disembodied – Hicks and Harrod version, production function approach to growth, total factor productivity and growth accounting	12
Unit-2	**Theories of Economic Development:** Adam Smith, Ricardo, Marx, Schumpeter and Rostow Balanced and Unbalanced growth - big push approach- Lewis model of surplus labour, Myrdal on economic development.	10
Unit-3	**Indicators of Economic Development (PQLI, HDI, SDGs) and Social sector development:** Health, education and gender. Poverty and Inequality: Different approaches - Capability Approach - The estimation of treatment effects in randomized experiments and observational data.	12
Unit-4	**Human Resources and Labour Markets:** The population as a challenge-Malthusian notion-Simon's Challenge-demographic indicators. Demographic Dividend-New Challenges-Changing Demographic structure; segmented labour markets, unemployment (Harris-Todaro model, labour turnover model, efficiency wage hypothesis).	10
Unit-5	**Environment and Development:** Measuring environmental values, economic growth and environment – sustainable development.	10

	Environmental degradation. Environment evaluation and policy impact.	
	Reference List:	

1. Hayami, Y (2001) Development Economics: From Poverty to the Wealth of Nations, 2nd Edition, OUP
2. Alain de Janvry and Elisabeth Sadoulet (2016), Development Economics: Theory and Practice, Routledge.
3. H.G. Jones (1976), "An Introduction to Modern Theories of Economic Growth" McGraw-Hill Book Company
4. Angus Deaton (2013): The Great Escape: Health, Wealth and the Origins of Inequality,
5. Princeton University Press.

6. Thirlwall (2006), Growth and development with special reference to developing countries, Palgrave Macmillan.
7. Michael P. Tadaro,(1998), Economic Development Longman
8. Debraj Ray, (1999) Development Economics, Oxford University Press
9. K.Basu, (1997) Analytical Development Economics, MIT Press Additional Readings
10. Perkins, Radelet, Lindauer and Block (2012) Economics of Development (seventh edition), W.W.Norton& Company.
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12. Agenor, P-R., and P. J. Montiel (2008) Development Macroeconomics, Princeton University Press.

13. Abhijit V. Banerjee, Esther Duflo (2019) Good Economics for Hard Times, PublicAffairs

14. Subramanian, S (2012), The Poverty Line (Oxford India Short Introductions Series). Oxford University Press: Delhi.
15. Ehrman and T.N Sreenivasan, Handbook of Economic Development, Vol.3, Elsevier Amsterdam.
16. Krugman, 1995, Development, Geography and economic theory, MIT press Meier and James E
17. Perman, R., Ma, Y., McGilvray, J. and Common, M. (2013): Natural Resource and Environmental Economics, Pearson.

d. Evaluation Scheme

	CO1	CO2	CO3	CO4	CO5	Total
Internal	8	8	8	8	8	40
External	12	12	12	12	12	60
Total	**20**	**20**	**20**	**20**	**20**	**100**
e. Mapping Course Outcome with Internal Assessment (40 Marks)						
	CO1	CO2	CO3	CO4	CO5	

Assignments	2	2	2	2	2
Seminar	2	2	2	2	2
Test	4	4	4	4	4
Total	8	8	8	8	8

f. Mapping Course Outcome with External Assessment (60 Marks)

Category	CO1	CO2	CO3	CO4	CO5
Essay- 6 x 10 = 60 marks	**12**	**12**	**12**	**12**	**12**
Total	**12**	**12**	**12**	**12**	**12**

g. Rubric for Assignments (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	**Content** **50%**	Ideas are detailed, well developed, and supported with specific evidence & facts and examples	Ideas are detailed, Developed and supported with evidence and facts mostly specific.	Ideas are presented but not particularly developed or supported;	The content is not sound	Not attended	CO1, CO2, CO5
2	**Organiza -tion** **50%**	Includes title, introduction, statement of the main idea with illustration and conclusion.	Includes title, introduction, statement of main idea and conclusion.	organizational tools are weak or missing	No organization	Not attended	CO1, CO2, CO5

h. Rubric for Seminar (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	**Knowledge and Understandin g** **50%**	Exceptional knowledge of facts, terms, and concepts	Detailed knowledge of facts, terms, and concepts	Considerable knowledge of facts, terms, and concepts	Minimal knowledge of facts, terms, and concepts	Not Attende d	CO3, CO4

2	Presentation 50%	Well Communicated with logical sequences, examples, and references	Communicated with sequences	Just Communicated	No coherent communication	Not Attended	CO3, CO4

i. Rubric for Internal Test

Category	Marks	Relation to COs
Internal Test I		
(Essay- 2 x 10 = 20 marks)	20	CO1, CO2
Total		
Internal Test II	**20**	CO3 CO4
(Essay- 2 x 10 = 30 marks)		
Total		
Model Exam		
(Essay- 6 x 10 = 60 marks)	**60**	CO!,CO2, CO3,CO4,CO5
Total		
Internal Marks (Convert for 20 Marks)		

Sl. No.	Model Questions	Specification	Level
1	How far the growth theory of Gunnar Myrdal is relevant in addressing different development issues of poor countries?	Explanation	Understand
2	Explain Fei-Ranis's theory of development.		Understand
3	Write a short note on the significance of poverty and inequality measurements.		Analyse
4	Explain the relevance of the New (endogenous) growth theory in defining macroeconomic determinants.		Analyse
5	What are the contributions of James Tobin?		Analysis
6	In what way, balanced Vs Unbalanced theories of growth is significant for developing countries?		Understand
7	How far Harrod-Domar growth model is important in defining different growth rates?		Skill
8	Illustrate the environment evaluation techniques		Skill

SEMESTER - III					
Course Code	**Course Name**	**L**	**T**	**P**	**Credits**
ECOM-301	International Economics	4	-	-	4

a. Course Outcome (CO)

On the successful completion of the course, the student will be able to
(Course outcomes are specific for a particular course. CO should be specific, measurable, achievable, realistic, and time-bound)

	Course Outcome	**Level**
CO 1	Students would learn the concepts of the international trade and economic relevance of the subject.	Remember
CO 2	There are different periods of theories to Linkages between international trade and contemporary trade economy that would be enlightened to the students.	Understand
CO 3	Utilization of the scientific tools and with use of mathematical modelling to generate a great level of international trade outreach.	Apply
CO 4	Adequate trading theories and related scientific modelling are will emphasize on new international trade policy.	Analyze
CO 5	The students had little acquaintance with the Knowledge of international trade issues and policies are following research for made uplift the trade market with efficiently.	Skill

b. Syllabus

Units	Content	Hrs.
I	**Unit-1: Introduction to Trade** Adam Smith and Absolute Advantage, Labor Productivity and Comparative Advantage: The Ricardian comparative advantage model. Trade, Growth, and Economic Interrelatedness, Trade and National Characteristics, the Structure of Trade, Gains from trade with homogenous and heterogeneous agents, Offer curves: derivation; properties, related elasticities; Equilibrium Terms of Trade.	12
II	**Unit-2: Trade Theories** Hecksher-Ohlin model, Stolper-Samuelson, Rybcznski theorem and factor-price equalization theorem, Leontief paradox, empirical validity, Specific-factor model as a short-run approximation	12
III	**Unit-3: Strategic Trade Policy** Tariffs and welfare dynamics for small and large countries perspective:-; Tariffs versus quantitative restrictions; the optimum tariff; Empirical modelling of trade policy; Monopolistic competition models of trade, Tariff versus quota under monopoly. Voluntary import expansion and export restrictions. Export Quotas, Subsidy, Dumping -Forms of Dumping -Antidumping and International Price Discrimination. Metzler Paradox; Effective. Rate of protection	12
IV	**Unit-4: Balance of Payments and Macro Adjustment Mechanisms** Balance of Payments, Capital Flows, National Accounts Determinants and Foreign exchange Market Equilibrium, The Elasticity Approach, Marshall-Lerner Condition, Multipliers, Mundell-Fleming Model, Purchasing Power Parity, Fischer Effect, Monetary Approach,	12

		Overshooting, Monetary Policy and Fiscal Policy, Fixed and Flexible Exchange Rate Regimes, Sterilization, Monetary and Fiscal Intervention, Devaluation and BOP Crisis, Capital Flight	
V		**Unit-5: Economic Integration and International Institutions** Forms of Economic and regional Integration: Regional Agreements ASEAN, NAFTA, European Union, Customs Union-Partial Equilibrium Analysis of Customs Union Trade Creation and Trade Diversion. Objectives and functions of IMF, IBRD, WTO, Free trade areas.	12
		Tasks and Assignments: • Formulate an assignment by using trade theories to strategic trade policy to discover and quantify preference of new methods and its meticulousness over improving international economics ideas and policy. • Prepare comparative empirical understanding on economic integration with international trade benefit. **References:** • Krugman P. R. and Obsfeild M. (2006) International Economics-Theory and Policy, (5th Edition). • Addison Wesley Soderston, B. and Reed G. (1998) - International Economics, 3rd Edition, McMillan Press Ltd., • London Carbaugh, R. J (1994) International Economics, (11th Edition). Thomson South Western, New Delhi • Salvatore, D (2000) International Economics, (8th Edition). Wiley India, New Delhi • Keith Pilbeam (2001) International Finance, 3rd edition, • Palgrave Feenstra. R., Advanced International Trade: Theory and Evidence, Princeton University Press, 2009. • Bhagwati, J., A. Panagariya, and T. Srinivasan. Lectures on International Trade (2ndedition), MIT Press, 1998 • Van Marrewijk, C., International Economics, Oxford University Press, 2007. • Caves, R, R. Jones, and J. Frankel, World Trade and Payments: an Introduction, Addison-Wesley, 1993. • Paul R. Krugman & Maurice Obstfeild: International Economics, Pearson Education Dornbusch: Open Economy Macro Economy, Basic Books, New York • Caves Frankel & Jones: World Trade & Payments: An Introduction, Pearson Education • James Gerber (2013) International Economics. Pearson, 6th edition Henry Thompson (2009) International Economics: Global Markets and Competition, Cambridge University Press.	

c. Mapping of Program Outcomes with Course Outcomes

	PO1	PO2	PO3	PO4	PO5
CO1	3	3	3	3	3
CO2	3	3	3	3	3
CO3	2	3	3	2	3
CO4	2	3	3	2	3

| CO5 | 3 | 3 | 3 | 3 | 2 |

(If the correlation between Programme Outcome with Course Outcome is high 3 is assigned, for moderate 2, for low 1, and for 0 are assigned)

d. Evaluation Scheme

	CO1	CO2	CO3	CO4	CO5	Total
Internal	6	8	8	10	8	40
External	12	10	12	13	13	60
Total	**18**	**18**	**20**	**23**	**21**	**100**

e. Mapping Course Outcome with Internal Assessment (40 Marks)

	CO1	CO2	CO3	CO4	CO5
Assignments	-	-	5	-	5
Seminar			10		
Test	4	4	4	4	4
Total	4	4	19	4	9

f. Mapping Course Outcome with External Assessment (60 Marks)

Category	CO1	CO2	CO3	CO4	CO5
Part – A **(Short Answer - 5 x 6 = 30 marks)**	6	6	6	6	6
Part – B **(Essay- 3 x 10 = 30 marks)**			10	10	10
Total	**6**	**6**	**16**	**16**	**16**

g. Rubric for Assignments (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	**Content** **50%**	Subject visions are detailed, well developed, supported with specific evidence & facts and examples	Subject visions are detailed, Developed and supported with evidence and facts mostly specific.	Subject visions are presented but not particularly developed or supported;	The content is not sound	Not attended	CO1, CO2
2	**Organiza-tion** **50%**	Includes title, introduction, statement of the main idea with illustration and conclusion.	Includes title, introduction, statement of main idea and conclusion.	organizational tools are weak or missing	No organization	Not attended	CO1, CO2, CO5

h. Rubric for Seminar (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	**Knowledge and Understanding** **50%**	Exceptional knowledge of facts, terms, and concepts	Detailed knowledge of facts, terms, and concepts	Considerable knowledge of facts, terms, and concepts	Minimal knowledge of facts, terms, and concepts	Not Attended	CO3, CO4.
2	**Presentation** **50%**	Well Communicated with logical sequences, examples, and references	Communicated with sequences	Just Communicated	No coherent communication	Not Attended	CO3, CO4

i. Rubric for Internal Test

Sl.No	Category	Marks	Relation to COs
I	**Internal Test I**		CO1, CO2
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	
	Total	**60**	
II	**Internal Test II**		CO3, CO4
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	
	Total	**60**	
III	**Model Exam**		CO1, CO2, CO3, CO4, CO5
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	
	Total	**60**	
	Test I + Test II + Model Test / 9 (Convert for 20 Marks)	**180/9**	
	Internal Marks	**20**	

j. Model Question Paper

Sl. No.	Model Questions	Specification	Level
	PART – A Short Answer **The answer should not exceed 300 words Marks:5 x 6 = 30**		
1	a) Explain the Adam Smith's Absolute Advantage theory. [or] b) Examine the Ricardian comparative advantage model gains from international trade?	Explain Examine	Understand
2	a) Explain the tariffs and welfare dynamics for small and large countries [or] b) Discuss tariff versus quota under monopoly.	Explain Discuss	Analyse
3	a) Make a note on Balance of Payments and Capital Flows. [or] b) Explain the Elasticity Approach and Marshall-Lerner Condition	Identify Recall	Understand
4	a) Explain the empirical model of Hecksher-Ohlin model. [or] b) How is it differentiating from the H-O model to Leontief paradox.	Explain Recall	Understand
5	a) What are the Forms of Economic and regional Integration? [or] b) Assess the outreach of the Regional Agreements like ASEAN and NAFTA.	Explain Assess	Skill
	PART – C Essay Answer **The answer should not exceed 400 words Marks: 3 x 10 = 30**		
6	a) Explain in detail the Ricardian comparative advantage model. [or] b) Describe the structure of Trade and Gains from trade with homogenous and heterogeneous agents.	Examine	Understand
7	a) Elucidate Rybcznski theorem and factor-price equalization theorem. [or] b) Explain the Empirical modelling of trade policy.	Discuss Explain	Analyse
8	a) Make a note on the Monetary Policy and Fiscal Policy with and without intervention. [or] b) Describe Partial Equilibrium Analysis of Customs Union Trade.	Assess Identify	Skill

SEMESTER - III					
Course Code	**Course Name**	**L**	**T**	**P**	**Credits**
ECOM 302	**ECONOMETRICS-II**	4	-	-	4

a. Course Outcome (CO)

On the successful completion of the course, the student will be able to

	Course Outcome	**Level**
CO 1	This course will introduce the students to the tools of time series econometric analysis.	Remember
CO 2	The students will understand the principles of time series econometric analysis.	Understand
CO 3	Ability to work advance time series methods	Apply
CO 4	Able to make applications of these methods for economic decisions and research.	Analyze
CO 5	Will help to apply this in their applied empirical research.	Skill

b. Syllabus

Units	Content	Hrs.
I	**Simultaneous Equations Models** Structural Equation Models – Specification, Endogenous, Exogenous and Predetermined Variables – Simultaneity Bias – Structural Versus Reduced Form – Identification: Rank Versus Order Condition, Exact and Over Identifications – Methods of Estimation: Indirect Least Squares, Instrumental Variable Estimation – Two-Stage Least Squares and Three-Stage Least Squares – Seemingly Unrelated Regression and Its Application.	12
II	**Univariate Time Series Analysis** Introduction of Time Series – Characteristics of Time Series Data – Lag Operator – Stochastic Process – Characteristics of Stochastic Processes – Means, Covariance, Auto Covariance and Autocorrelation Functions – Stationary and Non-Stationary Random Variables – Different Types of Non-Stationary Process – Concept of Unit Roots-Testing for Unit Roots – Autoregressive Models AR (P) – Moving Average Models MA (Q) – Autoregressive -Moving Average Models ARMA (P,Q) – Autoregressive-Integrated Moving Average Models ARIMA (P,D, Q) – Identification, Estimation and Diagnosing Model Adequacy – Forecasting through the Framework of Box-Jenkins Model – Volatility models – Modelling High Frequency Data – Testing For Arch Effect-Arch/Garch Models	12
III	**Multivariate Stationary and Non-Stationary Processes** Introduction to VAR Analysis – Impulse Response Function and Variance Decomposition Function – Causality in Time Series – Granger Causality Test and Toda and Yamamoto Causality Tests – Introduction to Cointegarion – Co-Integration and Error Correction Model – Testing for Co-Integration – Engle – Granger Methodology – Johansen Methodology – Time Series Forecasting Using VAR/VECM.	12
IV	**Autoregressive and Distributed Lag Models** Role of Lag in Economics – Estimation of Distributed/Lag Models – Adaptive Expectation and Partial Adjustment Models – Koyck	12

		Approach and Almon Transformations.	
V		**Panel Data Models** Panel Data Approach – Fixed Effect Model and Random Effect Model – Pooled or Population Average Model – Estimation of Coefficients – Specification Test, FGLS - Dynamic panel data models.	12
		Tasks and Assignments: • Write assignments about econometric methods and estimations methods in the context of simultaneous equation frame work, dynamic and autoregressive models **References:** 9. Greene, William H. Econometric Analysis. 6th Edition, Prentice Hall. 2008. 10. Ramanathan, Ramu, Introductory Econometrics with Applications, 5th Edition, 2002, Thomson Asia Pvt Ltd., Singapore. 11. Enders, W., Applied Econometric Time Series, Second Edition, John Wiley and Sons, 2006. 12. Baltagi, B. H. (2008) Econometric Analysis of Panel Data (Fourth Ed.) Chi Chester, UK:Wiley Additional Readings 13. Maddala, G (1992) Introduction to Econometrics, 2nd Ed., New York: Macmillan. 14. Johnston, J (1995) – Econometric Methods, 3rd Edition, New York: Mcgraw Hill 15. Wooldridge. Jeffry (2007) "Introductory Econometrics: A Modern Approach". Thomson Asia Pvt Ltd., Singapore. 16. Hamilton, JD6 (1994) Time Series Econometrics, Princeton University Press. 17. Tsay, R. S.: "Analysis of Financial Time Series", 2005. 18. Verbeek, M.: "A Guide To Modern Econometrics", 2nd Edition, 2004 19. Gujrati, D: "Basic Econometrics" 4th Edition, 2004 20. Patterson, K, "An Introduction To Applied Econometrics A Time Series Approach",	

c. Mapping of Program Outcomes with Course Outcomes

	PO1	PO2	PO3	PO4	PO5
CO1	3	3	3	3	3
CO2	3	3	3	3	3
CO3	3	3	3	3	3
CO4	3	2	2	3	3
CO5	3	3	3	3	3

(If the correlation between Programme Outcome with Course Outcome is high 3 is assigned, for moderate 2, for low 1, and for 0 are assigned)

d. Evaluation Scheme

	CO1	CO2	CO3	CO4	CO5	Total
Internal	8	8	10	8	6	40
External	13	13	14	14	6	60
Total	**21**	**21**	**24**	**22**	**12**	**100**

e. Mapping Course Outcome with Internal Assessment (40 Marks)

	CO1	CO2	CO3	CO4	CO5
Assignments	2	2	-	2	2
Seminar	-	-	4	4	-
Test	5	6	6	5	2
Attendance	-	-	-	-	-
Total	**7**	**8**	**12**	**11**	**4**

f. Mapping Course Outcome with External Assessment (60 Marks)

Category	CO1	CO2	CO3	CO4	CO5
Part – A (Objective - 10 x 1 = 10 marks)	2	2	2	2	2
Part – B (Short Answer - 5 x 4 = 20 marks)	4	4	4	4	4
Part – C (Essay- 3 x 10 = 30 marks)	10	-	10	10	-
Total	**16**	**6**	**16**	**16**	**6**

g. Rubric for Assignments (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	**Content 50%**	Ideas are detailed, well developed, supported with specific evidence & facts and examples	Ideas are detailed, Developed and supported with evidence and facts mostly specific.	Ideas are presented but not particularly developed or supported;	Content is not sound	Not attended	CO1, CO2, CO3, CO4
2	**Organiza-tion 50%**	Includes title, introduction, statement of the main idea with illustration and conclusion.	Includes title, introduction, statement of main idea and conclusion.	organizational tools are weak or missing	No organization	Not attended	CO2, CO3, CO5

h. Rubric for Seminar (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	**Knowledge and Understanding 50%**	Exceptional knowledge of facts, terms, and concepts	Detailed knowledge of facts, terms, and concepts	Considerable knowledge of facts, terms, and concepts	Minimal knowledge of facts, terms, and concepts	Not Attended	CO3, CO5
2	**Presentation 50%**	Well Communicated with logical sequences, examples, and references	Communicated with sequences	Just Communicated	No coherent communication	Not Attended	CO1, CO2, CO3, CO4, CO5

i. Rubric for Internal Test

Sl. No	Category	Marks	Relation to COs
I	**Internal Test I**		
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	CO1, CO2
3.	**Total**	**60**	
4.	**Internal Test II**		
II	Part – A (Short Answer - 5 x 6 = 30 marks)	30	
1.	Part – B (Essay- 3 x 10 = 30 marks)	30	CO3, CO4
2.	**Total**	**60**	
3.	**Model Exam**		
4.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	CO1, CO2,
III	Part – B (Essay- 3 x 10 = 30 marks)	30	CO3, CO4,
	Total	**60**	CO5
	Test I + Test II + Model Test / 9 (Convert for 20 Marks)	**180/9**	
	Internal Marks	**20**	

j. Model Question Paper

Sl. No.	Model Questions	Specification	Level
	Part – A: Objective Type **Multiple Choice Marks: 10 x 1 = 10**		
1	If OLS is applied separately to each equation that is part of a simultaneous system, the resulting estimates will be a) biased but consistent b) biased and inconsistent c) unbiased and consistent d) unbiased and inconsistent	Identify Recall	Understand
2	In reduced form equation, each endogenous variable is expressed a) as a function of only predermined variables and error b) as a function of other endogenous variables and error c) both a and b are possible d) none of the above	Identify Recall	Understand
3	In simultaneous equation models, a system of equations is identified only when_____equations are identified a) structural b) reduced form c) all d) no	Identify Recall	Understand
4	A regression model that includes only the lagged values of its own is known as -_____ models a) AR models b) MA models c) ARMA models d) ARIMA	Identify Recall	Understand
5	To solve the problems of using more lags, Koyck proposed a model with_____ of b's a) geometric raise b) geometric decline c) polynomial raise d) polynomial decrease	Identify Recall	Understand
6	In the estimated correlogram, if there is only a single spike at first lag of ACF and PACF shows an exponential decay, then_____model may fit the best model a) AR (1) b) MA (1) c) ARMA (1, 1) d) ARIMA (1, 1)	Identify Recall	Understand
7	In the following equation $y_t = \rho y_{t-1} + u_t$, if the estimated p is greater than one then the series is having_____process	Identify Recall	Understand

	a) random walk b) white noise c) stochastic d) explosive		
8	The precondition for causality tests is that both the series must be a) random walk b) stationary c) non-stationary d) stochastic	Identify Recall	Understand
9	Which of the following statement is correct? a) For 'n' number of variables, there exist an 'n-1' number of cointegration b) For Engle-Granger method, both the series must integrate at the same order c) If the variables are integrated in different order, then ARDL model has to be estimated d) All of the above	Identify Recall	Understand
10	In panel data, the data set with same number of observations for all group is called as _____ panel a) balanced panel b) unbalance c) pooled data d) longitudinal data	Identify Recall	Understand
	PART – B Short Answer **The answer should not exceed 200 words Marks:5 x 4 = 20**		
21	a) Define the following concepts with an appropriate equations and example Spurious regression b) White Noise c) Random Walk model d) VAR model (or) b) Explain the following concepts with appropriate equations a) Structural equations b) Reduced form c) Simultaneous equation bias	Explain Examine	Understand
22	a) Explain, the concept of identification, order and rank condition with an equation in detail (or) b) Using rank and order condition, find out the identification nature of all the equations given in the given system. $y_1 = 3y_2 - 2x_1 + x_2 + u_1$ $y_2 = 4y_3 + 3x_3 + u_2$ $y_3 = y_1 - y_2 - 2x_3 + u_3$	Explain Discuss	Analyze
23	a) Explain the concept of stationary, different types of non-stationary process and steps involved in testing the stationary process with its mathematical expressions (or) b) Explain the role and importance of lags in Economics.	Identify Recall	Understand
24	a) Explain the fixed effect and random effect models. (or) b) What is meant by SUR models? How it is superior over the other estimation methods of simultaneous equation models - Explain	Explain Recall	Understand
	PART – C Essay Answer **The answer should not exceed 400 words Marks: 3 x 10 = 30**		
25	a) Explain the structure of 2SLS and 3sls models. (or) b) Discuss the structure of the Koyack and Almon transformations models and their major differences.	Examine	Understand
26	a) Stationary properties of a time series is very important in forecast – Discuss with an example (or) b) Discuss the identification, estimation, diagnostic checking forecasting process of ARIMA models with an example	Discuss Explain	Analyze
27	a) Discuss functional equations and testing procedures of the granger causality tests, with an example (or) b) Explain the concept of cointegration and discuss the testing procedures for single equation approach	Assess Identify	Skill

SEMESTER - III					
Course Code	**Course Name**	**L**	**T**	**P**	**Credits**
ECOM-303	Indian Economic Issues	4	1	-	5

a. Course Outcome (CO)

