

## **DEPARTMENT OF ECONOMICS**

### **BA (Hons.) Economics**

#### *Category-I*

#### **CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE**

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
<b>Introductory Microeconomics ECON001</b>	<b>4</b>	<b>3</b>	<b>1</b>	<b>0</b>	<b>Class XII pass</b>	<b>NIL</b>

#### **Learning Objectives**

The Learning Objectives of this course are as follows:

- To expose students to the basic principles of microeconomic theory
- To emphasis on the fundamental economic trade-offs and allocation problems due to scarcity of resources
- To use graphical methods to illustrate how microeconomic concepts can be applied to analyze real-life situations

#### **Learning outcomes**

The Learning Outcomes of this course are as follows:

- By studying the course, the students will understand economic trade-offs and opportunities.
- By studying the course, the students will understand the fundamentals of market mechanisms and government interventions.

#### **SYLLABUS OF DSC-1**

**UNIT – I: Introduction to economic trade-offs (12 Hours)**  
Resources and opportunities, Gains from trade, Individual and society

**UNIT – II: How market works (16 Hours)**  
Supply and demand, Price and resource allocation, Elasticity, Market, trade and welfare

**UNIT – III: Role of government (16 Hours)**  
Taxation, Public good, Inequality and poverty

**UNIT – IV: Individual decision and interaction (16 Hours)**  
Decision versus strategic interaction, How to think about strategic interactions, Real life examples

**Practical component (if any) - NIL**

**Essential/recommended readings:**

- Mankiw, N. G. (2018). *Principles of Microeconomics* 8th ed.
- Frank, R. H., & Cartwright, E. (2010). *Microeconomics and behavior*. New York: McGraw-Hill.
- Dixit, A. K., & Skeath, S. (2015). *Games of strategy*: Fourth international student edition. WW Norton & Company.
- Acemoglu, D., Laibson, D., & List, J. (2017). *Microeconomics*. Pearson.

**Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.**

**DISCIPLINE SPECIFIC CORE COURSE – 2 (DSC-2): INTRODUCTORY  
MATHEMATICAL METHODS FOR ECONOMICS**

**CREDIT DISTRIBUTION, ELIGIBILITY AND PREREQUISITES OF THE  
COURSE**

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre- requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Introductory Mathematical Methods for Economics ECON002	4	3	1	0	Class XII pass with Mathematics	NIL

**Learning Objectives**

The Learning Objectives of this course are as follows:

- To transmit the body of basic mathematics that enables the study of economic theory at the undergraduate level, specifically the courses on microeconomic theory, macroeconomic theory, statistics and econometrics set out in this syllabus
- Particular economic models are not the ends, but the means for illustrating the method of applying mathematical techniques to economic theory in general
- The sophistication would be maintained at a standard level to grow in the profession

**Learning outcomes**

The Learning Outcomes of this course are as follows:

- To hone and upgrade the mathematical skills acquired in school and paves the way for the second semester course Intermediate Mathematical Methods
- To apply the analytical tools introduced in this course wherever unconstrained optimisation techniques are used in economics and business decision-making

- To make the students more logical in making or refuting arguments

## SYLLABUS OF DSC- 2

### UNIT –I: Preliminaries (20 Hours)

Logic and proof techniques; sets and set operations; relations; functions and their properties; number systems.

### UNIT – II: Functions of one real variable: (20 Hours)

Graphs; elementary types of functions: quadratic, polynomial, power, exponential, logarithmic; sequences and series: convergence, algebraic properties and applications; continuous functions: characterisation, properties with respect to various operations and applications; differentiable functions: characterisation, properties with respect to various operations and applications; second and higher order derivatives: properties and applications.

### UNIT – III: Single-variable optimization (20 Hours)

Geometric properties of functions: convex functions, their characterisation and applications; local and global optima: geometric and calculus-based characterisation, applications

**Practical component (if any) - NIL**

### Essential/recommended readings

- Sydsaeter, K., Hammond, P. (2002). *Mathematics for economic analysis*. Pearson Education.
- Hoy, M., Livernois, J., McKenna, C., Rees, R., Stengos, T. (2001). *Mathematics for Economics*, Prentice-Hall India.

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## DISCIPLINE SPECIFIC CORE COURSE– 3 (DSC-3): INTRODUCTORY STATISTICS FOR ECONOMICS

### CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Introductory Statistics for Economics ECON003	4	3	1	0	Class XII pass with Mathematics	NIL

## Learning Objectives

The Learning Objectives of this course are as follows:

- To familiarize students with methods of summarizing and describing important features of data. The course teaches students the basics of probability theory and sets a necessary foundation for Inferential Statistical Theory and the Econometrics courses. The familiarity with probability theory will also be valuable for courses in economic theory.

## Learning outcomes

The Learning Outcomes of this course are as follows:

- The student would understand the concept of probability, random variables and their distributions and become familiar with some commonly used discrete and continuous distributions of random variables so that they would be able to analyse various real-life data.

## SYLLABUS OF DSC-3

### **UNIT - 1: Introduction and overview (12 Hours)**

The distinction between populations and samples and, between population parameters and sample statistics; Pictorial Methods in Descriptive Statistics; Measures of Location and Variability.

### **UNIT - 2: Elementary probability theory (12 Hours)**

Sample spaces and events; probability axioms and properties; counting techniques; conditional probability and Bayes' rule; independence.

### **UNIT – 3: Random variables and probability distributions (12 Hours)**

Defining random variables; discrete and continuous random variables, probability distributions; expected values and functions of random variables.

### **UNIT - 4: Sample Distributions (8 Hours)**

Properties of commonly used discrete and continuous distributions (uniform, binomial, exponential, Poisson, hypergeometric and Normal random variables).

### **UNIT - 5: Random sampling and jointly distributed random variables (16 Hours)**

Density and distribution functions for jointly distributed random variables; computing expected values of jointly distributed random variables; conditional distributions and expectations, covariance and correlation.

**Practical component (if any) - NIL**

**Essential/recommended readings**

- Devore, J. (2012). *Probability and Statistics for Engineers*, 8th ed. Cengage Learning.
- John A. Rice (2007). *Mathematical Statistics and Data Analysis*, 3rd ed. Thomson Brooks/Cole.
- Miller, I., Miller, M. (2017). *J. Freund's Mathematical Statistics with Applications*, 8th ed. Pearson.
- Hogg, R., Tanis, E., Zimmerman, D. (2021) *Probability and Statistical inference*, 10th Edition, Pearson

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## Programme Structure for Bachelor of Economics (Hons.) as a Core Discipline

Year	Semester	Core (DSC)	Elective (DSE)	Generic Elective (GE)	Ability Enhancement Course (AEC)	Skill Enhancement Course (SEC)	Internship/ Apprenticeship/ Project/ Community Outreach (IAPC)	Value addition Course (VAC)	Total Credit
First	I	DSC-1 (4) DSC-2 (4) DSC-3 (4)		GE-1 (4)	AEC-1 (2)	SEC-1 (2)		VAC-1 (2)	22
	II	DSC-4 (4) DSC-5 (4) DSC-6 (4)		GE-2 (4)	AEC-2 (2)	SEC-2 (2)		VAC-2 (2)	22
Students on exit shall be awarded Undergraduate Certificate (in the Field of Study/ Discipline)									44
Second	III	DSC-7 (4) DSC-8 (4) DSC-9 (4)	DSE-1/ GE-3 (4)		AEC-3 (2)	SEC-3 (2)/ IAPC-1 (2)		VAC-1 (2)	22
	IV	DSC-10 (4) DSC-11 (4) DSC-12 (4)	DSE-2/ GE-4 (4)		AEC-4 (2)	SEC-4 (2)/ IAPC-2 (2)		VAC-2 (2)	22
Students on exit shall be awarded Undergraduate Diploma (in the Field of Study/ Discipline)									88
Third	V	DSC-13 (4) DSC-14 (4) DSC-15 (4)	DSE-3 (4)	GE-5 (4)		SEC-5 (2)/ IAPC-3 (2)			22
	VI	DSC-16 (4) DSC-17 (4) DSC-18 (4)	DSE-4 (4)	GE-6 (4)		SEC-6 (2)/ IAPC-4 (2)			22
Students on exit shall be awarded Bachelor of (in the Field of Study/Discipline) Honours (3 years)									132
Fourth		DSC-19	3 x DSE (DSE-5, DSE-6, DSE-7) Or, 2 x DSE and 1 x GE Or, 1 x DSE and 2 x GE (GE-7, GE-8)				Dissertation/ Project (6)		
		DSC-20	3 x DSE (DSE-8, DSE-9, DSE-10) Or, 2 x DSE and 1 x GE Or, 1 x DSE and 2 x GE (GE-9, GE-10)				Dissertation/ Project (6)		
Students on exit shall be awarded Bachelor of (in the Field of Study/Discipline) (Honours with Research/Academic Projects/Entrepreneurship)									176

## Semester-wise Core courses (DSC) for Bachelor of Economics (Hons.)

Year	Semester	Serial No.	Course Code	Course Name	No. of Credits	Components of the course		
						Lecture	Tutorial	Practical
First	I	DSC_HON01	ECON001	Introductory Microeconomics	4	3	1	0
		DSC_HON02	ECON002	Introductory Mathematical Methods for Economics	4	3	1	0
		DSC_HON03	ECON003	Introductory Statistics for Economics	4	3	1	0
	II	DSC_HON04	ECON004	Introductory Macroeconomics	4	3	1	0
		DSC_HON05	ECON005	Intermediate Mathematical Methods for Economics	4	3	1	0
		DSC_HON06	ECON006	Intermediate Statistics for Economics	4	3	1	0
Second	III	DSC_HON07	ECON007	Intermediate Microeconomics I: Behavioural Foundations of Market Interactions	4	3	1	0
		DSC_HON08	ECON008	Intermediate Macroeconomics I: Foundations of Aggregate Income Determination	4	3	1	0
		DSC_HON09	ECON009	Advanced Mathematical Methods for Economics	4	3	1	0
	IV	DSC_HON10	ECON010	Intermediate Microeconomics II: Market, Government and Welfare	4	3	1	0
		DSC_HON11	ECON011	Intermediate Macroeconomics II: Policy Issues	4	3	1	0
		DSC_HON12	ECON012	Introductory Econometrics	4	3	0	2
Third	V	DSC_HON13	ECON013	Game Theory and Strategic Interactions	4	3	1	0
		DSC_HON14	ECON014	Economic Growth and Business Cycles	4	3	1	0
		DSC_HON15	ECON015	Introductory Development Economics	4	3	1	0
	VI	DSC_HON16	ECON016	International Trade	4	3	1	0
		DSC_HON17	ECON017	Development Theory and Experience	4	3	1	0
		DSC_HON18	ECON018	Indian Growth and Development	4	3	1	0
Fourth	VII	DSC_HON19	ECON019	Economic Development and Policy in India	4	3	1	0
	VIII	DSC_HON20	ECON020	Topics in Development and Policy	4	3	1	0

## **DEPARTMENT OF ECONOMICS**

### **CATEGORY-I BA (HONS.) ECONOMICS**

#### **DISCIPLINE SPECIFIC CORE COURSE -4 (DSC-4): INTRODUCTORY MACROECONOMICS**

#### **CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE**

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Introductory Macroeconomics ECON004	4	3	1	0	Class XII pass	NIL

#### **Learning Objectives**

The Learning Objectives of this course are as follows:

- To introduce students to the basic concepts of macroeconomics
- To discuss the preliminary concepts associated with the determination and measurement of aggregate macroeconomic variables like GDP, savings, investment, money, inflation, unemployment and the balance of payments
- To introduce the simple analytical frame- work (e.g., the IS-LM model) for analysing the relationships among key macroeconomic variables

#### **Learning outcomes**

The Learning Outcomes of this course are as follows:

- The students would be able to familiarise the broad macroeconomic concepts like GDP, inflation, money supply, interest rate and their inter-linkages and their interrelationships.
- By studying the course, the students will able to critically evaluate various macroeconomic policies and their effects on output and interest rate in the economy.

#### **SYLLABUS OF DSC-4**

##### **UNIT – I: Introduction to Macroeconomic issues and National Income Accounting (12 Hours)**

Basic issues studied in macroeconomics; measurements of gross domestic product, income, expenditure and the circular flow; real versus nominal GDP; price indices; national income accounting for open economy, balance of payments accounts; current, capital and financial accounts.

##### **UNIT – II: Money (10 Hours)**

Functions of money; quantity theory of money; demand for money; determination of money supply and demand; credit creation; tools of monetary policy.

##### **UNIT – III: Simple Theory of Income Determination (11 Hours)**

Classical and Keynesian systems; simple Keynesian model of income determination

**UNIT – IV: IS-LM Analysis and Aggregate Demand (12 Hours)**

Derivations of the IS and LM curves; fiscal and monetary multipliers; derivation of aggregate demand

**Practical component (if any) - NIL**

**Essential/recommended readings:**

- Andrew Abel, Ben Bernanke and Dean Croushore (2011). *Macroeconomics* (7th edition), Pearson.
- Richard T. Froyen (2013). *Macroeconomics: Theories and Policies* (10th ed.), Pearson.
- Blanchard, O. (2006). *Macroeconomics* (6th edition). Pearson
- Blanchard, O. (2017). *Macroeconomics* (7th edition). Pearson
- Dornbusch, R., S. Fischer and R. Startz. *Macroeconomics* (6th edition). McGraw- Hill
- Dornbusch, R., S. Fischer and R. Startz. *Macroeconomics* (11th edition). McGraw-Hill

**Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.**

**DISCIPLINE SPECIFIC CORE COURSE – 5 (DSC-5): INTERMEDIATE MATHEMATICAL METHODS FOR ECONOMICS**

**CREDIT DISTRIBUTION, ELIGIBILITY AND PREREQUISITES OF THE COURSE**

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Intermediate Mathematical Methods for Economics ECON005	4	3	1	0	Class XII pass with Mathematics	NIL

**Learning Objectives**

The Learning Objectives of this course are as follows:

- To transmit the body of basic mathematics that enables the study of economic theory at the undergraduate level, specifically the courses on microeconomic theory, macroeconomic theory, statistics and econometrics set out in this syllabus
- Particular economic models are not the ends, but the means for illustrating the method of applying mathematical techniques to economic theory in general
- The sophistication would be maintained at a standard level to grow in the profession

**Learning outcomes**

The Learning Outcomes of this course are as follows:

- The course builds the mathematical foundations necessary for further study of a variety of disciplines including postgraduate economics, statistics, computer science, finance and data analytics
- The analytical tools introduced in this course have applications wherever optimization techniques are used in business decision-making for managers and entrepreneurs alike
- These tools are necessary for anyone seeking employment as an analyst in the corporate world.

