



**Manav Rachna International
Institute of Research and Studies**
(Deemed to be University under section 3 of the UGC Act, 1956)

**School of Behavioural and
Social Sciences**

Department of Economics

**Curriculum
And
Scheme of Examination**

Masters in Economics

Batch: - 2023-2025

PREAMBLE

The Department of Economics has implemented a post-graduate programme which has relevance to the local, national, regional and global developmental needs with well-defined Program Educational Objectives (PEOs), Program Objectives (POs) and Program Specific Objectives (PSOs) at the program level and Course Outcomes (COs) at individual course level.

The unique and vibrant curriculum of undergraduate, postgraduate and doctoral programs offered by the Department of Economics is committed to a liberal education philosophy and promotes quality teaching as well as research on the contemporary demand. The vision of the department is to attain the standard of excellence by imparting knowledge in areas of fundamental importance and pushing frontiers of research to address emerging global challenges through holistic development of students into ethical and socially responsible competent economists. The mission of the department is to offer curriculum which prepares students for acquiring theoretical knowledge and applied skills to deal with the economic enquiries; engage students in research on economic and public-policy issues for attaining development in a sustainable manner and to impart holistic education by producing socially responsible and internationally competitive economists.

The Economics PEOs and POs aim to create globally competent economists by extending frontiers to meet the current and future needs, and introduce research for addressing the economic challenges to build up a sustainably developed world. It will help inculcate national ethos and values to the ignited minds for serving the community on economic or policy issues. The curriculum will enable students to apply analytical framework for economic enquiry and decision-making by appropriate consideration of social and environmental welfare at local, regional, national and global level. The curriculum is regularly reviewed for any revisions or new courses which will help address the needs of the academics, industry and society. Regular feedback on the curriculum is taken from all stakeholders' i.e. students, parents, faculties and industry experts. The curriculum is benchmarked with reputed national and international institutions/Universities.

The robust curriculum aims to narrow down the gap between academics and industry to increase employment opportunities and at the same time aims at pushing frontiers of research to meet the local, regional, national and global demand for new forms of knowledge. The growing need of trained economists in Faridabad being an industrial hub and Delhi NCR is being met by the young and dynamic students of the Department of Economics having professional competencies with in-depth domain-centric theoretical and applied knowledge. The content of the curriculum as well as the teaching learning process is therefore planned and implemented to meet both local and regional demand for education.

FOREWORD

This is to certify that this booklet contains the entire Curriculum and Scheme of Examination of Masters of Economics being offered at the School of Behavioral and Social Sciences of this University. This has been duly vetted and finally approved by the Academic Council (AC) of the University vide 24th AC meeting held on 09-03-2018. Subsequently this curriculum has been approved in 32nd AC meeting held on 10-01-2020, and 43rd AC meeting held on 05-08-2023 and changes, if any deemed appropriate, shall be duly incorporated after the necessary approval by the Academic Council.

This Curriculum and Scheme of Examination of Masters of Economics shall be implemented w.e.f. AY 2023-25.

Date:

Prof. (Dr.) Brijesh Kumar
Dean-Academics
MRIIRS

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**School of Behavioral and Social Sciences
Department of Economics**

VISION AND MISSION OF THE DEPARTMENT

VISION

Attain the standard of excellence by imparting knowledge in areas of fundamental importance and pushing frontiers of research to address emerging global challenges through holistic development of students into ethical and socially responsible competent economists.

MISSION

- Prepare students for acquiring theoretical knowledge and applied skills to deal with the economic enquiries
- Engage in research on economic and public-policy issues for attaining development in a sustainable manner
- Impart holistic education by producing socially responsible and internationally competitive economists

ABOUT THE DEPARTMENT

The Department of Economics has been conceived as one of the core departments under the School of Behavioral and Social Sciences. The department offers BA (Honours), MA and PhD programs in Economics. Graduates from the department are expected to have professional competencies with in-depth domain-centric theoretical and applied knowledge for preparing into a variety of careers as proficient economists. The department is committed to a liberal education philosophy, and promoting quality teaching as well as research using a robust curriculum framework on the contemporary demand.