On the successful completion of the course, the student will be able to

	Course Outcome	**Level**
CO 1	Students will understand overall issues related Indian economy	Remember
CO 2	Students will be enlightened about the development phases of India, state of agricultural sector, industrial sector, services sector, infrastructure sector, poverty, unemployment, human development and money and finances.	Understand
CO 3	Students will apply their knowledge to understand the future growth prospects of India	Apply
CO 4	Familiarity of the students about the economic problems of India will deepen their analytical knowledge about the Indian economy.	Analyze
CO 5	Knowledge of Indian economy will make the students skillful in doing advanced research on core economic problems of India	Skill

b. Syllabus

Units	Content	Hrs.
I	**Unit-1: Development Phases of Indian Economy** The Colonial legacy, State of the economy at independence, policy of planned development, new economic policy, performance of the economy since 1991, major aspects of transformations and recent developments.	12
II	**Unit-2: Agricultural, Industrial and Services Sectors** Agriculture: pattern and structure of growth, major challenges and policies. Industry: pattern and structure of growth, major challenges and policy responses, role of MSME, Services: pattern and structure of growth, major challenges and policy responses.	12
III	**Unit-3: Infrastructure and Information Technology Sectors** State of infrastructure, physical and social infrastructure in India, types of infrastructure, contributions of infrastructure sector to the economic development, public-private partnerships in infrastructure building	12
IV	**Unit-4: Poverty, Unemployment and Human Development** Estimates of inequality and poverty measures for India, measurement of unemployment in India, India's human development record in global perspective, appraisal of Government measures on reducing poverty and unemployment and improving over all human development in India.	12
V	**Unit-5: Money and Finance in India** Money and capital markets, changing role of RBI, financial sector reforms, monetary policy of RBI, stock exchanges, working of SEBI and capital market reforms, Development finance Institutions.	12
	Tasks and Assignments: • Prepare an assignment on poverty, unemployment and human development in India. • Prepare a case study on India's recent development initiatives	

References:
1. Ahluwalia Isher Judge; Little I.M.D: Manmohan Singh, India's economic reforms and development: Essays for Manmohan Singh, Oxford University Press.
2. Uma Kapila, Indian Economy: Performance and Policies, Academic Foundation.
3. Uma Kapila, Indian Economy Since Independence: A comprehensive and critical analysis of India's economy.
4. Gaurav Datt, Shwani Mahajan, Datt and Sundharam's Indian Economy, Schand publishing.
5. EPW articles.
6. Kaushik Basu, India's Emerging Economy: Performance and Prospects in the 1990s and Beyond, the MIT Press, 2004.
7. Krueger A (ed), Economic Policy Reforms and the Indian Economy, Oxford University Press, 2003.
8. India Development Report, Oxford University Press, various issues.
9. Pratiyogita Darpan Indian Economy 2018.
10. www.macroscan.org.

c. Mapping of Program Outcomes with Course Outcomes

	PO1	PO2	PO3	PO4	PO5
CO1	3	3	3	3	3
CO2	3	3	3	3	2
CO3	2	3	3	2	3
CO4	2	2	3	2	3
CO5	3	2	3	3	2

(If the correlation between Programme Outcome with Course Outcome is high 3 is assigned, for moderate 2, for low 1, and for 0 are assigned)

d. Evaluation Scheme

	CO1	CO2	CO3	CO4	CO5	Total
Internal	6	8	8	10	8	40
External	12	10	12	13	13	60
Total	18	18	20	23	21	100

e. Mapping Course Outcome with Internal Assessment (40 Marks)

	CO1	CO2	CO3	CO4	CO5
Assignments	-	-	5	-	5
Seminar			10		
Test	4	4	4	4	4
Total	4	4	19	4	9

f. Mapping Course Outcome with External Assessment (60 Marks)

Category	CO1	CO2	CO3	CO4	CO5
Part – A (Short Answer - 5 x 6 = 30 marks)	6	6	6	6	6

Part – B (Essay- 3 x 10 = 30 marks)			10	10	10
Total	**6**	**6**	**16**	**16**	**16**

g. Rubric for Assignments (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	**Content** **50%**	Ideas are detailed, well developed, supported with specific evidence & facts and examples	Ideas are detailed, Developed and supported with evidence and facts mostly specific.	Ideas are presented but not particularly developed or supported;	The content is not sound	Not attended	CO1, CO2
2	**Organiza-tion** **50%**	Includes title, introduction, statement of the main idea with illustration and conclusion.	Includes title, introduction, statement of main idea and conclusion.	organizational tools are weak or missing	No organization	Not attended	CO1, CO2, CO5

h. Rubric for Seminar (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	**Knowledge and Understanding** **50%**	Exceptional knowledge of facts, terms, and concepts	Detailed knowledge of facts, terms, and concepts	Considerable knowledge of facts, terms, and concepts	Minimal knowledge of facts, terms, and concepts	Not Attended	CO3, CO4
2	**Presentation** **50%**	Well Communicated with logical sequences, examples, and references	Communicated with sequences	Just Communicated	No coherent communication	Not Attended	CO3, CO4

i. Rubric for Internal Test

Sl.No	Category	Marks	Relation to COs
I	**Internal Test I**		
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	CO1, CO2
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	
4.	**Total**	**60**	
II	**Internal Test II**		
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	CO3, CO4
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	
4.	**Total**	**60**	
III	**Model Exam**		CO1, CO2, CO3, CO4, CO5
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	
4.	**Total**	**60**	
	Test I + Test II + Model Test / 9 (Convert for 20 Marks)	**180/9**	
	Internal Marks	**20**	

j. Model Question Paper

Sl. No.	Model Questions	Specification	Level
	PART – A Short Answer **The answer should not exceed 300 words Marks:5 x 6 = 30**		
1	a) Write about the colonial legacy in India [or] b) Discuss about the state of the economy in India at the time of independence.	Explain Examine	Understand
2	a) Describe the major challenges faced by the agriculture sector in India [or] b) Describe the major challenges faced by the industrial sector in India	Explain Discuss	Analyse
3	a) Write about the importance of infrastructure development in India's future development [or] b) Write about the scope for PPP in infrastructure building in India	Identify Recall	Understand
4	a) Write about the poverty estimates in India [or] b) Discuss about the India's human development index from the international perspective.	Explain Recall	Understand
5	a) Discuss about the role of RBI in India. [or] b) Assess the capital market reforms in India	Explain Assess	Skill
	PART – B Essay Answer **The answer should not exceed 400 words Marks: 3 x 10 = 30**		
6	a) Examine the New Economic Policy introduced in India in 1991 [or] b) Discuss in detail about the major structural transformation of the Indian economy since independence.	Examine	Understand
7	a) Discuss in detail about the agricultural and industrial development in India. [or] b) Give a detailed overview of India's infrastructure sector	Discuss Explain	Analyse
8	a) Examine the government initiatives to reduce the problem of unemployment and poverty in India [or] b) Elucidate about the working of money and capital market in India	Assess Identify	Skill

SEMESTER - III					
Course Code	**Course Name**	**L**	**T**	**P**	**Credits**
ECOM 304	Public Economics	4	-	-	4

a. Course Outcome (CO)

On the successful completion of the course, the student will be able to

	Course Outcome	**Level**
CO 1	Students would understand the role of government in the economy.	Remember
CO 2	The need for public provision of public goods and its outcome.	Understand
CO 3	Theory of taxation and expenditure would educate on future policies.	Apply
CO 4	Students would analyse the fiscal federal relations and its impact.	Analyze
CO 5	Fiscal policy instruments and their impact on the macro economy will be analysed.	Skill

b. Syllabus

Units	Content	Hrs.
I	**Unit-1: Public Economics, Government and theory of Public Goods** Introduction to Public economics, Role of state, Market versus Government, Public goods and externalities, merit goods, Samuelson theory, free rider problem, median voter theorem, theory of rent seeking.	12
II	**Unit-2: Theory of Taxation** Direct and indirect taxes, efficiency and equity, dead weight loss ,Theory of taxation, tax incidence and shifting, Optimal taxation, measuring progressivity and effect of taxation, Tax reforms.	12
III	**Unit-3: Public Expenditure and the Macro-economy** Determining optimal size of government, Growth of expenditure, theories of expenditure, financing of public expenditure: debt versus tax financing, impact of public expenditure on the level and composition of output, designing optimal government expenditure policy: issues of size and composition, designing subsidy policy: health and education expenditure policy in India.	12
IV	**Unit-4: Federal Fiscal relations;** Theory of fiscal federalism, Vertical assignment, Horizontal and vertical fiscal imbalances, Federal fiscal transfers, issues of equity and efficiency, designing equalisation transfers, conditional and unconditional grants, fiscal federalism in India: transfer mechanisms, role of Finance commission and other resource mediating agencies, Issues of Implicit transfers.	12
V	**Unit-5: Fiscal Policy Issues** Budget deficit and public debt: Keynesian, neo-classical, and Ricardian equivalence, debt dynamics and sustainability, Fiscal policy and objectives, interdependence of fiscal and monetary policies, Rule based fiscal policy and budget management.	12
	Tasks and Assignments: - Examine the public expenditure and its impact on the economy growth. - Discuss the role of economic theory in fiscal and monetary policy. **References:** - Atkinson, A. and Stiglitz, J., Lectures in Public Economics, McGraw Hill, 1980 - Oates, E. Wallace, Fiscal federalism, Harcourt brace Jovanovich, New	

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- Chelliah, R.J., Towards Sustainable Growth: Essays in Fiscal and Financial sector reforms in India, Oxford University Press, 1996
- Govinda Rao M. and T. K. Sen, Fiscal Federalism in India: Theory and Practice, 1996
- Srivastava, D. K. (Ed.) Fiscal Federalism in India: Contemporary Challenges and Issues before Eleventh Finance Commission, NIPFP and Har-Anand, 2001
- Shome, P. (Ed.) Handbook of Indirect Taxes, IMF Publications, 1996
- Srivastava, D.K., T.K. Sen et al. Government Subsidies in India, NIPFP, 1997

c. Mapping of Program Outcomes with Course Outcomes

	PO1	PO2	PO3	PO4	PO5
CO1	3	3	2	3	3
CO2	3	3	3	3	3
CO3	3	2	3	3	3
CO4	3	3	3	3	3
CO5	2	3	3	3	2

(If the correlation between Programme Outcome with Course Outcome is high 3 is assigned, for moderate 2, for low 1, and for nil 0 are assigned)

d. Evaluation Scheme

	CO1	CO2	CO3	CO4	CO5	Total
Internal	8	8	8	6	10	40
External	12	13	10	12	13	60
Total	20	21	18	18	23	100

e. Mapping Course Outcome with Internal Assessment (40 Marks)

	CO1	CO2	CO3	CO4	CO5
Assignments		5		5	
Seminar	2	2	2	2	2
Test	4	4	4	4	4
Total	6	11	6	11	6

f. Mapping Course Outcome with External Assessment (60 Marks)

Category	CO1	CO2	CO3	CO4	CO5
Part – A (Short Answer - 5 x 6 = 30 marks)	6	6	6	6	6
Part – B (Essay- 3 x 10 = 30 marks)		10	10		10
Total	6	16	16	6	16

g. Rubric for Assignments (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	**Content** **50%**	Ideas are detailed, well developed, and supported with specific evidence and facts.	Ideas are detailed and specific.	Ideas are presented but not Supported.	The content does not cover the topic.	Not attended	CO1, CO2
2	**Organization** **50%**	The assignment is very exact and well written and organized as expected.	The assignment is well organized.	The organization of the Assignment is not Meaningful.	No organization	Not attended	CO1, CO2, CO5

h. Rubric for Seminar (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	**Knowledge and Understanding** **50%**	Exceptional knowledge of facts, terms, and concepts	Detailed knowledge of facts, terms, and concepts	Considerable knowledge of facts, terms, and concepts	Minimal knowledge of facts, terms, and concepts	Not Attended	CO3, CO4
2	**Presentation** **50%**	Well Communicated with logical sequences, examples, and references	Communicated with sequences	Just Communicated	No coherent communication	Not Attended	CO3, CO4

i. Rubric for Internal Test

Sl.No	Category	Marks	Relation to COs
I	**Internal Test I**		
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	CO1, CO2
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	
II	**Internal Test II**		
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	CO3, CO4
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	

III	Model Exam		CO1, CO2, CO3, CO4, CO5
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	
	Test I + Test II + Model Test / 9 (Convert for 20 Marks)	**180/9**	
	Internal Marks	**20**	

j. Model Question Paper

Sl. No.	Model Questions	Specification	Level
	PART – A Short Answer **The answer should not exceed 300 words Marks:5 x 6 = 30**		
1	a) What is the nature and scope of public economics? b) How do public goods lead to externalities?	What How	Understand Analyse
2	a) What are the merits and demerits of direct and indirect taxes b) Distinguish between tax incidence and shifting?	What How	Understand Analyse
3	a) Enumerate theories of public expenditure. b) What are the sources of financing for public expenditure?	Enumerate What	Understand
4	a) Write a note on the issues of equity and efficiency. b) Explain the role of the finance commission.	Note Explain	Understand
5	a) Suggest some measures to manage budget deficit and public debt. b) Discuss the Ricardian equivalence in public economics.	Suggest Discuss	Skill
	PART – C Essay Answer **The answer should not exceed 500 words Marks: 3 x 10 = 30**		
6	a) Discuss the tax reforms since independence in India and their impact on the economy. b) Examine the health and education expenditure policy in India.	Discuss Examine	Understand
7	a) Enumerate the impact of public expenditure on the level and composition of output. b) Explain the various theory of fiscal federalism.	Enumerate Explain	Understand
8	a) Discuss the interdependence of fiscal and monetary policies. b) Give your opinion on rule-based fiscal policy and budget management.	Discuss Opinion	Skill

SEMESTER - IV					
Course Code	**Course Name**	**L**	**T**	**P**	**Credits**
ECOM 401	Resources and Environmental Economics	4	-	-	4

a. Course Outcome (CO)

On the successful completion of the course, the student will be able to

	Course Outcome	**Level**
CO 1	The importance of environmental economics and its economic relevance to the subject will be understood.	Remember
CO 2	The contribution of the environmental economist towards managing natural resources for attaining sustainable development will be educated.	Understand
CO 3	Quantitative techniques for valuing environmental goods through various methods would necessitate research knowledge.	Apply
CO 4	Students learn the various methods of regulating or controlling pollution for ensuring environmental management.	Analyze
CO 5	Environmental issues and initiatives of the world would enlighten the students to find the apt policy for attaining sustainable development	Skill

b. Syllabus

Units	Content	Hrs.
I	**Unit 1: Foundation of Environmental Economics** Nature and Scope of Environmental Economics, Economy - Environment - Ecology Inter- linkage - Material Balance Model, Individual Choice versus Social Choice, Market Failure, Theory of Externality, Pigouvian fees - single polluter and Multiple Polluters.	12
II	**Unit 2: Resources Economics and Sustainable Development** Hotelling's Rule, Solow - Hartwick's Rule, Market Structure and optimal extraction policy, resource scarcity: game theory and the common property Resources, the tragedy of Commons, environmental Kuznets Curve - Green GDP, limit to growth, Sustainable development	12
III	**Unit 3: Environmental Valuation** Valuation of Environmental Benefits, Economic Value of Environment-Use value, non-use value, instrumental value, and intrinsic value-Market and non-market valuation; Physical linkage methods; Revealed and stated preference methods	12
IV	**Unit 4: Regulation of Environmental** Regulation - Rationale for the market solution, instrument – Command, and control versus market mechanisms; Uncertainty and instrument choice; regulatory compliance and enforcement; Eco-taxes and other fiscal measures; Monitoring emissions and enforcement. India's environmental policy to protect the environment.	12
V	**Unit 5: Global Environmental Issues** Transboundary pollution, the economics of global warming, the impact of trade on environment and environment on trade, Porter's hypothesis, Pollution havens hypothesis, International Conventions, RIO Conventions. Climate change problems. Kyoto protocol, UNFCC, Bali Action Plan, Post-2015 agreements, Green Climate Fund.	12

Tasks and Assignments:
- Write an assignment on methodology, environmental and economic factors for measuring Green GDP.
- Lack of coordination and commitments around the globe has affected the sustainability of the environmental resources-Discuss.

References:
- Kolstad, C., Environmental Economics, Oxford University Press, 2000 Baumol, W.J, and W.E. Oates, The Theory of Environmental Policy, Cambridge University Press, 1988
- Freeman, A. M., The Measurement of Environmental and Resource Values, 2nd Edition, Resources for the Future, 2003 Hanley, N., J.F. Shogren, and B. White, Environmental Economics: In Theory and Practice, Macmillan India Ltd., 1997
- Chopra C (2009) Handbook of Environmental Economics in India, Oxford India
- Ram Prasad Sengupta (2001) Ecology and Economics, Oxford University Press
- Rabinda Bhattachary N (2001) Environmental Economics - An Indian Perspective, Oxford University Press, Delhi
- Intergovernmental Panel on Climate Change. (2014). Fifth Assessment Report.
- Timothy C.Habb and John C. Whitehead, (ed), Environmental and Natural Resources Economics, An Encyclopedia, Greenwood, Oxford, 2014.

c. Mapping of Program Outcomes with Course Outcomes

	PO1	PO2	PO3	PO4	PO5
CO1	3	3	3	3	3
CO2	3	2	3	3	2
CO3	2	3	2	2	3
CO4	2	2	2	2	3
CO5	3	2	3	3	2

(If the correlation between Programme Outcome with Course Outcome is high 3 is assigned, for moderate 2, for low 1, and 0 are assigned)

d. Evaluation Scheme

	CO1	CO2	CO3	CO4	CO5	Total
Internal	10	8	8	6	8	40
External	13	10	13	12	12	60
Total	**23**	**18**	**21**	**18**	**20**	**100**

e. Mapping Course Outcome with Internal Assessment (40 Marks)

	CO1	CO2	CO3	CO4	CO5
Assignments	-	-	5	-	5
Seminar	2	2	2	2	2
Test	4	4	4	4	4
Total	6	6	11	6	11

f. Mapping Course Outcome with External Assessment (60 Marks)

Category	CO1	CO2	CO3	CO4	CO5
Part – A (Short Answer - 5 x 6 = 30 marks)	6	6	6	6	6
Part – B (Essay- 3 x 10 = 30 marks)	10			10	10
Total	16	6	6	16	16

g. Rubric for Assignments (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	Content 50%	Ideas are detailed, well developed, and supported with specific evidence and facts.	Ideas are detailed and specific.	Ideas are presented but not Supported.	The content does not cover the topic.	Not attended	CO1, CO2
2	Organization 50%	The assignment is very exact and well written and organized as expected.	The assignment is well organized.	The organization of the Assignment is not Meaningful.	No organization	Not attended	CO1, CO2, CO5

h. Rubric for Seminar (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	Knowledge and Understanding 50%	Exceptional knowledge of facts, terms, and concepts	Detailed knowledge of facts, terms, and concepts	Considerable knowledge of facts, terms, and concepts	Minimal knowledge of facts, terms, and concepts	Not Attended	CO3, CO4
2	Presentation 50%	Well Communicated with logical sequences, examples, and references	Communicated with sequences	Just Communicated	No coherent communication	Not Attended	CO3, CO4

i. Rubric for Internal Test

Sl.No	Category	Marks	Relation to COs
I	**Internal Test I**		
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	CO1, CO2
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	
II	**Internal Test II**		
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	CO3, CO4
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	
III	**Model Exam**		CO1, CO2,
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	CO3, CO4,
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	CO5
	Test I + Test II + Model Test / 9 (Convert for 20 Marks)	**180/9**	
	Internal Marks	**20**	

j. Model Question Paper

Sl. No.	Model Questions	Specification	Level
	PART – A Short Answer **The answer should not exceed 300 words** **Marks:5 x 6 = 30**		
1	a) Write a note on traditional and modern circular flow models. [or] b) Distinguish between GDP and Green GDP.	Note Distinguish	Understand
2	a) Briefly examine the environment Kuznets curve hypothesis. [or] b) How tragedy of commons leads to pollution?	Examine How	Analyse
3	a) Distinguish between weak and strong sustainability. [or] b) What are the various stages in the productivity method with a hypothetical situation?	Distinguish What	Understand
4	a) Give a summary of various national and international environmental policies. [or] b) Write a note on Pollution Havens Hypotheses.	Summary Note	Understand
5	a) Suggest policies for managing forest and marine resources? [or] b) What are the impacts of transboundary pollution?	Suggest Impact	Skill
	PART – C Essay Answer **The answer should not exceed 500 words** **Marks: 3 x 10 = 30**		
6	a) Explain the interlinkages between the economy and the environment. [or] b) Discuss the Limits to Growth Model and its relevance in overcoming environmental issues.	Explain Discuss	Understand
7	a) Explain various stages in the CVM with its limitations. [or] b) Elucidate the travel cost method and its relevance in measuring the value of the environment.	Explain Elucidate	Understand
8	a) Describe Pollution-Haven Hypothesis with empirical evidence for the case of India. [or] b) Describe the management of Common Property Resources with game theory.	Describe	Analyse

MA ECONOMICS - ELECTIVES					
Course Code	**Course Name**	**L**	**T**	**P**	**Credits**
ECOM-DSE-01	Agricultural Economics	4	1	-	5

a. Course Outcome (CO)
On the successful completion of the course, the student will be able to

	Course Outcome	**Level**
CO 1	Students will understand the issues concerned with overall development of the agricultural sector in India	Remember
CO 2	Students will be enlightened about the various aspects of agricultural economics such as production economics, farm management climate change and role of policies in agricultural sector development.	Understand
CO 3	Students will apply their knowledge to give suitable policy recommendations for the development of agriculture sector in India.	Apply
CO 4	Students' analytical knowledge about the various problems of the agricultural sector will be enriched.	Analyze
CO 5	Knowledge of agricultural sector will enhance the ability of the students to engage in high quality research	Skill

b. Syllabus

Units	Content	Hrs.
I	**Unit-1: Production economics and farm management** Production process, economic principles of farm management, resource management and allocation, basic concepts- marginal returns, returns to scale, economies of scale, technology and input use, law of comparative advantage.	12
II	**Unit-2: Risk and uncertainty in agriculture** Decision theory and elements of risk and uncertainty in agriculture, measurement of risk, adjustment to risk, types of risk, estimation of risk, management response to risk, linear programming.	12
III	**Unit-3: Climate change and agricultural sustainability** Impact of climate change, weather pattern and monsoon on Indian agriculture, climate change adaptation and mitigation policies and practices, organic farming, sustainable agriculture and its initiatives in India.	12
IV	**Unit-4: Agricultural sector output, employment and capital formation** Role agriculture in Gross Domestic Product (GDP) and employment, growth in agricultural output and employment, capital formation in agriculture, agrarian changes in India	12
V	**Unit-5: Agricultural policies and programmes in India** Agricultural policies towards subsidies, support prices, food security, climate change, insurances, marketing and storage, WTO polices.	12
	Tasks and Assignments: • Prepare an assignment on the agriculture sectors contribution to employment, GDP and capital formation in India	

- Prepare a case study on impact of climate change on agriculture sector in India

References:
1. Cramer Gail L (2010) Agricultural Economics, Routledge.
2. Andrew Barkley and Paul W. Barkley, Principles of Agricultural Economics, Routledge.
3. Heady, Earl O and John L. Dillon, Agricultural Production Functions, Iowa State University Press.
4. Heady Earl O, Economics of Agricultural Production and use, Prentice Hall.
5. Michael P. Todaro & Stephen C. Smith, Economic Development, Pearson India.
6. S. Subba Reddy, P. Raghu Ram, T V Neelakanta Sastry and I. Bhavani Devi, Agricultural Economics, Oxford and IBH Publishing Co, Pvt.Ltd.
7. Hanumantha Rao C H, Agricultural Growth, Farm Size and Rural Poverty Alleviation in India, Academic foundation, New Delhi.
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9. Vaidyanathan A, Agricultural Growth in India Role of Technology, Incentives and Institutions, Oxford University Press.
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12. Penson, Capps, and Rosson, Introduction to Agricultural Economics, Prentice Hall.
13. Seitz, Nelson, Halcrow, Economics of Resources, Agriculture and Food, Waveland Pr Inc; 2 edition (June 17, 2009).
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15. Bhalla, G.S., (2007) Indian Agriculture Since Independence, National Book Trust, New Delhi.
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22. Ministry of Agriculture (2018): Report of the Committee for Doubling Farmer Incomes, selected section.
23. Negi, D.S. and Ramaswami, B. (2019): Basis Risk in Index Insurance: Lower Tail Dependence and the Demand for Weather Insurance.
24. Ramaswami, B.C. and Lalitha, N. (2012): "The Spread of Illegal Transgenic Cotton Varieties in India: Biosafety Regulation, Monopoly and Enforcement", World Development.
25. Roy, D.; Joshi, P.K. and Chandra, R. (2017): Pulses for Nutrition in India: Changing Patterns from Farm to Fork.
26. Sekhri, S. (2013): Sustaining Groundwater: Role of Policy Reforms in Promoting Conservation in India.? In Shekhar Shah, Barry Bosworth and Arvind Panagariya, editors, India Policy Forum, volume 9.
27. Vargas, R.; Hill, M. Robles and Ceballos, F. (2016): "Demand for a Simple Weather Insurance Product in India: Theory and Evidence", American Journal of Agricultural Economics.

c. Mapping of Program Outcomes with Course Outcomes

	PO1	PO2	PO3	PO4	PO5
CO1	3	3	3	3	3
CO2	3	3	3	3	2
CO3	2	3	3	2	3
CO4	2	2	3	2	3
CO5	3	2	3	3	2

(If the correlation between Programme Outcome with Course Outcome is high 3 is assigned, for moderate 2, for low 1, and for 0 are assigned)

d. Evaluation Scheme

	CO1	CO2	CO3	CO4	CO5	Total
Internal	6	8	8	10	8	40
External	12	10	12	13	13	60
Total	18	18	20	23	21	100

e. Mapping Course Outcome with Internal Assessment (40 Marks)

	CO1	CO2	CO3	CO4	CO5
Assignments	-	-	5	-	5
Seminar			10		
Test	4	4	4	4	4
Total	4	4	19	4	9

f. Mapping Course Outcome with External Assessment (60 Marks)

Category	CO1	CO2	CO3	CO4	CO5
Part – A (Short Answer - 5 x 6 = 30 marks)	6	6	6	6	6
Part – B (Essay- 3 x 10 = 30 marks)			10	10	10
Total	6	6	16	16	16

g. Rubric for Assignments (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	**Content** **50%**	Ideas are detailed, well developed, supported with specific evidence & facts and examples	Ideas are detailed, Developed and supported with evidence and facts mostly specific.	Ideas are presented but not particularly developed or supported;	The content is not sound	Not attended	CO1, CO2
2	**Organiza -tion** **50%**	Includes title, introduction, statement of the main idea with illustration and conclusion.	Includes title, introduction, statement of main idea and conclusion.	organizational tools are weak or missing	No organization	Not attended	CO1, CO2, CO5

h. Rubric for Seminar (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	**Knowledge and Understandin g** **50%**	Exceptional knowledge of facts, terms, and concepts	Detailed knowledge of facts, terms, and concepts	Considerable knowledge of facts, terms, and concepts	Minimal knowledge of facts, terms, and concepts	Not Attende d	CO3, CO4
2	**Presentation** **50%**	Well Communicate d with logical sequences, examples, and references	Communicate d with sequences	Just Communicate d	No coherent communicatio n	Not Attende d	CO3, CO4

i. Rubric for Internal Test

Sl.No	Category	Marks	Relation to COs
I	**Internal Test I**		CO1, CO2
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	

2.	Part – B (Essay- 3 x 10 = 30 marks)	30	
4.	**Total**	**60**	
II	**Internal Test II**		CO3, CO4
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	
4.	**Total**	**60**	
III	**Model Exam**		CO1, CO2, CO3, CO4, CO5
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	
4.	**Total**	**60**	
	Test I + Test II + Model Test / 9 (Convert for 20 Marks)	**180/9**	
	Internal Marks	**20**	

j. Model Question Paper

Sl. No.	Model Questions	Specification	Level
	PART – A Short Answer **The answer should not exceed 300 words Marks:5 x 6 = 30**		
1	a) Write about the economic principles of farm management [or] b) Examine the technology and input use in agriculture sector in India	Explain Examine	Understand
2	a) Write about the gambling nature of agriculture sector in India. [or] b) Discuss about the measurement and estimation of risk in agriculture sector	Explain Discuss	Analyse
3	a) Write about the organic farming in India [or] b) Elucidate about the importance of sustainable farming in India	Identify Recall	Understand
4	a) Discuss about the capital formation in Indian agriculture [or] b) Delineate about the agrarian change in India.	Explain Recall	Understand
5	a) Examine the agricultural subsidies in India [or] b) Write about the state of agricultural insurance in India	Explain Assess	Skill
	PART – B Essay Answer **The answer should not exceed 400 words Marks: 3 x 10 = 30**		
6	a) Discuss in detail about the resource management in agriculture sector in India. [or] b) Write about the government initiatives to protect the farmers from the risks involved in farming in India.	Examine	Understand
7	a) Discuss in detail about climate change and its impact on Indian agriculture [or] b) Describe the government initiatives to protect the farm sector from the adverse effects of climate change	Discuss Explain	Analyse
8	a) Discuss in detail about the importance of agriculture sector in achieving economic development in India. [or] b) Discuss in detail about the WTO and its implications for the development agriculture sector in India	Assess Identify	Skill

MA ECONOMICS - ELECTIVES					
Course Code	Course Name	L	T	P	Credits
ECOM-DSE-03	ECONOMIC DEMOGRAPHY	4	-	-	4

Course Objectives:
The objective of the course is to elaborate on the different models of growth and development and discusses various development issues in terms of poverty, human resources, environment and health.