## SYLLABUS OF DSC- 5

### UNIT –I: Linear Algebra (15 Hours)

Vector spaces: algebraic and geometric properties, scalar product, norm, orthogonality; linear transformations: properties, matrix representation and elementary operations; systems of linear equations: properties of their solution sets; determinants: characterization, properties and applications; eigenvalues and eigenvectors, diagonalization, spectral theorem.

### UNIT – II: Functions of several real variables (15 Hours)

Geometric representation: graphs and level curves; differentiable functions: characterisation, properties with respect to various operations and applications; second order derivatives: properties and applications; the implicit function theorem, application to comparative statics; homogeneous and homothetic functions: characterisation, applications.

### UNIT – III: Multivariate optimization (15 Hours)

Convex sets; geometric properties of functions: convex functions, their characterisation, properties and applications; quasi convex functions, their characterisation, properties and applications; unconstrained optimisation: geometric characterisation, characterisation using calculus, applications.

### Essential/recommended readings

- Sydsaeter, K., Hammond, P. (2002). *Mathematics for economic analysis*, Pearson Educational.
- Hoy, M., Livernois, J., McKenna, C., Rees, R., Stengos, T. (2001). *Mathematics for Economics*, Prentice-Hall India.

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## DISCIPLINE SPECIFIC CORE COURSE– 6 (DSC-6): INTERMEDIATE STATISTICS FOR ECONOMICS

### CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Intermediate Statistics for	4	3	1	0	Class XII with pass	NIL

<b>Economics ECON006</b>					<b>Mathematics</b>	
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## Learning Objectives

The Learning Objectives of this course are as follows:

- This course focuses on techniques for statistical inference. The main objective of the course is to help students understand how to draw inference from samples regarding the underlying populations using point estimation, interval estimation and hypothesis testing.

## Learning outcomes

The Learning Outcomes of this course are as follows:

- An important learning outcome of the course will be the capacity to use and analyse statistics in everyday life. The course will improve students' ability to analyse data, make decisions, form predictions, and conduct research.

## SYLLABUS OF DSC-6

### UNIT - 1: Sampling distribution of a Statistic (12 Hours)

Concept of Statistic and parameter, Sampling distributions, Central Limit Theorem.

### UNIT - 2: Estimation (12 Hours)

Estimator and methods of estimation, Point Estimation: method of moments and method of maximum likelihood; Interval Estimation, Properties of an estimator: Consistency, Unbiasedness, Efficiency and Sufficiency, confidence level and sample size, intervals based on Z-distribution, t-distribution and chi-squared distribution, F-distribution.

### UNIT – 3: Inference (9 Hours)

Meaning of a statistical hypothesis, errors in hypothesis testing: Type 1 and Type 2 errors, power of a test.

### UNIT - 4: Hypothesis Testing (12 Hours)

Testing of a population Mean, proportions - small and large sample tests, P-value; Testing for variance; Testing hypothesis for two samples, testing for equality of means; testing for ratio of variances.

**Practical component (if any) - NIL**

### Essential/recommended readings

- Devore, J. (2012). *Probability and statistics for engineers*, 8th ed. Cengage Learning.
- John A. Rice (2007). *Mathematical Statistics and Data Analysis*, 3rd ed. Thomson Brooks/Cole
- Larsen, R., Marx, M. (2011). *An introduction to mathematical statistics and its applications*. Prentice Hall.
- Miller, I., Miller, M. (2017). *J. Freund's mathematical statistics with applications*, 8th ed. Pearson.
- Demetri Kantarelis, D. and Malcolm O. Asadoorian, M. O. (2009). *Essentials of*

*Inferential Statistics*, 5th edition, University Press of America.

- Hogg, R., Tanis, E., Zimmerman, D. (2021) *Probability and Statistical inference*, 10TH Edition, Pearson

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UNIVERSITY OF DELHI

CNC-II/093/1(25)/2023-24/

Dated: 31.05.2023

**NOTIFICATION**

Sub: Amendment to Ordinance V

[E.C Resolution No. 60/ (60-1-3) dated 03.02.2023]

Following addition be made to Appendix-II-A to the Ordinance V (2-A) of the Ordinances of the University;

**Add the following:**

**Syllabi of Semester-III of the following departments under Faculty of Social Sciences based on Under Graduate Curriculum Framework -2022 implemented from the Academic Year 2022-23.**

**FACULTY OF SOCIAL SCIENCES**

**DEPARTMENT OF ECONOMICS**

**BA. (HONS.) ECONOMICS**

**DISCIPLINE SPECIFIC CORE COURSE -7 (DSC-7): Intermediate Microeconomics I: Behavioural foundations of Market Interactions**

Course title & Code	Credits	Duration (per week)			Eligibility Criteria	Prerequisite
		Lecture	Tutorial	Practical/ Practice		
Intermediate Microeconomics I: Behavioural foundations of Market Interactions – ECON007	4	3	1	0	Passed Class 12th	NIL

**Learning Objectives**

The Learning Objectives of this course are as follows:

- The course is designed to formally analyze the behaviour of individual agents like consumers and producers under certain conditions.
- Mathematical tools are used to facilitate understanding of the basic concepts.
- This course looks at the behaviour of the consumer and the choices of a competitive firm.

**Learning outcomes**

The Learning outcomes of this course are as follows:

- Students will learn the basic elements of consumption and production theories using various technical frameworks.
- This course provides them the behavioural foundations of market supply and demand.

### Syllabus

**UNIT I:** Consumer behaviour (15 hours)

Preference and utility, Budget and choice, Income and substitution effect, Demand derivation, Labour supply, One-person welfare

**UNIT II:** Decision-making under uncertainty (15 hours)

Expected utility, Risk aversion, Insurance, Risk spreading

**UNIT III:** Producer behaviour and markets (15 hours)

Technology, Profit maximization, Cost minimization, Supply, Short and long run

### Recommended readings

- Serrano, Roberto and Feldman, Alan (2012), *A short course in intermediate Microeconomics with Calculus*, Cambridge University Press
- Espinola-Arredondo, Ana and Muñoz-Garcia, Felix (2020), *Intermediate Microeconomic Theory*, MIT Press
- Osborne, M J and Rubinstein, A (2020), *Models in Microeconomic Theory*, Open Book Publishers
- Muñoz-Garcia, Felix (2017) *Practice Exercises for Advanced Microeconomic Theory*, MIT Press
- Dunaway, Eric; Strandholm, John C., Espinola-Arredondo, Ana and Munoz-Garcia, Felix (2020) *Practice Exercises for Intermediate Microeconomic Theory*, MIT press

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## DISCIPLINE SPECIFIC CORE COURSE -8 (DSC-8): Intermediate Macroeconomics I: Foundations of Aggregate Income Determination

Course title & Code	Credits	Duration (per week)			Eligibility Criteria	Prerequisite
		Lecture	Tutorial	Practical/ Practice		
<b>Intermediate Macroeconomics I: Foundations of Aggregate Income Determination – ECON008</b>	<b>4</b>	<b>3</b>	<b>1</b>	<b>0</b>	<b>Class 12th Pass</b>	<b>NIL</b>

### Learning Objectives

The Learning Objectives of this course are as follows:

- This course builds upon the basic concepts of macroeconomics. It introduces labour markets and the aggregate supply (AS) curve.
- Aggregate Demand (AD) and Aggregate Supply (AS) are brought together to determine equilibrium prices and output examine the policy impacts.
- The course discusses Phillips curve and the alleged trade-off between inflation and unemployment. Both adaptive and rational expectations are introduced.
- A flavour of micro-foundations is introduced with respect to consumption and investment.

### Learning outcomes

The Learning outcomes of this course are as follows:

- This course enables students to analyse the interaction of aggregate demand and supply and the effects of fiscal and monetary policy, trade-off between inflation and unemployment, and consumption and investment behaviour of the households.

## Syllabus

### UNIT I: Short-run and medium-run equilibrium (15 hours)

The labour market, Wage determination; wages, prices, and unemployment; natural rate of unemployment; from employment to output, Derivation of aggregate supply curve, Interaction of aggregate demand and supply to determine equilibrium output, price level and employment.

### UNIT II: Philips Curve and Theory of Expectations (15 hours)

Inflation, unemployment and expectations, Phillips Curve; adaptive and rational expectations; policy ineffectiveness debate.

### UNIT III: Microeconomic foundations of macroeconomic behaviours (15 hours)

Consumption: Keynesian consumption function; Fisher's theory of optimal intertemporal choice; life-cycle and permanent income hypotheses; other theories of consumption expenditure.

Investment: determinants of business fixed investment; residential investment and inventory investment.

### Recommended readings

- Blanchard, O. (2006). *Macroeconomics*, 4th ed. Pearson Education.
- C.L.F. Atfield, D. Demery and N.W. Duck (1991). *Rational Expectations in Macroeconomics: an introduction to theory and evidence* 2nd Ed.
- Sheffrin, Steve (1996). *Rational Expectations*. 2nd ed., Cambridge University Press.
- Dornbusch, R., Fischer, S. (1994). *Macroeconomics*, 6th ed., McGraw-Hill.
- Branson, W. (2013). *Macroeconomics: Theory and policy*, 3rd ed, East West Press.
- Carlin, W and D Soskice (2007), *Macroeconomics: Imperfections, Institutions and Policies*, Indian Edition, OUP.

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## DISCIPLINE SPECIFIC CORE COURSE -9 (DSC-9): Advanced Mathematical Methods for Economics

Course title & Code	Credits	Duration (per week)			Eligibility Criteria	Prerequisite
		Lecture	Tutorial	Practical/ Practice		
Advanced Mathematical Methods for Economics – ECON009	4	3	1	0	Passed Class 12th with Mathematics	NIL

## Learning Objectives

This is the last of a compulsory three-course sequence. The Learning Objectives of this course are as follows:

- To transmit the body of basic mathematics that enables the study of economic theory at the undergraduate level, specifically the courses on microeconomic theory, macroeconomic theory, statistics and econometrics set out in this syllabus.

- In this course, particular economic models are not the ends, but the means for illustrating the method of applying mathematical techniques to economic theory in general.

### Learning outcomes

The Learning outcomes of this course are as follows:

- The course builds the skills for mathematical foundations necessary required further study of a variety of disciplines including postgraduate economics, statistics, computer science, finance and data analytics.
- The analytical tools introduced in this course have applications wherever optimization techniques especially constrained optimization are used in business decision-making for managers and entrepreneurs alike.
- These tools are necessary for anyone seeking employment as an analyst in the corporate world.

### Syllabus

#### UNIT I: Multivariate Optimization with constraints (15 hours)

Constrained optimisation with equality and inequality constraints: geometric characterisation, Lagrange characterisation using calculus and applications; properties of value function: envelope theorem, applications.

#### UNIT II: Linear programming (15 hours)

Introduction, graphical solution, matrix formulation, duality, economic interpretation.

#### UNIT III: Integration, differential equations, and difference equations (15 hours)

Definite integrals, indefinite integrals and economic applications; first order and second order difference equations, equilibrium and its stability; first order differential equations, phase diagrams and stability; second order differential equations.

### Recommended readings

- Sydsaeter, K., Hammond, P. (2002). *Mathematics for economic analysis*. Pearson Educational.
- Hoy, M., Livernois, J., McKenna, C., Rees, R., Stengos, T. (2001). *Mathematics for Economics*, Prentice-Hall India.

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## COMMON POOL OF DISCIPLINE SPECIFIC ELECTIVE (DSE) COURSES

### for 3<sup>rd</sup>, 5<sup>th</sup> and 7<sup>th</sup> Semester

### Discipline Specific Elective 1 (DSE-1): Economic History of India

Semester	Course title & Code	Credits	Duration (per week)			Eligibility Criteria	Prerequisite
			Lecture	Tutorial	Practical/ Practice		
III/V/VII	Economic History of India – ECON031	4	3	1	0	Passed Class 12th	NIL

#### Learning Objectives

The Learning Objectives of this course are as follows:

- This course analyses the key aspects of Indian economic development from pre-colonial period to Independence of the country. This will cover the nature and characteristics of economy before colonial rule and its transition to the colonial regime.
- In doing so, it investigates the place of the Indian economy in the wider context of the regime changes, and the mechanisms that linked economic development in India to the compulsions of colonial rule.
- Key themes including the commercialization of agriculture, deindustrialisation hypothesis, mortality and famines and debates around the retreat of the Raj is discussed.

#### Learning outcomes

The Learning Outcomes of this course are as follows:

- The students develop and enhance critical analytical skills of Indian growth and development trajectories.
- It further exposes the students to understand the intricacies of India's economic, political and social developments in the past that may have relevance in the present times.
- It increases employability of students by enhancing their ability to deal with a variety of textual and statistical sources, appreciate their contexts, strengths and weaknesses, and draw upon them to construct a coherent argument.
- Besides strengthening the ability to pursue post-graduate studies these skills would be useful in a variety of careers in academics and business research, journalism as well as the government.