PROGRAM EDUCATIONAL OBJECTIVES (PEO'S)

PEO-1: Create globally competent economists by extending frontiers to meet the current and future needs

PEO-2: Introduce research for addressing the economic challenges to build up a sustainably developed world

PEO-3: Pursue lifelong learning to holistically prepare students for a variety of careers as proficient economist

PEO-4: Inculcate national ethos and values to the ignited minds for serving community on economic or policy issues

PROGRAM OBJECTIVES (PO'S)

PO-1: Gain a firm grasp of knowledge on economics for insight into the complexities, dynamics and challenges of current economic scenarios

PO-2: Comprehend with the empirical applications using relevant quantitative techniques to support contemporary economic arguments

PO-3: Apply analytical framework for economic enquiry and decision-making by appropriate consideration of social and environmental welfare

PO-4: Analyze the economic issues and articulate policy options by engage in reflective and independent thinking

PO-5: Evaluate new economic ideas in life-long process of learning through research and development

PO-6: Model the perspective of economic thought by aiding in disciplinary growth and policy making.

PROGRAM SPECIFIC OBJECTIVES (PSO'S)

PSO-1: Equip students with comprehensive and advanced knowledge to explore complex problems of economics;

PSO-2: Apply analytical skills and modern quantitative techniques for reflective economic research embedded in sustainable outlook;

PSO-3: Engage in lifelong learning to lead on economic policy decisions for meeting global challenges of resource efficiency.

Articulation Matrix (*mapping is labeled as strongly with 3, moderately with 2 or low with 1*)

	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PSO-1	PSO-2	PSO-3
PEO-1	3	3	3	3	2	3	3	3	3
PEO-2	3	3	3	3	2	3	3	3	2
PEO-3	3	3	3	2	3	2	3	3	2
PEO-4	2	2	3	3	3	3	2	2	3

SEMESTER AND CHOICE BASED CREDIT SYSTEM

Economics postgraduate is a eighty-four-credits program comprising four semesters under the credit based system of study. In this programme, students' performance is measured by the number of credits they earned/ completed. Based on the course credits and grade obtained by the student, grade point average is calculated.

(a) Course credits assignment

Each course has a certain number of credits assigned to it depending upon its duration in periods for lecture, tutorial and practical/field practice in a week. A few courses/activities may be without credit(s) and are referred to as Audit Pass courses, which are mandatory to pass as a partial fulfillment of the award of the degree.

(b) Earning of credits

At the end of every course, a grade shall be awarded in each course for which a student has registered. On obtaining a minimum Pass-grade, students shall accumulate the course credits as Earned Credits. A student's performance shall be measured by the number of credits that he/she has earned and by the weighted grade point average. Grades obtained in the audit courses shall not be counted for computation of grade point average, however shall be mandatory to pass as a partial fulfillment of award of degree.

For the Award of Degree of M.A. in Economics, he/she has to earn a minimum 84 credits during the 2 year duration of the programme in 4 semesters. The total credits required to be earned have been further classified under two baskets of courses: 'Compulsory Courses' and 'Elective Courses'. Total 72 credits are required to be earned under Compulsory Courses basket and 12 credits under Elective Courses basket.

All courses under the Compulsory Courses basket are required to be qualified and cleared/passed by each and every student enrolled under the program, and the same are semester-wise listed in the study scheme along with credits assigned to each course.

- Under Elective Courses Basket, there will be three types of courses:
- Semester-wise Discipline-specific/Inter-disciplinary/Generic courses offered by the department itself.
- Open/inter-disciplinary courses offered at the level of Institute/University, and notified from the office of Dean- Academics.
- Massive Open Online Courses (MOOCs) available on SWAYAM platform or any other platform as recommended by UGC/AICTE and notified from the office of Dean-Academics.

Each course shall have credits assigned to it. Student shall be required to register courses every semester for as many courses/credits specified under Elective Courses basket depending upon his/her interest, capability/pace of learning and availability of time slot (without any clash in time table) so as to earn all required total credits under the Elective Courses basket during the entire program duration.

However, for registration of courses [including courses under Compulsory Courses basket, Elective Courses basket and Previous Semester Courses (wherein he/she was declared in-eligible on the basis of attendance or he/she could not clear the course within permissible given chances), if any, the maximum limit in a semester shall be 30 credits.