Learning **Outcome**
The course will provide an understanding of growth and development models and enable the students to operationalise the important concepts.

	Course Outcome	Level
CO 1	Demographic data	Remember
CO 2	Changing the role of family	Understand
CO 3	Population data and its impact	Apply
CO 4	Population and economic growth	Analyze
CO 5	Population data analysis – Demographic dividend	Skill

Units	Contents	Hours
Unit-1	**Introduction:** The World Demographic Situation and Its Consequences - Population in the news media and Trends in the World Population - Population age distribution and their consequences.	12
Unit-2	**Changing Economic Roles and the Family** Theories of Changing Family Life -The Changing Economic Roles of Women -The Changing Family and the Economics of Marriage -The Economics of Fertility: Quantity–Quality and Value of Time.	10
Unit-3	**Unit-3: Consequences of Population Growth** The Grand Theories -Optimum, Equilibrium, and Technological Progress -Optimum Population, Wage and Rents -Malthusian Theory: Population Equilibrium and Welfare; Population and natural resources: Paul Ehrlich -Optimistic Theories on Population: Julian Simon and Ester Boserup -Contemporary views on population growth: Naturalistic views on population	12
Unit-4	**Unit-4: Population, Savings, and Economic Growth** Changing Population – Age structure, Demographic transition – saving and growth; life cycle and aggregate saving; Pessimistic and Optimistic views	10
Unit-5	**Unit-5: Demographic Dividend** Relationship between Demographic Change and Economic Growth, The Demographic Transition Theory; The Demographic Transition in India -demographic tax – Dividend rate	10
	Reference List: 1. Ronald Lee (2003) "The Demographic Transition: Three Centuries of Fundamental Change," 2. Journal of Economic Perspectives v. 17, n. 4, Fall 2003, pp. 167–190.	

3. http://pubs.aeaweb.org/doi/pdfplus/10.1257/0895330037720
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4. Alex C Ezeh, John Bongaarts and Blessing Mberu (2012) "Global
Population Trends and Policy Options" The Lancet (July 10)
doi:10.1016/S0140-6736(12)60696-5.
http://www.sciencedirect.com/science/article/pii/S01406736126
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5. Cheryl Stauffer "Building Pyramids" Population Today v.27 n.5
(May 1999) p.3. http://www.prb.org/pdf/PT_may99.pdf

d. Evaluation Scheme

	CO1	CO2	CO3	CO4	CO5	Total
Internal	8	8	8	8	8	40
External	12	12	12	12	12	60
Total	**20**	**20**	**20**	**20**	**20**	**100**

e. Mapping Course Outcome with Internal Assessment (40 Marks)

	CO1	CO2	CO3	CO4	CO5
Assignments	2	2	2	2	2
Seminar	2	2	2	2	2
Test	4	4	4	4	4
Total	8	8	8	8	8

f. Mapping Course Outcome with External Assessment (60 Marks)

Category	CO1	CO2	CO3	CO4	CO5
Essay- 6 x 10 = 60 marks	**12**	**12**	**12**	**12**	**12**
Total	**12**	**12**	**12**	**12**	**12**

g. Rubric for Assignments (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	**Content 50%**	Ideas are detailed, well developed, and supported with specific evidence & facts and examples	Ideas are detailed, Developed and supported with evidence and facts mostly specific.	Ideas are presented but not particularly developed or supported;	The content is not sound	Not attended	CO1, CO2, CO5

2	**Organiza-tion** **50%**	Includes title, introduction, statement of the main idea with illustration and conclusion.	Includes title, introduction, statement of main idea and conclusion.	organizational tools are weak or missing	No organization	Not attended	CO1, CO2, CO5

h. Rubric for Seminar (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	**Knowledge and Understanding** **50%**	Exceptional knowledge of facts, terms, and concepts	Detailed knowledge of facts, terms, and concepts	Considerable knowledge of facts, terms, and concepts	Minimal knowledge of facts, terms, and concepts	Not Attended	CO3, CO4
2	**Presentation** **50%**	Well Communicated with logical sequences, examples, and references	Communicated with sequences	Just Communicated	No coherent communication	Not Attended	CO3, CO4

i. Rubric for Internal Test

Category	Marks	Relation to COs
Internal Test I		
(Essay- 2 x 10 = 20 marks)	20	CO1, CO2
Total		
Internal Test II	**20**	CO3 CO4
(Essay- 2 x 10 = 30 marks)		
Total		
Model Exam		
(Essay- 6 x 10 = 60 marks)	**60**	CO!,CO2, CO3,CO4,CO5
Total		
Internal Marks (Convert for 20 Marks)		

Answer any 6 out of 8 Questions

SL NO	Model Questions	Specification	Level
1	Explain in detail the theory of optimum population.		Understand

2	Write short notes on a) Demographic transition b) Age structure of population c) Demographic dividend	Explanation	Understand
3	Critically examine the pessimistic vs optimistic views on the population.		Skill
4	Analyze the changing economic roles of women. What impact does it have on family and society?		Analyze
5	Explain the impact of demographic change on economic growth and savings. What are its implications for development policy?		Skill
6	Define fertility. Explain in detail the different factors that influence fertility.		Understand
7	Discuss the problem of population explosion. Suggest some measures for its effective control.		Understand
8	Examine critically the Malthusian theory of population. Is it relevant to modern-day population problems?		Analyze

MA ECONOMICS - ELECTIVES					
Course Code	**Course Name**	**L**	**T**	**P**	**Credits**
ECOM-DSE-04	Economics of Education	4		-	4

a. Course Outcome (CO)
On the successful completion of the course, the student will be able to
(Course outcomes are specific for a particular course. CO should be specific, measurable, achievable, realistic, and time-bound)

	Course Outcome	**Level**
CO 1	Understanding the significance of Economics of Education.	Understand
CO 2	Analyzing the Education and Economic Development.	Remember
CO 3	Knowing the Role of State in Financing Education.	Apply
CO 4	Assessing the Methods of Financing Education.	Analyze
CO 5	Ability to know the Production of Education.	Skill

b. Syllabus

Units	Content	Hrs.
I	**Unit-1: Introduction to Economics of Education** Human capital theory; Critique of human capital theory: Job-competition, Screening, and Signaling hypothesis, Education, earnings and national wellbeing, Education and employment – viz., segmented labour market theories, Rate of return to education: cost-benefit analysis, cost-effectiveness analysis	14
II	**Unit-2: Education and Economic Development** Contribution of education to economic growth, Denison's growth accounting Contribution of labour; Endogenous Growth Theories	10
III	**Unit-3: Public Finance: Role of State in Financing Education** Principles of financing education: Equity, Efficiency, Adequacy; Education and distribution, inequality; Distribution of public spending on education; Importance of public expenditure on education; its impact on development; Determinants of expenditure on education – Public Household	14
IV	**Unit-4: Methods of Financing Education:** Sources of funding: Public, Private; Public funding of education: Taxes – General, Earmarked; Grants, Vouchers; Fee as a source of finances; scholar loans; Mobilisation of Resources for Education Private sector, community contributions; External aid.	12
V	**Unit-5: Production of Education:** The role of different inputs -Role of School Resources -Role of Teachers -Role of Incentives.	10
	Tasks and Assignments: • Prepare an assignment the Education and Economic Development • Prepare an assignment the Role of State in Financing Education. **References:**	

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- Bowman M.J., et al: eds. Readings in Economics of Education. UNESCO, 1962.
- Carnoy, M., ed. (1995) International Encyclopaedia of Economics of Education. Oxford.
- Pergamon Johnes, G and Johnes, J., eds. International Handbook on the Economics of Education.
- Psacharopoulos, G., ed. (1987) Economics of Education. New York: Pergamon.
- Schultz, T.W. (1971) Investment in Human Capital. New York: Free Press Vaizey, John (1962): Economics of Education. London: Faber & Faber Eric A. Hanushek (From the Handbook of Economics of Education, Hanushek).
- Darling-Hammond, L., Holtzman, D. J., Gatlin, S. J., & Vasquez Heilig, J. (2005). Does teacher preparation matter? Evidence about teacher certification, Teach for America, and teacher effectiveness, Education Policy Analysis Archives, 13(42).
- http://epaa.asu.edu/epaa/v13n42/ Raj Chetty, John N. Friedman, Jonah E. Rockoff, "Great Teaching: Measuring its effects on students' future earning" http://educationnext.org/files/ednext_20123_Friedman.pdf.
- W. Steven Barnett, "Benefit-Cost Analysis of the Perry Preschool Program and Its Policy Implications" Educational Evaluation and Policy Analysis, 7 (4), pp. 3

c. Mapping of Program Outcomes with Course Outcomes

	PO1	PO2	PO3	PO4	PO5
CO1	3	3	3	2	3
CO2	3	3	3	2	3
CO3	3	3	3	2	3
CO4	3	3	3	3	2
CO5	3	3	3	3	2

(If the correlation between Programme Outcome with Course Outcome is high 3 is assigned, for moderate 2, for low 1, and for 0 are assigned)

d. Evaluation Scheme

	CO1	CO2	CO3	CO4	CO5	Total
Internal	6	10	8	8	8	40
External	13	12	13	12	10	60
Total	19	22	21	20	18	100

e. Mapping Course Outcome with Internal Assessment (40 Marks)

	CO1	CO2	CO3	CO4	CO5
Assignments	5	-	5	-	-

Seminar	-	10	-	-	-
Test	4	4	4	4	4
Total	**9**	**14**	**9**	**4**	**4**

f. Mapping Course Outcome with External Assessment (60 Marks)

Category	CO1	CO2	CO3	CO4	CO5
Part – A (Short Answer - 5 x 6 = 30 marks)	6	6	6	6	6
Part – B (Essay- 3 x 10 = 30 marks)	10	10	10		
Total	**16**	**16**	**16**	**6**	**6**

g. Rubric for Assignments (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	**Content** **50%**	Ideas are detailed, well developed, supported with specific evidence & facts and examples	Ideas are detailed, Developed and supported with evidence and facts mostly specific.	Ideas are presented but not particularly developed or supported;	The content is not sound	Not attended	CO1, CO2, CO3
2	**Organiza-tion** **50%**	Includes title, introduction, statement of the main idea with illustration and conclusion.	Includes title, introduction, statement of main idea and conclusion.	organizational tools are weak or missing	No organization	Not attended	CO1, CO2, CO3

h. Rubric for Seminar (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	**Knowledge and Understanding** **50%**	Exceptional knowledge of facts, terms, and concepts	Detailed knowledge of facts, terms, and concepts	Considerable knowledge of facts, terms, and concepts	Minimal knowledge of facts, terms, and concepts	Not Attended	CO2, CO3
2	**Presentation** **50%**	Well Communicated with logical sequences, examples, and references	Communicated with sequences	Just Communicated	No coherent communication	Not Attended	CO2, CO3

i. Rubric for Internal Test

Sl.No	Category	Marks	Relation to COs
I	**Internal Test I**		
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	CO1, CO2
4.	**Total**	**60**	
II	**Internal Test II**		
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	CO3, CO4
4.	**Total**	**60**	
III	**Model Exam**		
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	CO1, CO2, CO3, CO4, CO5
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	
4.	**Total**	**60**	
	Test I + Test II + Model Test/9 (Convert for 20 Marks)	**180/9**	
	Internal Marks	**20**	

j. Model Question Paper

Sl. No.	Model Questions	Specification	Level
	PART – A Short Answer **The answer should not exceed 300 words Marks:5 x 6 = 30**		
1	a) Explain the job-competition. [or] State the cost-effectiveness analysis.	Explain Examine	Understand
2	a) Discuss the Denison's growth accounting contribution of labour. [or] b) Explain the endogenous growth.	Explain Discuss	Analyse
3	a) Describe the distribution of public spending on education. [or] b) State the determinants of expenditure on education	Identify Recall	Understand
4	Explain the public funding of education. [or] Discuss the External aid.	Explain Recall	Understand
5	a) Explain the role of teachers. [or] b) State the significance of incentives.	Explain Assess	Skill
	PART – B Essay Answer **The answer should not exceed 400 words Marks: 3 x 10 = 30**		
6	a) Discuss the Human capital in India. [or] b) Evaluate the cost-benefit analysis.	Discuss Explain	Understand
7	a) Examine the contribution of education to economic growth. [or] b) Analyse the importance of public expenditure on education.	Examine	Analyse
8	a) Analyse Mobilization of resources for education private sector. [or] b) Assess the role of school resources.	Assess Identify	Skill

MA ECONOMICS - ELECTIVES					
Course Code	**Course Name**	**L**	**T**	**P**	**Credits**
ECON-DSE-05	Money, Banking and Financial Markets	4	-	-	4

a. Course Outcome (CO)

On the successful completion of the course, the student will be able to
(Course outcomes are specific for a particular course. CO should be specific, measurable, achievable, realistic, and time-bound)

	Course Outcome	**Level**
CO 1	Students would understand the basic banking and financial institution role and economic relevance of the subject.	Remember
CO 2	It would focus on the banking system and financial markets would be enlightened to the students.	Understand
CO 3	The Accounting part is a more important tool for estimating BOP and Portfolio management.	Apply
CO 4	Derivative Market and price volatility to enhance the monetary policy and suggestion.	Analyze
CO 5	Knowledge of various factors, determination of interest rate and role of financial derivatives and other innovations.	Skill

b. Syllabus

Units	Content	Hrs.
I	**Unit-1: Money:** Concept, functions, measurement; theories of money supply determination.	12
II	**Unit-2: Financial Institutions, Markets, Instruments and Financial Innovations** Role of financial markets and institutions; problem of asymmetric information – adverse selection and moral hazard; financial crises. Money and capital markets: organization, structure and reforms in India; role of financial derivatives and other innovations.	12
III	**Unit-3: Interest Rates Determination** Sources of interest rate differentials; theories of term structure of interest rates; interest rates in India.	12
IV	**Unit-4: Banking System** Balance sheet and portfolio management. Indian banking system: Changing role and structure; banking sector reforms.	12
V	**Unit-5: Central Banking and Monetary Policy** Functions, balance sheet; goals, targets, indicators and instruments of monetary control; monetary management in an open economy; current monetary policy of India.	12
	Tasks and Assignments: - Prepare an assignment by impact on the financial institutions, efficiency of market and financial innovations revealed and its uplift of the monetary economy? - Prepare importance of monetary management in an open economy; current monetary policy of India.	

References:

- F. S. Mishkin and S. G. Eakins, Financial Markets and Institutions, Pearson Education, 6th edition, 2009.
- F. J. Fabozzi, F. Modigliani, F. J. Jones, M. G. Ferri, Foundations of Financial Markets and Institutions, Pearson Education, 3rd edition, 2009.
- M. R. Baye and D. W. Jansen, Money, Banking and Financial Markets, AITBS, 1996.
- Rakesh Mohan, Growth with Financial Stability- Central Banking in an Emerging Market, Oxford University Press, 2011. 32
- L. M. Bhole and J. Mahakud, Financial Institutions and Markets, Tata McGraw Hill, 5th edition, 2011.
- M. Y. Khan, Indian Financial System, Tata McGraw Hill, 7th edition, 2011.
- N. Jadhav, Monetary Policy, Financial Stability and Central Banking in India, Macmillan, 2006.
- R.B.I. – Report of the Working Group: Money Supply Analytics and Methodology of Compilation, 1998.
- R.B.I. Bulletin, Annual Report and Report on Currency and Finance (latest).

c. Mapping of Program Outcomes with Course Outcomes

	PO1	PO2	PO3	PO4	PO5
CO1	2	3	3	3	3
CO2	2	3	3	3	2
CO3	2	3	3	3	3
CO4	2	2	2	2	3
CO5	3	2	3	3	2

(If the correlation between Programme Outcome with Course Outcome is high 3 is assigned, for moderate 2, for low 1, and for 0 are assigned)

d. Evaluation Scheme

	CO1	CO2	CO3	CO4	CO5	Total
Internal	6	10	8	8	8	40
External	12	13	13	12	10	60
Total	18	23	21	20	18	100

e. Mapping Course Outcome with Internal Assessment (40 Marks)

	CO1	CO2	CO3	CO4	CO5
Assignments	-	-	5	-	5
Seminar			5	5	
Test	4	4	4	4	4
Total	4	4	14	9	9

f. Mapping Course Outcome with External Assessment (60 Marks)

Category	CO1	CO2	CO3	CO4	CO5
Part – A (Short Answer - 5 x 6 = 30 marks)	6	6	6	6	6
Part – B (Essay- 3 x 10 = 30 marks)			10	10	10
Total	**6**	**6**	**16**	**16**	**16**

g. Rubric for Assignments (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	**Content** **50%**	Ideas are detailed, well developed, supported with specific evidence & facts and examples	Ideas are detailed, Developed and supported with evidence and facts mostly specific.	Ideas are presented but not particularly developed or supported;	The content is not sound	Not attended	CO1, CO2
2	**Organiza-tion** **50%**	Includes title, introduction, statement of the main idea with illustration and conclusion.	Includes title, introduction, statement of main idea and conclusion.	organizational tools are weak or missing	No organization	Not attended	CO3, CO4, CO5

h. Rubric for Seminar (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	**Knowledge and Understanding** **50%**	Exceptional knowledge of facts, terms, and concepts	Detailed knowledge of facts, terms, and concepts	Considerable knowledge of facts, terms, and concepts	Minimal knowledge of facts, terms, and concepts	Not Attended	CO4, CO5

2	**Presentation** **50%**	Well Communicated with logical sequences, examples, and references	Communicated with sequences	Just Communicated	No coherent communication	Not Attended	CO3, CO4

i. Rubric for Internal Test

Sl.No	Category	Marks	Relation to COs
I	**Internal Test I**		CO1, CO2
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	
	Total	**60**	
II	**Internal Test II**		CO3, CO4
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	
	Total	**60**	
III	**Model Exam**		CO1, CO2, CO3, CO4, CO5
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	
	Total	**60**	
	Test I + Test II + Model Test / 9 (Convert for 20 Marks)	**180/9**	
	Internal Marks	**20**	

j. Model Question Paper

Sl. No.	Model Questions	Specification	Level
	PART – A Short Answer **The answer should not exceed 300 words Marks:5 x 6 = 30**		
1	a) Explain the role and the functions of money. [or] b) Critically examine the role of financial markets and institutions.	Explain Examine	Understand
2	a) Describe the role of financial derivatives in India. [or] b) Explain how adverse selection and moral hazard leads to market failure.	Explain Discuss	Analyse
3	a) Identify the problems of asymmetric information in the financial market. [or] b) What are the sources of interest rate differentials?	Identify Recall	Understand
4	a) Describe the changing role and structure of the Indian banking system. [or] b) Explain the management technique of portfolio and balance sheet.	Explain Recall	Understand
5	a) Elucidate the goals and targets of monetary control. [or]	Explain	Skill

	b) Explain the indicators and instruments of monetary control.	Assess	
PART – C Essay Answer **The answer should not exceed 400 words** **Marks: 3 x 10 = 30**			
6	a) Explain the theories of money supply determination. [or] b) Examine the recent banking sector reforms in India, particularly the impact of the digital banking era.	Examine	Understand
7	a) Elucidate the theories of term structure of interest rates in India. [or] b) What are the factors to determine the financial derivatives in the market?	Discuss Explain	Analyse
8	a) Describe how monetary management is performed in an open economy. [or] b) Write an essay on the impact of monetary policy and fiscal policy in India financial market.	Assess Identify	Skill

MA ECONOMICS - ELECTIVES					
Course Code	**Course Name**	**L**	**T**	**P**	**Credits**
ECOM-DSE-06	Institutional Economics	4	-	-	4

a. Course Outcome (CO)

On the successful completion of the course, the student will be able to

	Course Outcome	**Level**
CO 1	Ability to use the theory of institutions in analysis of the institutional environment of different settings.	Remember
CO 2	Capable of using game theory to analyse institutions.	Understand
CO 3	Ability to use instruments of new institutional economics to analyse particular institutions.	Apply
CO 4	Instruments of new institutional economics to analyse contracts.	Analyze
CO 5	To use instruments of new institutional economics to analyse relations between firms, individuals and state.	Skill

b. Syllabus

Units	Content	Hrs.
I	**Institutional Economics – Historical Perspective** TB Veblen: The theory of the Leisure Class-Informal institutions and systems-System of industrial planning-Jungian Archetypes and social psychology-R Commons and J.K Galbriath-Legal Institutions, Scientific investigation method, New School for Social Research, Origin of agent –based theory. G.Myrdal ideas related to institution and modernization. Religious institutions – Max weber's concepts – Protestant and capitalism. Kenneth Boulding: The Three fold taxonomy of social organization. Institutional analysis in the works of classical economists -"old" institutional economics (Veblen and Commons).	12
II	**Informal Norms and Formal Laws** Interaction on formal and informal institutions. Role of traditional/social norms in shaping economic behavior, Law and markets -property rights and institutional change -interrelationship between legal and economic processes.	12
III	**New Institutional Economics** The problem of social cost and externalities -transaction cost analysis -theory of property rights -theory of contracts. Economic exchange in modern society. Laws, and informal institutions, norms and culture; individual and group behaviour, Behaviors including contracts.	12
IV	**Markets Firms and State** Market as organization -market organization as a result of market cooperation -incentive to integrate -limits to integrate -institutional models in neoclassical theory -role of political institutions -political markets.	12
V	**Institutional Change** Regulation in a dynamic setting -regulating natural resources: the evolution of perverse property rights; institutional change in a representative democracy -state failure -rational individuals versus social dilemmas.	12
	Tasks and Assignments:	

• Discuss institutional economics from a historical perspective. • Describe the role of formal and informal laws in economic development. **References:** • Douglass C North -Institutions, Institutional Change and Economic Performance, Cambridge University Press, 1990 • Malcolm Rutherford -Institutions in Economics: the Old and the New Institutionalism, Cambridge University Press, 1996. • Ronald H Coase -The Firm, the Market and the Law, University of Chicago Press, 1998. • Thrainn Eggertsson -Economic Behavior and Institutions, Cambridge University Press, 1990. • Commons, J. R. 1990, Institutional Economics, Transaction Publishers, • London Cyert, R.M. and March, J.G., 1963, A Behavioral Theory of the Firm, • Englewood Cliffs, New Jersey. North, D.C. 1991, Institutions, Institutional Change and Economic Performance, Cambrigge University Press, Cambridge, USA. • North, D.C. 1992, Transaction Costs, Institutions and Economic Performance, Occasional Papers 30, International Center for Economic Growth, San Francisco. • Scherer, F.M. 1980, Industrial Market Structure and Economic Performance.	