#### Syllabus

**UNIT I:** Economic changes from pre-colonial to colonial regimes - nature and characteristics; Colonialism and the Indian Economy (12 hours)

**UNIT II:** Population, Mortality and Famines (12 hours)

**UNIT III:** Agriculture, Industry and Railways (12 hours)

**UNIT IV:** The Economy and State in the Imperial Context: The Retreat of the Raj (09 hours)

### Recommended readings

- Balachandran, Gopalan (2016), Colonial India and the World Economy. c. 1850- 1940, in L. Chaudhary, B. Gupta, T Roy and A. V. Swami (eds.), *A New Economic History of Colonial India*, Routledge, London and New York, Ch.6, pp. 84-99.
- Parthasarathy, P (2011), *Why Europe Grew Rich and Asia did not: Global Economic Divergence, 1600-1850*, CUP, Cambridge, Ch 2, 8.
- Bhattacharya, Sabyasachi (2005) 'Introduction' in the new edition of Kumar, Dharma (ed.) *Cambridge Economic History of India*. Vol 2. Orient Longman.
- Tirthankar Roy, 2011, *The Economic History of India 1857-1947*, 3rd edn, Oxford University Press, Delhi, Chapter 11 'Population and Labour'.
- Guha, Sumit (1991), Mortality decline in early 20th century India, *Indian Economic and Social History Review*, vol. 28, Issue 4, pp 371-87.
- Klein, Ira (1984), When Rains Fail: Famine relief and mortality in British India, *Indian Economic and Social History Review*, vol. 21, issue 2, pp. 185-214.
- Roy, Tirthankar 2011, *Agriculture, The Economic History of India 1857-1947*, 3rd Edn, Orient Longman, Delhi, Ch. 4, pp. 104-148.
- Gadgil, D R (1973) *The Industrial Evolution of India in Recent Times*. Chapters on Rural Credit.
- Behal, Rana P. (2010) 'Coolie Drivers or Benevolent Paternalists? British Tea Planters in Assam and Indenture Labour System in Assam', *Modern Asian Studies* 44, 1, 2010, pp. 29-51.
- Ray, Rajat K (ed.), 1994, *Introduction in Entrepreneurship and Industry in India*, OUP, Delhi, pp.1-69.
- Hurd, John (2005) Railways in Kumar, Dharma (ed)
- CEHI Vol II
- Morris, Morris, D (1965) *The Emergence of An Industrial Labour Force in India: A Study of the Bombay Cotton Mills 1854-1947*. OUP, Delhi, Concluding Chapter 11, pp.198-210.

**Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.**

## Discipline Specific Elective 2 (DSE-2): Economics of Climate Change and Natural Resources

Semester	Course title & Code	Credits	Duration (per week)			Eligibility Criteria	Prerequisite
			Lecture	Tutorial	Practical/ Practice		
III/V/VII	Economics of Climate Change and Natural Resources– ECON032	4	3	1	0	Passed Class 12th	Introductory Microeconomics (ECON001)

### Learning Objectives

The Learning Objectives of this course are as follows:

- The objective of this course is to provide knowledge on the principles of governing and managing natural resources.
- This course introduces the conceptual and theoretical foundations of Resource Economics. In particular, the efficiency concepts for evaluating natural resource use and policies and potential sources of inefficiency in the context of forestry, fisheries, and exhaustible energy resources will be studied.
- Further, the basics of Economics of Climate change, its implications and policies.

### Learning outcomes

The Learning Outcomes of this course are as follows:

- The students get familiarise with basic issues of sustainable resources allocation and economics of climate change.
- It will familiarize students with the Cost-Benefit Analysis, Challenges in estimating costs and benefits of greenhouse gas policies, the Environmental Kuznets curve, and Mitigation of climate change.
- The course will familiarize students with Sustainable development Goals SDGs, History of Convention UNFCCC, India's Intended Nationally Determined Contribution.

### Syllabus

#### UNIT I: Mathematical Prerequisites (12 hours)

Difference equations; differential equations; phase plane analysis; dynamic optimization

Optimal extraction of a non-renewable resource, Optimal management of renewable resources -Fishery and Forestry

#### UNIT II: Energy Economics, Energy Transition, and Energy Security (12 hours)

Introduction to Basics of supply, demand, and prices, income elasticities, the eco- nomics of depletable resources, world oil markets, Pathways of energy transition from conventional to renewable energy sources, Policy instruments, Energy security, accessibility and A definition, and Energy poverty

#### UNIT III: The Economics of Climate change, Implications, and Policies (12 hours)

Cost-Benefit Analysis, Challenges in estimating costs and benefits of greenhouse gas policies, Environmental Kuznets curve, Mitigation of climate change, Sectoral impact of Climate change, climate change, and inequality, Policy responses, and instruments

#### **UNIT IV: Sustainable Development (09 hours)**

Concepts and Measurement, Weak and strong sustainability, Sustainable development Goals SDGs, History of Convention UNFCCC, India's Intended Nationally Determined Contribution

#### **Recommended readings**

- Harris, J. M., Roach, B., & Environmental, J. M. H. (2007). *The economics of global climate change. Global Development and Environment* Institute Tufts University.
- Pelling, M. (2010). *Adaptation to climate change: from resilience to transformation*. Routledge.
- Callan, Scott, and Janet Thomas. *Environmental Economics and Management: Theory, Policy and Applications*. 4th ed. Florence, KY: South-Western, 2006, chapter 3. ISBN: 9780324320671.
- Barrett, S. (1990) *The problem of global environmental protection*, Oxford Review of Economic Policy 6(1): 68–79
- Stern, N.(2007) *The Economics of Climate Change: The Stern Review*, Cambridge University Press.
- Stern, D. I. (2004). *The rise and fall of the environmental Kuznets curve*. World Development, 32(8), 1419-1439.
- Babiker, Mustafa, John Reilly, and Henry Jacoby. "The Kyoto Protocol and Developing Countries." *Energy Policy* 28, no. 8 (2000): 525-36.
- IPCC Climate Change 2014: Mitigation of Climate Change (in the press); <http://mitigation2014.or draft>
- Arnell, N. W., Brown, S., Gosling, S. N., Gottschalk, P., Hinkel, J., Huntingford, C., ... & Zelazowski, P. (2016). *The impacts of climate change across the globe: a multi-sectoral assessment*. Climatic Change, 134(3), 457-474.
- Roberts, J. T. (2001). *Global inequality and climate change*. Society & Natural Resources, 14(6), 501-509.
- Geoffrey Heal (2012). "Reflections—Defining and Measuring Sustainability" *Review of Environmental Economics and Policy* Vol. 6, No. 1 (winter 2012), p. 147–163.
- The environment write, 2009. "Defining sustainability: weak sustainability".

**Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.**

## Discipline Specific Elective 4 (DSE-4): Fiscal Policy and Public Finance in India

Semester	Course title & Code	Credits	Duration (per week)			Eligibility Criteria	Prerequisite
			Lecture	Tutorial	Practical/ Practice		
III/V/VII	Fiscal Policy and Public Finance in India – ECON034	4	3	1	0	Class 12th	Intermediate Macroeconomics (ECON004)

### Learning Objectives

The Learning Objectives of this course are as follows:

- Fiscal and Public Policy is the study of government policy and its role for achieving allocation and distribution objectives of the government.
- The course deals with the nature of public expenditures of the government on various social schemes; budgets, debt sustainability and fiscal management by governments; study of decentralization, theory of fiscal federalism, issues of equity and efficiency, designing equalization transfers, conditional and unconditional grants, fiscal federalism.
- The course analyses these concepts theoretically and also specifically looks at the Indian Final Examples.

### Learning outcomes

The Learning Objectives of this course are as follows:

- The students would learn the needs and objectives of government expenditure on social schemes and critically evaluate them.
- The student will understand the new concepts of budgeting and analyze the fiscal and debt management policies of the government.
- They will also learn the vast mechanism of fiscal federalism in India and the role and contribution of Finance Commission in achieving equity and efficiency in resource allocation in multiple levels of government.

### Syllabus

**UNIT I:** Income, Social Insurance and Redistribution (15 hours)

Redistribution and welfare policy, Universal Basic Income, Social Security, Health Insurance, Education, Pension Reforms

**UNIT II:** Public Expenditure and Fiscal Policy (15 hours)

Budget (Gender and Environment), Theories of Public Expenditure, Income and Employment Generation Policies, Public Debt; Sustainability and Debt Financing

**UNIT III:** Fiscal Federalism and Local Finance (15 hours)

Theory of Fiscal Federalism, Fiscal Federalism in India

**Recommended readings**

- Jonathan Gruber, (2011), Public Finance and Public Policy, 3rd edition, Worth Publishers. (Main Textbook)
- Hillman A. L., (2009), Public Finance and Public Policy: Responsibilities and Limitations of Government, 2nd edition, Cambridge University Press.
- Rosen, H. & Gayer, T. (2014). Public Finance (10th ed.). New York: McGraw-Hill.
- Rao, M. Govinda. "Central transfers to states in India: rewarding performance while ensuring equity." Final report submitted to NITI Aayog (2017).
- Fifteenth Finance Commission Report 2021-26.
- Report Summary, 15th Finance Commission, PRS India.
- Latest Finance Commission Reports
- Latest Economic Survey and Budget Documents

**Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.**

## Discipline Specific Elective 5 (DSE-5): Digital Economics

Semester	Course title & Code	Credits	Duration (per week)			Eligibility Criteria	Prerequisite
			Lecture	Tutorial	Practical/ Practice		
III/V/VII	Digital Economics – ECON035	4	3	1	0	Passed Class 12th	Introductory Microeconomics (ECON001)

### Learning Objectives

The Learning Objectives of this course are as follows:

- The analysis of the impact of information and communication technologies (ICTs) on economies and societies is a growing field.
- This course will cover the role of ICT on productivity, market structure, information and network effects, and its differential impact across groups and regions (digital divide).
- This theoretical and methodological stance has inspired a rather inter-disciplinary approach to the study of the digital economy.

### Learning outcomes

The Learning Outcomes of this course are as follows:

- The students would be able to get an idea how the information technology is changing the life and livelihood of individuals and economy.

### Syllabus

**UNIT I:** Functions of ICTs using productivity function approach and productivity (09 hours)

**UNIT II:** The transformation of management practices; work and employment; social networks, trust and social capital in the digital economy; cultural and motivational aspects (09 hours)

**UNIT III:** ICTs, competition, intellectual property right and market (09 hours)

**UNIT IV:** ICTs and the political economy of inequality etc. (09 hours)

**UNIT V:** Automation and Jobs (06 hours)

**UNIT VI:** Digital India (03 hours)

### Recommended readings

- Goldfarb, A., & Tucker, C. (2019). Digital economics. *Journal of Economic Literature*, 57(1), 3-43.
- Goldfarb, A., Greenstein, S. M., & Tucker, C. E. (Eds.). (2015). *Economic analysis of the digital economy*. University of Chicago Press.
- Acemoglu, D., & Restrepo, P. (2018). Artificial intelligence, automation, and work. In *The economics of artificial intelligence: An agenda* (pp. 197-236). University of Chicago Press.
- Varian, H. R. (2001). *Economics of information technology*. University of California, Berkeley.
- Maiti, D., Castellacci, F., & Melchior, A. (2020). Digitalisation and development: issues for India and beyond. In *Digitalisation and Development* (pp. 3-29). Springer, Singapore.
- Greenstein, S (2020) The Economics of Internet Infrastructure, <https://www.aeaweb.org/articles?i>

**Note:** Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time

## SEMESTERS –IV and V

# ECONOMICS

## DEPARTMENT OF ECONOMICS

### Category I

**Economics Courses for Undergraduate Programme of study with  
Economics as a Single Core Discipline  
(B.A. Honours in Economics in three years)**

### STRUCTURE OF FOURTH SEMESTER

#### DISCIPLINE SPECIFIC CORE COURSE -10 (DSC-10): Intermediate Microeconomics II: Market, Government and Welfare

Course title & Code	Credits	Duration (per week)			Eligibility Criteria	Prerequisite
		Lecture	Tutorial	Practical/ Practice		
Intermediate Microeconomics II:Market, Government and Welfare -ECON010	4	3	1	0	Class 12th with Mathematics	NIL

### Learning Objectives

The Learning Objectives of this course are as follows:

- This course introduces students to analysis of multi-commodity markets.
- The efficiency results, known as welfare theorems, are central to understanding of market economy.
- The course also discusses inefficiencies coming from market concentration and externalities.
- It further would discuss the role of government to deal with the inefficiencies and resultant welfare outcomes.

### Learning outcomes

The Learning outcomes of this course are as follows:

- This course helps the students to understand efficiency of markets and the environment where the standard market mechanism fails to generate the desirable outcomes in simple general equilibrium settings.
- The issues of market imperfection and market failures lead students to the economics of policy

design. The students will learn the efficacy of government interventions for the improved welfare.

## Syllabus

### UNIT I: Monopoly (9 hours)

Monopoly pricing, Inefficiency, Price discrimination, Regulation

### UNIT II: General equilibrium (9 hours)

Exchange economy, Robinson Crusoe economy, Pareto optimality, Welfare theorems, Welfare and social choice

### UNIT III: Models of Monopolistic Competition (9 hours)

Firms with differentiated products, mark-up, short-run and long-run equilibrium

### UNIT IV: Externalities (9 hours)

Market inefficiency under externalities, Pigou tax, Coase theorem, Market creation and other solutions

### UNIT V: Public Good (9 hours)

Inefficiency of market equilibrium, Optimal public good provision, Free rider problem, Lindahl taxes

### Recommended readings

- Serrano, Roberto and Feldman, Alan (2012), *A short course in intermediate Microeconomics with Calculus*, Cambridge University Press
- Espinola-Arredondo, Ana and Munoz-Garaia, Felix (2020), *Intermediate Microeconomic Theory*, MIT Press
- Munoz-Garaia, Felix (2017) *Practice Exercises for Advanced Microeconomic Theory*, MIT Press.
- Dunaway, Eric; Strandholm, John C., Espinola-Arredondo, Ana and Munoz-Garcia, Felix (2020) *Practice Exercises for Intermediate Microeconomic Theory*, MIT press

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## DISCIPLINE SPECIFIC CORE COURSE -11 (DSC-11): Intermediate Macroeconomics II: Policy Issues

Course title & Code	Credits	Duration (per week)			Eligibility Criteria	Prerequisite
		Lecture	Tutorial	Practical/ Practice		
<b>Intermediate Macroeconomics II: Policy Issues ECON011</b>	<b>4</b>	<b>3</b>	<b>1</b>	<b>0</b>	<b>Class 12th with Mathematics</b>	<b>NIL</b>

### Learning Objectives

The Learning Objectives of this course are as follows:

- This course trains the students in policy issues faced by macroeconomists in the real world.
- It discusses issues in monetary and fiscal policies as well as exchange rate dynamics.
- It also introduces the students to the financial system and dynamics of financial crises.
- The students are introduced to macroeconomic concepts in the context of open economies and the policy issues therein.