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School of Behavioural and Social Sciences
Department of Economics

M.A. Economics

(Minimum Total Credits: 84)

Semester – I

Course Type	Course Code	Title of Course	Pre-requisite Course, if any		Periods/Week				Marks			Duration of Exam	Credits
			Title	Code	L	T	P	Total	Int	Ext	Total		
Core	MECO-DS-101A	Modern Microeconomics	-	-	3	1	0	4	100	100	200	3 Hours	4
	MECO-DS-102A	Development of Macroeconomics	-	-	3	1	0	4	100	100	200	3 Hours	4
	MECO-DS-103A	Mathematical Applications in Economics	-	-	3	1	0	4	100	100	200	3 Hours	4
	MECO-DS-104A	Theory of Growth & Development	-	-	3	1	0	4	100	100	200	3 Hours	4
	MECO-DS-105	Quantitative Data Analysis	-	-	3	1	0	4	100	100	200	3 Hours	4
Foundation	MECO-DS-106 A	Basic Principles of Economics	-	-	1	1	0	2	50	50	100	2 Hours	2
Total					16	6	0	22	550	550	1100		22

Semester – II

Course Type	Course Code	Title of Course	Pre-requisite Course, if any		Periods/Week				Marks			Duration of Exam	Credits
			Title	Code	L	T	P	Total	Int	Ext	Total		
Core	MECO-DS-207	Indian Economic Development	-	-	3	1	0	4	100	100	200	3 Hours	4
	MECO-ID-006A	Public Budget and Fiscal Policy	-	-	3	1	0	4	100	100	200	3 Hours	4
	MECO-DS-202A	Theory of International Economics	\$	-	3	1	0	4	100	100	200	3 Hours	4
	MECO-DS-206	Environmental Economics	-	-	3	1	0	4	100	100	200	3 Hours	4
	MECO-DS-205A	Theory of Basic Econometrics	\$	-	3	1	0	4	100	100	200	3 Hours	4
Elective *	MECO-DS-001A	Agricultural Economics	-	-	3	1	0	4	100	100	200	3 Hours	4
	MECO-DC-008	Theory of Behavioural Economics	-	-	3	1	0	4	100	100	200	3 Hours	4
Total					18	6	0		600	600	1200	3 Hours	24

Note: \$ - Basic knowledge of International Economics at Graduate level

* - Students will have to choose one amongst the Elective subjects

Semester – III

Course Type	Course Code	Title of Course	Pre-requisite Course, if any		Periods/Week				Marks			Duration of Exam	Credits
			Title	Code	L	T	P	Total	Int	Ext	Total		
Core	MECO-DS-305	Research Methods for Social Sciences	\$	-	3	1	0	4	100	100	200	3 Hours	4
	MECO-DS-453A	Internship			0	0	8	8	100	100	200	Practical	4
	MECO-DS-306	Data Analysis Through Excel and STATA	\$	-	0	0	8	8	100	100	200	Practical	4
	MECO-DS-307	International Finance	-	-	3	1	0	4	100	100	200	3 Hours	4
Elective *	MECO-DC-002A	Time Series Econometrics	-	-	3	1	0	4	100	100	200	3 Hours	4
	MECO-DC-008	Introduction to Game Theory	-	-	3	1	0	4	100	100	200	3 Hours	4
	MECO-DS-454	Field Survey	-	-	0	0	8	8	100	100	200	Practical	4
Total					15	5	0	20	500	500	1000		20

Note: \$ - Basic knowledge of International Economics at Graduate level

* - Students will have to choose one amongst the Elective subjects

Semester - IV

Course Type	Course Code	Title of Course	Pre-requisite Course, if any		Periods/Week				Marks			Duration of Exam	Credits
			Title	Code	L	T	P	Total	Int	Ext	Total		
Core	MECO-DS-352A	Dissertation	-	-	0	0	8	8	100	100	200	Viva	4
	MECO-DC-003A	Monetary Theory and Policy	-	-	3	1	0	4	100	100	200	3 Hours	4
	MECO-DS-403	Financial Economics	-	-	3	1	0	4	100	100	200	3 Hours	4
	MECO-DS-404	Labour Economics	-	-	3	1	0	4	100	100	200	3 Hours	4
Elective *	MECO-DS-003A	Econometric Methods	-	-3	3	1	0	4	100	100	200	3 Hours	4
	MECO-DC-006	Data Analysis through R	-	-	0	0	8	8	100	100	200	Practical	4
	MECO-DS-002A	Industrial Economics	\$	-	3	1	0	4	100	100	200	3 Hours	4
Total					15	5	0	20	500	500	1000		20

Note: \$ - Basic knowledge of International Economics at Graduate level

* - Students will have to choose one amongst the Elective subjects

Manav Rachna International Institute of Research and Studies
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MECO-DS-101A Modern Microeconomics

Periods/week Credits
L:3 T:1 P:0 4
Duration of examination: 3 Hrs
Pre-requisites: NIL
Course Type: Core

Maximum marks:200
Continuous Evaluation: 100
End Semester Examination:100

Course Outcomes

After completion of this course, the students will be able to:

MECO-DS-101A. 1 Infer advanced issues in consumer behavior theory

MECO-DS-101A. 2 Analyze modern theories of production and costs

MECO-DS-101A. 3 Develop a comprehensive understanding of risk and uncertainty theory

MECO-DS-101A. 4 Apply the different market models in the novel settings of producer behavior

Part-A

Unit 1: Consumer Theory

- 1.1 Axioms of preference ordering; consumer's indirect utility and expenditure functions, Demand function, measurement and types of demand
- 1.2 Uncompensated and compensated demand curves for normal goods, relationship between uncompensated and compensated (Hicks and Slutsky) demand curves, duality between direct versus indirect utility function; Measures of consumer surplus, linear expenditure systems; almost ideal demand system
- 1.3 Slutsky's approach of decomposition of price effect into substitution effect and income effect for normal goods, Economic interpretation of the Slutsky equation Compensating Variation & Equivalent variation Principle. Revealed Preference Theory, Theory of Pricing

Unit 2: Production and Costs

- 2.1 Production sets, Cost minimization with multiple plants, Linearly Homogeneous Production Function Properties, Elasticity of Input Substitution, Ridge Lines, Expansion Path
- 2.2 Elasticity of substitution, productivity and efficiency, technical progress
- 2.3 Derivation of cost functions from production functions; economies of scale, modern theories of costs

Part-B

Unit 3: Risk and Choices

- 3.1 Consumer's choices under risk and uncertainty: The Neumann-Morgenstern Method; Network externalities: Positive and negative network externalities, Bandwagon, Snob and Veblen effects Illustration and comparison
- 3.2 Risk-return solution: indifference curve approach, risk pooling and risk sharing; mean-variance analysis and portfolio selection
- 3.3 Von-Neumann Morgenstern utility: expected utility and uncertainty equivalence
- 3.4 Introduction to game theory: Nash equilibrium and Prisoner's dilemma, Battle of Sexes and Stag hunt games. Descriptive study of Bayesian and Non-Bayesian Games. Risk and risk aversion (gambling and insurance)

Unit 4: Market

- 4.1 Market classifications; price & output determination: competitive, monopoly, monopolistic
- 4.2 Chamberlin equilibrium under monopolistic competition
- 4.3 Oligopolistic interdependence and market solution in reaction curve approach (graphical and mathematical proof)

4.4 Price-output decision: Sweezy's kinked-demand curve model; Chamberlin's small-group model; Cournot's simple model and reaction curve approach; Bertrand duopoly model; Stackelberg's model

List of Suggested Text Books/Reference Books:

1. Hall Varian: Microeconomic Analysis, W W Norton
2. R Pindyck and D Rubinfeld: Microeconomics, Pearson
3. A Koutsoyiannis: Modern Microeconomics, Macmillan
4. J M Henderson and R E Quandt: Microeconomic Theory (Mathematical Approach), McGraw Hill
5. C Snyder and W Nicholson: Microeconomic Theory Basic Principles and Extensions, Cengage Learning

Distribution of Continuous Evaluation:

Sessional- I	30%
Sessional- II	30%
Assignment/Tutorial	20%
Class Work/ Performance	10%
Attendance	10%

Evaluation Tools:

Assignment/Tutorials
 Sessional tests
 Surprise Test/Class Performance
 End Semester Examination

End semester paper setting instructions: Seven questions are to be set in total. First question will be conceptual, covering the entire syllabus and compulsory to attempt. Three questions will be set from each Part-A and Part-B (and one from each unit). Students need to attempt two questions out of three from each part (A and B). Each question will be of 20 marks.

Course Articulation Matrix

CO Statements	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PSO-1	PSO-2	PSO-3
MECO-DS-101A.1	3		2	2	3	2	3	2	3
MECO-DS-101A.2	3		2	2	3	2	3	2	3
MECO-DS-101A.3	3		2	2	3	2	3	2	3
MECO-DS-101A.4	3	2	2	2	3	2	3	2	3

Manav Rachna International Institute of Research and Studies
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MECO-DS-102A Development of Macroeconomics

Periods/week Credits

L:3 T:1 P:0 4

Duration of examination: 3 Hrs

Pre-requisites: NIL

Course Type: Core

Maximum marks:200

Continuous Evaluation: 100

End Semester Examination:100

Course Outcomes

After completion of this course, the students will be able to:

MECO-DS-102A.1 Illustrate the comprehensive modelling of macroeconomics.