c. Mapping of Program Outcomes with Course Outcomes

	PO1	PO2	PO3	PO4	PO5
CO1	3	3	3	3	3
CO2	3	2	3	3	2
CO3	2	3	2	2	3
CO4	2	2	2	2	3
CO5	3	2	3	3	2

(If the correlation between Programme Outcome with Course Outcome is high 3 is assigned, for moderate 2, for low 1, and for nil 0 are assigned)

d. Evaluation Scheme

	CO1	CO2	CO3	CO4	CO5	Total
Internal	10	8	8	6	8	40
External	13	10	13	12	12	60
Total	**23**	**18**	**21**	**18**	**20**	**100**

e. Mapping Course Outcome with Internal Assessment (40 Marks)

	CO1	CO2	CO3	CO4	CO5
Assignments	-	-	5	-	5
Seminar	2	2	2	2	2

Test	4	4	4	4	4
Total	6	6	11	6	11

f. Mapping Course Outcome with External Assessment (60 Marks)

Category	CO1	CO2	CO3	CO4	CO5
Part – A **(Short Answer - 5 x 6 = 30 marks)**	6	6	6	6	6
Part – B **(Essay- 3 x 10 = 30 marks)**	10			10	10
Total	**16**	**6**	**6**	**16**	**16**

g. Rubric for Assignments (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	**Content** **50%**	Ideas are detailed, well developed, and supported with specific evidence and facts.	Ideas are detailed and specific.	Ideas are presented but not Supported.	The content does not cover the topic.	Not attended	CO1, CO2
2	**Organization** **50%**	The assignment is very exact and well written and organized as expected.	The assignment is well organized.	The organization of the Assignment is not Meaningful.	No organization	Not attended	CO1, CO2, CO5

h. Rubric for Seminar (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	**Knowledge and Understanding** **50%**	Exceptional knowledge of facts, terms, and concepts	Detailed knowledge of facts, terms, and concepts	Considerable knowledge of facts, terms, and concepts	Minimal knowledge of facts, terms, and concepts	Not Attended	CO3, CO4
2	**Presentation** **50%**	Well Communicated with logical sequences, examples, and references	Communicated with sequences	Just Communicated	No coherent communication	Not Attended	CO3, CO4

i. Rubric for Internal Test

Sl.No	Category	Marks	Relation to COs
I	**Internal Test I**		
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	CO1, CO2
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	
II	**Internal Test II**		
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	CO3, CO4
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	
III	**Model Exam**		CO1, CO2,
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	CO3, CO4,
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	CO5
	Test I + Test II + Model Test / 9 (Convert for 20 Marks)	**180/9**	
	Internal Marks	**20**	

j. Model Question Paper

Sl. No.	Model Questions	Specification	Level
	PART – A Short Answer **The answer should not exceed 300 words Marks:5 x 6 = 30**		
1	a) What is the origin of agent-based theory? b) Write a note on Kenneth Boulding's threefold taxonomy of social organization.	Note What	Understand
2	a) What is the role of traditional/social norms in shaping economic behaviour? b) What are the reasons for the problem of social cost and externalities?	What	Understand
3	a) Write a note on transaction cost analysis. b) In what ways do laws and informal institutions govern society?	Note What	Understand
4	a) How does market organization lead to market cooperation? b) What is the relationship between laws and the market in an institution?	How What	Understand
5	a) How do property rights regulate natural resource management? b) What is the institutional change in a representative democracy?	How What	Skill
	PART – C Essay Answer **The answer should not exceed 500 words Marks: 3 x 10 = 30**		
6	a) Discuss the institutional analysis in the works of classical economists. b) Explain the interrelationship between legal and economic processes from the perspective of law and markets.	Explain Discuss	Understand
7	a) Explain the theory of property rights and contracts that affects the behaviour. b) Elucidate the norms, culture, and individual and group behaviour under an institution.	Explain Elucidate	Understand
8	a) Describe the institutional models in neoclassical theory. b) discuss the rational individuals versus social dilemmas.	Describe	analyse

MA ECONOMICS - ELECTIVES					
Health Economics - PG					
Course Code	**Course Name**	**L**	**T**	**P**	**Credits**
ECOM-DSE-07	**HEALTH ECONOMICS**	4	-	-	4

Course Objectives:
The objective of the course is to understand the relevance of health economics and different criteria of evaluation.

Learning Outcome: The course help in learning demand for health, health production function, evaluation of health outcome, healthcare financing, cost and benefits of health care benefits.

	Course Outcome	**Level**
CO 1	Markets, Demand for Health Care	Remember
CO 2	Health Production Function	Understand
CO 3	Health Care Incentives and Financing	Apply
CO 4	Measuring and Valuing Health Outcomes	Analyze
CO 5	Costs and Benefits of health services	Skill

Units	Contents	Hours
Unit-1	**Markets, Demand for Health Care** Markets in health care, production of health, demand for health care, Welfare economics of medical care -equity, efficiency and the need, link between development and health, investing in health for economic development, health care infrastructure, public-private partnership and the role of the state	12
Unit-2	**Health Production Function** Nature of production function, different types of production function and their applications, national and international perspective, distributional inequities in opportunity and commercialization of medical and para-medical education, cost escalation in the health care system, easy access and availability to appropriate technology, need for regulation and control.	10
Unit-3	**Health Care Incentives and Financing** Goals of health care provision and financing, competitive health insurance and risk adjustment, demand and supply of health insurance, asymmetric information and agency, market insurance, self-insurance and protection, employment-based insurance, and health insurance in India.	12
Unit-4	**Measuring and Valuing Health Outcomes** Measurement of health state utilities, QALYs and its alternatives-different approaches of valuing health, multi-attribute utility instruments and their development.	10
Unit-5	**Costs and Benefits of health services** Private benefits and costs of providing health services, the failure of the market to provide essential health services, the provision of health	10

services by the government, application of cost-benefit analysis to public health and family planning projects, benefits and costs (both private and social of training to professional manpower in the health sector, economic appraisal of health care programme.

Reference List:
1. Anthony J. Cuyler and Joseph P. (ed.) (2000), Handbook of Health Economics, Newhouse North-Holland, Elsevier Science
2. Clewar, Ann, and David Perkins. 1998. Economics of Health Care Management. London Prentice Hall.
3. Sherman Folland, Allen C.Gkoodman, and Miron Stano, (2004), The Economics of Health and Health Care, 4th Edition, Prentice Hall.
4. Folland, S., A.C. Goodman and M. Stano, Economics of Health and Health Care, fifth edition, Pearson Prentice Hall, 2006
5. CII-Mckinsey Report, Healthcare in India: The Road Ahead, 2004.

6. Culyer, A. J. and J.P. Newhouse (eds.), Handbook of Health Economics, Volumes 1A & B, North-Holland, 2000.
7. Deaton, Angus (2013). The Great Escape: Health, Wealth, and the Origins of Inequality.

8. Princeton: Princeton University Press. Zweifel, P., Health Economics, Oxford University Press, 1997.

d. Evaluation Scheme

	CO1	CO2	CO3	CO4	CO5	Total
Internal	8	8	8	8	8	40
External	12	12	12	12	12	60
Total	**20**	**20**	**20**	**20**	**20**	**100**

e. Mapping Course Outcome with Internal Assessment (40 Marks)

	CO1	CO2	CO3	CO4	CO5
Assignments	2	2	2	2	2
Seminar	2	2	2	2	2
Test	4	4	4	4	4
Total	8	8	8	8	8

f. Mapping Course Outcome with External Assessment (60 Marks)

Category	CO1	CO2	CO3	CO4	CO5
Essay- 6 x 10 = 60 marks	12	12	12	12	12
Total	12	12	12	12	12

g. Rubric for Assignments (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	**Content** **50%**	Ideas are detailed, well developed, and supported with specific evidence & facts and examples	Ideas are detailed, Developed and supported with evidence and facts mostly specific.	Ideas are presented but not particularly developed or supported;	The content is not sound	Not attended	CO1, CO2, CO5
2	**Organiza -tion** **50%**	Includes title, introduction, statement of the main idea with illustration and conclusion.	Includes title, introduction, statement of main idea and conclusion.	organizational tools are weak or missing	No organization	Not attended	CO1, CO2, CO5

h. Rubric for Seminar (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	**Knowledge and Understandin g** **50%**	Exceptional knowledge of facts, terms, and concepts	Detailed knowledge of facts, terms, and concepts	Considerable knowledge of facts, terms, and concepts	Minimal knowledge of facts, terms, and concepts	Not Attende d	CO3, CO4
2	**Presentation** **50%**	Well Communicate d with logical sequences, examples, and references	Communicate d with sequences	Just Communicate d	No coherent communicatio n	Not Attende d	CO3, CO4

i. Rubric for Internal Test

Category	Marks	Relation to COs
Internal Test I		

(Essay- 2 x 10 = 20 marks)	20	CO1, CO2	
Total			
Internal Test II	**20**	CO3 CO4	
(Essay- 2 x 10 = 30 marks)			
Total			
Model Exam			
(Essay- 6 x 10 = 60 marks)	**60**	CO!,CO2, CO3,CO4,CO5	
Total			
Internal Marks (Convert for 20 Marks)			

SL NO	Model Questions	Specification	Level
1	How does investing in health contribute to economic development?	Explanation	Analyze
2	Graphically illustrate the health production function.		Understand
3	Discuss how health can be classified as a "consumption" good as well as an "investment" good.		Skill
4	Critically analyze the application of cost-benefit analysis in healthcare.		Skill
5	What is the goal of health insurance? Analyze the challenges and constraints faced by the health insurance sector in India.		Analyze
6	Explain the different approaches to the economic valuation of healthcare. Which is the most commonly used valuation technique in healthcare intervention?		Understand
7	Do you think public-private partnerships can provide an affordable and accessible healthcare delivery system in India? Present your arguments.		Skill
8	Write a note on healthcare financing in India.		Understand

MA ECONOMICS - ELECTIVES					
Course Code	**Course Name**	**L**	**T**	**P**	**Credits**
ECOM-DSE-08	Industrial Economics	4	-	-	4

a. Course Outcome (CO)

On the successful completion of the course, the student will be able to

	Course Outcome	**Level**
CO 1	Remember the various concepts and framework of study of industrial economics.	Remember
CO 2	Understand the meaning of firm and industry and measure industrial efficiency.	Understand
CO 3	Measure the industrial productivity numerically using mathematical and econometric techniques.	Apply
CO 4	Evaluate the legal frame work and instruments of industrial regulations.	Analyze
CO 5	Knowledge of various issues in Indian industry and develop research skills in the field of industrial economics. Students enable to take decision on investment and understand the legal framework based on the numerical measurements.	Skill

b. Syllabus

Units	Content	Hrs.
I	**Unit-1: Market Structure, Entry Deterrence:** Seller concentration measures, Entry conditions and market structure, Pricing to deter entry, Non-price entry deterrence strategies, The theory of contestable markets, Empirical studies of entry and exit.	12
II	**Unit-2: Industry Development:** Geography and industrial dynamics, innovation, Firm survival and the evolution of industries, Industry life cycle, Turnover and mobility of firms, Regulation: regulation of firms with market power under symmetric information; regulation under asymmetric information; liberalization and regulation; empirical evidence, Efficiency and Productivity Analysis (Tutorials).	12
III	**Unit-3: Growth of Firms:** Robbin Marris Model, Size and growth of the firm, MNEs and growth, Growth and diversification –both product and geographical diversification, Globalisation of small and medium enterprises, Strategic alliances, Networking and growth and Mergers and acquisitions.	12
IV	**Unit-4: Determinants of R&D:** IT industry, Monopoly and perfect competition, Development and growth, Market structure and R&D, Innovation, learning and R&D, in-house R&D and import of technology, R&D cooperation and innovative activities, Economic theory with respect to IT industry and products, Concepts including network externalities, switching cost, lock in and standards, file sharing, open source, e-commerce, role of IT in economic development.	12
V	**Unit-5: Industrial Finance** Importance of finance to industrial development, Owned, and external funds for industrial development; Role, and types of institutional finance-functions of IFCI, IDBI, SIDBI, MSFC, ICICI, SFCs, SIDC, commercial banks, etc in industrial development, trend and problems of industrial finance in India.	12

	Tasks and Assignments: • Prepare an assignment on Cobb-Douglas production function with an example. • Prepare an empirical evidence of Industrial Productivity in Indian industry for achieving Stable Growth. **References:** • Chris Freeman and Luc Soefe., The Economics of Industrial Innovation, 1998. • Martin, S., Industrial Economics-Economic Analysis and Public Policy, Englewood Cliffs, New Jersey: Prentice Hall, 1993. • Shy, Oz., Industrial Organization: Theory and Applications, MIT Press, 1995. • Tirole, J., The Theory of Industrial Organization, MIT Press, 1988. • Ferguson, Paul R. and Glenys J. Ferguson, (1994), Industrial Economics -Issues and Perspectives. • Macmillan, London. Shepher, William G. (1985), The Economics of industrial Organization, Prentice -Hall, Inc. • Englewood Cliffs, N. J. Staley, E & Morse R. (1965), Modern Small Industry for Developing Countries, McGraw Hill Book Company. • Tirole, J. (1996), The Theory of Industrial Organization, Prentice –Hall. • Barthwal,R.R.(1992), Industrial Economics: An Introductory Text Book, Wiley Eastern Ltd. New Delhi. • Chris Freeman and Luc Soefe., The Economics of Industrial Innovation, 1998 Shy, Oz.	

c. Mapping of Program Outcomes with Course Outcomes

	PO1	PO2	PO3	PO4	PO5
CO1	3	3	3	3	3
CO2	3	3	3	3	2
CO3	3	3	3	2	3
CO4	3	2	3	2	3
CO5	3	3	3	3	3

d. Evaluation Scheme

	CO1	CO2	CO3	CO4	CO5	Total
Internal	8	8	8	8	8	40
External	12	12	12	12	12	60
Total	**20**	**20**	**20**	**20**	**20**	**100**

e. Mapping Course Outcome with Internal Assessment (40 Marks)

	CO1	CO2	CO3	CO4	CO5
Assignments	-	-	5	-	5
Seminar	-	10	-	-	-
Test	4	4	4	4	4
Total	4	14	9	4	9

f. Mapping Course Outcome with External Assessment (60 Marks)

Category	CO1	CO2	CO3	CO4	CO5
Part – A (Short Answer - 5 x 6 = 30 marks)	6	6	6	6	6
Part – B (Essay- 3 x 10 = 30 marks)	10		10	10	
Total	**16**	**6**	**16**	**16**	**6**

g. Rubric for Assignments (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	**Content** **50%**	Ideas are detailed, well developed, supported with specific evidence &facts and examples	Ideas are detailed, Developed and supported with evidence and facts mostly specific.	Ideas are presented but not particularly developed or supported;	The content is not sound	Not attended	CO1, CO3
2	**Organization** **50%**	Includes title, introduction, statement of the main idea with illustration and conclusion.	Includes title, introduction, statement of main idea and conclusion.	organizational tools are weak or missing	No organization	Not attended	CO1, CO2, CO5

h. Rubric for Seminar (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	**Knowledge and Understanding** **50%**	Exceptional knowledge of facts, terms, and concepts	Detailed knowledge of facts, terms, and concepts	Considerable knowledge of facts, terms, and concepts	Minimal knowledge of facts, terms, and concepts	Not Attended	CO3, CO4
2	**Presentation** **50%**	Well Communicated with logical sequences, examples, and references	Communicated with sequences	Just Communicated	No coherent communication	Not Attended	CO3, CO4

i. Rubric for Internal Test

Sl.No	Category	Marks	Relation to COs
I	**Internal Test I**		
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	CO1, CO2
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	
4.	**Total**	**60**	
II	**Internal Test II**		
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	CO3, CO4
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	
4.	**Total**	**60**	
III	**Model Exam**		CO1, CO2, CO3, CO4, CO5
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	
4.	**Total**	**60**	
	Test I + Test II + Model Test/9 (Convert for 20 Marks)	**180/9**	
	Internal Marks	**20**	

j. Model Question Paper

Sl. No.	Model Questions	Specification	Level
	PART – A Short Answer **The answer should not exceed 300 words Marks:5 x 6 = 30**		
1	a) What is firm? What to industry refers? [or] b) Chart out the market structure.	Explain Examine	Understand
2	a) Write a note on industrial concentration. [or] b) How to control monopoly? Discuss.	Recall Discuss	Analyse
3	a) What are the factors influencing industrial location? [or] b) Assess the pricing of industrial products.	Identify Assess	Skill
4	a) Discuss growth and structural changes in Indian industry. b) Examine the industrial locational trends in India.	Discuss Examine	Understand
5	a) Discuss the sources of long-term industrial finance in India. [or] b) Analyse the role of financial institutions in industrial finance.	Discuss Analyse	Analyse
	PART – B Essay Answer **The answer should not exceed 400 words Marks: 3 x 10 = 30**		
6	a) Define industrial economics. Discuss its scope.[or] b) Comment on the role of industrialisation in economic development of India	Discuss Assess	Understand
7	a) Enumerate in detail the Robbin Marris Model. [or] b) Critically examine the monopoly and monopolistic competition in Indian Industry.	Enumerate Examine	Analyse
8	a) Review the Industrial policy in India. [or] b) Write a note on the following: a) IDBI b) IFCI c) SFCS d) SIDC	Assess Recall	Skill

MA ECONOMICS - ELECTIVES					
Course Code	**Course Name**	**L**	**T**	**P**	**Credits**
ECOM-DSE-09	Tamil Nadu Economy	4	-	-	4

a. Course Outcome (CO)

On the successful completion of the course, the student will be able to

	Course Outcome	**Level**
CO 1	Students would know the relevance of Regional Economics and its share in the National Economy.	Remember
CO 2	Facilitates to understand the occupational structure, the relative shares of the different Sectors in the SDP and the future thrust areas of the State Plan.	Understand
CO 3	Ability to aware the agricultural development, marketing, animal husbandry, fishery, and agricultural prospects in Delta Region.	Apply
CO 4	Familiarity with various major industries and suggest apt industrial policy.	Analyze
CO 5	Enables to understand the process of growth in Tamil Nadu economy and specific economic issues pertaining to the region.	Skill

b. Syllabus

Units	Content	Hrs.
I	**Unit-1: Relevance of Regional Economics –** The place of Tamil Nadu in the National Economic scenario and contribution to National Economy- - Resources Endowment- Natural and Human Resources-Changing Pattern, Demographic structure and dividends.	12
II	**Unit-2: Development Experience of Tamil Nadu –** Trends in SDP - Per capita SDP - Composition of SDP - Sectoral Contribution and Transition – Inter-District and Inter-State Comparison, Trade and Exports, quality of life and Human development indicators. Social sector developments in Tami Nadu, Developments of Education, Health, Housing, Welfare Measures and Public sector schemes of TN Govt. – Assessing Effectiveness of schemes and impacts.	12
III	**Unit-3: Development in Agriculture –** Changes in land use pattern, cropping pattern, and crop intensity. Index of Agricultural production- Agricultural Prospects in Delta Region - Green Revolution - Productivity and yield - Agricultural Marketing - Animal husbandry - Fishery.	12
IV	**Unit-4: Industrial Development:** Major Industries - Cotton, Textiles, Sugar, Cement, IT - Automobiles - Leather Processing - Small Scale Industries - Cottage Industries - Light Engineering Goods. Index of Industrial Production - Change in the industrial structure - Investment - Export value added - Employment - Number of registered factories - State aid to industrial development - State sponsored Corporations, Infrastructure developments.	12
V	**Unit-5: Public Finance and Development:** Trends of revenue and expenditures, Quality of Spending, Pattern of deficit and debts, fiscal management, reforms- issues and challenges.	12

Tasks and Assignments:		

Tasks and Assignments:
- Prepare an assignment on characteristics of agriculture in Tamil Nadu with special reference to Delta Region.
- Prepare success stories on Industrial Development in Tamil Nadu for attaining Regional Balance.

References:
- Department of Evaluation and Applied Research of Tamil Nadu
- Tamil Nadu - : An Economic Appraisal Annual Issues
- Finance Department of T.N. Govt.: Public Enterprises in Tamil Nadu
- Government of India: India - A Reference Manual
- Govt. of T.N.: Tamil Nadu Budget Documents
- Govt. of T.N.: Hand Book of Statistics Tamil Nadu
- Govt. of T.N.: State Five Year Documents
- Govt. of T.N.: The Perspective Plan for Tamil Nadu
- Dhingra, I.C. Indian Economy with special reference to Tamil Nadu, Sultan Chand and Co., New Delhi, 1995.
- M. Thangaraj (ed.) Land Reforms in India - Tamil Nadu: An Unfinished Task, Sage Publications, New Delhi, 2003.
- MIDS, Tamil Nadu economy: Performance and issues, Oxford and IBH Publishing House Pvt. Ltd., 1988.
- 12. C T Kurien, Dynamics of rural transformation: A study of Tamil Nadu, 1950? 1975, Orient Longman, New Delhi, 1981.

c. Mapping of Program Outcomes with Course Outcomes

	PO1	PO2	PO3	PO4	PO5
CO1	3	3	3	3	3
CO2	3	3	3	3	2
CO3	3	3	3	2	3
CO4	2	2	3	3	3
CO5	3	2	3	3	3

(If the correlation between Programme Outcome with Course Outcome is high 3 is assigned, for moderate 2, for low 1, and for 0 are assigned)

d. Evaluation Scheme

	CO1	CO2	CO3	CO4	CO5	Total
Internal	6	8	10	10	6	40
External	10	14	14	12	10	60
Total	**16**	**22**	**24**	**22**	**16**	**100**

e. Mapping Course Outcome with Internal Assessment (40 Marks)

	CO1	CO2	CO3	CO4	CO5
Assignments	-	-	5	5	-
Seminar	-	10	-	-	-
Test	4	4	4	4	4
Total	4	14	9	9	4

f. Mapping Course Outcome with External Assessment (60 Marks)

Category	CO1	CO2	CO3	CO4	CO5
Part – A (Short Answer - 5 x 6 = 30 marks)	6	6	6	6	6
Part – B (Essay- 3 x 10 = 30 marks)		10	10	10	
Total	6	16	16	16	6

g. Rubric for Assignments (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	**Content** **50%**	Ideas are detailed, well developed, supported with specific evidence & facts and examples	Ideas are detailed, Developed and supported with evidence and facts mostly specific.	Ideas are presented but not particularly developed or supported;	The content is not sound	Not attended	CO1, CO3
2	**Organization** **50%**	Includes title, introduction, statement of the main idea with illustration and conclusion.	Includes title, introduction, statement of main idea and conclusion.	organizational tools are weak or missing	No organization	Not attended	CO1, CO4, CO5

h. Rubric for Seminar (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	**Knowledge and Understanding** **50%**	Exceptional knowledge of facts, terms, and concepts	Detailed knowledge of facts, terms, and concepts	Considerable knowledge of facts, terms, and concepts	Minimal knowledge of facts, terms, and concepts	Not Attended	CO2, CO5
2	**Presentation** **50%**	Well Communicated with logical sequences, examples, and references	Communicated with sequences	Just Communicated	No coherent communication	Not Attended	CO2, CO5

i. Rubric for Internal Test

Sl. No	Category	Marks	Relation to COs
I	**Internal Test I**		
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	CO1, CO2
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	
4.	**Total**	**60**	
II	**Internal Test II**		
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	CO3, CO4
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	
4.	**Total**	**60**	
III	**Model Exam**		
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	CO1, CO2, CO3, CO4, CO5
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	
4.	**Total**	**60**	
	Test I + Test II + Model Test/9 (Convert for 20 Marks)	**180/9**	
	Internal Marks	**20**	

j. Model Question Paper

Sl. No.	Model Questions	Specification	Level
	PART – A Short Answer **The answer should not exceed 300 words Marks:5 x 6 = 30**		
1	a) Mention the Demographic features of Tamil Nadu. [or] b) Give an account of Regional Economics.	Explain Elucidate	Understand
2	a) Examine the performance of anti-poverty programmes in Tamil Nadu. [or] b) Assess effectiveness of schemes and its impacts.	Examine Assess	Analyse
3	a) Discuss the role of agriculture in Indian economy. [or] b) Define Agricultural Marketing. What are its success and failure?	Discuss Recall	Understand
4	a) State the importance of small and cottage industries in India. [or] b) Identify the major large scale industries in India.	Explain Identify	Understand
5	a) Evaluate the importance of TANSI and TIIC in Tamil Nadu. [or] b) Assess the performance of banking sector in Tamil Nadu.	Evaluate Assess	Skill
	PART – B Essay Answer **The answer should not exceed 400 words Marks: 3 x 10 = 30**		
6	a) Give an account of the natural resources available in Tamil Nadu. [or] b) Critically examine the performance of Tamil Nadu Economy under Five Year Plans.	Describe Examine	Understand
7	a) Discuss the success and failure of Green Revolution. [or] b) Evaluate the performance of allied activities of agriculture in Tamil Nadu.	Discuss Evaluate	Analyse
8	a) Comment on the role of industries in economic development of India. [or] b) Elucidate the performance of TANSI, SIDCO, and TIDCO, TIIC for the development of Tamil Nadu.	Assess Elucidate	Skill

MA ECONOMICS - ELECTIVES					
Course Code	**Course Name**	**L**	**T**	**P**	**Credits**
ECON-DSE-10	Money and Banking	4	-	-	4

a. Course Outcome (CO)
On the successful completion of the course, the student will be able to
(Course outcomes are specific for a particular course. CO should be specific, measurable, achievable, realistic, and time-bound)