### Learning outcomes

The Learning outcomes of this course are as follows:

- This course enables students to analyse the functioning of macroeconomic policies in the real world in both closed and open economies, understand the dilemmas faced by the policymakers both in the domestic economy and in the globalised world.

### Syllabus

#### UNIT I: Fiscal and monetary policies (15 hours)

Active or passive monetary policies; time inconsistency, monetary policy objectives and targets; rules versus discretion, IS-PC-MR model, fiscal policy, the government budget constraint; government debt and Ricardian equivalence.

#### UNIT II: Financial markets and crisis (15 hours)

Introduction to financial markets, Financial crises and liquidity trap

#### UNIT III: Issues in open economy (15 hours)

Short-run open economy models; Mundell-Fleming model, Exchange rate determination; purchasing power parity, asset market approach, Dornbusch's overshooting model; monetary approach to balance of payments, International financial markets.

### Recommended readings

- Blanchard, O. (2006). *Macroeconomics*, 4th, 6th and 7th ed. Pearson Education.
- Salvatore, D. (2007). *International Economics*, Wiley.
- Dornbusch, R., Fischer, S. (1994). *Macroeconomics*, 6th ed. McGraw-Hill.
- Mishkin, Frederic (2012). *Macroeconomics: Policy & Practice*, Pearson.
- Jones, C. (2016). *Macroeconomics*, 4th ed. W. W. Norton.
- Carlin, Wendy and Soskice, David (2015) *Macroeconomics: Institutions, Instability and the Financial System*. Oxford University Press.

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## DISCIPLINE SPECIFIC CORE COURSE -12 (DSC-12): Introductory Econometrics

Course title & Code	Credits	Duration (per week)			Eligibility Criteria	Prerequisite
		Lecture	Tutorial	Practical/ Practice		
<b>Introductory Econometrics ECON012</b>	– <b>4</b>	<b>3</b>	<b>0</b>	<b>1</b>	<b>Class 12th with Mathematics</b>	<b>NIL</b>

### Learning Objectives

The Learning Objectives of this course are as follows:

- This course introduces a basic set of the econometric methods to conduct empirical analysis in economics and social sciences.
- The course is designed to provide the students with the basic quantitative techniques needed to undertake applied research projects.
- It also provides the base for more advanced optional courses in econometrics.
- The tools of econometrics will be useful to establish relationships among economic variables.
- This course will be taught as a combination of theory and practicals.

### Learning outcomes

The Learning outcomes of this course are as follows:

- The students will be able to estimate linear models using the method of ordinary least squares and make inferences about population parameters.
- They will also understand the issues of estimation arising due to misspecification of models and violations of assumptions.
- Students will also gain hands-on-experience of applying the concepts learnt to a wide range of problems using econometric software.

### Syllabus

#### UNIT I: Linear Regression Model (9 hours)

OLS method of Estimation and Properties of estimators, Measures of Fit, Testing of Hypotheses, Prediction, Introduction to econometric software and practical application using econometric software (GRETL/EViews/ R/Stata/EXCEL etc.)

#### UNIT II: Multiple Regression Model (9 hours)

OLS method of estimation and Properties of OLS estimators, Testing of Hypotheses, Measures of fit, practical application using econometric software (GRETL/EViews/ R/Stata/EXCEL etc.)

#### UNIT III: Functional Forms and Qualitative independent variables (9 hours)

Nonlinear Models and Transformations of Variables, Dummy variables, practical application using econometric software (GRETL/EViews/ R/Stata/EXCEL etc.)

#### UNIT IV: Violations of Assumptions (9 hours)

Consequences, Detection, and Remedies: Multicollinearity, Heteroscedasticity, Serial Correlation, practical application using econometric software (GRETL/EViews/R/Stata/EXCEL etc.)

#### UNIT V: Specification Bias (9 hours)

Model selection criteria, types of specification errors, omitted variable bias, inclusion of irrelevant variables, incorrect functional form, errors of measurement, practical application using econometric software (GRETLE/Views/ R/Stata/EXCEL etc.)

**Recommended readings**

- James H. Stock and Mark W. Watson (2019) *Introduction to Econometrics*, Fourth Edition, Pearson's.
- Wooldridge, J. M. (2019). *Introductory econometrics: A modern approach*. 7th edition, Cengage learning.

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**Semester-V**  
**DEPARTMENT OF ECONOMICS**  
**Category I**

(B.A. Honours in Economics in three years)

**DISCIPLINE SPECIFIC CORE COURSE -13 (DSC-13): Game Theory  
and Strategic Interactions**

Course title & Code	Credits	Duration (per week)			Eligibility Criteria	Prerequisite
		Lecture	Tutorial	Practical/ Practice		
Game Theory and Strategic Interactions – ECON013	4	3	1	0	Class 12th with Mathematics	NIL

**Learning Objectives**

The Learning Objectives of this course are as follows:

- This course introduces students to formal analysis of game theory and its applications on the micro-economic issues.
- Game theory will be used to analyse market power, commitment problem, coordination problem and various modern market design tools like contract and auction.

**Learning outcomes**

The Learning outcomes of this course are as follows:

- This course helps the students to understand strategic interactions and importance of information in strategic situations.
- The concepts and tools developed in this course will enable the students to analyse various strategic relations seen in various disciplines, like in economics, management and other social sciences.

**Syllabus**

**UNIT I:** Complete information simultaneous move game, Dominance, Nash equilibrium, Mixed strategy Nash equilibrium (9 hours)

**UNIT II:** Complete information extensive form game (9 hours)  
Sequential rationality and subgame perfection

**UNIT III:** Topics from Industrial Organization (9 hours)

**UNIT IV:** Incomplete information (9 hours)  
Bayes Nash equilibrium, Auction, Moral Hazard, Contract

**UNIT V:** Communicating information (9 hours)  
Perfect Bayesian equilibrium, Job market signaling and reputation

**Recommended readings**

- Watson, J. (2002). *Strategy: an introduction to game theory*. New York: WW Norton.
- Muñoz-Garcia, F. (2017). *Advanced microeconomic theory: an intuitive approach with Final Examinationples*. MIT Press.
- Muñoz-Garcia, F. (2017). *Practice Exercises for Advanced Microeconomic Theory*. MIT Press.
- Dunaway, E., Strandholm, J. C., Espinola-Arredondo, A., & Munoz-Garcia, F. (2020). *Practice Exercises for Intermediate Microeconomic Theory*. MIT Press.

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## DISCIPLINE SPECIFIC CORE COURSE -14 (DSC-14): Economic Growth and Business Cycles

Course title & Code	Credits	Duration (per week)			Eligibility Criteria	Prerequisite
		Lecture	Tutorial	Practical/ Practice		
<b>Economic Growth and Business Cycles – ECON014</b>	<b>4</b>	<b>3</b>	<b>1</b>	<b>0</b>	<b>Class 12th with Mathematics</b>	<b>NIL</b>

### Learning Objectives

The Learning Objectives of this course are as follows:

- This course introduces the students to the models of economic growth and business cycles.
- The literature on the differences in the growth rates across economies is discussed.
- Further, the student is exposed to the preliminaries of macroeconomic modelling through different growth models.
- It introduces business cycles through the Real Business Cycle and the New Keynesian approaches.

### Learning outcomes

The Learning outcomes of this course are as follows:

- The student would understand the basic drivers of economic growth that are developed through the different approaches using exogenous, semi-endogenous and endogenous models.
- The student will be able to apprise and analyse better the business cycles and familiarise with the debates between the schools of macroeconomic thoughts like Real Business Cycles and New Keynesian Economics.

### Syllabus

#### UNIT I: Introduction to Economic Growth (15 hours)

Introduction to economic growth, data on economic growth, stylised facts of economic growth. Economic growth and economic development, economic growth and income difference, absolute and conditional convergence.

#### UNIT II: Models of Economic Growth (15 hours)

Solow model and the steady state. Solow model with technology, growth accounting, Economics of ideas and innovation, Romer model, Growth through creative destruction, Growth and technology transfer, institutions, Simple endogenous growth model.

#### UNIT III: Business Cycles (15 hours)

Real business cycle model, productivity shocks and business cycle fluctuations, New Keynesian models, new Keynesian Short-run AS Phillips curve and dynamics IS curve. Comparison between business cycle models. Introduction to dynamic general equilibrium models.

### Recommended readings

- Jones, Charles I and Vollrath, Dietrich (2013) *Introduction to Economic Growth*.
- W. W. Norton & Co.
- Aghion, Philippe and Howitt, Peter (2010) *The Economics of Growth*. Prentice Hall. Eastern Economy Edition.
- Mishkin, Frederic S (2017) *Macroeconomics: Policy and Practice*. Pearson.

- Jones, Charles I (2018) *Macroeconomics*. W W Norton & Co.
- Sorenson, Peter B and Whitta-Jacobson, Hans Jorgen (2010) *Introducing Advanced Macroeconomics: Growth and Business Cycles*. McGraw Hill Education
- Barro, R, Chu, A and Cozzie, G (2017), *Intermediate macroeconomics*, First Edn. Cengage Learning.
- Weil, David N (2014) *Economic Growth*. Routledge.
- Gordon, Robert J (2015) *Macroeconomics*. Pearson

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## DISCIPLINE SPECIFIC CORE COURSE -15 (DSC-15): Introductory Development Economics

Course title & Code	Credits	Duration (per week)			Eligibility Criteria	Prerequisite
		Lecture	Tutorial	Practical/ Practice		
<b>Introductory Development Economics – ECON015</b>	<b>4</b>	<b>3</b>	<b>1</b>	<b>0</b>	<b>Class 12th with Mathematics</b>	<b>NIL</b>

### Learning Objectives

The Learning Objectives of this course are as follows:

- This course discusses the basic concept of growth and further links it up with alternative conceptions of development.
- It then proceeds to examine the aspects of poverty and inequality, not just in terms of income and wealth, but in terms of capabilities too.
- The axiomatic basis for inequality measurement is used to develop measures of inequality and poverty.
- It further explores the connections between growth and inequality.
- The course ends by linking political institutions to growth and inequality by discussing the role of the state in economic development and the informational and incentive problems that affect state governance.

### Learning outcomes

The Learning outcomes of this course are as follows:

- The students would distinguish between growth and development and get an idea about the factors affecting the level of development as well as the process of economic development.
- Further, they comprehend and analyse various concepts and measures of underdevelopment including poverty and inequality.

### Syllabus

#### UNIT I: Introducing Economic Development: Global Perspective (12 hours)

Conceptions of Economic Growth and Development; Concepts of economic growth and linking it up with alternative measures of development, including human development, documenting the international variation in these measures, comparing development trajectories across nations and within them.

#### UNIT II: Theories of Economic Development (12 hours)

Classic Theories of Economic Growth and Development - four approaches (linear- stages theories, structural change models, international dependence, neoclassical

#### UNIT III: The Strategy of Economic Development: Institutional Pathways (9 hours)

Balanced and Unbalanced growth, interlinkages, big-push and the role of markets and state, alternative institutional trajectories and their relationship with economic performance

#### UNIT IV: Poverty and Inequality (12 hours)

Definitions, Measures and Mechanisms, Inequality axioms and principles; a comparison of commonly used diagrammatic and mathematical inequality measures, their deficiencies and usage; connections between

inequality and development; inequality trends at international level; conceptualisation of the poverty lines at domestic and international levels; poverty measurement; characteristics of the poor; capability approach to poverty; mechanisms that generate poverty traps and path dependence of growth processes.

### **Recommended readings**

- Partha Dasgupta (2007), *Economics: A Very Short Introduction*, (AVSI), Oxford University Press.
- Perkins, D. H., Radelet, S. C., Lindauer, D. L., & Block, S. A. (2013). *Economics of Development*. 7th Edition, New York: WW Norton & Company.
- Todaro, M. P., & Smith, S. C. (2020). *Economic Development*. Pearson UK.
- Elinor Ostrom (1990), *Governing the Commons: The Evolution of Institutions for Collective Action*, Cambridge University Press.
- Gustav Ranis et.al, Economic Growth and Human Development (2000), *World Development* Vol. 28, No. 2, Elsevier Science Ltd.
- Pranab Bardhan (2010), *Awakening Giants, Feet of Clay: Assessing the Economic Rise of China and India*, OUP.
- Thomas Dietz, Elinor Ostrom and Paul C. Stern, 'The Struggle to Govern the Commons', *Science*, vol. 302, No. 5652 (Dec. 12, 2003), pp. 1907-1912.
- Mancur Olson, Jr. (1996), 'Big Bills Left on the Sidewalk: Why Some Nations are Rich, and Others Poor', *Journal of Economic Perspectives*, vol. 10, no. 2, pp 3-24.
- Albert O. Hirschman, *Rival Views of Market Society and Other Essays*, Ch. 3: 'Linkages in Economic Development'.
- Nurkse, Ragnar (1961). *Problems of Capital Formation in Underdeveloped Countries*. New York: Oxford University Press. Chapter 3.
- Rodenstein Rodan, PN (1943) Problems of Industrialization of eastern and south eastern Europe, *Economic Journal*, vol LIII, p 202-11.
- Dani Rodrik (2009), *One Economics, Many Recipes: Globalization, Institutions and Economic Growth*, Princeton University Press.
- Andre Shleifer and Robert W. Vishny (1993), 'Corruption', *Quarterly Journal of Economics*, 108(3), pp 599-617.