MECO-DS-102A.2 Examine long-run models of macroeconomics.

MECO-DS-102A.3 Discuss new developments in macroeconomic models.

MECO-DS-102A.4 Evaluate the advanced growth models

Part-A

Unit-1: Macroeconomic Synthesis

- 1.1 IS-LM framework: derivation with mathematical equations; aggregate demand and aggregate supply curves
- 1.2 Output and employment in complete Keynesian model and comparison with Classical model (both graphical and mathematical)
- 1.3 Short run versus long run Phillips curve

Unit -2 Role of expectation in macroeconomics and risk

- 2.1 Relationship between expectations, uncertainty, and risk
- 2.2 Adaptive expectation hypothesis; Expectation augmented Philips curve
- 2.3 Rational expectation hypothesis and equilibrium approach
- 2.4 Lucas supply function; Policy ineffectiveness theorem; The Lucas critique; Real Business Cycle Theory

Part-B

Unit-3: New Keynesianism

- 3.1 Imperfect competition; Core propositions of New Keynesian Economics
- 3.2 Small menu cost model; Implicit wage contract model; Efficiency wage theory
- 3.3 Insider-outsider model; coordination failures and non-Walrasian theories

Unit 4- Consumption, Investments and Markets

- 4.1 Consumption, Investment and Markets Consumption under Certainty: The Life-Cycle Hypothesis (LCH) and Permanent Income Hypothesis (PIH)
- 4.2 Consumption under uncertainty: The Random Walk Hypothesis (RWH) -Alternative views of consumption; Investment and stock of capital; Investment with adjustment costs
- 4.3 Tobin's Q; Uncertainty and investments; Financial market imperfections; Basic Infinite Horizon Models of Consumption and Investment: The Ramsey problem

List of Suggested Text Books/Reference Books:

1. O Blanchard: Macroeconomics, Pearson
2. N G Mankiw: Macroeconomics, Worth Publishers Macmillan
3. D Romer: Advanced Macroeconomics, McGraw-Hill
4. R J Barro and X Sala-i-Martin: Economic Growth, MIT Press

Distribution of Continuous Evaluation:

Sessional- I	30%
Sessional- II	30%
Assignment/Tutorial	20%
Class Work/ Performance	10%
Attendance	10%

Evaluation Tools:

Assignment/Tutorials

Sessional tests

Surprise questions during lectures/Class Performance

End Semester Examination

End semester paper setting instructions: Seven questions are to be set in total. First question will be conceptual, covering the entire syllabus and compulsory to attempt. Three questions will be set from each Part-A and Part-B (and one from each unit). Students need to attempt two questions out of three from each part (A and B). Each question will be of 20 marks.

Course Articulation Matrix

CO Statements	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PSO-1	PSO-2	PSO-3
MECO-DS-102A.1	3	2	2		2	2	3		2
MECO-DS-102A.2	3	2	2	2	2	2	3	2	2
MECO-DS-102A.3	3	2		3	2	2	2	2	3
MECO-DS-102A.4	3	3	2	2	2	2	2	3	2

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MECO-DS-103A Mathematical Applications in Economics

Periods/week Credits

L:3 T:1 P:0 4

Duration of examination: 3 Hrs

Pre-requisites: NIL

Course Type: Core

Maximum marks:200

Continuous Evaluation: 100

End Semester Examination:100

Course Outcomes

After completion of this course, the students will be able to:

MECO-DS-103A.1 Familiarize the basic tools of theory of equations and matrix algebra with applications to economics theory.

MECO-DS-103A.2 Analyze optimization problem and its economic applications

MECO-DS-103A.3 Illustrate the concepts of Linear Programming and duality and develop foundation of mathematical modelling for economic theories

MECO-DS-103A.4 Explain the concepts of input-output and analyze advanced economic problems with graphical solutions

Part-A

Unit-1: Linear Algebra

- 1.1 Linear algebra: matrix and determinant
- 1.2 Row reduction and echelon forms, inverse matrix , Cramer's rule
- 1.3 Systems of linear equations
- 1.4 Linear Independence and linear transformation
- 1.5 Rank of a matrix and applications

Unit-2: Optimization and Differential Equation

- 2.1 Derivatives (including partial and total differentiations) and basic integration (with determination of area under curve)
- 2.2 Single/multiple variables optimization; maxima/minima of function; constrain optimization problem. Applications: consumer equilibrium, indirect utility and demand function
- 2.3 Differential and difference equations (first order): linear/non-linear equations, stability theory, phase diagrams and time path
- 2.4 Application: multiplier-accelerator interaction model