	Course Outcome	**Level**
CO 1	Students would understand the function of money and the structure of banking and its contribution to economic development.	Remember
CO 2	It would focus on the quantitative theory of money with the banking system and innovation of the banking sector will be explored to the students.	Understand
CO 3	The quantitative models influence the classical and modern theory of money supply. It will quantify the money supply and inflation control.	Apply
CO 4	Monetary policy and central bank to accelerate economic growth.	Analyze
CO 5	Knowledge of various innovations of banking sectors, to make financial literacy and inclusion.	Skill

b. Syllabus

Units	Content	Hrs.
I	**Unit-1: Money** Concept, functions, measurement-theories of money supply determination -functions of money -role of money in modern economy.	12
II	**Unit-2: Value of Money and Inflation:** Quantity Theory of Money – Cash transaction and Cash balance approaches, the Keynesian Approach. Inflation, Deflation and Reflation – Definition, Types. Demand pull and Cost push inflation, Measures to control inflation, Trade-off between Inflation and Unemployment.	12
III	**Unit-3: Structure of Indian banking** Meaning-Evolution of Banking in India–origin, nationalization, reforms-Types of Banks-Indigenous Banks-Money Lenders – Co-operative Banks – Land Development Bank NABARD-Commercial Banks-Commercial Banks and Economic Development-Credit Cards.	12
IV	**Unit-4: Central Banking** Functions of Central Bank, Quantitative and qualitative methods of credit control-Bank rate policy, Open market operations, Role and functions of the Reserve Bank of India; Objectives and limitations of monetary policy with special reference to India, Monetary Policy objectives, Money supply and control of inflation, Interest rate policy and its implications, Basel Accords I and II and III.	12
V	**Unit-5: Banking Innovations** Core Banking Solution, Retail Banking-Products & Services-Nature, Scope, Future and Strategies, Plastic Money, National Electronic Funds Transfer, ATM, Mobile Phone Banking, and Net Banking. Changing role of Banks as Financial Intermediaries.	12

Tasks and Assignments: - Prepare an assignment by quantity theory of money supply in various school levels. Apparently how the banking intervention with money supply improved monetary economics? - Prepare the contribution of financial institutions with National GDP growth. **References:** - Bharti Pathak (2010), "Indian Financial System", 2010, 3rd Ed. Pearson Education. - Bhole, L. M. and J. Mahukud (2011), Financial Institutions and Markets, Tata McGraw Hill, 5thedition. - Frederic S. Mishkin (2015) "The Economics of Money, Banking and Financial Markets", Pearson; 11 edition - Gupta, S.B. (1994). Monetary Economics, S. Chand & Company, New Delhi. - Fabozzi, Frank, Modigliani, Franco, Jones, Frank (2009), Foundations of Financial Markets and Institutions, International Edition, 4th Edition, Pearson Higher Education. - Maureen Burton and Bruce Brown (2009) Financial System of the Economy: Principles of Money and Banking 5th Edition, Routledge. - Various latest issues of R.B.I. Bulletins, Annual Reports, Reports on Currency and Finance and Reports of the Working Group, IMF Staff Papers.	

c. Mapping of Program Outcomes with Course Outcomes

	PO1	PO2	PO3	PO4	PO5
CO1	3	3	3	3	3
CO2	3	3	3	2	2
CO3	2	3	3	2	3
CO4	2	3	2	2	3
CO5	3	3	3	3	2

(If the correlation between Programme Outcome with Course Outcome is high 3 is assigned, for moderate 2, for low 1, and for 0 are assigned)

d. Evaluation Scheme

	CO1	CO2	CO3	CO4	CO5	Total
Internal	6	10	8	8	8	40
External	12	13	13	12	10	60
Total	**18**	**23**	**21**	**20**	**18**	**100**

e. Mapping Course Outcome with Internal Assessment (40 Marks)

	CO1	CO2	CO3	CO4	CO5
Assignments	-	-	5	-	5
Seminar			5	5	
Test	4	4	4	4	4

| Total | 4 | 4 | 14 | 9 | 9 |

f. Mapping Course Outcome with External Assessment (60 Marks)

Category	CO1	CO2	CO3	CO4	CO5
Part – A (Short Answer - 5 x 6 = 30 marks)	6	6	6	6	6
Part – B (Essay- 3 x 10 = 30 marks)			10	10	10
Total	**6**	**6**	**16**	**16**	**16**

g. Rubric for Assignments (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	**Content** 50%	Ideas are detailed, well developed, supported with specific evidence & facts and examples	Ideas are detailed, Developed and supported with evidence and facts mostly specific.	Ideas are presented but not particularly developed or supported;	The content is not sound	Not attended	CO1, CO2
2	**Organiza-tion** 50%	Includes title, introduction, statement of the main idea with illustration and conclusion.	Includes title, introduction, statement of main idea and conclusion.	organizational tools are weak or missing	No organization	Not attended	CO1, CO3, CO5

h. Rubric for Seminar (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	**Knowledge and Understanding** 50%	Exceptional knowledge of facts, terms, and concepts	Detailed knowledge of facts, terms, and concepts	Considerable knowledge of facts, terms, and concepts	Minimal knowledge of facts, terms, and concepts	Not Attended	CO4, CO5

2	Presentation 50%	Well Communicated with topic logical sequences, examples, and references	Communicated with sequences	Just Communicated	No coherent communication	Not Attended	CO3, CO4

i. Rubric for Internal Test

Sl.No	Category	Marks	Relation to COs
I	**Internal Test I**		CO1, CO2
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	
	Total	**60**	
II	**Internal Test II**		CO3, CO4
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	
	Total	**60**	
III	**Model Exam**		CO1, CO2, CO3, CO4, CO5
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	
	Total	**60**	
	Test I + Test II + Model Test / 9 (Convert for 20 Marks)	**180/9**	
	Internal Marks	**20**	

j. Model Question Paper

Sl. No.	Model Questions	Specification	Level
	PART – A Short Answer **The answer should not exceed 300 words Marks:5 x 6 = 30**		
1	c) Explain the classical theory of quantitative money. [or] d) Critically examine the various forms of money in the financial market?	Explain Examine	Understand
2	c) Describe the role of monetary policy in developing nations? [or] d) Discuss about the institutional and non-institutional banking services of financial circulation.	Explain Discuss	Analyse
3	c) Find out the inflation control measurements in India [or] d) Explain the difference between cooperative banks and commercial banks?	Identify Recall	Understand
4	c) Write a short note on Basel I,II and III. [or] d) Discuss about quantitative and qualitative credit control measures in India.	Explain Recall	Understand
5	c) Elucidate the serious issues and targets of monetary control. [or] d) Why are you assessing digital financial transaction.	Explain Assess	Skill

	PART – C Essay Answer **The answer should not exceed 400 words** **Marks: 3 x 10 = 30**			
6	c) Explain the theories of money supply determination. [or] d) Examine the NABARD bank role of financial inclusion	Examine	Understand
7	c) Discuss about financial inclusion reduced poverty level give state level outreach report. [or] d) Explain the digital financial transformation and its upliftment of monetary economics?	Discuss Explain	Analyse
8	c) Describe how banking innovation improved the financial sectors [or] d) Write an essay on the impact of digital banking and the fiscal expenditure scenario of the Indian financial market.	Assess Identify	Skill

MA ECONOMICS - ELECTIVES					
Course Code	**Course Name**	**L**	**T**	**P**	**Credits**
ECOM-DSE-11-	**RESEARCH METHODOLOGY**	4	-	-	4

Course Objectives:

The objective of the course is to learn research in economics, process, various tools of analysis and drafting of a report. Data analysis of the Indian economy has been given a major focus. Learning Outcome: Understand and analyse different research methods in research. Students will be able to analyse economic data about any development indicators, especially concerning the Indian economy. The course orients students in terms of writing a research report.

	Course Outcome	**Level**
CO 1	Research in Economics	Remember
CO 2	Identifying Research Problem	Understand
CO 3	Database on Indian Economy	Apply and Analyse
CO 4	Quantitative and Qualitative Methods	Analyze
CO 5	Analysis, Interpretation, and Drafting Report	Skill

Units	Contents	Hours
Unit-1	**Research in Economics** Meaning of research in economics: Types of research, methods and techniques-differences among them, the logical framework of the investigation, the nature of the problem and appropriate methodology, macro-level vs. micro-level research, problems in aggregation, methodology leading to methods and then techniques, analysis of historical records, participant or nonparticipant observation, mass observation, questionnaires: reliability and validity, personal interviews, group interviews, Triangulation, case studies, Data collection & Sampling, types of Sampling, Sampling Procedure, Choice of Sampling technique, Ethics in research.	12
Unit-2	**Identifying Research Problem** Formulation of research problem-identification and operationalization of the problem, a survey of the literature, development of working hypotheses, preparation of research design, investigation in the availability of information, sampling design, error minimization, evaluation of time and cost, collection of information, processing of collected information.	10
Unit-3	**Database on Indian Economy** Important Data Sources-National and International; Familiarity with different databases such as Capital online, RBI-Hand Book of Statistics on Indian Economy, National Sample Survey Organisation reports, Annual Survey of Industries, Census data, National Family and Health Survey (NFHS) reports, NCAER Human Development Surveys, indiastat.com, NSSO, RBI Bulletin, Economic Survey etc; CMIE, EPWRF, accessing and using unit data of NSSO; big data, international database.	12
Unit-4	**Quantitative and Qualitative Methods** Quantitative methods -use of secondary data, constructing a questionnaire and designing a survey, merits and demerits of survey methods-type of	10

	survey-selecting the survey method – sample survey of different types – merits and demerits. Qualitative Methods: the case study methods -merits and demerits, Participant observation, interview methods – open and closed, structured and unstructured, focused group discussions, process documentation.	
Unit-5	**Analysis, Interpretation, and Drafting Report** Analysis of quantitative and qualitative data, interpretation, Politics of interpretation, report writing – formulating and arranging concepts and ideas, formulating arguments, substantiating arguments with evidence, data, notes and references, bibliography; report writing-steps-quality of a good research report.	10
	Reference List: 1. Don Ethridge (2004), "Research Methodology in Applied Economics: Organizing, Planning and Conducting" Second Edition, Blackwell Publishing. 2. John Creswell (2013) "Research Design: Qualitative, Quantitative, and Mixed Methods Approaches, SAGE Publications, Inc; Fourth Edition 3. Gibaldi, Joseph (2009). "MLA Handbook for writers of Research Papers", Modern Language Association of America 7th edition. 4. Glenn L. Johnson (1986) Research methodology for economists: philosophy and practice, Macmillan 5. Bhattacherjee, Anol, (2012). "Social Science Research: Principles, Methods, and Practices" Textbooks Collection. Book 3. http://scholarcommons.usf.edu/oa_textbooks 6. Johnson, Steven A. Greenlaw (2005) "Doing Economics: A Guide to Understanding and Carrying Out Economics Research, South-Western College Pub; 1 edition 7. Kagel, JH and Roth, AE (1995) The Handbook of Experimental Economics, Princeton University Press, Princeton. 8. Kothari, CR and Gaurav Garg (2013) Research Methodology: Methods and Techniques, New Age International Publishers. 9. Fink, A., (2009). Conducting Research Literature Reviews: From the Internet to Paper. Sage Publications	

d. Evaluation Scheme

	CO1	CO2	CO3	CO4	CO5	Total
Internal	8	8	8	8	8	40
External	12	12	12	12	12	60
Total	**20**	**20**	**20**	**20**	**20**	**100**

e. Mapping Course Outcome with Internal Assessment (40 Marks)

	CO1	CO2	CO3	CO4	CO5
Assignments	2	2	2	2	2
Seminar	2	2	2	2	2
Test	4	4	4	4	4
Total	8	8	8	8	8

f. Mapping Course Outcome with External Assessment (60 Marks)

Category	CO1	CO2	CO3	CO4	CO5
Essay- 6 x 10 = 60 marks	**12**	**12**	**12**	**12**	**12**
Total	**12**	**12**	**12**	**12**	**12**

g. Rubric for Assignments (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	**Content** **50%**	Ideas are detailed, well developed, and supported with specific evidence & facts and examples	Ideas are detailed, Developed and supported with evidence and facts mostly specific.	Ideas are presented but not particularly developed or supported;	The content is not sound	Not attended	CO1, CO2, CO5
2	**Organiza-tion** **50%**	Includes title, introduction, statement of the main idea with illustration and conclusion.	Includes title, introduction, statement of main idea and conclusion.	organizational tools are weak or missing	No organization	Not attended	CO1, CO2, CO5

h. Rubric for Seminar (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	**Knowledge and Understanding** **50%**	Exceptional knowledge of facts, terms, and concepts	Detailed knowledge of facts, terms, and concepts	Considerable knowledge of facts, terms, and concepts	Minimal knowledge of facts, terms, and concepts	Not Attended	CO3, CO4

2	**Presentation** **50%**	Well Communicated with logical sequences, examples, and references	Communicated with sequences	Just Communicated	No coherent communication	Not Attended	CO3, CO4

i. Rubric for Internal Test

Category	Marks	Relation to COs
Internal Test I		
(Essay- 2 x 10 = 20 marks)	20	CO1, CO2
Total		
Internal Test II	**20**	CO3 CO4
(Essay- 2 x 10 = 30 marks)		
Total		
Model Exam		
(Essay- 6 x 10 = 60 marks)	**60**	CO!,CO2, CO3,CO4,CO5
Total		
Internal Marks (Convert for 20 Marks)		

SL NO	Model Questions (Answer any 6 out of 8 Questions)	Specification	Level
1	Define the term research. Explain the main steps of the research process in detail.		Understand
2	Discuss the different types of data collection methods with suitable examples.		Understand
3	Define sampling. What are the different types of sampling techniques?		understand
4	What is a research design? Enumerate the characteristics of a good research design. Distinguish between research methodology and research design.		Analyze
5	Write short notes on a) Descriptive vs Analytical research b) Conceptual vs Empirical research c) Applied vs Fundamental research.	Explanation	Understand
6	What is the difference between parametric and non-parametric statistical analysis?		Understand
7	What do you understand by a research report? Explain its need and importance in research work.		Analyze
8	Write a note on the role of ethics in research.		Skill

MA ECONOMICS - ELECTIVES					
Course Code	**Course Name**	**L**	**T**	**P**	**Credits**
ECOM-DSE-12	Regional Economics	4	-	-	4

a. Course Outcome (CO)
On the successful completion of the course, the student will be able to

	Course Outcome	**Level**
CO 1	The students will have proven knowledge and understanding of issues related to the regional economy.	Remember
CO 2	Students would get an understanding of the concepts of convergence, divergence and regional growth.	Understand
CO 3	The spatial pattern of land uses will be understood.	Apply
CO 4	The regional specialization and the multiplier effects will be analysed.	Analyze
CO 5	Students would be familiar with how regional development is essential to increase national development.	Skill

b. Syllabus

Units	Content	Hrs.
I	**Concepts and Definitions** Need for study of Regional Economics, Definition of a region, Different types of regions, Differences between region and a nation, Regional income, Problems of estimation, Indicators of regional development, A City Model, Systems of Cities, Monocentric city model, Suburbanization, Hotelling's model.	12
II	**Models of Regional Growth** Export Base Models, Central place theory (Christaller), Cumulative Causation Models (Perroux, Myrdal, Hirschman), Sector theory (Colin-Kuznets), Multi sector Models and Regional Development Planning, Elements in a Spatial Growth Theory, Locational constants (Weber), Measurements of Agglomeration economies, and Location Preferences, Social and Political factors in regional growth, New economic geography, Rank-size rule.	12
III	**Factor Mobility in Regional Economy** Inter-regional Migration, Mobility of Capital, Spatial diffusion of innovation and technical progress, Inter-Regional Trade, The basis of interregional trade, Regional trade and factor price equalization, Regional trade and factor migration, Regional balance of payments problems.	12
IV	**Theories of Spatial Development** Integration of Regional and Urban Economics, Regional dispersions of National growth, Intraregional concentration, Urban Decentralization, Housing market, Urban transportation, Role of migration.	12
V	**Urban and Regional Economic Policy Analysis** Location and Economic activity. Urban Policy, Regional Policy, Intra-regional concentration, Urban Decentralization, Regional trade and factor migration, Interregional Economics at the International Level.	12
	Tasks and Assignments:	

- Critically examine the following:
- Export Base Models
- Central place theory
- Cumulative Causation Models
- Sector theory
- Multi-sectoror Models

References:
- Harry W Richardson (1969), Regional Economics Location Theory, urban structure and regional change,
- Weidenfeld and Nicolson, 5 Winsley Street London Harry W Richardson (1973), Regional Growth Theory,
- Macmillan Harry W Richardson-Elements of Regional Economics, Penguin Modern Economic
- Text Harvey Armstrong and Jim Taylor (1978), Regional Economic Policy and its Analysis, First Edition, Philip Allan Publishers Limited, Oxford OX5 4SE
- O'Sullivan, Urban Economics, Sixth Edition, McGraw-Hill 2006 [ISBN (0072984767)]
- Hoover and Giarratani, Regional Economics, Online Edition Myrdal G (1968),
- Economic theory and Underdeveloped Regions, Vora, New Delhi.
- Mccann (2013), Urban and Regional Economics, second edition, Oxford University Press.
- Rakhee Bhattacharya (2015), Regional Development and Public Policy Challenges in India, first edition, Springer.
- Jagdish Bhagwati and Arvind Panagariya (2014), Why Growth Matters: How Economic Growth in India reduced Poverty and the Lessons for other Developing Countries, first edition, Public Affairs, U.S.
- Thomas Piketty (2014), Capital in the Twenty First Century, Harvard Business School Press India Ltd.
- Thomas Piketty (2015), The Economics of Inequality, Tra edition, Harvard University Press.
- Joseph Stiglitz (2013), The Price of Inequality, Penguin UK. Misra R.P (1974), Regional Development Planning in India, Vikas, New Delhi.

c. Mapping of Program Outcomes with Course Outcomes

	PO1	PO2	PO3	PO4	PO5
CO1	3	3	3	3	3
CO2	3	2	3	3	2
CO3	2	3	2	2	3
CO4	2	2	2	2	3
CO5	3	2	3	3	2

(If the correlation between Programme Outcome with Course Outcome is high 3 is assigned, for moderate 2, for low 1, and for nil 0 are assigned)

d. Evaluation Scheme

	CO1	CO2	CO3	CO4	CO5	Total
Internal	10	8	8	6	8	40
External	13	10	13	12	12	60
Total	**23**	**18**	**21**	**18**	**20**	**100**

e. Mapping Course Outcome with Internal Assessment (40 Marks)

	CO1	CO2	CO3	CO4	CO5
Assignments	-	-	5	-	5
Seminar	2	2	2	2	2
Test	4	4	4	4	4
Total	6	6	11	6	11

f. Mapping Course Outcome with External Assessment (60 Marks)

Category	CO1	CO2	CO3	CO4	CO5
Part – A (Short Answer - 5 x 6 = 30 marks)	6	6	6	6	6
Part – B (Essay- 3 x 10 = 30 marks)	10			10	10
Total	**16**	**6**	**6**	**16**	**16**

g. Rubric for Assignments (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	**Content** **50%**	Ideas are detailed, well developed, and supported with specific evidence and facts.	Ideas are detailed and specific.	Ideas are presented but not Supported.	The content does not cover the topic.	Not attended	CO1, CO2
2	**Organization** **50%**	The assignment is very exact and well written and organized as expected.	The assignment is well organized.	The organization of the Assignment is not Meaningful.	No organization	Not attended	CO1, CO2, CO5

h. Rubric for Seminar (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs

1	**Knowledge and Understanding** **50%**	Exceptional knowledge of facts, terms, and concepts	Detailed knowledge of facts, terms, and concepts	Considerable knowledge of facts, terms, and concepts	Minimal knowledge of facts, terms, and concepts	Not Attended	CO3, CO4
2	**Presentation** **50%**	Well Communicated with logical sequences, examples, and references	Communicated with sequences	Just Communicated	No coherent communication	Not Attended	CO3, CO4

i. Rubric for Internal Test

Sl.No	Category	Marks	Relation to COs
I	**Internal Test I**		
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	CO1, CO2
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	
II	**Internal Test II**		
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	CO3, CO4
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	
III	**Model Exam**		CO1, CO2, CO3, CO4, CO5
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	
	Test I + Test II + Model Test / 9 (Convert for 20 Marks)	**180/9**	
	Internal Marks	**20**	

j. Model Question Paper

Sl. No.	Model Questions	Specification	Level
	PART – A Short Answer **The answer should not exceed 300 words Marks:5 x 6 = 30**		
1	a) What is the need for the study of regional economics? b) What are the indicators of regional development?	What	Understand
2	a) Write a note on export base models. b) Give your comment on measurements of agglomeration economies.	Note Measurement	Skill
3	a) What are the elements in a spatial growth theory? b) Explain regional trade and factor price equalization.	What Explain	Understand
4	a) Write a note on regional dispersions of national growth. b) In what ways location and economic activities are related?	Note What	Understand
5	a) What is the urban and regional policy of India? b) How regional trade leads to factor migration?	What How	Understand Skill

	PART – C Essay Answer The answer should not exceed 500 words Marks: 3 x 10 = 30		
6	a) Discuss Hotelling's model and its relevance for regional economics. b) Explain the multi-sector model and regional development planning.	Explain Discuss	Understand
7	a) Elucidate the spatial diffusion of innovation and technical progress. b) Explain the integration of regional and urban economics.	Explain Elucidate	Understand
8	a) Describe interregional economics at the international level. b) Regional development is essential to increase national development-Comment.	Describe Comment	Analyse Skill

MA ECONOMICS - ELECTIVES					
Course Code	**Course Name**	**L**	**T**	**P**	**Credits**
ECOM-DSE-13	Behavioural Economics	4	-	-	4

a. Course Outcome (CO)

On the successful completion of the course, the student will be able to
(Course outcomes are specific for a particular course. CO should be specific, measurable, achievable, realistic, and time-bound)

	Course Outcome	**Level**
CO 1	All the Students would understand the basic individual theory of decisions making related risk and uncertainty and importance of economic principles.	Remember
CO 2	The major understanding point is Linkages between uncertainty and inter-temporal choices of economics ideas/concepts would be describe to the students.	Understand
CO 3	Quantitative methods would use to measure behavioral risk in all kind of economic branches.	Apply
CO 4	Familiarity with behavioural issues on laboure, finance taxation public policy to be calculated and resolve the behavioral pressure accordingly suggest policy.	Analyze
CO 5	Knowledge of survey, it would be a mechanism of reducing behavioral issues.	Skill

b. Syllabus

Units	Content	Hrs.
I	**Unit1: Introduction: decision-making theories** Neo-classical economics – rationality assumption, optimization, origin of Behavioural Economics - Bounded Rationality, Rationality in Psychology and Economics by H. Simon Dual System theory, Prospect theory.	12
II	**Unit 2: Decision-making under risk and uncertainty** Heuristics and Biases programme, Representativeness, Availability, Anchoring and adjustment, mental accounting Biases: Overconfidence, Confirmation bias, Framing, Status Quo Bias, Endowment Bias, Self-Control Bias, Fallacies: conjunction and disjunction fallacies, gambler's fallacies.	12
III	**Unit 3: Inter-temporal choices and Strategic interactions** The discounted utility model, exponential discounting hyperbolic discounting, fairness, trust, cooperation, reciprocity, altruism Norms and Culture.	12
IV	**Unit 4: Applications of Behavioural Economics** Introduction to Behavioural Labour Economics, Behavioural Finance Taxation and the contribution of Behavioural Economics Choice architecture: The role of nudging Public Policies: Psychological and social perspectives on policy in the area of Poverty, Health and Climate Change	12
V	**Unit 5: Research methods for behavioural economics**	12

	Survey: hypothetical choices, self-reported perceptions & biases Laboratory experiments, Precepts of laboratory experiments, internal and external validity Field experiments, Randomized Control Trails	
	Tasks and Assignments: • Prepare an assignment by comparing the relevance of decision-making theories with game theory approach will reduce the risk and it will create maximum utility. • Prepare success field stories on choice based behaviuoral changes in India for attaining maximization of utility. **References:** • Nick Wilkinson; Matthias Klaes(2012), An Introduction to Behavioral Economics, 2nd Edition, Palgrave Macmillan. • Colin F. Camerer, George Loewenstein, Matthew Rabin (ed.)(2004), • Advances in Behavioral Economics, Princeton University Press. • Dan Ariely, Harper Perennial Predictably Irrational: The Hidden Forces That Shape Our Decisions, 2010, ISBN 0061353248, ISBN13 978-0061353246. • M. Altman, Handbook of Contemporary Behavioral Economics: Foundation and Developments (2007), Prentice Hall India • E. Cartwright, Behavioral Economics (2011), Routledge • D. Kahneman, Thinking Fast and Slow (2011), Allen Lane, Penguin Books • G. Loewenstein, Exotic Preferences: Behavioral Economics and Human Motivation (2007), Oxford University Press • Erik Angner, "A Course in Behavioral Economics", Palgrave Macmillan • Sanjit Dhami, "The Foundations of Behavioral Economic Analysis", Oxford University Press (2016) • Reports: World Development Report 2015: Mind, Society, and Behavior • Gianna Lotito (2006): Dynamic inconsistency and different models of dynamic choice – a review, working paper 83, UNIVERSITA' DEL PIEMONTE ORIENTALE "Amedeo Avogadro" ALESSANDRIA http://polis.unipmn.it/pubbl/RePEc/uca/ucapdv/lotito83.pdf • F. Shane, G. Loewenstein and T. O'Donoghue; "Time Discounting and Time Preference: A Critical Review"; Journal of Economic Literature; Jun.(2002), Vol. 40, No. 2. pp. 351-401 • Experiments and Behavioral Economics by Robert J. Oxoby in M. Altman, Handbook of Contemporary Behavioral Economics: Foundation and Developments (2007), Prentice Hall India • Suggested Readings Bernheim, B.D., DellaVigna, S., Laibson, D.: Handbook of Behavioral Economics, Vol. 1, North-Holland (2018). • Bernheim, B.D., DellaVigna, S., Laibson, D.: Handbook of Behavioral Economics, Vol. 2, North-Holland (2019). • Camerer, C.: Behavioral Game Theory: Experiments in Strategic Interaction, Princeton University Press (2003).	