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## COMMON POOL OF DISCIPLINE SPECIFIC ELECTIVE (DSE) COURSES

### The Discipline Specific Elective courses offered by the Department of Economics

Year	Semester	Course Code	Course Name	Credits	Credit distribution of the course			Eligibility Criteria	Pre-requisite
					Lecture	Tutorial	Practical		
2nd/3rd /4th	III/V/VII	ECON031	Economic History of India	4	3	1	0	Class XII	Nil
2nd/3rd /4th	III/V/VII	ECON032	Economics of Climate Change and Natural Resources	4	3	1	0	Class XII	ECON 001
2nd/3rd /4th	III/V/VII	ECON034	Fiscal Policy and Public Finance in India	4	3	1	0	Class XII	ECON 004
2nd/3rd /4th	III/V/VII	ECON035	Digital Economics	4	3	1	0	Class XII	ECON 001
3rd/ 4th	V/VII	ECON036	Advanced Econometrics	4	3	0	2	Class XII	ECON 012
3rd/ 4th	V/VII	ECON038	Economics of Health	4	3	1	0	Class XII	ECON 001
3rd/ 4th	V/VII	ECON039	Environmental Economics	4	3	1	0	Class XII	ECON 010
3rd/ 4th	V/VII	ECON040	Gender and Development	4	3	1	0	Class XII	ECON 010
3rd/ 4th	V/VII	ECON041	Law and Economics	4	3	1	0	Class XII	ECON 010
3rd/ 4th	V/VII	ECON042	Open Economy Macroeconomics	4	3	1	0	Class XII	ECON 011
3rd/ 4th	V/VII	ECON043	Modern Political Economy	4	3	1	0	Class XII	ECON 010
3rd/ 4th	V/VII	ECON045	Public Economics	4	3	1	0	Class XII	ECON 010
2nd/3rd	IV/VI	ECON044	Research Methodology for Economics	4	3	1	0	Class XII	Nil
2nd/3rd / 4th	IV/VI/VI II	ECON046	Financial Economics	4	3	1	0	Class XII	ECON 007
2nd/3rd /4th	IV/VI/VI II	ECON047	Money and Financial Markets	4	3	1	0	Class XII	ECON 008
3rd/ 4th	VI/VIII	ECON049	Behavioural Economics	4	3	1	0	Class XII	ECON 013

3rd/ 4th	VI/VIII	ECON050	Comparative Economic Development	4	3	1	0	Class XII	Nil
3rd/ 4th	VI/VIII	ECON051	Corporate Finance and Governance	4	3	1	0	Class XII	ECON 013
3rd/ 4th	VI/VIII	ECON052	Economics of Education	4	3	1	0	Class XII	ECON 013
3rd/ 4th	VI/VIII	ECON053	Forecasting Methods for Economics	4	3	0	2	Class XII	ECON 012
3rd/ 4th	VI/VIII	ECON054	History of Economic Thought	4	3	1	0	Class XII	Nil
3rd/ 4th	VI/VIII	ECON055	Industrial Organisation	4	3	1	0	Class XII	ECON 013
3rd/ 4th	VI/VIII	ECON056	Introduction to Causal Inference	4	3	0	2	Class XII	ECON 012
3rd/ 4th	VI/VIII	ECON057	Introduction to Macroeconomic Dynamics	4	3	1	0	Class XII	ECON 009
3rd/ 4th	VI/VIII	ECON058	Labour Economics	4	3	1	0	Class XII	ECON 013
3rd/ 4th	VI/VIII	ECON059	Sectoral Issues in Indian Economy	4	3	1	0	Class XII	Nil
3rd/ 4th	VI/VIII	ECON060	Topics in Game Theory	4	3	1	0	Class XII	ECON 013
3rd/ 4th	VI/VIII	ECON077	Financial Derivatives	4	3	1	0	Class XII	ECON 002

## Discipline Specific Elective 6 (DSE-6): Advanced Econometrics

Semester	Course title & Code	Credits	Duration (per week)			Eligibility Criteria	Prerequisite
			Lecture	Tutorial	Practical/ Practice		
V/VII	Advanced Econometrics – ECON036	4	3	1	0	Class 12th with Mathematics	Basic Econometrics (ECON024)

### Learning Objectives

The Learning Objectives of this course are as follows:

- A prerequisite for this course is the knowledge of concepts in the Basic Econometrics course.
- It builds on the compulsory Basic Econometrics course and teaches students a broad set of commonly used econometric methods.
- These include estimating models with limited dependent variables, the use of instrumental variables to estimate models with endogenous regressors, as also estimation methods for time series and panel data sets.

### Learning outcomes

The Learning Outcomes of this course are as follows:

Students will learn the theoretical and practical basis for techniques widely used in empirical research and consider their application in a wide range of estimation problems.

### Syllabus

**UNIT I:** Stages in empirical econometric research (3 hours)

**UNIT II:** The linear regression model: The matrix approach, Review of model specification, estimation and testing (6 hours)

**UNIT III:** Limited dependent variables: Logit and Probit models for binary responses, Tobit models for truncated data. (9 hours)

**UNIT IV:** Selected Topics: Instrumental variable estimation, Simultaneous equation models, Experiments and Quasi-Experiments. (9 hours)

**UNIT V:** Dynamic econometric models: distributed lag models, autoregressive models; Panel data models and estimation techniques (9 hours)

**UNIT VI:** Introduction to econometric software (R/GRETLEViews/Stata: ANY ONE); publicly available data sets and software will be used to estimate models and apply the techniques learnt. (9 hours)

### Recommended readings

- Wooldridge, J. (2014). Introduction to econometrics: A modern approach, 5th ed. Cengage Learning.
- Asteriou, D and Hall, Stephen G, Applied Econometrics, 4th Edition, 2021, Palgrave Macmillan.
- James Stock and Mark Watson, Introduction to Econometrics, 4th Edition, 2019, Pearson.
- Gujarati, D., Porter, D. (2012). Basic econometrics, 5th ed. McGraw-Hill.
- Gujarati, D. (2014). Econometrics by Final Examinationple, 2nd ed. Palgrave Macmillan.
- G.S. Maddala and Kajal Lahiri, Introduction to Econometrics, 4th Edition, 2012, Wiley.

- Badi H. Baltagi, Econometrics, 5th Edition, 2011, Springer.
- J. Johnston and J. DiNardo (2001), Econometric Methods, Fourth Edition, Irwin McGraw Hill

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## Discipline Specific Elective 8 (DSE-8): Economics of Health

Semester	Course title & Code	Credits	Duration (per week)			Eligibility Criteria	Prerequisite
			Lecture	Tutorial	Practical/ Practice		
V/VII	Economics of Health– ECON038	4	3	1	0	Class 12th	Introductory Microeconomics (ECON001)

### Learning Objectives

The Learning Objectives of this course are as follows:

- Health is important not only for human well-being but also for economic growth. This course provides a framework to understand the need for the study of health economics and the relationship of health with the GDP of a nation.
- The course also looks at the determinants of health, the demand for health and the need for government intervention in provision of health care. Economic evaluation / health technology assessment is also covered in the course.

### Learning outcomes

The Learning Outcomes of this course are as follows:

- The students will learn the economic dimensions of health, determinants of health and microeconomic tools for the study of health care and expenditure.
- The course will enable the students to apply the theory to understand the various policies and market mechanisms in the field of health care. They will also be equipped with the fundamental techniques of economic evaluation of health interventions.

### Syllabus

#### UNIT I: Health Economics (12 hours)

Significance and linkages with the economy:

The need for health economics as a discipline of study, importance of health in the development of an economy and its relationship with macroeconomic performance

#### UNIT II: Theoretical foundations of Health Economics (12 hours)

Demand for health and health care services, determinants of health, market failure and rationale for public intervention; and health insurance

#### UNIT III: Economic Evaluation of Health Sector (12 hours)

Cost-effective Analysis, cost-benefit analysis, cost-utility analysis

#### UNIT IV: Health Systems (9 hours)

An overview of international health systems and Indian experiences, and healthcare financing

### Recommended readings

- Phelps, C. E. (2017). Health economics. Routledge
- Jay Bhattacharya Timothy Hyde Peter Tu (2014), Health Economics, Palgrave Macmillan
- William, Jack. (1999) Principles of Health Economics for Developing Countries, World Bank

Institute Development Studies.

- Glied, S., & Smith, P. C. (Eds.). (2013). The Oxford Handbook of Health Economics. Oxford University Press.
- Situational Analysis: Backdrop to the National Health Policy 2017, Ministry of Health and Family Welfare, Government of India
- Mills, A., & Hsu, J. (2014), "Health services in low-and middle-income countries: financing, payment, and provision", Encyclopedia of Health Economics, pp 422- 434

**Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.**

## Discipline Specific Elective 9 (DSE-9): Environmental Economics

Semester	Course title & Code	Credits	Duration (per week)			Eligibility Criteria	Prerequisite
			Lecture	Tutorial	Practical/ Practice		
V/VII	<b>Environmental Economics– ECON039</b>	<b>4</b>	<b>3</b>	<b>1</b>	<b>0</b>	<b>Class 12th</b>	<b>Intermediate Microeconomics: Market, Government and Welfare (ECON010)</b>

### Learning Objectives

The Learning Objectives of this course are as follows:

- This course provides basic knowledge of environmental economics, its relationship with microeconomics and welfare economics, to present and explains the significance and application in the present environmental challenges.
- It aims to describe and comprehend various environmental policies by deploying various policy instruments and to understand and measure the various market and non-market benefits of environmental policies.
- The course addresses the problems related to climate change, transboundary environmental problems, and challenges related to trade and the environment also.

### Learning outcomes

The Learning Outcomes of this course are as follows:

The students will learn the trade-offs of economy and environment, and related challenges. They will comprehend the role of state and institutions to minimise the trade-offs.

### Syllabus

#### UNIT I: Introduction to Environment Economics (9 hours)

What is environmental economics? review of microeconomics and welfare economics; Overview of environmental problems in India

#### UNIT II: Design and Implementation of Environmental Policy (12 hours)

Overview; Pigouvian taxes and effluent fees; tradable permits; choice between taxes and quotas under uncertainty; implementation of environmental policy.

#### UNIT III: Measuring the Benefits of Environmental Improvements (12 hours)

Non-market values and measurement methods; risk assessment and perception.

#### UNIT IV: International Environmental Problems (12 hours)

Transboundary environmental problems; economics of climate change; trade and environment.

### Recommended readings

- Charles Kolstad. Intermediate Environmental Economics, Oxford University Press, 2nd edition (2012).
- Roger Perman, Yue Ma, James McGilvray and Michael Common. Natural Resource and Environmental Economics, Pearson Education/Addison Wesley, 4th edition (2011).

- Robert N. Stavins (ed.). *Economics of the Environment: Selected Readings*, W.W. Norton, 6th edition (2012).
- Don Fullerton and Robert Stavins (1998). "How Economists See the Environment." *Nature*, Vol. 395, Oct 1, 1998, pp. 433-434.
- State of Environment Report: India 2009 (Ministry of Environment and Forests, Government of India, 2009): Chapter 2 (State and Trends of the Environment): Land, Air, Water, Biodiversity (p. 9 to 71).
- Schmalensee, Richard and Robert N. Stavins (2017). "The design of environmental markets: What have we learned from experience with cap and trade?" *Oxford Review of Economic Policy*, Vol. 33, No. 4, pp. 572-588.
- Blackman, Allen, Li, Z., and Liu, A. A. (2018). "Efficacy of command-and-control and market-based environmental regulation in developing countries," *Annual Review of Resource Economics*, Vol. 10, pp. 381-404.
- Jonathan Harris and Brian Roach (2018). *Environmental and Natural Resource Economics: A Contemporary Approach*, Routledge.
- Nordhaus, William D. (2013). *Climate Casino: Risk, Uncertainty, and Economics for a Warming World*, Yale University Press.
- Richard Newell, William Pizer and Daniel Raimi (2013). "Carbon markets 15 years after Kyoto: Lessons learned, new challenges," *Journal of Economic Perspectives*, Vol. 27, No. 1, pp. 123-46.
- Stern, N. (2008) The economics of climate change, *American Economic Review*, 98(2): 1-37.

**Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.**

## Discipline Specific Elective 10 (DSE-10): Gender and Development

Semester	Course title & Code	Credits	Duration (per week)			Eligibility Criteria	Prerequisite
			Lecture	Tutorial	Practical/ Practice		
V/VII	Gender and Development– ECON040	4	3	1	0	Class 12th	Intermediate Microeconomics II: Market, Government and Welfare (ECON010)

### Learning Objectives

The Learning Objectives of this course are as follows:

- This course aims to deepen students' understanding on the main theoretical approaches used in gender analysis of development issues, and understanding of the differential impacts of development interventions on women and men.
- The course aims to enable students to become familiar with the gender theories, use of these theories to Final Examination in detail issues of production (formal and informal work), reproduction (health, child survival, and fertility), the family/household nexus (where production and reproduction meet), and gender biases and inequality in terms of health, education, labour and inheritance.

### Learning outcomes

The Learning Outcomes of this course are as follows:

The course aims at making students to be aware about the issues and concepts of gender and development, importance of mainstreaming gender, gender and work relations and gender bias and inequality.

### Syllabus

#### UNIT I: Conceptualising and theorizing gender and development (12 hours)

Concepts in gender and development studies: Distinction between gender and sex, patriarchy and matriarchy; women in development (WID) and women and development (WAD)

#### UNIT II: Mainstreaming gender (12 hours)

Institutionalization of gender in growth and development, gender and bureaucracy, intra-household bargaining, changing gender relations and gender budgeting.

#### UNIT III: Work and Gender Relations (Inside/Outside the House) (12 hours)

Gender dynamics within a household, bargaining models, balance of productive and reproductive roles of women, agency, inheritance, unpaid work, marriage, and bride price.

#### UNIT IV: Gender and Inequality (9 hours)

Gender bias and gender inequality in terms of opportunities available: health and education, occupational segregation and gender wage gap.