Part-B

Unit-3: Linear Programming

- 3.1 Linear programming problem: Standard, Canonical and matrix forms
- 3.2 Methods of Solving Linear Programming Problem
- 3.3 Duality Theory of Linear Programming: dual versus primal with interpretation, theorem of duality
- 3.4 Consumers duality and producer's duality

Unit-4: Input-Output Analysis

- 4.1 Introduction to Leontief input-output model
- 4.2 Static input-output analysis: open and closed models
- 4.3 Dynamic input-output analysis

List of Suggested Text Books/Reference Books:

1. R G D Allen: Mathematical Analysis for Economics, Trinity
2. A C Chaing and Wainwright: Fundamental Methods of Mathematical Economics, McGraw Hill
3. G C Archibald and R Lipsey: Introduction to Mathematical Treatment of Economics, AITBS Publishers
4. Dorfman, Samuelson and Solow: Linear Programming and Economic Analysis, McGraw Hill (selected part)
5. Kolman, Bernard, & Hill, David R: Introductory Linear Algebra with Applications, Pearson Education.
6. Sydsaeter, K., Hammond, P.: Mathematics for economic analysis. Pearson Educational

Distribution of Continuous Evaluation:

Sessional- I	30%
Sessional- II	30%
Assignment/Tutorial	20%
Class Work/ Performance	10%
Attendance	10%

Evaluation Tools:

Assignment/Tutorials

Sessional tests

Surprise questions during lectures/Class Performance

End Semester Examination

End semester paper setting instructions: Seven questions are to be set in total. First question will be conceptual covering the entire syllabus and is compulsory to attempt. Three questions will be set from each Part-A and Part-B (and one from each unit). Students need to attempt two questions out of three from each part (A and B). Each question will be of 20 marks.

Course Articulation Matrix

CO Statements	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PSO-1	PSO-2	PSO-3
MECO-DS-103A.1	3	2			2	3		2	
MECO-DS-103A.2	3	2	2		2	3		3	
MECO-DS-103A.3	3	2	2		2	2		3	2
MECO-DS-103A.4	3	2	3		2	2		3	

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MECO-DS-104A Theory of Growth and Development

Periods/week Credits

L:3 T:1 P:0 4

Duration of examination: 3 Hrs

Pre-requisites: NIL

Course Type: Core

Maximum marks:200

Continuous Evaluation: 100

End Semester Examination:100

Course Outcomes

MECO-DS-104A.1 Explain basic modelling of economic growth and development

MECO-DS-104A.2 Illustrate advanced thought on development

MECO-DS-104A.3 Gain familiarity with contemporary issues in growth and development

MECO-DS-104A.4 Understand the importance of various types of policies in promoting development

PART A

Unit-1: Introduction to Growth and Development

- 1.1 Economic growth versus development- definition and concepts. Developed versus developing and underdeveloped countries
- 1.2 Measuring economic growth and development: GDP and PCI as index of development and their limitations
- 1.3 Human development index and inequality-adjusted human development index, gender inequality index, multidimensional poverty index, green index and happiness index
- 1.4 Income inequality and economic growth: Kuznet's inverted-U hypothesis. Lorenz curve and Gini coefficient
- 1.5 Development as freedom: functioning and agency capabilities; capabilities and development

Unit-2: Theories and Models of Growth and Development

- 2.1 Theories of Growth: Big Push theory, Dependency theory, Innovation theory
- 2.2 Models of Growth: Harrod-Domar, Solow, Lewis

PART B

Unit-3: Contemporary Issues in Growth and Development

- 3.1 Population and Economic Growth: Measures of population growth. Malthusian theory, theory of Demographic Transition and Demographic Dividend
- 3.2 Education, health and development: Inter-state variation, gender disparity in educational and health outcomes
- 3.3 Globalization and economic growth: the impact of globalization on economic growth and development
- 3.4 Poverty and inequality: definitions and concepts. Measurement of poverty. Head count index, poverty gap index, poverty severity index (Foster-Greer-Thorbecke measures, Sen-Shorrocks-Thon index, Watts index)
- 3.5 Environmental sustainability: the role of the environment in economic growth and development. Sustainable development goals

Unit-4: Policies and Development

- 4.1 Economic policy: macroeconomic stabilization policies, trade policies, industrial policies, and their impact on economic growth and development