- Camerer, C., Loewenstein, G., Rabin, M.: Advances in Behavioral Economics, Princeton University Press (2004).
- Dhami, S.: The Foundations of Behavioural Economic Analysis, Oxford University Press (2016).
- Friedman, D., and Sunder, S.: Experimental Methods: A Primer for Economists, Cambridge University Press (1994).

c. Mapping of Program Outcomes with Course Outcomes

	PO1	PO2	PO3	PO4	PO5
CO1	3	2	3	2	2
CO2	3	2	3	3	2
CO3	2	3	2	2	2
CO4	2	3	3	2	3
CO5	3	3	3	3	2

(If the correlation between Programme Outcome with Course Outcome is high 3 is assigned, for moderate 2, for low 1, and for 0 are assigned)

d. Evaluation Scheme

	CO1	CO2	CO3	CO4	CO5	Total
Internal	5	8	10	7	11	40
External	11	13	13	11	11	60
Total	16	21	23	18	22	100

e. Mapping Course Outcome with Internal Assessment (40 Marks)

	CO1	CO2	CO3	CO4	CO5
Assignments	-	-	5	5	-
Seminar	-	-	5	5	-
Test	4	4	4	4	4
Total	4	4	14	14	4

f. Mapping Course Outcome with External Assessment (60 Marks)

Category	CO1	CO2	CO3	CO4	CO5
Part – A (Short Answer - 5 x 6 = 30 marks)	6	6	6	6	6
Part – B (Essay- 3 x 10 = 30 marks)			10	10	10
Total	6	6	16	16	16

g. Rubric for Assignments (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs

1	Content 50%	Major concept and Ideas are very prompted, as well as quantitative model developed, supported with specific evidence & facts and examples	Mostly the conceptual part is detailed, Quantitate part also Developed well and supported with evidence.	Thoughts are well presented but poor in the Q T Understanding, apparently explore is week.	Over all the pro thought is not accountability.	Not attended	CO2, CO3
2	Organiza -tion 50%	Includes title, introduction, statement of the main idea with illustration and conclusion.	Includes title, introduction, statement of main idea and conclusion.	organizational tools are weak or missing	No organization	Not attended	CO1, CO2, CO5

h. Rubric for Seminar (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	**Knowledge and Understanding** 50%	Extraordinary knowledge of contemporary subject, Applications are applied terms, and concepts is avail.	Detailed knowledge of facts, terms, and concepts	Normative subject knowledge. Moderate understanding the facts, terms, and concepts	Minimal knowledge of facts, terms, and concepts	Not Attended	CO1, CO2
2	**Presentation** 50%	Sequential Communicated with logical demonstration. examples, and references	Communicated with proper sequences	Neutral Communicated and less logical frequency.	No coherent communication	Not Attended	CO3, CO4

i. Rubric for Internal Test

Sl.No	Category	Marks	Relation to COs
I	**Internal Test I**		
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	CO1, CO2
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	
4.	**Total**	**60**	
II	**Internal Test II**		
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	CO3, CO4
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	
4.	**Total**	**60**	
III	**Model Exam**		CO1, CO2, CO3, CO4, CO5
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	
4.	**Total**	**60**	
	Test I + Test II + Model Test / 9 (Convert for 20 Marks)	**180/9**	
	Internal Marks	**20**	

j. Model Question Paper

Sl. No.	Model Questions	Specification	Level
	PART – A Short Answer **The answer should not exceed 300 words Marks:5 x 6 = 30**		
1	a) Explain the rationality assumptions in Neo-classical economics. [or] b) Examine the origin of Behavioural Economics theoughts.	Explain Examine	Understand
2	a) Make a note on Heuristics and Biases programme. [or] b) Describe Status Quo Bias, Endowment Bias, Self-Control Bias.	Explain Discuss	Analyze
3	a) Explain the discounted utility model. [or] b) Elucidate the Norms and Culture in Inter-temporal choices and Strategic interactions.	Identify Recall	Understand
4	a) Explain the importance and relevance of Behavioural Labour Economics. [or] b) Describe the contribution of Behavioural Economics to Behavioural Finance and Taxation.	Explain Recall	Understand
5	a) Explain hypothetical choices in survey method. [or] b) Make a note on self-reported perceptions & biases in survey.	Explain Assess	Skill
	PART – C Essay Answer **The answer should not exceed 400 words Marks: 3 x 10 = 30**		
6	a) Explain Rationality in Psychology and Economics by H. Simon. [or] b) Describe Duel System theory and Prospect theory.	Examine	Understand
7	a) Discuss about the conjunction and disjunction fallacies on behaviuoral Economics. [or] b) Describe gambler's fallacies in decision making.	Discuss Explain	Analyze
8	a) Elucidate exponential discounting hyperbolic discounting. [or] b) Explain the role of nudging Public Policies.	Assess Identify	Skill

MA ECONOMICS - ELECTIVES					
Course Code	**Course Name**	**L**	**T**	**P**	**Credits**
ECOM-DSE-14	Economics of Gender	4	-	-	4

a. Course Outcome (CO)
On the successful completion of the course, the student will be able to
(Course outcomes are specific for a particular course. CO should be specific, measurable, achievable, realistic, and time-bound)

	Course Outcome	**Level**
CO 1	All the Students would understand gender labour market and inequality wages is the important concept of the syllabus.	Remember
CO 2	Gender labour market wage discrimination major problem and demographic changes and reduce the gender bias ideas/concepts would be describe to the students.	Understand
CO 3	Comparative study and compound growth rate is Quantitative methods would use to measure inequality bias.	Apply
CO 4	Important analysis is gender inequality, labour supply decision and public policy to be find out and resolve the gender inequality accordingly prepare development policy.	Analyze
CO 5	Knowledge of feminism and women leadership, it would be a good mechanism of reducing gender inequality.	Skill

b. Syllabus

Units	**Content**	**Hrs.**
I	**Unit-1: Subject of gender economics** Do women and men behave differently in economic situations? Economic basis and functioning of Patriarchy in developed and developing countries with particular reference to India.	12
II	**Unit-2: Economic growth and gender equality** What determines the balance of power? Gender factor in household economics. Distribution of resources and decision-making mechanisms in households	12
III	**Unit-3: Gender Equality in the labour market** Are women discriminated against in the labour market? Factors affecting labour markets-supply and demand for females labour in developed and developing countries-female work participation-Gender inequity in labour market and Trade Union participation –Impact of technological development of and modernization on women's work. Women and the Acquisition of Human Capital.	12
IV	**Unit-4: Demographic changes and gender status** Gender factor of demographic development, Gender shift and demographic development, Contribution of Women's Work-Gender Dimensions of Employment and Unemployment, Feminization of Aging and Poverty, Gender statistics, Gender inequality indicators.	12
V	**Unit-5: The labour supply decision and public policy** Child care policy and programs: national, regional and global level, Gender budgets.	12

	Tasks and Assignments: • Prepare an assignment by comparing the gender inequality in wage patten by the developing and developed nations. What are the factors to determine the empowerment and emancipation of women. • To identify empowered women activity and explicit the public domain. It would create gender awareness and equality. **References:** 1. Boserup (1970) Women's Role in Economics Development, Allemn & Unwin,London. 2. The Economics of Gender, 3rd ed, by Joyce Jacobsen 3. The Economics of Women, Men, and Work, by Blau, Ferber and Winkler, 4. Why Gender Matters in Economics, 2014, Mukesh Eswaran, Princeton University Press. 5. Ronald G. Ehrenberg and Robert S. Smith Modern Labor Economics: Theory and Public Policy, 6. Government of India (1974) Ministry of Social Welfare, Report of the Committee on the Status of Women in India.	

c. Mapping of Program Outcomes with Course Outcomes

	PO1	PO2	PO3	PO4	PO5
CO1	3	2	3	2	2
CO2	3	2	3	3	2
CO3	2	3	2	2	2
CO4	2	3	3	2	3
CO5	3	3	3	3	2

(If the correlation between Programme Outcome with Course Outcome is high 3 is assigned, for moderate 2, for low 1, and for 0 are assigned)

d. Evaluation Scheme

	CO1	CO2	CO3	CO4	CO5	Total
Internal	6	8	9	8	10	40
External	11	13	13	11	11	60
Total	17	21	22	19	21	100

e. Mapping Course Outcome with Internal Assessment (40 Marks)

	CO1	CO2	CO3	CO4	CO5
Assignments	-	-	5	5	-
Seminar	-	-	5	5	-
Test	4	4	4	4	4
Total	4	4	14	14	4

f. Mapping Course Outcome with External Assessment (60 Marks)

Category	CO1	CO2	CO3	CO4	CO5
Part – A **(Short Answer - 5 x 6 = 30 marks)**	6	6	6	6	6
Part – B **(Essay- 3 x 10 = 30 marks)**			10	10	10
Total	**6**	**6**	**16**	**16**	**16**

g. Rubric for Assignments (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	**Content 50%**	Major concept and Ideas are very prompted, as well as quantitative model (Normal statistic or econometrics) developed, supported with specific evidence & facts and examples	Mostly the conceptual part is detailed, Quantitate model (Normal statistic or econometrics) part also Developed well and supported with evidence.	Thoughts are well presented but poor in the Q T Understanding, apparently explore is week.	Over all the pro thought is not accountability.	Not attended	CO2, CO3
2	**Organiza-tion 50%**	Includes title, introduction, statement of the main idea with illustration and conclusion.	Includes title, introduction, statement of main idea and conclusion.	organizational tools are weak or missing	No organization	Not attended	CO1, CO2, CO5

h. Rubric for Seminar (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs

1	**Knowledge and Understanding** 50%	Extraordinary knowledge of contemporary subject, Applications are applied terms, and concepts is avail.	Detailed knowledge of facts, terms, and concepts	Normative subject knowledge. Moderate understanding the facts, terms, and concepts	Minimal knowledge of facts, terms, and concepts	Not Attended	CO1, CO2
2	**Presentation** 50%	Sequential Communicated with logical demonstration. examples, and references	Communicated with proper sequences	Neutral Communicated and less logical frequency.	No coherent communication	Not Attended	CO3, CO4

i. Rubric for Internal Test

Sl.No	Category	Marks	Relation to COs
I	**Internal Test I**		
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	CO1, CO2
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	
4.	**Total**	**60**	
II	**Internal Test II**		
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	CO3, CO4
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	
4.	**Total**	**60**	
III	**Model Exam**		CO1, CO2, CO3, CO4, CO5
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	
4.	**Total**	**60**	
	Test I + Test II + Model Test / 9 (Convert for 20 Marks)	**180/9**	
	Internal Marks	**20**	

j. Model Question Paper

Sl. No.	Model Questions	Specification	Level
	PART – A Short Answer **The answer should not exceed 300 words Marks:5 x 6 = 30**		
1	a) Explain how men and women behave in economic situations. [or] b) Describe the role of Gender factor in household economics.	Explain Examine	Understand
2	a) What determines the balance of power? [or] b) Elucidate whether women are discriminated in the labour market.	Explain Discuss	Analyze

3	a) Write a note on Women and the Acquisition of Human Capital. [or] b) Describe the Factors affecting labour markets.	Identify Recall	Understand
4	a) Explain Gender shift and demographic development. [or] b) Describe the Gender Dimensions of Employment and Unemployment.	Explain Recall	Understand
5	a) Make a note on Feminization of Aging and Poverty. [or] b) Make a critical assessment on gender budget.	Explain Assess	Skill

<table>
<tr><td colspan="4" align="center">PART – C Essay Answer
The answer should not exceed 400 words   Marks: 3 x 10 = 30</td></tr>
</table>

6	a) Explain the economic basis and functioning of Patriarchy reference to India. [or] b) Describe the distribution of resources and decision-making mechanisms in households.	Examine	Understand
7	a) Discuss Gender inequity in labour market and Trade Union participation. [or] b) Explain the impact of technological development and modernization on women's work.	Discuss Explain	Analyze
8	a) Describe Gender statistics and Gender inequality indicators. [or] b) Elucidate briefly the Child care policy and programs at the national, regional and global level.	Assess Identify	Skill

MA ECONOMICS - ELECTIVES					
Course Code	**Course Name**	**L**	**T**	**P**	**Credits**
ECOM-DSE-15	**APPLIED PANEL DATA ECONOMETRICS**	4	-	-	4

a. Course Outcome (CO)
On the successful completion of the course, the student will be able to
(Course outcomes are specific for a particular course. CO should be specific, measurable, achievable, realistic, and time-bound)

	Course Outcome	**Level**
CO 1	The students will understand the principles of Panel data econometric analysis.	Remember
CO 2	This course will introduce the students to the basic tools of panel data econometric analysis.	Understand
CO 3	Ability to work on advance panel data methods	Apply
CO 4	Able to make applications of panel data approach in economic decisions and research.	Analyze
CO 5	Will help to apply this in their applied empirical research.	Skill

b. Syllabus

Units	Content	Hrs.
I	**Introduction to panel data** Panel data, Advantages of using panel data, Balanced and unbalanced panel, Different pattern of variations in parameters and distributional assumptions.	12
II	**Static Linear model** pooled repeated cross-section model, within and between estimators, fixed effects or covariance model, panel specific effects; Individual and time effect, Testing of hypothesis: test for poolability and testing for panel effects, Goodness of fit in panel data model.	12
III	**Random effect models** Error component model or random effect model, Specification, stochastic assumptions and variance-covariance structure, GLS estimation-different procedure and properties, Hausman test, one way and two way models, random coefficient model (Hierarchical /multi-level models)	12
IV	**Qualitative variable and limited dependent variable models with panel data** Discrete (binary) choices fixed effect and random effect models, censored regression with panel data.	12
V	**Dynamic (Stationary and Non-Stationary) Panel Data Models**: Bias in dynamic panels, Bias in simple OLS and within estimators, Instrumental variable and GMM estimations: Arellano and Bond Estimator, Arellano and Bover Estimator and Blundell and Bond System GMM Estimator, Non-stationarity and Panel data, Panel unit root and cointegration tests.	12
	Tasks and Assignments: • Write assignments about econometric methods and estimations methods in the context of static and dynamic panel data frame work.	

References:

1. Baltagi, Badi H. (2003), Econometric Analysis of Panel data, John Wily and Sons ltd , New York
2. Arellano, M. (2003), Panel data econometrics, Oxford University Press,
3. UK Hsiao, C (2003), Analysis of panel data, Cambridge University Press,
4. Cameron, A. C. and P.K. Trivedi (2005), Microeconometrics, Methods and Applications, Cambridge University press
5. Anderson, T.W. and C. Hsiao(1982), Formulation and estimation of Dynamic models using panel data, Journal of econometrics, Vol.18, pp.47-82
6. Wooldridge, J.M. (2002), Econometric Analysis of Cross section and Panel data, The MIT press, Cambridge,
7. Massachussetts Krishnakumar J. And Ronchetti, E (Eds), 2002, Panel data Econometrics, Future directions,
8. Elsevier, Amsterdam Arellanao, M. and S. Bond(1991): some test for specification of panel data: Monte carlo Evidence and An application to Employment equation, Review of economic studies, Vol.58, pp.277-297

c. Mapping of Program Outcomes with Course Outcomes

	PO1	PO2	PO3	PO4	PO5
CO1	3	3	3	3	3
CO2	3	3	3	3	3
CO3	3	3	3	3	3
CO4	3	2	3	3	3
CO5	3	3	3	3	3

(If the correlation between Programme Outcome with Course Outcome is high 3 is assigned, for moderate 2, for low 1, and for 0 are assigned)

d. Evaluation Scheme

	CO1	CO2	CO3	CO4	CO5	Total
Internal	8	8	10	8	6	40
External	13	13	14	10	10	60
Total	**21**	**21**	**24**	**18**	**16**	**100**

e. Mapping Course Outcome with Internal Assessment (40 Marks)

	CO1	CO2	CO3	CO4	CO5
Assignments	2	2	-	2	2
Seminar	-	-	4	4	-
Test	5	6	6	5	2
Attendance	-	-	-	-	-
Total	**7**	**8**	**12**	**11**	**4**

f. Mapping Course Outcome with External Assessment (60 Marks)

Category	CO1	CO2	CO3	CO4	CO5
Part – B (Short Answer - 5 x 4 = 20 marks)	6	6	6	6	6
Part – C (Essay- 3 x 10 = 30 marks)	10	-	10	10	-
Total	**16**	**6**	**16**	**16**	**6**

g. Rubric for Assignments (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	**Content 50%**	Ideas are detailed, well developed, supported with specific evidence & facts and examples	Ideas are detailed, Developed and supported with evidence and facts mostly specific.	Ideas are presented but not particularly developed or supported;	Content is not sound	Not attended	CO1, CO2, CO3, CO4
2	**Organiza-tion 50%**	Includes title, introduction, statement of the main idea with illustration and conclusion.	Includes title, introduction, statement of main idea and conclusion.	organizational tools are weak or missing	No organization	Not attended	CO2, CO3, CO5

h. Rubric for Seminar (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	**Knowledge and Understanding 50%**	Exceptional knowledge of facts, terms, and concepts	Detailed knowledge of facts, terms, and concepts	Considerable knowledge of facts, terms, and concepts	Minimal knowledge of facts, terms, and concepts	Not Attended	CO3, CO5
2	**Presentation 50%**	Well Communicated with logical sequences, examples, and references	Communicated with sequences	Just Communicated	No coherent communication	Not Attended	CO1, CO2, CO3, CO4, CO5

i. Rubric for Internal Test

Sl. No	Category	Marks	Relation to COs
I	**Internal Test I**		
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	CO1, CO2
3.	**Total**	**60**	
4.	**Internal Test II**		
II	Part – A (Short Answer - 5 x 6 = 30 marks)	30	
1.	Part – B (Essay- 3 x 10 = 30 marks)	30	CO3, CO4
2.	**Total**	**60**	
3.	**Model Exam**		
4.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	CO1, CO2, CO3, CO4, CO5
III	Part – B (Essay- 3 x 10 = 30 marks)	30	
	Total	**60**	

	Test I + Test II + Model Test / 9 (Convert for 20 Marks)	180/9	
	Internal Marks	**20**	

j. Model Question Paper

Sl. No.	Model Questions	Specification	Level
	PART – A Short Answer **The answer should not exceed 200 words Marks:5 x 4 = 20**		
21	a) Explain balance and Unbalanced Panel data models (or) b) Describe the pattern of variations in parameters and distributional assumptions in panel data analysis	Explain Examine	Understand
22	a) Explain fixed effects or covariance model, (or) b) Explain error component model or random effect model	Explain Discuss	Analyze
23	a) Describe Hansman specification test (or) b) Discuss the random coefficient model	Identify Recall	Understand
24	a) Explain censored regression with panel data (or) b) Explain Discrete (binary) choices fixed effect and random effect models	Explain Recall	Understand
	PART – C Essay Answer **The answer should not exceed 400 words Marks: 3 x 10 = 30**		
25	a) Explain the advantages of using panel data over other data structures	Examine	Understand
26	Explain how the non-stationary in panel data analysis will be handled	Discuss Explain	Analyze
27	a) Explain Arellano and Bond Estimator (or) b) Write note on Panel Coinegration tests	Assess Identify	Skill

MA ECONOMICS - ELECTIVES					
Course Code	**Course Name**	**L**	**T**	**P**	**Credits**
ECOM-DSE-16	Game theory and Information	4		-	4

a. Course Outcome (CO)

On the successful completion of the course, the student will be able to
(Course outcomes are specific for a particular course. CO should be specific, measurable, achievable, realistic, and time-bound)

	Course Outcome	**Level**
CO 1	Understanding the games of complete information.	Understand
CO 2	Analyzing the games of incomplete information for firm.	Remember
CO 3	Assessing the cooperative games for smooth firm activities.	Apply
CO 4	Ability to know the bargaining in business.	Analyze
CO 5	Assessing the differential game to get maximum benefits.	Skill

b. Syllabus

Units	Content	Hrs.
I	**Unit-1: Games of Complete Information** Static games; solution concept: Nash equilibrium, mixed and pure strategies, maximin principle; extensive forms, backward induction, subgame perfection, repeated games; applications	12
II	**Unit-2: Games of Incomplete Information** Incomplete and imperfect information; static games of incomplete information, solution concepts, Bayes-Nash equilibrium; dynamic games of incomplete information, equilibrium refinements: weak perfect Bayesian equilibrium, sequential equilibrium and trembling hand perfect equilibrium, forward induction; applications	12
III	**Unit-3: Cooperative Games** Elements of cooperative games, transferable utility games, core, Shapley-Value, coalition structure, credibility and core, matching games, examples.	12
IV	**Unit-4: Bargaining** Bargaining with complete information, bargaining as an extensive game: Rubinstein model, axiomatic bargaining: Nash bargaining solution, relation between strategic and axiomatic models, outside options, inside options, bargaining with incomplete information, one-sided and two-sided uncertainty, private and correlated values, applications.	12
V	**Unit-5: Differential Game** Repeated and differential game, commitment and sub-game perfection, solution concept: open and closed loop solutions, Markov-Perfect equilibrium, hierarchical game and Stackleberg solution, applications.	12
	Tasks and Assignments: • Prepare an assignment the Games of Complete Information. • Prepare an assignment the Bargaining with complete information. **References:**	

- Goon, Gupta, Dasgupta, Fundamentals of Statistics, Vol I, World Press Private limited.
- Osborne, M. J., An Introduction to Game Theory, Oxford University Press, 2003.
- Gibbons, R., A Primer in Game Theory, Harvester-Wheatsheaf, 1992.
- Fudenberg, D and J. Tirole, Game Theory, MIT Press, 1991.
- M. J. and A. Rubinstein, A Course in Game Theory, MIT Press, 1994
- Muthoo, A., Bargaining Theory with Applications, Cambridge University Press, 1999

c. Mapping of Program Outcomes with Course Outcomes

	PO1	PO2	PO3	PO4	PO5
CO1	3	3	3	2	3
CO2	3	3	3	2	3
CO3	3	3	3	2	3
CO4	3	3	3	3	2
CO5	3	3	3	3	2

(If the correlation between Programme Outcome with Course Outcome is high 3 is assigned, for moderate 2, for low 1, and for 0 are assigned)

d. Evaluation Scheme

	CO1	CO2	CO3	CO4	CO5	Total
Internal	8	10	8	8	6	40
External	13	12	13	12	10	60
Total	21	22	21	20	16	100

e. Mapping Course Outcome with Internal Assessment (40 Marks)

	CO1	CO2	CO3	CO4	CO5
Assignments	5	-	-	-	5
Seminar	-	10	-	-	-
Test	4	4	4	4	4
Total	9	14	4	4	9

f. Mapping Course Outcome with External Assessment (60 Marks)

Category	CO1	CO2	CO3	CO4	CO5
Part – A (Short Answer - 5 x 6 = 30 marks)	6	6	6	6	6
Part – B (Essay- 3 x 10 = 30 marks)	10		10	10	
Total	16	6	16	16	6

g. Rubric for Assignments (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	**Content 50%**	Ideas are detailed, well developed, supported with specific evidence & facts and examples	Ideas are detailed, Developed and supported with evidence and facts mostly specific.	Ideas are presented but not particularly developed or supported;	The content is not sound	Not attended	CO1, CO2 CO5
2	**Organiza-tion 50%**	Includes title, introduction, statement of the main idea with illustration and conclusion.	Includes title, introduction, statement of main idea and conclusion.	organizational tools are weak or missing	No organization	Not attended	CO1, CO2, CO5

h. Rubric for Seminar (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	**Knowledge and Understanding 50%**	Exceptional knowledge of facts, terms, and concepts	Detailed knowledge of facts, terms, and concepts	Considerable knowledge of facts, terms, and concepts	Minimal knowledge of facts, terms, and concepts	Not Attended	CO1, CO2, CO5
2	**Presentation 50%**	Well Communicated with logical sequences, examples, and references	Communicated with sequences	Just Communicated	No coherent communication	Not Attended	CO1, CO2, CO5

i. Rubric for Internal Test

Sl.No	Category	Marks	Relation to COs
I	**Internal Test I**		CO1, CO2
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	

2.	Part – B (Essay- 3 x 10 = 30 marks)	30	
4.	**Total**	**60**	
II	**Internal Test II**		
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	CO3, CO4
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	
4.	**Total**	**60**	
III	**Model Exam**		CO1, CO2, CO3, CO4, CO5
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	
4.	**Total**	**60**	
	Test I + Test II + Model Test/9 (Convert for 20 Marks)	**180/9**	
	Internal Marks	**20**	

j. Model Question Paper

Sl. No.	Model Questions	Specification	Level
	PART – A Short Answer **The answer should not exceed 300 words Marks:5 x 6 = 30**		
1	a) State the Nash equilibrium. [or] b) Discuss the repeated games.	Explain Examine	Understand
2	a) Explain the nash equilibrium. [or] b) State the repeated games.	Explain Discuss	Analyse
3	a) Discuss the elements of cooperative games. [or] b) Explain the shapley-value.	Identify Recall	Understand
4	a) Explain the bargaining with complete information. [or] b) State the one-sided and two-sided uncertainty	Explain Recall	Understand
5	a) Discuss the repeated and differential game. [or] b) Describe the markov-perfect equilibrium.	Explain Assess	Skill
	PART – B Essay Answer **The answer should not exceed 400 words Marks: 3 x 10 = 30**		
6	a) Analyse the mixed and pure strategies. [or] b) Examine static games of incomplete information.	Discuss Explain	Understand
7	a) Illustrate the Bayes-Nash equilibrium. [or] b) Assess the transferable utility games.	Examine	Analyse
8	a) Examine the Rubinstein model. [or] b) Assess the open and closed loop solutions.	Assess Identify	Skill