### Recommended readings

- Anderson, S. (2007). The economics of dowry and brideprice. *Journal of Economic Perspectives*, 21(4), 151-174.
- Aizer, A. (2010). The gender wage gap and domestic violence. *American Economic Review*, 100(4), 1847-59.
- Heath, R. (2014). Women's access to labor market opportunities, control of household resources, and domestic violence: Evidence from Bangladesh. *World Development*, 57, 32-46.
- Goel, P. A., & Barua, R. (2021). Female education, marital assortative mating, and dowry: Theory and evidence from districts of India. *Journal of Demographic Economics*, 1-27.
- Rai, S. M., Brown, B. D., & Ruwanpura, K. N. (2019). SDG 8: Decent work and economic growth—A gendered analysis. *World Development*, 113, 368-380.
- Kantor, P. (2003). Women's empowerment through home-based work: Evidence from India. *Development and Change*, 34(3), 425-445
- Neetha, N. (2018). *Migration, gender and care economy*. Routledge India
- Boeri, N. (2018). Challenging the gendered entrepreneurial subject: Gender, development, and the informal economy in India. *Gender & Society*, 32(2), 157-179.
- World Bank. (2011). *World development report 2012: Gender equality and development*. The World Bank.
- Kabeer, N. (2003). *Gender Mainstreaming in Poverty Eradication and the Millennium Development Goals: A handbook for policy-makers and other stakeholders*. Commonwealth Secretariat.
- Coles, A., Gray, L., & Momsen, J. (Eds.). (2015). *The Routledge handbook of gender and development*. Routledge.
- Blakemore, J. E. O., Berenbaum, S. A., & Liben, L. S. (2013). *Gender Development*. Psychology Press.
- Momsen, Janet (2020). *Gender and Development*. Routledge. 3rd Edition
- Moser, C. (2012). *Gender Planning and Development* (pp. 63-87). Routledge.
- Andrea Cornwall et al (eds): *Feminisms in Development: Contradictions, Contestations and Challenges* (Zed 2007).
- Cecile Jackson & Ruth Pearson (eds.): *Feminist Visions of Development: Gender Analysis and Policy* (Routledge, 1998)
- Agenor, P. R., & Canuto, O. (2015). Gender equality and economic growth in Brazil: a long-run analysis. *Journal of Macroeconomics*, 43, 155-172.
- Nilsson, P. (2013). Gender and development: The challenge of mainstream. *Consilience*, (10), 125-135.
- Cornwall, A., Harrison, E., & Whitehead, A. (2007). Gender myths and feminist fables: The struggle for interpretive power in gender and development. *Development and Change*, 38(1), 1-20.
- Agarwal, B. (1997). "Bargaining" and gender relations: Within and beyond the household. *Feminist economics*, 3(1), 1-51.
- Doss, C. (2013). Intrahousehold bargaining and resource allocation in developing countries. *The World Bank Research Observer*, 28(1), 52-78.
- Kabeer, N. (2005). Gender equality and women's empowerment: A critical analysis of the third millennium development goal. *Gender & Development*, 13(1), 13-24.
- Folbre, N. (2006). Measuring care: Gender, empowerment, and the care economy. *Journal of Human Development*, 7(2), 183-199.
- Jayachandran, S. (2015). The roots of gender inequality in developing countries, *Economics*, 7(1), 63-88.
- Mitra, A., Bang, J. T., & Biswas, A. (2015). Gender equality and economic growth: Is it equality of opportunity or equality of outcomes? *Feminist Economics*, 21(1), 110-135.
- Dercon, S., & Singh, A. (2013). From nutrition to aspirations and self-efficacy: gender bias over time among children in four countries. *World Development*, 45, 31-50.
- Azam, M., & Kingdon, G. G. (2013). Are girls the fairer sex in India? Revisiting intra-household allocation of education expenditure. *World Development*, 42, 143- 164.
- Nguyen, C. P. (2021). Gender equality and economic complexity. *Economic Systems*, 45(4), 100921.
- Jayachandran, S., & Pande, R. (2017). Why are Indian children so short? The role of birth order and son preference. *American Economic Review*, 107(9), 2600-2629.

- Barcellos, S. H., Carvalho, L. S., & Lleras-Muney, A. (2014). Child gender and parental investments in India: Are boys and girls treated differently?. *American Economic Journal: Applied Economics*, 6(1), 157-89.
- Joy, L. (2000). Do colleges shortchange women? Gender differences in the transition from college to work. *American Economic Review*, 90(2), 471-475.
- Mbaye, L. M., & Wagner, N. (2017). Bride price and fertility decisions: Evidence from rural Senegal. *The Journal of Development Studies*, 53(6), 891-910.
- Babcock, L., Recalde, M. P., Vesterlund, L., & Weingart, L. (2017). Gender differences in accepting and receiving requests for tasks with low promotability. *American Economic Review*, 107(3), 714-47.
- Pande, R. (2015). 'I arranged my own marriage': arranged marriages and post-colonial feminism. *Gender, Place & Culture*, 22(2), 172-187.
- Bertrand, M., & Mullainathan, S. (2004). Are Emily and Greg more employable than Lakisha and Jamal? A field experiment on labor market discrimination. *American economic review*, 94(4), 991-1013.
- Duraisamy, M., & Duraisamy, P. (2016). Gender wage gap across the wage distribution in different segments of the Indian labour market, 1983–2012: exploring the glass ceiling or sticky floor phenomenon. *Applied Economics*, 48(43), 4098-4111.
- LEE, Jong-Wha; Wie, Dainn (2017). Wage Structure and Gender Earnings Differentials in China and India. *World Development*, 97, 313–329

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## Discipline Specific Elective 11 (DSE-11): Law and Economics

Semester	Course title & Code	Credits	Duration (per week)			Eligibility Criteria	Prerequisite
			Lecture	Tutorial	Practical/ Practice		
V/VII	Law and Economics – ECON041	4	3	1	0	Class 12th	Intermediate Microeconomics II: Market, Government and Welfare - ECON010

### Learning Objectives

The Learning Objectives of this course are as follows:

- Law and Economics is an interdisciplinary course, devoted to understanding laws and legal institutions using the tools of economic theory.
- This is essentially an economic analysis of the laws.
- Topics include an introduction to legal institutions and legal analysis, application of economic concepts to the law of property, contracts, torts and criminal law and anti-trust law.

### Learning outcomes

The Learning Outcomes of this course are as follows:

This course is designed to gain familiarity with basic facts and application of economic principles to analyse a wide range of legal issues, and better understanding the economic consequences of laws and regulations.

### Syllabus

**UNIT I:** Concepts of Law and uses of foundations of Economics (6 hours)

Tools for Law and Economics: Efficiency criteria in Welfare Economics; Coase theorem; Prisoners' Dilemma

**UNIT II:** Economics of Tort (Accident) Law/ Liability Rules (6 hours)

Liability for accidents and harms; product liability; efficiency of liability rules; efficiency-compensation trade-off.

**UNIT III:** Economics of Property Law (6 hours)

Property rights and their role in resource allocation; Coase theorem; Legal remedies for breach of property rights and their economic effects, Eminent Domain (Market and non-market mechanism for land transfer)

**UNIT IV:** Intellectual Property Rights (IPRs) (6 hours)

Patents, Copyright and Trademarks. Cost and benefits of private IPRs; Individual rights vs common good

**UNIT V:** Economics of Contract Law (6 hours)

Legal contract; Role of Contracts for functioning of markets; Incomplete contracts; Efficient contracts; Damages measures and their efficiency properties.

**UNIT VI:** Economics of Criminal Law (6 hours)

Economics of Crime and Law Enforcement; Crime Vs Tort; Repeat Offenders; Death Penalty

**UNIT VII:** Anti-trust laws, Competition Policy (3 hours)

### **UNIT VIII: Legal Process (6 hours)**

Litigation – its causes and consequences; Benefits of legal certainty

#### **Recommended readings**

- Miceli, Thomas J. , "The Economic Approach to Law" 3rd Edition Stanford University Press, 2017 (Indian edition, MPP House, 2020)
- Cooter, Robert and Thomas Ulen, Law and Economics, Sixth Edition, Addison Wesley 2013, ISBN 9780132540650. Free here Law and Economics, 6th edition (jku.at)
- Pal, Malabika, Economic Analysis of Tort Law - The Negligence Determination. Routledge, 2020.
- Bag, Sugata, Economic Analysis of Contract Law: Incomplete Contracts and Asymmetric Information. Springer/Palgrave, 2018.
- Basu, Kaushik, The Republic of Beliefs: A New Approach to Law and Economics, Princeton University Press, 2018
- Singh, Ram (2021) Land for Development: Market Versus Non-Market Mechanisms in S.Mani and C.G. Iyer (eds.) India's Economy and Society, Springer, pp.187-204.
- Bhattacharjea, Aditya. "Competition policy: India and the WTO." Economic and Political Weekly (2001): 4710-4713.
- Competition Commission of India, Competition Act of India 2002, [https : //www.cci.gov.in/sites/](https://www.cci.gov.in/sites/)

**Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.**

## Discipline Specific Elective 12 (DSE-12): Open Economy

Semester	Course title & Code	Credits	Duration (per week)			Eligibility Criteria	Prerequisite
			Lecture	Tutorial	Practical/ Practice		
V/VII	Open Economy Macroeconomics – ECON042	4	3	1	0	Class 12th	Intermediate Macroeconomics II (ECON011)

### Learning Objectives

The Learning Objectives of this course are as follows:

- The course is designed with the objective of introducing the students to the standard macroeconomic issues in an open economy framework using the Mundell-Fleming model and the exchange rate overshooting model.
- It further exposes them to the models of banking and currency crises which try to make sense of the risks and vulnerabilities in an interdependent economy.
- The course would give an exposure to contemporary concerns in the global economy and the challenges it poses to policy making.

### Learning outcomes

The Learning Outcomes of this course are as follows:

- The student would get a good exposure towards the process of macroeconomic policy- making in an open economy and the challenges involved.
- The course would facilitate learning the art of building macro-models in an open economy context. It would also enable the student to relate it to the contemporary issues.
- The student would learn to appreciate contemporary issues by relating the real world data to the theory in this regard.

### Syllabus

#### UNIT I: Introduction to Open Economy Macroeconomics (10 hours)

Intertemporal long run budget constraint, how much can a country borrow, external wealth, external assets and liabilities, net international investment position, financial flows and valuation effects, Feldstein Horioka Puzzle, Harberger-Laursen- Metzler effect, Foreign Exchange Market. An overview of the spot and forward markets, swaps, options and derivatives. Uncovered and Covered Interest Parity. Covered Interest Arbitrage.

#### UNIT II: Macro-modelling of the Open Economy (20 hours)

Mundell-Fleming model (with Flexible Prices). Dornbusch's exchange rate overshooting model with stability conditions. Monetary Approach to Balance of Payments. PPP and long run monetary approach, Balassa –Samuleson effect and non-tradables, Fisher effect. Portfolio and macroeconomic equilibrium in an open economy. 3 equation model for the open economy. Currency crises (first, second and third generation models). Optimum currency areas and monetary union.

#### UNIT III: International Monetary System and Policy Co-ordination (15 hours)

Classic specie price flow mechanism and the Gold Standard. Fixed exchange rate system under Bretton Woods. Triffin dilemma and the collapse of the Bretton Woods, SDRs, international consistency condition. Financial trilemma. International liquidity and demand for international reserves. Government policies towards capital market, exchange and capital controls. Central bank intervention, sterilization.

Prospects of Macroeconomic policy co-ordination in an open economy, Policy reaction function, Hamada diagram

**Recommended readings**

- Feenstra, Robert and Taylor, Alan (2020) International Macroeconomics, 3rd ed., Worth Publishers
- Feenstra, Robert and Taylor, Alan (2014) International Economics, 3rd ed., Worth Publishers
- Pugel, T International Economics, 16th ed., McGraw-Hill Education
- Gandolfo, Giancarlo (2016) International Finance and Open Economy Macroeconomics, Springer.
- Krugman, P., Obstfeld, M. and Melitz (2018) International Economics - Theory and Policy, 11th ed., Pearson Education.
- Carlin, Wendy and Soskice, David (2015) Macroeconomics: Institutions, Instability and the Financial System
- Wickens, Michael (2012) Macroeconomic Theory. Princeton University Press.
- Sorenson, Peter B and Whitta-Jacobson, Hans Jorgen (2010) Introducing Advanced Macroeconomics: Growth and Business Cycles. McGraw Hill Education

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## Discipline Specific Elective 13 (DSE-13): Modern Political Economy

Semester	Course title & Code	Credits	Duration (per week)			Eligibility Criteria	Prerequisite
			Lecture	Tutorial	Practical/ Practice		
V/VII	Modern Political Economy – ECON043	4	3	1	0	Class 12th	Intermediate Microeconomics II: Market, Government and Welfare (ECON010)

### Learning Objectives

The Learning Objectives of this course are as follows:

- This course will use the methodology and tools of economics to study the implications of various political institutions and processes that determine the quantum, scope, and nature of the state's intervention in the economy.
- Political actors are assumed to be goal-oriented and political outcomes are explained by the interaction between these actors within their institutional environment.
- This course will complement the Public Economics course as its focus will be on the positive implications of the state's interventions rather than the normative aspects.

### Learning outcomes

The Learning Outcomes of this course are as follows:

- The students will learn to apply the economic paradigm to the study of political action and policy formation, and how economic and political forces may shape the incentives and constraints of policymakers and other political actors.
- They will understand the role of political institutions in shaping the actions of the state and the resulting outcomes.

### Syllabus

#### UNIT I: Collective choice and redistribution (12 hours)

Insurance motive; public good motive; fairness motive; allocative efficiency; determination of redistribution, Majority voting and direct democracy; unanimity rule; Con- direct cycles; one dimensional median voter theorem; multidimensional issues and median voter theorem; agenda manipulation; simple variations of majority voting such as the Borda rule and approval voting

#### UNIT II: Representative democracy: two-party competition; and multi-party competition (12 hours)

Downsian model; deterministic voting; cycles and median voter theorems; competition in a constrained policy space; uncovered set and valence values; model with probabilistic voting model and an application to taxation, proportionality, and electoral rules; goals of multiple parties; coalition formation with one-dimensional issue space; coalition formation with multi-dimensional issue space; strategic voting.