- 4.2 Development policy: the role of the state in economic development, poverty reduction policies in Indian context, and the Millennium Development Goals
- 4.3 Technology and innovation policy: policies to promote technological progress and innovation, intellectual property rights, and public-private partnerships
- 4.4 Evaluation of economic policies: methods for evaluating the impact of economic policies, cost-benefit analysis, and randomized controlled trials

List of Suggested Text Books/Reference Books:

1. Debraj Ray: Development Economics, Princeton University Press
2. M P Todaro and S C Smith: Economic Development, Prentice Hall
3. UNDP: Human Development Report, Oxford University Press
4. Amartya Sen: Development as Freedom, Alfred A Knopf Inc

Distribution of Continuous Evaluation:

Sessional- I	30%
Sessional- II	30%
Assignment/Tutorial	20%
Class Work/ Performance	10%
Attendance	10%

Evaluation Tools:

- Assignment/Tutorials
- Sessional tests
- Surprise questions during lectures/Class Performance
- End Semester Examination

End semester paper setting instructions: Seven questions are to be set in total. First question will be conceptual, covering the entire syllabus and is compulsory to attempt. Three questions will be set from each Part-A and Part-B (and one from each unit). Students need to attempt two questions out of three from each part (A and B). Each question will be of 20 marks.

Course Articulation Matrix

CO Statements	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PSO-1	PSO-2	PSO-3
MECO-DS-104A.1		2	2	1	2	1	3		
MECO-DS-104A.2	3	2					3	2	
MECO-DS-104A.3	2	2		3			2	2	
MECO-DS-104A.4				2		3	2		3

Manav Rachna International Institute of Research and Studies
(Deemed to be University under Section 3 of the UGC Act 1956)
MECO-DS-105 Quantitative Data Analysis

Periods/week Credits

L:3 T:1 P:0 4

Duration of examination: 3 Hrs

Pre-requisites: NIL

Course Type: Core

Maximum marks:200

Continuous Evaluation: 100

End Semester Examination:100

Course Outcomes

After completion of this course, the students will be able to:

MECO-DS-105.1 Define basic data analysis, moment generation functions, covariance and correlation

MECO-DS-105.2 Discuss random variable theory and probability distributions

MECO-DS-105.3 Analyze statistical inferences and hypothesis testing

MECO-DS-105.4 Illustrate the concepts of ANOVA, MANOVA and ANCOVA

Part-A

Unit-1: Basic Data Analysis

- 1.1 Organizing simple/group data: presentation/distribution (with four properties)
- 1.2 Moment generating functions; bivariate data: covariance/correlation and notion of regression
- 1.3 Correlation coefficients: rank/partial/ total; multivariate regression: basic concept and distributive lags

Unit-2: Random Variables and Probability Distributions

- 2.1 Classical probability and relative frequency; probabilistic events and mutual exclusiveness; density and distribution functions; discrete and continuous stochastic variables
- 2.2 Mathematical expectation (with numerical examples); population distribution: discrete and continuous variables cases
- 2.3 Normal distribution: properties, area and standard-normal form

Part-B

Unit-3: Statistical Inferences

- 3.1 Population and samples (probability/non-probability sampling); random sampling with/without replacement and cluster/stratified random sampling
- 3.2 Classical statistical inference: standard error and sampling distribution (z , t , F and χ^2)
- 3.3 Testing of hypothesis: one and two tailed tests, level of significance, types of error, power of test; introduction to small and large sample test, non-parametric tests: one sample and two samples tests

Unit-4: Analysis of Variance

- 4.1 ANOVA: one-way and two-way
- 4.2 MANOVA and ANCOVA (conceptual)
- 4.3 ANOVA versus t-test

List of Suggested Text Books/Reference Books:

1. A M Mathai and P N Rathie: Probability and Statistics, Macmillan
2. I Miller and M Miller: Mathematical Statistics with Applications, Pearson/Prentice Hall
3. S C Gupta: Fundamentals of Statistics, Himalaya Publishing House
4. A M Goon, M K Gupta and B Dasgupta: Fundamentals of Statistics, World Press
5. S L Lohr: Sampling- Design and Analysis, Cengage Learning (selected part)
6. D N Gujarati: Basic Econometrics, McGraw Hill Education (selected part)

Distribution of Continuous Evaluation:

Sessional- I	30%
Sessional- II	30%
Assignment/Tutorial	20%
Class Work/ Performance	10%
Attendance	10%

Evaluation Tools:

Assignment/Tutorials

Sessional tests

Surprise questions during lectures/Class Performance

End Semester Examination

End semester paper setting instructions: Seven questions are to be set in total. First question will be conceptual, covering the entire syllabus and is compulsory to attempt. Three questions will be set from each Part-A and Part-B (and one from each unit). Students need to attempt two questions out of three from each part (A and B). Each question will be of 20 marks.