MA ECONOMICS - ELECTIVES					
Course Code	**Course Name**	**L**	**T**	**P**	**Credits**
ECOM 302	**ECONOMETRICS-II**	4	-	-	4

a. Course Outcome (CO)

On the successful completion of the course, the student will be able to

(Course outcomes are specific for a particular course. CO should be specific, measurable, achievable, realistic, and time-bound)

	Course Outcome	**Level**
CO 1	This course will introduce the students about basic knowledge about data and the various software's available to handle it.	Remember
CO 2	The students will gain the knowledge of handling statistical packages.	Understand
CO 3	Ability to work different statistical software's for estimations	Apply
CO 4	Able to make applications of these methods for economic decisions and research.	Analyze
CO 5	Will help to apply this in their applied empirical research.	Skill

b. Syllabus

Units	**Content**	**Hrs.**
I	**Concepts of Data** Nature, Types of and Sources of Data – Importance of Data in Economic Analysis and Policy Formulation – Search For, Process and Communicate Statistical and Economic Data.	12
II	**Introduction SPSS, STATA, Eviews, Gretl, and R** It's Menu and Options – Creating a Work File, Entering Data into Work File, Data Grouping, Graphing, Generating New Variables – Getting Data – Importing Data – Exporting Data	12
III	**Fundamental of SPSS Descriptive Statistics** Correlation – Pearson's, Spearmen's – Fundamental of SPSS, Reading Different File Formats, Data Editing Features and Summary Statistics Data – Recoding Variables – Creating New Variables Using Compute Command – One Sample 'T' Test – Independent Sample Test – Paired Sample 'T' Test – Univariate Analysis – Cross Tabulations – Multiple Regression Analysis	12
IV	**Stata Description** Creating New Data Set – Importing ASCII Data – Creating Log, Cmdlog and Do Files – Generating and Replacing Variables – Summary Statistics and Exploratory Data Analysis.	12
V	**Working With Eviews and Gretl** Creating Work File and Importing Data – Computations and Transformations of Variables – Simple Statistical and Econometric Tools – Basics of R Data Types, Objects, Vectors, Sequence, Lists, Arrays – Defining Matrices and Performing Basic Matrix Operations, Creating Data Frames – Generating and Replacing Variables – Summary Statistics and Regression Analysis.	12
	Tasks and Assignments:	

- Write assignments about econometric methods and estimations methods in the context of simultaneous equation frame work, dynamic and autoregressive models

References:
1. Sankar Kumar Bhaumik (2015), Principles of Econometrics: A Modern Approach Using Eviews Oxford University Press; UK Ed
2. Cohen, Y. And Cohen, Jeremiah, Y. (2008): Statistics and Data with R, An Applied Approach Through Examples, John Wiley And Sins.
3. Gujarati, D. (2011): Econometrics by Example, Palgrave Macmillan.
4. Landau, S. And Everitt, B. S. (2004), A Handbook Of Statistical Analyses Using SPSS, Chapman And Hall/CRC.
5. SPSS And STATA Manuals

c. Mapping of Program Outcomes with Course Outcomes

	PO1	PO2	PO3	PO4	PO5
CO1	3	3	3	3	3
CO2	3	3	3	3	3
CO3	3	3	3	3	3
CO4	3	2	2	3	3
CO5	3	3	3	3	3

(If the correlation between Programme Outcome with Course Outcome is high 3 is assigned, for moderate 2, for low 1, and for 0 are assigned)

d. Evaluation Scheme

	CO1	CO2	CO3	CO4	CO5	Total
Internal	8	8	10	8	6	40
External	13	13	14	14	6	60
Total	21	21	24	22	12	100

e. Mapping Course Outcome with Internal Assessment (40 Marks)

	CO1	CO2	CO3	CO4	CO5
Assignments	2	2	-	2	2
Seminar	-	-	4	4	-
Test	5	6	6	5	2
Attendance	-	-	-	-	-
Total	7	8	12	11	4

f. Mapping Course Outcome with External Assessment (60 Marks)

Category	CO1	CO2	CO3	CO4	CO5
Part – A (Objective - 10 x 1 = 10 marks)	2	2	2	2	2
Part – B (Short Answer - 5 x 4 = 20 marks)	4	4	4	4	4
Part – C (Essay- 3 x 10 = 30 marks)	10	-	10	-	10
Total	16	6	16	16	6

g. Rubric for Assignments (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs

1	Content 50%	Ideas are detailed, well developed, supported with specific evidence & facts and examples	Ideas are detailed, Developed and supported with evidence and facts mostly specific.	Ideas are presented but not particularly developed or supported;	Content is not sound	Not attended	CO1, CO2, CO3, CO4
2	Organiza-tion 50%	Includes title, introduction, statement of the main idea with illustration and conclusion.	Includes title, introduction, statement of main idea and conclusion.	organizational tools are weak or missing	No organization	Not attended	CO2, CO3, CO5

h. Rubric for Seminar (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	Knowledge and Understanding 50%	Exceptional knowledge of facts, terms, and concepts	Detailed knowledge of facts, terms, and concepts	Considerable knowledge of facts, terms, and concepts	Minimal knowledge of facts, terms, and concepts	Not Attended	CO3, CO5
2	Presentation 50%	Well Communicated with logical sequences, examples, and references	Communicated with sequences	Just Communicated	No coherent communication	Not Attended	CO1, CO2, CO3, CO4, CO5

i. Rubric for Internal Test

Sl. No	Category	Marks	Relation to COs
I	**Internal Test I**		
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	CO1, CO2
3.	**Total**	**60**	
4.	**Internal Test II**		
II	Part – A (Short Answer - 5 x 6 = 30 marks)	30	
1.	Part – B (Essay- 3 x 10 = 30 marks)	30	CO3, CO4
2.	**Total**	**60**	
3.	**Model Exam**		
4.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	CO1, CO2, CO3, CO4, CO5
III	Part – B (Essay- 3 x 10 = 30 marks)	30	
	Total	**60**	
	Test I + Test II + Model Test / 9 (Convert for 20 Marks)	**180/9**	
	Internal Marks	**20**	

j. Model Question Paper

Sl. No.	Model Questions	Specification	Level
	PART – A Short Answer **The answer should not exceed 200 words Marks:5 x 4 = 20**		
21	a) Explain different type of data with examples (or) b) Describe the importance of data in economic analysis and policy formulation	Explain Examine	Understand
22	a) Explain the importance of recoding ad cross tabulations in data analysis (or) b) Explain the importance of transformation of variables	Explain Discuss	Analyze
23	a) Explain the importance of visualization of data in economic research (or) b) Role of summary statistics in understating the nature of the data	Identify Recall	Understand
24	a) Write the difference between regression and correlation (or) b) Write a note on how important choosing an appropriate software is?	Explain Recall	Understand
	PART – C Essay Answer **The answer should not exceed 400 words Marks: 2 x 15 = 30**		
25	a) Recode the above give data and estimate the cross tabulations (or) b) Estimate a multiple regression model for the above given data and report the results.	Examine	Analyze
26	a) Estimate and independent sample test for the above data set and report the results (or) b) Estimate and paired sample 't' test for the above data set and report the results	Discuss Explain	Analyze

	MA ECONOMICS - ELECTIVES				
Course Code	**Course Name**	**L**	**T**	**P**	**Credits**
ECOM-DSE-19	Economics Of Rural Development	4	-	-	4

Course Objectives:

The objective of the course is to understand the nature of rural development and rural infrastructure facilities.

Learning Outcome: The course help in learning the pattern of rural development and the major factors contributing to rural development. It gives an in-depth understanding of the rural economy and the scope of employment opportunities.

	Course Outcome	**Level**
CO 1	Understand the nature of Rural Development	Remember
CO 2	Employment and Rural Industries	Understand
CO 3	Rural Infrastructure development and its requirements	Apply
CO 4	Agriculture and Rural Economy	Analyze
CO 5	Rural Management	Skill

Units	Contents	Hours
Unit-1	**Introduction to Rural Development** Meaning of Rural Development - Basic Elements of Development - Objectives of Development - Strategies of Rural Development - Policies for Rural Development - the need for Rural Development - Rural Development under five Year plan.	12
Unit-2	**Employment and Rural Industries:** Rural Measurement - Rural income - Size, Growth and Occupational Structure of Rural Population - Employment- under Employment - Unemployment in rural areas-Types of Rural Development programmes in India. Growth and Development of rural industries in India. Cottage and Rural industries - Problems and Perspectives. Rural Industries during the planning Period.	10
Unit-3	**Rural Infrastructure**: Infrastructure and Development, Infrastructure for Agriculture Sector and Rural Economy of India - Planning for Village Industries. Rural Infrastructure - Rural Transport - Rural Electricity- Rural Education - Rural Housing - Rural Health, Sanitation and Water Supply.	12
Unit-4	**Agriculture and Rural Economy:** Land-use pattern and ownership distribution; growth fluctuations, trends and regional spread of Indian agriculture. Issues of Land Reform, Rural Credit and Role of NABARD, Performance of Agricultural Credit and Microfinance Programme, Green Revolution—Achievements and Drawbacks, Agriculture growth, low productivity and Public policies.	10
Unit-5	**Rural Management**	10

		Managing rural common property resources, Management of rural economy- Agriculture and Human Resources, Problems of Rural Market for agriculture and handicrafts.	
		References . Vasant Desai: Fundments of Rural Development, Himalaya Publishing House 2. Mehta SR: Rural Development policies and programmes, Sage Publication, New Delhi 3. Srivastav M and AK Singh: Rural Development in India: Deep and Deep publication, New Delhi, 1988 4. V. K. Ramachandran and M Swaminathan (eds). Financial Liberalization and Rural Credit in India, Tulika Book, 2005. 5. B. A. de. Aghion and J. Morduch. The Economics of Micro Finance, Prentice-Hall of India, 2007. 6. Abhijit Vinayak Banerjee, Roland Benabou and Dilip Mukherjee (eds). Understanding Poverty, Oxford University Press, 2006. 7. Karla Hoff, A. Braverman and Joseph E. Stiglitz (eds). The Economics of Rural Organization, Oxford University Press, 1997. 8. Pranab Bardhan. Agrarian Change, Oxford University Press, 2002. 9. Pranab Bardhan. Development Micro Economics, Oxford University Press, 1999.	

d. Evaluation Scheme

	CO1	CO2	CO3	CO4	CO5	Total
Internal	8	8	8	8	8	40
External	12	12	12	12	12	60
Total	**20**	**20**	**20**	**20**	**20**	**100**

e. Mapping Course Outcome with Internal Assessment (40 Marks)

	CO1	CO2	CO3	CO4	CO5
Assignments	2	2	2	2	2
Seminar	2	2	2	2	2
Test	4	4	4	4	4
Total	8	8	8	8	8

f. Mapping Course Outcome with External Assessment (60 Marks)

Category	CO1	CO2	CO3	CO4	CO5
Essay- 6 x 10 = 60 marks	12	12	12	12	12
Total	12	12	12	12	12

g. Rubric for Assignments (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	Content 50%	Ideas are detailed, well developed, and supported with specific evidence & facts and examples	Ideas are detailed, Developed and supported with evidence and facts mostly specific.	Ideas are presented but not particularly developed or supported;	The content is not sound	Not attended	CO1, CO2, CO5
2	Organiza-tion 50%	Includes title, introduction, statement of the main idea with illustration and conclusion.	Includes title, introduction, statement of main idea and conclusion.	organizational tools are weak or missing	No organization	Not attended	CO1, CO2, CO5

h. Rubric for Seminar (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	Knowledge and Understanding 50%	Exceptional knowledge of facts, terms, and concepts	Detailed knowledge of facts, terms, and concepts	Considerable knowledge of facts, terms, and concepts	Minimal knowledge of facts, terms, and concepts	Not Attended	CO3, CO4
2	Presentation 50%	Well Communicated with logical sequences, examples, and references	Communicated with sequences	Just Communicated	No coherent communication	Not Attended	CO3, CO4

i. Rubric for Internal Test

Category	Marks	Relation to COs
Internal Test I		
(Essay- 2 x 10 = 20 marks)	20	CO1, CO2
Total		
Internal Test II	**20**	CO3 CO4
(Essay- 2 x 10 = 30 marks)		
Total		
Model Exam		
(Essay- 6 x 10 = 60 marks)	**60**	CO!,CO2, CO3,CO4,CO5
Total		
Internal Marks (Convert for 20 Marks)		

Answer any 6 out of 8 Questions

SL NO	Model Questions	Specification	Level
1	What do you mean by rural development? Write about the need and importance of rural development in India.		Understand
2	What are the different rural development programs undertaken during the 1970s and 1980s in India? How are modern rural development policies different?		Analyze
3	Explain the key initiatives required for infrastructural development in rural areas.		Understand
4	Critically evaluate the importance of regional rural banks in the development of the rural economy.		Skill
5	Write an essay on the achievements and drawbacks of the Green Revolution		Analyze
6	It is important to protect village forests and pastures as a common property resource. Agree or disagree? Present your argument.		Skill
7	Enumerate the characteristics of rural industries. What are the different types of rural industries in India? Explain.	Explanation	Understand
8	Examine the occupational structure of the rural population and analyze the problem of unemployment in rural India. Suggest a few measures.		Analyze

MA ECONOMICS - OPEN ELECTIVES					
Course Code	**Course Name**	**L**	**T**	**P**	**Credits**
ECOM-OPE-01	Quantitative Methods for Social Science Research	4	-	-	4

a. Course Outcome (CO)
On the successful completion of the course, the student will be able to
(Course outcomes are specific for a particular course. CO should be specific, measurable, achievable, realistic, and time-bound)

	Course Outcome	**Level**
CO 1	Students would understand the basic statistics like descriptive statistics, correlation and time series and their applications in economics.	Remember
CO 2	Sampling methods and sampling distributions and their application to social science research would be enlightened to the students.	Understand
CO 3	Ability to deal with numerical and quantitative issues in social science research.	Apply
CO 4	Students will be able to use these statistical tools for analyzing data and research.	Analyze
CO 5	Students will be able to understand the concepts, theory and basic tools of Econometrics. Further they will be able to make applications of these methods for economic decisions and research.	Skill

b. Syllabus

Units	Content	Hrs.
I	**Unit-1: Basics of Data and Quantitative Methods** Types of Data-time series, Cross section and panel data; primary and secondary sources of data; Quantitative and qualitative data, variables and scale. Methods of collecting primary data: Census and sampling, Quantitative methods as a tool in analysing data, Introducing statistical packages for data analysis, understanding the data-generating tables, charts and interpretation, its scope in social science Research and advantages.	12
II	**Unit-2: Descriptive Statistics and Correlation** Measures of central tendency: Mean, Median, mode of frequency distribution, Measures of dispersion: Range, quartiles, Standard deviation, Coefficient of variation, Association between variables; Correlation coefficient.	12
III	**Unit-3: Basics of Probability, Sampling and Testing of Hypotheses** Basics of Probability and probability distribution, Sampling and Testing of Hypotheses: population, parameter, Random Sample; concept of sampling distribution, Standard Normal(Z), Students' t, Chi-square and F-distribution; Concepts of testing of hypothesis and test of significance; tests of significance of proportion, mean, and variance: Unpaired and paired t' test.	12
IV	**Unit-4:** Analysis of Variance-one –way ANOVA, two-way ANOVA, Multiple analysis of variance (MANOVA), factor analysis, non-parametric tests.	12

		Unit-5: Basic Econometric Analysis	
V		Simple and Multiple Regression analysis: Specifications of the Model, Functional forms, Assumptions, Ordinary Least Squares (OLS) Estimation and interpretation of coefficients, Gauss Markov Theorem and properties of OLS, Testing of Hypotheses about regression parameters, Goodness of fit of the model: Coefficient of Determination, introducing dummy variables in Regression, Problems in Regression: Heteroscedasticity, Multicollinearity, and Autocorrelation, Forecasting with Regression model.	12
		Tasks and Assignments: • Prepare an assignment on Sampling Technique and explain different types of Sampling. • Prepare an assignment on Interactive Dummy and explain its uses in regression analysis with the appropriate interpretation. **References:** • David Kaplan (2004), The Sage hand book of Quantitative methodology for the social sciences, Sage publications. • Myers, J.L., & Well, A.D., & Lorch, R.F., Jr. (2010). Research design and statistical analysis (3rd Edition). • Mahwah, NJ: Erlbaum. ISBN: 978-0-8058-6431-1 Urdan, T. (2010), Statistics in Plain English, 3rd Edition. New York: Routledge Psychology Press. • Ramanathan, Ramu, Introductory Econometrics with Applications, 5th edition, 2002, Thomson Asia Pte Ltd., Singapore. • Greene, William H. Econometric Analysis. 6th Edition, Prentice Hall. 2008. • Johnston J. and Dinardo, J. Econometric Methods. 4th Ed. McGraw-Hill 1997. • Ken Black, Business statistics, John Wiley, student edition, 2004.	

c. Mapping of Program Outcomes with Course Outcomes

	PO1	PO2	PO3	PO4	PO5
CO1	3	3	3	3	3
CO2	3	2	3	3	2
CO3	2	3	3	2	3
CO4	2	2	3	3	3
CO5	3	2	3	3	2

(If the correlation between Programme Outcome with Course Outcome is high 3 is assigned, for moderate 2, for low 1, and for 0 are assigned)

d. Evaluation Scheme

	CO1	CO2	CO3	CO4	CO5	Total
Internal	8	8	8	6	10	40
External	12	12	12	12	12	60
Total	**20**	**20**	**20**	**18**	**22**	**100**

e. Mapping Course Outcome with Internal Assessment (40 Marks)

	CO1	CO2	CO3	CO4	CO5
Assignments	5	-	-	-	5
Seminar		10			
Test	4	4	4	4	4
Total	9	14	4	4	9

f. Mapping Course Outcome with External Assessment (60 Marks)

Category	CO1	CO2	CO3	CO4	CO5
Part – A **(Short Answer - 5 x 6 = 30 marks)**	6	6	6	6	6
Part – B **(Essay- 3 x 10 = 30 marks)**	10		10		10
Total	**16**	**6**	**16**	**6**	**16**

g. Rubric for Assignments (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	**Content 50%**	Ideas are detailed, well developed, supported with specific evidence & facts and examples	Ideas are detailed, Developed and supported with evidence and facts mostly specific.	Ideas are presented but not particularly developed or supported;	The content is not sound	Not attended	CO2, CO3
2	**Organization 50%**	Includes title, introduction, statement of the main idea with illustration and conclusion.	Includes title, introduction, statement of main idea and conclusion.	organizational tools are weak or missing	No organization	Not attended	CO2, CO3, CO5

h. Rubric for Seminar (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	**Knowledge and Understanding 50%**	Exceptional knowledge of facts, terms, and concepts	Detailed knowledge of facts, terms, and concepts	Considerable knowledge of facts, terms, and concepts	Minimal knowledge of facts, terms, and concepts	Not Attended	CO1, CO3

2	**Presentation** **50%**	Well Communicated with logical sequences, examples, and references	Communicated with sequences	Just Communicated	No coherent communication	Not Attended	CO3, CO4

i. Rubric for Internal Test

Sl.No	Category	Marks	Relation to COs
I	**Internal Test I**		
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	CO1, CO2
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	
4.	**Total**	**60**	
II	**Internal Test II**		
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	CO3, CO4
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	
4.	**Total**	**60**	
III	**Model Exam**		
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	CO1, CO2, CO3, CO4, CO5
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	
4.	**Total**	**60**	
	Test I + Test II + Model Test/9 (Convert for 20 Marks)	**180/9**	
	Internal Marks	**20**	

j. Model Question Paper

Sl. No.	Model Questions	Specification	Level
	PART – A Short Answer **The answer should not exceed 300 words Marks:5 x 6 = 30**		
1	a) Explain the major components of a time series. [or] b) Distinguish between a schedule and a questionnaire.	Explain Recall	Understand
2	a) Briefly explain the method of data collection. [or] b) Calculate standard deviation for the following distribution. <table><tr><td>Age</td><td>20-25</td><td>25-30</td><td>30-35</td><td>35-40</td><td>40-45</td><td>45-50</td></tr><tr><td>No. of Persons</td><td>170</td><td>110</td><td>80</td><td>45</td><td>40</td><td>35</td></tr></table>	Explain Analyse	Analyse
3	a) State the properties of a good estimator. [or] b) Examine the procedure for testing of hypothesis.	Identify Examine	Understand
4	a) Explain t-test, F-distribution. [or] b) Give a brief note on the techniques of Analysis of Variance.	Explain Recall	Understand
5	a) Bring out the assumptions of CLRM. [or] b) Assess the significance of econometrics in social science research.	Explain Assess	Skill

	PART – B Essay Answer The answer should not exceed 400 words Marks: 3 x 10 = 30		
6	a) Describe the various methods of collection of primary data.(or) b) Compare the merits and demerits of the various measures of central tendency.	Describe Examine	Understand
7	a) Explain the importance of statistics in economic analysis and business decision making.[or] b) Distinguish between correlation analysis and regression analysis.	Discuss Explain	Analyse
8	a) How do you forecast the Indian GDP for the year 2025? [or] b) a) From the following data obtain the regression line Y on X and X on Y: <table><tr><td>X:</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td></tr><tr><td>Y:</td><td>6</td><td>10</td><td>14</td><td>18</td><td>22</td></tr></table>	Assess Identify	Skill

MA ECONOMICS - OPEN ELECTIVES					
Course Code	**Course Name**	**L**	**T**	**P**	**Credits**
ECOM-OPE-02	Understanding Economics	4	-	-	4

a. Course Outcome (CO)

On the successful completion of the course, the student will be able to
(Course outcomes are specific for a particular course. CO should be specific, measurable, achievable, realistic, and time-bound)

	Course Outcome	**Level**
CO 1	Students would understand the importance of economic Branches.	Remember
CO 2	Linkages between economics ideas with its Mechanism concepts would be described to the students.	Understand
CO 3	Ability to use quantitative techniques for valuing over all the economics aspects	Apply
CO 4	With various types of economics to accuracy significant methods and suggest economic growth and development.	Analyze
CO 5	Knowledge of different types of economic branches issues and pursuing research for attaining Economic growth and development	Skill

b. Syllabus

Units	Content	Hrs.
I	**Unit 1: Basic Building Blocks of Economics** Scope of Micro economics, Concepts of Choice in Microeconomics theory, idea of opportunity cost; Absolute pricing - production possibility curve, positive and normative economics - Market Demand and Supply Curve - basic concepts of elasticity	12
II	**Unit 2: Working of an Economy** Basic National income Accounts - Circular flow of Income, Determination of Output, Employment and Price, Inflation - Causes, Effect and Control	12
III	**Unit 3: Role of Government** Market Failure and Need of Government, Fiscal policy, Expenditure, revenue - tax and non-tax revenue, Public Debt.	12
IV	**Unit 4: Export and Import and the Economy** International Trade, Determination of Exchange rate and Balance of Payment Globalization, WTO and IMF	12
V	**Unit 5: Issues in Growth and Development** Concept of Economic Growth and Factors promoting, growth- land, Labour, capital and Organization, relationship between, issues on Development - poverty, Inequality and Environment	12

Tasks and Assignments:
- Prepare an assignment by comparing the relevance of international economic theories and stated export and imports preference approach and its impact on economic growth and development.
- Prepare macroeconomic policy and Management in India for attaining transitional economic development.

References:
- Gregory Mankiw, (2002), Principles of Economics, Thomson.