#### UNIT III: Rent-seeking; Tariffs and Political economy of taxation (12 hours)

Basic model of rent-seeking and variations; rent-seeking via regulation; effects of tariffs, quotas, and voluntary export restraints; corruption, Distortions, and Diamond-Mirrlees production efficiency theorem.

#### **UNIT IV: Dictatorship; origins and Lobbying (9 hours)**

Model of public goods provisioning; Win- Trobe's model, Interest groups, lobbying, and collective action; Olsonian model of collective action; Downsian models

#### **Recommended readings**

- K. Shepsle and M. Bonchek (1997), *Analyzing Politics: Rationality, Behavior, and Institutions*, W. W. Norton
- D. Mueller (2003), *Public Choice III*, Cambridge University Press.
- K. Arrow (1963), *Social Choice and Individual Values*, Yale University Press.
- H. Demsetz (1968), Why regulate utilities? *Journal of Law and Economics* XI: 55-66.
- A. Dixit (1996), *The Making of Economic Policy*, MIT Press.
- A. Downs (1957), *An Economic Theory of Democracy*, Harper and Row.
- A. Krueger (1974), The political economy of a rent-seeking society, *American Economic Review* LXIV: 291-303.
- M. Olson (1965), *The Logic of Collective Action*, Harvard University Press.
- W. Niskanen (1995), *Bureaucracy and Public Economics*, Edward Elgar.
- D. North (1990), *Institutions, Institutional Change and Economic Performance*, Cambridge University Press.
- A. Shleifer (2005), Understanding Regulation, *European Financial Management* 11 (4); 439-451.
- A. Shleifer and R. Vishny (1993), Corruption, *Quarterly Journal of Economics* 108 (3): 599-617.
- Kiser, E., & Karceski, S. M. (2017). Political economy of taxation. *Annual review of political science*, 20, 75-92.
- Acemoglu, D., Golosov, M., & Tsyvinski, A. (2010). Dynamic Mirrlees taxation under political economy constraints. *The Review of Economic Studies*, 77(3), 841- 881.

**Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.**

## Discipline Specific Elective 14 (DSE-14): Public Economics

Semester	Course title & Code	Credits	Duration (per week)			Eligibility Criteria	Prerequisite
			Lecture	Tutorial	Practical/ Practice		
V/VII	Public Economics – ECON045	4	3	1	0	Class 12th	Intermediate Microeconomics II (ECON010)

### Learning Objectives

The Learning Objectives of this course are as follows:

- Public economics is the study of government policy from the points of view of economic efficiency and equity.
- The course deals with the nature of government intervention and its implications for allocation, distribution and stabilization problems.
- Inherently, this study involves a formal analysis of government taxation and expenditures.
- The subject encompasses a host of topics including public goods, market failures and externalities.
- The course is divided into two sections, one dealing with the theory of public economics and the other with the Indian public finances.

### Learning outcomes

The Learning Outcomes of this course are as follows:

- The course aims to introduce students to the main theoretical and empirical concepts in public economics, equip students with a thorough analytical grasp of implications of government intervention for allocation, distribution and stabilization, and familiarise students with the main issues in government revenues and expenditure.
- At the end, the students should be able to demonstrate their understanding of the public economics.

### Syllabus

#### UNIT I: Public Economic Theory (30 hours)

- Role of Public Sector - Justification of the Public Sector; Public Sector Growth; Excessive Government
- Political Economy of Public Sector - Public Mechanisms for allocation; Market and Non-Market Mechanism; Theory of Rent Seeking
- Taxation - Economic Effects of Tax; Tax incidence; Dead Weight Loss and Distortion; Efficiency and Equity Considerations; Optimal taxation; Commodity tax; Ramsey rule.

#### UNIT II: Indian Public Finances (15 hours)

- Tax System – Indian Tax system; Structure and Reforms. Budget, Deficits and Public debt

#### Recommended readings

- Cullis, J., Jones, P. (1998). Public finance and public choice, 2nd ed. Oxford University Press.
- Hindriks, J., Myles, G. (2013). Intermediate public economics, 2nd ed. MIT Press.
- Stiglitz, J. E. and Rosengard J. K. (2015). Economics of the Public Sector, 4th ed., W. W. Norton.
- Rao, M. Govinda and Sudhanshu Kumar (2017). "Envisioning Tax Policy for Accelerated Development in India," Working Paper No. 190, National Institute of Public Finance and Policy (NIPFP).

- Srivastava, D K et al. (2021), Taxing Petroleum Products: Sharing Revenue Space between Centre and States, Economic and Political Weekly, Vol. 56, Issue No. 9, 27 Feb, 2021.
- Bajaj & Dutt (2020), "Financing of fiscal response to COVID-19: a pragmatic Alternative", Indian Economic Review, Vol. 55. (Suppl 1): S149 - S160, Budget at Glance 2021-22.
- Chakraborty, Lekha (2021), Union Budget 2021-22: The Macroeconomic Frame- work, Economic and Political Weekly, Vol. 56, Issue No. 9, 27 Feb, 2021.
- Latest Economic Survey and Budget Documents.
- Other recent contributions in literature.

**Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.**

## Discipline Specific Elective 15 (DSE-15): Research Methodology for Economics

Semester	Course title & Code	Credits	Duration (per week)			Eligibility Criteria	Prerequisite
			Lecture	Tutorial	Practical/ Practice		
IV/VI	<b>Research Methodology for Economics – ECON044</b>	4	3	1	0	Class 12th	NIL

### Learning Objectives

The Learning Objectives of this course are as follows:

- The course offers the conceptual and methodological issues in details that go into successful conduction of a scientific research.
- That includes the theoretical and methodological approaches in measurement, proposing and testing hypotheses, scientific communication and the ethical issues in the practice of science.

### Learning outcomes

The Learning Outcomes of this course are as follows:

- The students will learn framing research problems, identifying gaps in literature and scientific approaches to conduct both theoretical and empirical research.
- This course will build the capacity to conduct research in the fourth year at the undergraduate level.

### Syllabus

#### UNIT I: Starting a Research Paper (9 hours)

Forming an economic hypotheses; Components of a Research Paper

#### UNIT II: Sources of Data and Literature (9 hours)

Familiarizing students with a wealth of Secondary Datasets that are available;

Exposing students to the basics of compiling data from Websites; outlets and search engines to study the literature

#### UNIT III: Creating New Data (9 hours)

Surveys and Experiments

#### UNIT IV: Analyzing Data (9 hours)

Data Discovery; Causal Inference; Big Data

#### UNIT V: Writing a Research Paper (9 hours)

Style of writing a Research Paper and Communicating the Results

### Recommended readings

- Jacobson, M., Neugeboren, R. H. (2005). Writing Economics. United States: Harvard University. (link)
- Pinker, S. (2014). The Sense of Style: The Thinking Person's Guide to Writing in the 21st Century. United Kingdom: Penguin Publishing Group.

- Greenlaw, S. A. (2005). Doing economics : a guide to understanding and carrying out economic research. Boston: Cengage Learning.
- Thomson, W. (2001). A Guide for the Young Economist. United States: MIT Press.
- Glewwe, Paul; Todd, Petra. 2022. Impact Evaluation in International Development : Theory, Methods and Practice. Washington, DC: World Bank. (link)
- John A. Rice (2007). Mathematical Statistics and Data Analysis, 3rd ed. Thomson Brooks/Cole.
- Deaton, Angus. The analysis of household surveys (reissue edition with a new preface): A microeconomic approach to development policy. World Bank Publications, 2019.
- Haaland, Ingar, Christopher Roth, and Johannes Wohlfart. "Designing information provision experiments." JEL forthcoming
- Duflo, Esther, and Abhijit Banerjee, eds. Handbook of field experiments. Volumes 1 & 2. Elsevier, 2017
- List, John A. "Why Economists Should Conduct Field Experiments and 14 Tips for Pulling One Off." The Journal of Economic Perspectives, vol. 25, no. 3, American Economic Association, 2011, pp. 3-15,(link).
- Huntington-Klein, N. (2021). The effect: An introduction to research design and causality. Chapman and Hall/CRC.
- John Cochrane's Writing Group Webpage (link)

**Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.**

## Discipline Specific Elective 16 (DSE-16): Financial Economics

Semester	Course title & Code	Credits	Duration (per week)			Eligibility Criteria	Prerequisite
			Lecture	Tutorial	Practical / Practice		
IV/VI/VIII	Financial Economics – ECON046	4	3	0	1	Class XII with Mathematics	Introductory Mathematical Methods for Economics

### Learning Objectives

- To equip students with essential tools for understanding Finance at undergraduate level.
- To enable students to use modelling techniques to solve Financial Economics concepts.
- To develop necessary skill and knowledge for financial problem solving

### Learning outcomes

- After studying this course, students would be able to understand the basic concepts of finance and financial variables.
- They would develop an understanding of basics of finance including interest rates, annuity, and cash flow.
- The analytical approach adopted in this paper will strengthen and channelise their skills for more advanced approaches in finance.

## SYLLABUS OF DSE: FINANCIAL ECONOMICS

### Unit 1. Deterministic cash-flow streams (12 Hours)

Basic theory of interest; discounting and present value; internal rate of return; evaluation criteria; fixed-income securities; bond prices and yields; interest rate sensitivity and duration; immunisation; the term structure of interest rates; yield curves; spot rates and forward rates.

#### **Berk, DeMarzo**

Chapter 4: Time Value of Money (all sections)

Chapter 6: Valuing Bonds (all sections)

Chapter 7: Investment Decision Rules (all sections)

Brealey, Richard A., Myers, Stewart, C., Allen, Franklin:

Chapter 5: Net Present Value and Other Investment Criteria (Section 5.3, pages 107-115)

#### **Bodie, Kane, Marcus**

Chapter 14: Bond Prices and Yields (Section 14.1-14.3, Pages 445-460,

Chapter 15: Term Structure of Interest Rate (Section 15.1-15.5, Pages 487-504)

Chapter 16: Managing Bond Portfolios (Section 16.1, 16.3, Pages 515 – 525, 535 – 543)

### Unit 2. Single-period random cash flows (12 Hours)

Random asset returns; portfolios of assets; portfolio mean and variance; feasible combinations of mean and variance; mean – variance portfolio analysis; the Markowitz model; risk-free assets

Bodie, Kane, Marcus

Chapter 7: Optimal Risky Portfolio (Section 7.1 – 7.3, 7.4 Pages 205-218 till Example 7.3, 220 – 228)

Berk, DeMarzo

Chapter 11: Optimal Portfolio Choice and CAPM: (Sections 11.1 – 11.6, pages 351 – 378)

### **Unit 3. Capital Asset Pricing Model (CAPM) (12 Hours)**

The capital market line; the capital asset pricing model; the beta of an asset and of a portfolio; security market line; use of the CAPM model in investment analysis and as a pricing formula. Arbitrage pricing theory (APT) and multi-factor model of risk and return.

Bodie, Kane, Marcus

Chapter 9: Capital Asset Pricing Model (Section 9.1, Pages 291-300)

Chapter 10: Arbitrage pricing theory (APT) and multi-factor model of risk and return.

Berk, DeMarzo

Chapter 11: Optimal Portfolio Choice and CAPM: (Sections 11.7 – 11.8 , pages 379 - 399)

Brealey, Richard A., Myers, Stewart, C., Allen, Franklin

Chapter 8: Portfolio Theory and the Capital Asset Pricing Model (Section 8.4, pages 199-203)

David G. Luenberger:

Chapter 7: The Capital Asset Pricing Model (Section 7.3 & 7.7, Pages 177 – 179, 187 - 190)

### **Unit 4. Market Efficiency & Behavioural Finance (09 Hours)**

Bodie, Kane, Marcus

Chapter 11: Efficient Market Hypothesis (Sections 11.1-11.2, 11.4, Pages 349 – 357, 362-63)

Chapter 12: Behavioural Finance & Technical Analysis

Brealey, Richard A., Myers, Stewart, C., Allen, Franklin

Chapter 13: Efficient Markets & Behavioral Finance (Sections 13.2, 13.5, Pages 314 – 318, 329-333)

### **Practical Component (30Hours)**

1. Present Value and Net Present Value
2. Internal Rate of Return and Loan Tables \
3. Multiple Internal Rates of Return
4. Future Values and Applications
5. Continuous Compounding
6. Analyzing the Cash Flows by NPV or IRR
7. Portfolio Models
8. Calculating Efficient Portfolios When There Are No Short-Sale Restrictions

#### **Reference for Practical:**

Simon Benninga, Financial Modelling, MIT Press, Third Edition, 2008:

Chapter 1: Basic Financial Calculations (Sections: 1.2, 1.3, 1.4, 1.6, 1.8)

Chapter 7: The Financial Analysis of Leveraged Leases (Sections: 7.1, 7.2, 7.3)

Chapter 8: Portfolio Models

Chapter 9: Calculating Efficient Portfolios When There Are No Short-Sale Restrictions

#### **Essential/recommended readings**

Bodie, Kane & Marcus, Investments McGraw Hill 10th Edition, 2014

Berk, DeMarzo, Corporate Finance, Pearson, 3rd Edition, 2014

Brealey, Richard A., Myers, Stewart, C., Allen, Franklin, Principles of Corporate Finance, McGraw Hill 10th Edition, 2011

David G. Luenberger, Investment Science, Oxford Press, 1998

Simon Benninga, Financial Modelling, MIT Press, Third Edition, 2008

**Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.**

## Discipline Specific Elective 17 (DSE-17): Money and Financial Markets

Semester	Course title & Code	Credits	Duration (per week)			Eligibility Criteria	Prerequisite
			Lecture	Tutorial	Practical/ Practice		
IV/VI/VIII	Money and Financial Markets – ECON047	4	3	1	0	Class 12th	Intermediate Macroeconomics I (ECON008)

### Learning Objectives

The Learning Objectives of this course are as follows:

- This course exposes the theory and functioning of the monetary and financial sectors of the economy. It highlights the organization, structure, and role of financial markets and institutions.
- It also discusses interest rates, monetary management, and instruments of monetary control.
- Financial and banking sector reforms and monetary policy with special reference to India are also covered.