Course Articulation Matrix

CO Statements	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PSO-1	PSO-2	PSO-3
MECO-DS-105.1	3	2			2		3	2	
MECO-DS-105.2	3				2		3	2	
MECO-DS-105.3	3	2	2		2		3	2	2
MECO-DS-105.4	3	2	2		2		3	2	

Manav Rachna International Institute of Research and Studies
(Deemed to be University under Section 3 of the UGC Act 1956)
MECO-DS-106A Basic Principles of Economics

Periods/week Credits

L:1 T:1 P:0 2

Duration of examination: 2 Hrs

Pre-requisites: NIL

Course Type: Core

Maximum marks:100

Continuous Evaluation: 50

End Semester Examination:50

Course Outcomes

After completion of this course, the students will be able to:

- MECO-DS-106A.1 Analyze scope and coverage of economics as a discipline
- MECO-DS-106A.2 Evaluate basic concept of models used in economics
- MECO-DS-106A.3 Identify various propositions of micro and macro economics
- MECO-DS-106A.4 Demonstrate their understanding in real world

Part-A

Unit-1: Basic Principles of Economic Modeling

- 1.1 Scope of economics; concept of value (scarcity and willingness to pay: water-diamond paradox); issue of resource allocation and scarcity (what/how/whom to produce); choice tradeoffs (opportunity costs); basic economic agents and their adaptive and rational expectations; modern economy (concept of market and its function- invisible hand theory)
- 1.2 Concept of efficiency and equity; positive versus normative economics; micro- versus macro-economics; constructing economic model: variables and functions (linear versus non-linear); real versus nominal variables; stock versus flow concept; static versus dynamic analysis; optimization and equilibrium, comparative statics
- 1.3 Partial versus general equilibrium; slopes of downward and upward sloping curves (both linear and nonlinear cases); marginal changes (concept of elasticity)

Part-B

Unit-2: Basic Principles of Microeconomics & Macroeconomics

- 2.1 Agents in microeconomics and their aims in neoclassical theory; household versus individual as an economic agent; firm and industry as economic agent
- 2.2 Concept of demand (willingness to pay) and supply (willingness to accept); change in demand versus quantity demand; demand/supply curve versus schedule; individual to market demand/supply curves; demand-supply interaction: price determination in market; cross and income elasticity (with nature of commodities); short run versus long run analysis
- 2.3 National income/output: basic concept (with boundaries/limitations) and measurement (production: final- output/value-added approach, income approach and expenditure approach); Gross domestic and gross national products; gross versus net domestic products as measure of national income; gross domestic products as measure of wellbeing; real versus nominal gross domestic products and concept of deflator; gross domestic products versus personal disposable income
- 2.4 Circular flow diagram (two/three sector closed economy, four-sector open economy with respective macroeconomic identities)

List of Suggested Text Books/Reference Books:

- 1. C T S Ragan and R G Lipsey: Economics, Pearson
- 2. N G Mankiw: Principles of Microeconomics, Cengage
- 3. R Pindyck and D Rubinfeld: Microeconomics, Pearson

4. R Dornbusch, S Fischer and R Startz: Macroeconomics, McGraw Hill
5. A M Mathai and P N Rathie: Probability and Statistics, Macmillan
6. Samuelson P and Nordhaus William: Economics, McGraw Hill

Distribution of Continuous Evaluation:

Sessional- I	30%
Sessional- II	30%
Assignment/Tutorial	20%
Class Work/ Performance	10%
Attendance	10%

Evaluation Tools:

Assignment/Tutorials

Sessional tests

Surprise questions during lectures/Class Performance

End Semester Examination

End semester paper setting instructions: Seven questions are to be set in total. First question will be conceptual, covering the entire syllabus and is compulsory to attempt. Three questions will be set from each Part-A and Part-B (and one from each unit). Students need to attempt two questions out of three from each part (A and B). Each question will be of 10 marks.

Course Articulation Matrix

CO Statements	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PSO-1	PSO-2	PSO-3
MECO-DS-106 A.1	3				2	2	3		2
MECO-DS-106 A.2	3	3	2				3	3	
MECO-DS-106 A.3	3			2	2		3		
MECO-DS-106 A.4	3	3	2	2	2	2	3	2	2