- Sen, A (2007) Microeconomics: Theory and Application. Oxford University Press

- Cherunillam F International Economics, Tata Mcgraw hill.

c. Mapping of Program Outcomes with Course Outcomes

	PO1	PO2	PO3	PO4	PO5
CO1	3	3	3	2	2
CO2	3	2	2	2	2
CO3	3	3	3	2	2
CO4	3	3	3	2	3
CO5	3	3	3	3	2

(If the correlation between Programme Outcome with Course Outcome is high 3 is assigned, for moderate 2, for low 1, and for 0 are assigned)

d. Evaluation Scheme

	CO1	CO2	CO3	CO4	CO5	Total
Internal	6	8	8	10	8	40
External	12	13	12	13	10	60
Total	18	21	20	23	18	100

e. Mapping Course Outcome with Internal Assessment (40 Marks)

	CO1	CO2	CO3	CO4	CO5
Assignments	-	-	5	5	-
Seminar	-	-	5	-	5
Test	4	4	4	4	4
Total	4	4	14	9	9

f. Mapping Course Outcome with External Assessment (60 Marks)

Category	CO1	CO2	CO3	CO4	CO5
Part – A (Short Answer - 5 x 6 = 30 marks)	6	6	6	6	6
Part – B (Essay- 3 x 10 = 30 marks)			10	10	10
Total	6	6	16	16	16

g. Rubric for Assignments (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	**Content** **50%**	Ideas are very detailed, Content is well structured and developed, supported with specific evidence & facts and examples	Ideas are moderate, Developed and supported with evidence and facts mostly specific.	Ideas are presented but not particularly developed or supported;	The content is not sound	Not attended	CO2, CO3
2	**Organiza-tion** **50%**	Includes title, introduction, statement of the main idea with illustration and conclusion.	Includes title, introduction, statement of main idea and conclusion.	organizational tools are weak or missing	No organization	Not attended	CO1, CO2, CO5

h. Rubric for Seminar (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	**Knowledge and Understanding** **50%**	Excellent knowledge of facts, terms, and concepts	Detailed knowledge of facts, terms, and concepts	Considerable knowledge of facts, terms, and concepts	Minimal knowledge of facts, terms, and concepts	Not Attended	CO3, CO5
2	**Presentation** **50%**	Well Communicated with logical sequences, examples, and references	Communicated with sequences	Just Communicated	No coherent communication	Not Attended	CO3, CO5

i. Rubric for Internal Test

Sl.No	Category	Marks	Relation to COs
I	**Internal Test I**		
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	CO1, CO2
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	
	Total	**60**	
II	**Internal Test II**		
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	CO3, CO4
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	
	Total	**60**	
III	**Model Exam**		
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	CO1, CO2, CO3, CO4, CO5
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	
	Total	**60**	
	Test I + Test II + Model Test / 9 (Convert for 20 Marks)	**180/9**	
	Internal Marks	**20**	

j. Model Question Paper

Sl. No.	Model Questions	Specification	Level
	PART – A Short Answer **The answer should not exceed 300 words Marks:5 x 6 = 30**		
1	a) Explain micro economics ideas on opportunity cost. [or] b) Examine the production possibility cure in international trade	Explain Examine	Understand
2	a) Describe the different Markets demand and supply Mechanisms. [or] b) Mathematically discuss the Elasticity concepts and its limitations.	Explain Discuss	Analyze
3	a) Why does market failure happen and what are the needs of government intervention? [or] b) Write a note on the concept of the circular flow of income.	Identify Recall	Understand
4	a) Explain a) revenue - tax and non-tax revenue, Public Debt. [or] b) Write a note on the inflation control method.	Explain Recall	Understand
5	a) Assess the importance of foreign exchange in economic development [or] b) Assess the significance role of the balance of payment and balance of trade economic development	Explain Assess	Skill
	PART – C Essay Answer **The answer should not exceed 400 words Marks: 3 x 10 = 30**		
6	a) Examine the Revealed Preference theory in Behavioural Economics? [or] b) Examine the role of income inequality for poverty reduction?	Examine	Understand
7	a) Empirically analysis how does fiscal policy affects business and related economy [or] b) To discuss the impact of WTO and IMF in the global monetary phenomena.	Discuss Explain	Analyze
8	a) To Assess the problems and policy of Economic development? [or] b) Identify the issues of National Income Accounting in economics.	Assess Identify	Skill

MA ECONOMICS - OPEN ELECTIVES					
Course Code	**Course Name**	**L**	**T**	**P**	**Credits**
ECOM-OPE-03	Indian Economy	4	1	-	5

a. Course Outcome (CO)

On the successful completion of the course, the student will be able to

(Course outcomes are specific for a particular course. CO should be specific, measurable, achievable, realistic, and time-bound)

	Course Outcome	**Level**
CO 1	Students will understand the sector-wise development of the Indian economy.	Remember
CO 2	Students will be enlightened about the major economic problems of India	Understand
CO 3	Students will apply their knowledge to suggest policy measures to achieve overall development of the country	Apply
CO 4	Students will have analytical knowledge about the major economic problems of the country.	Analyze
CO 5	Students will have the skill to critically comment on the future development of the country	Skill

b. Syllabus

Units	Content	Hrs.
I	**Unit-1: Development Phases of Indian Economy** The Colonial Legacy -State of the economy at independence -policy of planned development – growth and structural change till the 'eighties – evolution of controls and obstacles to fast growth- new economic policy – performance of the economy since 1991 – major aspects of transformation – recent developments. Understanding key sectors of Indian Economy: Primary, secondary and tertiary sector –structural transformation since independence.	12
II	**Unit-2: Agricultural Sector** Agricultural Productivity – Meaning and concept -Causes of Low Productivity and Measures Regional Variations, Comparison with Developed Countries -Green Revolution – Achievement and Failures. Need of second Green Revolution - Changes in Cropping Pattern - Organic Farming – Meaning & Scope -Recent deceleration of agricultural growth and public investment in agriculture, Agricultural price policy.	12
III	**Unit-3: Industrial Sector** Industrial growth and diversification -Policy changes and industrial growth – Sources of Industrial finances; Industrial price regulations and subsidies through price controls – examples of oil and petroleum and fertilizer sectors; Indian industry since liberalisation – productivity growth and rise in competitiveness – exports – rise of service industry – India and I.T. – policy regarding public enterprises – disinvestment and	12

	privatisation – impact of WTO and trade liberalisation; Issues facing small scale sector-unorganized sector-Reservation policy relating to small scale Industries-Industrial relations and Labour welfare-National commission on labour-issues in labour market reforms.	
IV	**Unit-4: Infrastructure Sector** State of infrastructure – reforms: restructuring, pricing and regulation – Investment requirements of roads, power, ports and other infrastructure sectors; Policy initiatives to bridge the gaps e.g allowing foreign investment and private-public partnership mode.	12
V	**Unit-5: Population and Development** Population and Development-population growth -Components of population growth and their inter dependence; Malthus -post Malthus theories, Measures of population -sources of population data -Census, Population policy in India, Culture and fertility; Education and fertility; Demographic Dividend.	12
	Tasks and Assignments: • Prepare an assignment on the development under Five-Year Plans. • Prepare a case study on the performance of the economy under economic reforms. **References:** 1. Basu, Kaushik India's Emerging Economy: Performance and Prospects in the 1990s and Beyond, The MIT Press, 2004. 2. Chandrasekhar, C.P and Ghosh, Jayati (2004), The Market that Failed: Neoliberal Economic Reforms in India, LeftWord Books, New Delhi., Ch. 2, pp.9-18. 3. Dreze J. and A.K. Sen (2013) The Uncertain Glory: India and its Contradictions, Allan Lane, New Delhi. Nayak, Pulin, Economic Development of India (Critical Concepts in Economics), London & New York, Routledge, 2015 4. Drèze, Jean and Sen, Amartya (2002), India: Development and Participation, Oxford University Press, New Delhi, Ch.3 titled 'India in a Comparative Perspective'. 5. Habib, Irfan (1975), 'Colonization of the Indian Economy, 1757-1900', Social Scientist,Vol.3, No.8, pp 23-53. 6. Krueger A. (ed.), Economic Policy Reforms and the Indian Economy, Oxford University Press, 2003. 7. Panagariya, Arvind (2008), India: The Emerging Giant, Oxford University Press, NewYork. Ch.12 ('International Trade: Carrying Liberalization Forward'), especially pp. 259-68 and 276-81. 8. Roy, Tirthankar ,The economic history of India 1857-1947, 3rd edition, Oxford University Press India.	

c. Mapping of Program Outcomes with Course Outcomes

	PO1	PO2	PO3	PO4	PO5
CO1	3	3	3	3	3
CO2	3	3	3	3	2
CO3	2	3	3	2	3
CO4	2	2	3	2	3
CO5	3	2	3	3	2

(If the correlation between Programme Outcome with Course Outcome is high 3 is assigned, for moderate 2, for low 1, and for 0 are assigned)

d. Evaluation Scheme

	CO1	CO2	CO3	CO4	CO5	Total
Internal	6	8	8	10	8	40
External	12	10	12	13	13	60
Total	**18**	**18**	**20**	**23**	**21**	**100**

e. Mapping Course Outcome with Internal Assessment (40 Marks)

	CO1	CO2	CO3	CO4	CO5
Assignments	-	-	5	-	5
Seminar			10		
Test	4	4	4	4	4
Total	4	4	19	4	9

f. Mapping Course Outcome with External Assessment (60 Marks)

Category	CO1	CO2	CO3	CO4	CO5
Part – A (Short Answer - 5 x 6 = 30 marks)	6	6	6	6	6
Part – B (Essay- 3 x 10 = 30 marks)			10	10	10
Total	**6**	**6**	**16**	**16**	**16**

g. Rubric for Assignments (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	**Content 50%**	Ideas are detailed, well developed, supported with specific evidence & facts and examples	Ideas are detailed, Developed and supported with evidence and facts mostly specific.	Ideas are presented but not particularly developed or supported;	The content is not sound	Not attended	CO1, CO2

2	**Organiza-tion** **50%**	Includes title, introduction, statement of the main idea with illustration and conclusion.	Includes title, introduction, statement of main idea and conclusion.	organizational tools are weak or missing	No organization	Not attended	CO1, CO2, CO5

h. Rubric for Seminar (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	**Knowledge and Understanding** **50%**	Exceptional knowledge of facts, terms, and concepts	Detailed knowledge of facts, terms, and concepts	Considerable knowledge of facts, terms, and concepts	Minimal knowledge of facts, terms, and concepts	Not Attended	CO3, CO4
2	**Presentation** **50%**	Well Communicated with logical sequences, examples, and references	Communicated with sequences	Just Communicated	No coherent communication	Not Attended	CO3, CO4

i. Rubric for Internal Test

Sl.No	Category	Marks	Relation to COs
I	**Internal Test I**		CO1, CO2
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	
4.	**Total**	**60**	
II	**Internal Test II**		CO3, CO4
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	
4.	**Total**	**60**	
III	**Model Exam**		CO1, CO2, CO3, CO4, CO5
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	

4.	Total	60	
	Test I + Test II + Model Test / 9 (Convert for 20 Marks)	**180/9**	
	Internal Marks	**20**	

j. Model Question Paper

Sl. No.	Model Questions	Specification	Level
	PART – A Short Answer **The answer should not exceed 300 words Marks:5 x 6 = 30**		
1	a) Write about the colonial legacy in India [or] b) Examine the recent development issues of India	Explain Examine	Understand
2	a) Write about the reasons for low agricultural productivity in India. [or] b) Discuss about the Green Revolution in India.	Explain Discuss	Analyse
3	a) Delineate about the growth of service sector in India [or] b) Write about the India's labour market reforms	Identify Recall	Understand
4	a) Write about the reasons for the poor state of infrastructure in India [or] b) Discuss about the scope for PPP in infrastructure development in India	Explain Recall	Understand
5	a) Discuss about the problem population and its impact economy in India [or] b) Write about the source of population data in India	Explain Assess	Skill
	PART – C Essay Answer **The answer should not exceed 400 words Marks: 3 x 10 = 30**		
6	a) Discuss about the state of the economy in India at the time independence [or] b) Write about the development of primary, secondary and tertiary sectors of India	Examine	Understand
7	a) Write about the achievements and failures of India's agriculture sector. [or] b) Describe the development of industrial sector in India since independence	Discuss Explain	Analyse
8	a) Examine the investment requirement of infrastructure sector in India [or] b) Examine the Malthus and post-Malthus population theories in Indian context	Assess Identify	Skill

MA ECONOMICS - OPEN ELECTIVES					
Course Code	**Course Name**	**L**	**T**	**P**	**Credits**
ECON-DSE-03	**Introduction to Econometrics**	4	-	-	4

a. Course Outcome (CO)

On the successful completion of the course, the student will be able to
(Course outcomes are specific for a particular course. CO should be specific, measurable, achievable, realistic, and time-bound)

	Course Outcome	**Level**
CO 1	This course is designed to introduce to the students to the basic tools of econometric analysis	Remember
CO 2	The students will understand the basic principles of econometrics.	Understand
CO 3	Will help to apply these techniques in the basic empirical research.	Apply
CO 4	Provide the knowledge of applications in economic decision making.	Analyze
CO 5	Will help to understand the intermediate econometric research.	Skill

b. Syllabus

Units	Content	Hrs.
I	**Simple Linear Regression:** Specifications of the Model, Assumptions, Ordinary Least Squares (OLS) Estimation, properties of OLS and Gauss Markov Theorem, Estimation of the Error Variance, Functional forms.	12
II	**Statistical Inference in the Linear Regression Model:** Confidence Intervals for the Estimated Parameters and the Testing of Hypotheses, Coefficient of Determination, Prediction with the Simple Regression model.	12
III	**Linear Multiple regression analysis:** Estimation of parameters; goodness of fit - adjusted R^2; partial regression coefficients; testing hypotheses – individual and joint significance. Omission of a relevant variable; inclusion of irrelevant variable; tests of specification	12
IV	**Problems in OLS Methods:** Analysis of Residuals: Heteroscedasticity and Autocorrelation, Problem of Multicollineraity-their Consequences, Detection and Remedies.	12
V	**Introducing dummy variables** Nature of dummy variables, variables with two categories and more than two categories, dummy variable trap, dummy dependent variable, problems of Linier Probability Model (LPM), Introducing statistical packages for analysis of Econometrics.	12
	Tasks and Assignments: • Write assignments about OLS and dummy variable models **References:** 9. Gujarati and Porter, Basic Econometrics, Fifth Edition, McGraw Hill/Irwin, 2009. 10. Greene, William H. Econometric Analysis. 6th Edition, Prentice	

Hall. 2008.
11. Johnston J. and Dinardo, J. Econometric Methods. 4th Ed. McGraw-Hill 1997.Greene
12. Ramanathan, Ramu, Introductory Econometrics with Applications, 5th edition, 2002, Thomson Asia Pte Ltd., Singapore.
13. Stock, James H., and Mark W. Watson (2006): Introduction to Econometrics, Second Edition, (Addison-Wesley Series in Economics).
14. Wooldridge, J., Introductory Econometrics: A Modern Approach, 2015, Nelson Education.
15. Earl K. Bowen & Martin K. Starr, Basic Statistics for Business and Economics, McGraw Hill International Student Edition
16. G.S. Maddala – Introduction to Econometrics. Wiley Publishers (Indian edition)
2. 9. Christopher Dougherty, Introduction to Econometrics, Oxford University Press, 3rd edition, Indian edition, 2007.

c. Mapping of Program Outcomes with Course Outcomes

	PO1	PO2	PO3	PO4	PO5
CO1	3	3	3	3	3
CO2	3	3	3	3	3
CO3	3	3	3	3	3
CO4	3	2	2	3	3
CO5	3	3	3	3	3

(If the correlation between Programme Outcome with Course Outcome is high 3 is assigned, for moderate 2, for low 1, and for 0 are assigned)

d. Evaluation Scheme

	CO1	CO2	CO3	CO4	CO5	Total
Internal	8	8	10	8	6	40
External	13	13	14	14	6	60
Total	21	21	24	22	12	100

e. Mapping Course Outcome with Internal Assessment (40 Marks)

	CO1	CO2	CO3	CO4	CO5
Assignments	2	2	-	2	2
Seminar	-	-	4	4	-
Test	5	6	6	5	2
Attendance	-	-	-	-	-
Total	7	8	12	11	4

f. Mapping Course Outcome with External Assessment (60 Marks)

Category	CO1	CO2	CO3	CO4	CO5
Part – A (Objective - 10 x 1 = 10 marks)	2	2	2	2	2
Part – B (Short Answer - 5 x 4 = 20 marks)	4	4	4	4	4
Part – C (Essay- 3 x 10 = 30 marks)	10	-	10	10	-
Total	16	6	16	16	6

g. Rubric for Assignments (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	**Content 50%**	Ideas are detailed, well developed, supported with specific evidence & facts and examples	Ideas are detailed, Developed and supported with evidence and facts mostly specific.	Ideas are presented but not particularly developed or supported;	Content is not sound	Not attended	CO1, CO2, CO3, CO5
2	**Organiza -tion 50%**	Includes title, introduction, statement of the main idea with illustration and conclusion.	Includes title, introduction, statement of main idea and conclusion.	organizational tools are weak or missing	No organization	Not attended	CO2, CO3, CO4

h. Rubric for Seminar (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	**Knowledge and Understanding 50%**	Exceptional knowledge of facts, terms, and concepts	Detailed knowledge of facts, terms, and concepts	Considerable knowledge of facts, terms, and concepts	Minimal knowledge of facts, terms, and concepts	Not Attended	CO3, CO4
2	**Presentation 50%**	Well Communicated with logical sequences, examples, and references	Communicated with sequences	Just Communicated	No coherent communication	Not Attended	CO1, CO2, CO3, CO4, CO5

i. Rubric for Internal Test

Sl. No	Category	Marks	Relation to COs
I	**Internal Test I**		
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	CO1, CO2
3.	**Total**	**60**	
4.	**Internal Test II**		
II	Part – A (Short Answer - 5 x 6 = 30 marks)	30	
1.	Part – B (Essay- 3 x 10 = 30 marks)	30	
2.	**Total**	**60**	CO3, CO4
3.	**Model Exam**		
4.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	
III	Part – B (Essay- 3 x 10 = 30 marks)	30	

	Total	60	CO1, CO2, CO3, CO4, CO5
	Test I + Test II + Model Test / 9 (Convert for 20 Marks)	**180/9**	
	Internal Marks	**20**	

j. Model Question Paper

Sl. No.	Model Questions	Specification	Level
	Part – A: Objective Type **Multiple Choice Marks: 10 x 1 = 10**		
1	In hypothesis testing, the hypothesis tentatively assumed to be true is a. the alternative hypothesis b. the null hypothesis c. either the null or the alternative d. none of the above		
2	The CLRM assumes that the sample average of the OLS residuals as a. some positive number b. some negative number c. zero d. unobservable		
3	In a regression model with no constant, when the estimated slope coefficient (β) is zero, then a. $r2 = 1$ b. $0 < r2 < 1$. c. $r2 = 0$. d. $r2 > (SSR/TSS)$		
4	When the exogenous variable 'x' is large than the number of observations 'n', then the r2 will be_____ the adjusted r2 a. higher than b. smaller than c. equal to d. both a and b are possible		
5	The adjusted r2 is adjusted for a. mean b. Variance standard deviation d. none of the above		
6	What would be then consequences for the OLS estimator if heteroskedasticity is present in a regression model but ignored? a. It will be biased b. It will be inconsistent c. It will be inefficient d. all of (a), (b) and (c) will be true.		
7	If the successive values of the error terms are correlated, then that problem is called as a. homoscedasticity b. heteroskedasticity c. autocorrelation d. multicollinearity		
8	Which of the following statement is wrong? a. A under fit model will leads to forecast error b. A over fit model will not affect BLUE c. If r2 is zero, then the F value is infinite d. All of the above		
9	Dummy variable is a_____ scale analysis a. ratio b. interval c. nominal d. ordinal		
10	In dummy variable model, the benchmark category measures a. the effect of excluded category b. the effect of included categories c. the effect of the errors d. all of the above		

PART – B Short Answer **The answer should not exceed 200 words Marks:5 x 4 = 20**			
21	a)Discuss Gauss-Markov theorem with an example (or) b) Explain the following concepts in detail with an example i) Type I and Type II error, and ii) Partial regression coefficients	Explain Examine	Understand

22	a) Define the following concepts
	    i) BLUE ii) DW statistic and GLS method
	                    (or)
	 b) Discuss the role of Confidence Intervals in regression models
		Explain Discuss	Analyze

23	a) Explain the problem of autocorrelation, its causes (or) (or) b) Discuss the role of functional forms in estimations	Identify Recall	Understand
24	a) Write a detail note on dummy variable trap. (or) b) Explain the problems of LPM.	Explain Recall	Understand
PART – C Essay Answer **The answer should not exceed 400 words Marks: 3 x 10 = 30**			
25	a) Write the CLRM assumptions with an appropriate examples (or) b) Define the following concepts with an example i) Null and Alternative Hypothesis ii) R^2 and Adjusted R^2; iii) Point and Interval Estimation; iv) F test and t test	Examine	Understand
26	a) An omission of relevant variable as well as inclusion of inappropriate variables leads to model mis-specification bias – Discuss (or) b) Write a note on different types of functional forms with practical example	Discuss Explain	Analyze
27	a) Write a detail note on dummy variable and its usefulness in econometric analysis with an example (or) b) Explain heteroskedasticity, its causes, consequences and the techniques to resolve the problem	Assess Identify	Skill

MA ECONOMICS - OPEN ELECTIVES					
Course Code	**Course Name**	**L**	**T**	**P**	**Credits**
ECON-DSE-04	Introduction to Environmental Economics	4	1	-	5

a. Course Outcome (CO)

On the successful completion of the course, the student will be able to

	Course Outcome	**Level**
CO 1	Students would understand the significance and economic relevance of the subject.	Remember
CO 2	Linkages between environment and economy would be enlightened to the students.	Understand
CO 3	Ability to use quantitative techniques for valuing environmental goods for management.	Apply
CO 4	Familiarity with various pollution controlling methods and suggest apt environmental policy.	Analyze
CO 5	Knowledge of various environmental issues and pursuing research for attaining sustainable development	Skill

b. Syllabus

Units	Content	Hrs.
I	**Unit-1: Nature and scope of environmental Economics** Circular flow model and the environment- Sustainable development – Measurement of Sustainable Development: Green GDP -Environmental Kuznets curve Hypothesis	12
II	**Unit-2: Theories of public goods** public goods, private goods, common pool resources, common property resources-Concept of Total Economic Value- Types of Externalities. Social benefit-cost analysis-Net present value, benefit-cost ratio, internal rate of return and issues related to social discount rate	12
III	**Unit-3: Economic Valuation of environmental benefits** a) Revealed preference method: Production function approach, defensive expenditure approach, travel cost method, Hedonic pricing method – b) stated preference approach-contingent valuation method and choice experiment.	12
IV	**Unit-4: Environmental policy** Command and control method –market-based instruments (MBIs)–Tax, subsidy, tradable rights, and payment for ecosystem services. (PES)	12
V	**Unit-5: India's environmental Problems** cost of depletion and degradation of water resources, air pollution, soil erosion, deforestation, and global climate change-related issues – management of the environment and India's sustainable development.	12
	Tasks and Assignments: • Prepare an assignment by comparing the revealed and stated preference approach and its exactness over valuing environmental goods.	

- Prepare success stories on Environmental Management in India for attaining sustainable development.

References:

- Charles Kolstad, Intermediate Environmental Economics, Oxford University Press, 2nd edition, 2010.
- Robert N. Stavins (ed.), Economics of the Environment: Selected Readings, W.W. Norton, 5th edition, 2005.
- Roger Perman, Yue Ma, James McGilvray and Michael Common, Natural Resource and Environmental Economics, Pearson Education/Addison Wesley, 3rd edition, 2003.
- Maureen L. Cropper and Wallace E. Oates, 1992, ―Environmental Economics: A Survey, Journal of Economic Literature, Volume 30:675-740.
- Champ, Patricia et al., A Primer on Nonmarket Valuation, Springer, 2003.

c. Mapping of Program Outcomes with Course Outcomes

	PO1	PO2	PO3	PO4	PO5
CO1	3	3	3	3	3
CO2	3	3	3	3	2
CO3	2	3	3	2	3
CO4	2	2	3	2	3
CO5	3	2	3	3	2

(If the correlation between Programme Outcome with Course Outcome is high 3 is assigned, for moderate 2, for low 1, and for 0 are assigned)

d. Evaluation Scheme

	CO1	CO2	CO3	CO4	CO5	Total
Internal	6	8	8	10	8	40
External	12	10	12	13	13	60
Total	18	18	20	23	21	100

e. Mapping Course Outcome with Internal Assessment (40 Marks)

	CO1	CO2	CO3	CO4	CO5
Assignments	-	-	5	-	5
Seminar			10		
Test	4	4	4	4	4
Total	4	4	19	4	9

f. Mapping Course Outcome with External Assessment (60 Marks)

Category	CO1	CO2	CO3	CO4	CO5
Part – A (Short Answer - 5 x 6 = 30 marks)	6	6	6	6	6
Part – B (Essay- 3 x 10 = 30 marks)			10	10	10
Total	6	6	16	16	16

g. Rubric for Assignments (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	**Content** 50%	Ideas are detailed, well developed, supported with specific evidence & facts and examples	Ideas are detailed, Developed and supported with evidence and facts mostly specific.	Ideas are presented but not particularly developed or supported;	The content is not sound	Not attended	CO1, CO2
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h. Rubric for Seminar (10)

Sl. No.	Criteria	100%	75%	50%	25%	0%	Relation to COs
1	**Knowledge and Understandin g** 50%	Exceptional knowledge of facts, terms, and concepts	Detailed knowledge of facts, terms, and concepts	Considerable knowledge of facts, terms, and concepts	Minimal knowledge of facts, terms, and concepts	Not Attende d	CO3, CO4
2	**Presentation** 50%	Well Communicate d with logical sequences, examples, and references	Communicate d with sequences	Just Communicate d	No coherent communicatio n	Not Attende d	CO3, CO4

i. Rubric for Internal Test

Sl.No	Category	Marks	Relation to COs
I	**Internal Test I**		
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	CO1, CO2
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	
4.	**Total**	**60**	
II	**Internal Test II**		
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	CO3, CO4
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	
4.	**Total**	**60**	
III	**Model Exam**		
1.	Part – A (Short Answer - 5 x 6 = 30 marks)	30	CO1, CO2, CO3, CO4, CO5
2.	Part – B (Essay- 3 x 10 = 30 marks)	30	
4.	**Total**	**60**	
	Test I + Test II + Model Test / 9 (Convert for 20 Marks)	**180/9**	
	Internal Marks	**20**	

j. Model Question Paper

Sl. No.	Model Questions	Specification	Level
	PART – A Short Answer **The answer should not exceed 300 words Marks:5 x 6 = 30**		
1	a) Explain the circular flow model and environment. [or] b) Examine the methods of measuring sustainable development.	Explain Examine	Understand
2	a) Describe the measurement of sustainable development. [or] b) Discuss the Environmental Kuznets curve Hypothesis and its limitation.	Explain Discuss	Analyse
3	a) In what ways does market failure leads to environmental externalities? [or] b) Write a note on the concept of total economic value.	Identify Recall	Understand
4	a) Explain NPV, CBR, and IRR. [or] b) Write a note on the command-and-control method.	Explain Recall	Understand
5	a) Assess the significance Pigouvian Tax for pollution control. [or] b) Assess the relevance of the production function approach.	Explain Assess	Skill
	PART – C Essay Answer **The answer should not exceed 400 words Marks: 3 x 10 = 30**		
6	a) Examine the positive and negative externalities with diagrammatic representation. [or] b) Examine the production function approach under a hypothetical situation.	Examine	Understand
7	a) Describe the travel cost method and its limitation. [or] b) Describe the various stages involved in contingent valuation.	Discuss Explain	Analyse
8	a) Assess the relevance of payment for ecosystem services. [or] b) Elucidate the major environmental issues in India and give your suggestions.	Assess Identify	Skill