### Learning outcomes

The Learning Outcomes of this course are as follows:

This allows students to understand current monetary policies and financial market outcomes. It also enables them to critically evaluate policies and role of the central bank.

### Syllabus

#### UNIT I: Money (9 hours)

Understanding concept and functions of money, Measurement of money supply, Analytics and methodology of computation of money supply, Theories of money supply determination

#### UNIT II: Financial markets: an Introduction (12 hours)

Role of financial markets and institutions, Money and Capital markets: Pricing and other analytical issues, Financial derivatives: Futures, Options and Swaps, Financial markets in India: Organization, Structure and Reforms in India

#### UNIT III: Interest Rates (12 hours)

Determination of interest rates, Sources of interest rates differentials and risk, Theories of term structure of interest rates, Interest rates in India

#### UNIT IV: Central Banking and Monetary policy (12 hours)

Central Bank: Functions and Balance Sheet, Monetary Policy: Targets and instruments, Monetary management in an open economy, Monetary Policy Framework in India: Evolution and current scenario, critical evaluation, Emerging issues in Monetary policy- Changing payment mechanism, Cryptocurrency and others

### Recommended readings

- F J Fabozzi et al: Foundations of Financial Markets and Institutions Pearson
- F S Mishkin, S G Eakins, T Jayakumar, R K Pattnaik : Financial Markets and Institutions Pearson
- N Jadhav: Monetary Policy, Financial stability and Central Banking in India Macmillan

- Report of the Working Group: Money Supply Analytics and Methodology of Compilation, 1998 Annual Report; Master Circular - Prudential Norms on Capital Adequacy - Basel I Framework - 2011; RBI Bulletin; Report of Currency and Finance (latest).
- Dua, P., "Monetary Policy Framework in India", Indian Economic Review, Vol. 55, Issue 1, June 2022
- Ghate, C., & Kletzer, K. M. (Eds.). (2016). Monetary policy in India: A modern macroeconomic perspective. Springer.
- Various publications of RBI and other agencies / institutions

**Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.**

## Discipline Specific Elective 19 (DSE-19): Behavioural Economics

Semester	Course title & Code	Credits	Duration (per week)			Eligibility Criteria	Prerequisite
			Lecture	Tutorial	Practical/ Practice		
VI/VIII	Behavioural Economics – ECON049	4	3	1	0	Class 12th	Game Theory and Strategic Interactions (ECON013)

### Learning Objectives

The Learning Objectives of this course are as follows:

- This course introduces departure in behaviour predicted by standard economic theories to provide insights into the new and evolving area of Behavioural Economics.
- First, it outlines the common ideas and theories of Behavioural Economics using the basic mathematical techniques and standard concepts of microeconomics. The empirical basis for the theories of Behavioural Economics is discussed briefly with particular emphasis on the role and nature of experiments.
- The last segment of the course discusses the policy implications of these experiments and policy lessons that have been implemented as a result of empirical support to the theories of behavioural economics.
- The course explains the origin of Behavioural Economics in terms of anomalies in behaviour that deviate from predicted rational behaviour. It introduces the common ideas and theories of Behavioural Economics. It further familiarise the student with the different types of experiments used for empirical studies.
- The students would demonstrate the policy lessons derived from theories of Behavioural Economics.

### Learning outcomes

The Learning Outcomes of this course are as follows:

- This course equips students to contrast the outcomes of standard classical microeconomic theories with real outcomes, to apply the theories that explain anomalies/deviations from rational predicted behaviour.
- It communicate the basic theories of behavioural economics cogently and critically Final Examination in the findings from experiments in terms of their applicability to public policy settings.

### Syllabus

#### UNIT I: Biases/Anomalies and Overview (15 hours)

Some Common Anomalies from Benchmark Theories; Overview of Behavioural Economics

#### UNIT II: Common Ideas and Theories (15 hours)

Heuristic Thinking; Risk Preferences and Reference-Dependent Preferences; Time Preferences; Social Preferences; Probabilistic Reasoning and Beliefs; Limited Attention; Limited Rationality

#### UNIT III: Empirical Applications and Policy Suggestions (15 hours)

Methods: Natural experiments, Lab experiments, Field experiments, Survey; Empirical Applications and Policy Suggestions

**Recommended readings**

- Bernheim, B. Douglas, Stefano DellaVigna, and David Laibson. Handbook of Behavioral Economics-Foundations and Applications. Volumes 1 & 2. Elsevier, 2019.
- Dharm, Sanjit. The Foundations of Behavioral Economic Analysis. Oxford University Press, 2016.
- Angner, Erik. A Course in Behavioral Economics. Bloomsbury Publishing, 2020.
- Thaler, Richard H.. Misbehaving: The Making of Behavioral Economics. New York: WW Norton, 2015.
- Thaler, Richard H., and Cass R. Sunstein. Nudge: Improving Decisions about Health, Wealth, and Happiness. Yale University Press, 2008

**Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.**

## Discipline Specific Elective 20 (DSE-20): Comparative Economic Development

Semester	Course title & Code	Credits	Duration (per week)			Eligibility Criteria	Prerequisite
			Lecture	Tutorial	Practical/ Practice		
VI/VIII	Comparative Economic Development – ECON050	4	3	1	0	Class 12th	NIL

### Learning Objectives

The Learning Objectives of this course are as follows:

- This course investigates selected issues in industrialization and development experiences and debates in comparative historical perspective.
- The course focuses on a set of countries (Britain, Japan and East Asian economies) which followed diverse trajectories of growth to achieve their industrial transition.
- It compares the outcomes of these diverse trajectories on sectoral change, intersectoral relations, labour processes and industrial relations.
- It also compares the role of the state in facilitating the respective trajectories.

### Learning outcomes

The Learning Outcomes of this course are as follows:

The students will be able to learn critical factors affected economic development in a historical perspective and assimilate materials from diverse narratives. It will help them to think in an interdisciplinary manner.

### Syllabus

#### UNIT I: Introduction (6 hours)

Theoretical issues and comparative historical background.

#### UNIT II: Agricultural transformation and its role in industrialization (6 hours)

Agrarian and land relations, production and productivity, agrarian surplus in industrial development. Case studies: Britain, Japan and East Asia.

#### UNIT III: The industrialization process of Britain, Japan and East Asia (6 hours)

#### UNIT IV: East Asian Development (9 hours)

A Theoretical Debates (Is it a miracle or not? Is it market or the state? Flying Geese Model? Can we have an “East Asian Model”? Lessons for the other countries.)

#### UNIT V: The factory system and making of the industrial working class. Case studies: Britain, Japan and East Asia (6 hours)

#### UNIT VI: The role of the state in industrial and developmental transitions. Case studies: Britain, Japan and East Asia. (6 hours)

#### UNIT VII: Export Oriented Development in East Asian Countries? Trade and Industry. (Export-Oriented Industrialization (EOI) vs Import-substitution Industrialization (ISI) - International Context and Domestic Requirements. Importance of trade for underdevelopment vs development. ) (6 hours)

## Recommended readings

- Hughes, J., Cain, L. (1994). American Economic History, 4th ed. HarperCollins College Publishers.
- Hayami, Y. (1975). A century of agricultural growth in pre-war Japan: Its relevance to Asian development. University of Minnesota Press.
- Hobsbawm, E. (1968). Industry and empire: An economic history of Britain since 1750. Weidenfeld & Nicholson.
- Hobsbawm, E. (1984). Worlds of labour: Further studies in the history of labour. Weidenfeld & Nicholson.
- Johnson, C. (1982). MITI and the Japanese miracle: The growth of industrial policy 1925-1975. Stanford University Press.
- Macpherson, W. (1995). The economic development of Japan 1868-1941. Cambridge University Press.
- Norman, E. (2007). Japan's emergence as a modern state: Political and economic problems of the Meiji period. University of British Columbia Press.
- Okochi, K., Karsh, B., Levine, S. (1974). Workers and employees in Japan: The Japanese employment relations system. Princeton University Press.
- Maddison, Angus (2001). The World Economy, Vol. 1: A Millennial Perspective. OECD.
- G.M. Walton and H. Rock-off History of the American Economy, Eleventh Edition. Harcourt Brace Jovanovich.
- Sven Beckert (2015), Empire of Cotton- A Global History, Vintage.
- Michael Merrill, "Cash is Good to Eat: Self-Sufficiency and Exchange in the Rural Economy of the U.S.," Radical History Review, (Winter 1976-77), 42-71.
- Allan Kulikoff, "The Transition to Capitalism in Rural America," William and Mary Quarterly 46 (1989): 120-44.
- Paul David, "Technology, History, and Growth," in Paul David, Technical Choice, Innovation and Economic Growth (Cambridge, 1975).
- Gordon, Edwards, and Reich, Segmented Work, Divided Workers, ch. 4
- Naomi Lamoreaux, The Great Merger Movement in American Business, 1895-1904.
- Lipset, "Radicalism or Reformism: The Sources of Working-Class Politics," American Political Science Review 77:1 (Mar. 1983), 1-18.
- Sheila Collins and Gertrude Goldberg, When Government Helped: Learning from the Successes and Failures of the New Deal. Oxford, Oxford University Press: 2013.
- Morton Horwitz, The Transformation of American Law, 1870-1960 (New York, 1992).
- Edward Baptist, The Half has Never Been Told: Slavery and the Making of American Capitalism. New York, Basic Books, 2014.
- Myers, R.H., 1991. How did the modern Chinese economy develop? - a review article. The Journal of Asian Studies, 50(3), pp.604-628.
- World Bank 1993. The East Asian Miracle, New York, Oxford University Press.
- Rodrik, D, 1994, 'King Kong Meets Godzilla' in A. Fishlow et al., Miracle or Design? - Lessons from the East Asian Experience, Washington, D.C., Overseas Development Council.
- Cheng, T, Haggard, S and Kang, D, 1998, 'Institutions and Growth in Korea and Taiwan: The Bureaucracy', Journal of Development Studies, vol. 34, no. 6.
- Best, M, 1990, New Competition, Cambridge, Polity Press.
- Amsden, A, 1992. Asia's Next Giant: South Korea and Late Industrialization, OUP
- Amsden, A, 1985, 'The State and Taiwan's Economic Development' in P. Evans, D. Rueschemeyer and T. Skocpol, 1985, eds., Bringing the State Back In, Cambridge, Cambridge University Press.
- Chang, H.J., 2006. The East Asian development experience: The miracle, the crisis and the future. Zed Books.
- Morrissey, O. and Nelson, D., 1998. East Asian economic performance: miracle or just a pleasant surprise?. World Economy, 21(7), pp.855-879.
- Crafts, N., 1999. East Asian growth before and after the crisis. IMF Staff Papers, 46(2), pp.139-166.
- Waldron, S., Brown, C. and Longworth, J., 2006. State Sector Reform and Agriculture in China. The China Quarterly, (186), p.277.
- Krugman, Paul (1994), "The Myth of Asia's Miracle," Foreign Affairs, Vol.73 Issue 6.

- Hau, Shiping (2017), "Introduction: East Asian Development Model,"
- Kuznets, Paul (1988), "An East Asian Model of Economic Development: Japan, Taiwan, and South Korea," *Economic Development and Cultural Change*, Vol.36 No.3.
- Cline, William (1982), "Can the East Asian Model of Development be Generalized?"
- *World Development*, Vol.10 Issue 2.
- Aoki, Masahiko (2013), "Historical Sources of Institutional Trajectories in Economic Development: China, Japan and Korea Compared."
- Lawrence & Weinstein (2001), "Trade and Growth: Import Led or Export Led? Evidence from Japan and Korea" in Stiglitz & Yusuf.
- Weiss, John (2005), *Export and Industrial Policy: Lessons from East Asian Miracle Experience*
- Dregger, Christian and Herzer, Dierk (2013), "A Further Final Examination of the Export-Led Growth Hypothesis," *Empirical Economics* Vol.45 Issue 1.

**Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.**

## Discipline Specific Elective 21 (DSE-21): Corporate Finance and Governance

Semester	Course title & Code	Credits	Duration (per week)			Eligibility Criteria	Prerequisite
			Lecture	Tutorial	Practical/ Practice		
VI/VIII	Corporate Finance and Governance – ECON051	4	3	1	0	Class 12th	Game Theory and Strategic Interactions (ECON013)

### Learning Objectives

The Learning Objectives of this course are as follows:

- The field of corporate finance has undergone a tremendous mutation in the past three decades, specially after the global financial crisis. A substantial and important body of empirical work has provided a clearer picture of patterns of corporate financing and governance, and of their impact for firm behavior and macroeconomic activity.
- This course aims to introduce the conceptual foundation of those issues. It will introduce firm's behaviour of finance choice in the presence of tax distortions, transaction costs, informational asymmetries etc.

### Learning outcomes

The Learning outcomes of this course are as follows:

- The students will understand the variety of institutions running corporate business in present day world and will be familiar with the strategies to govern them effectively.

### Syllabus

**UNIT I:** An economic overview of corporate institutions (9 hours)

**UNIT II:** Corporate Governance (9 hours)

Separation of ownership and control, managerial incentives, investor's activism, takeover, leverage buyout

**UNIT III:** Corporate Financing and Agency Costs Outside Financing Capacity (6 hours)

**UNIT IV:** Determination of borrowing capacity (6 hours)

**UNIT V:** Corporate financing under asymmetric information (9 hours)

**UNIT VI:** Exit and voice: Passive and active monitoring (6 hours)

### Recommended readings

- Tirole, J. (2010). The theory of corporate finance. Princeton university press.
- Vernimmen, P., Quiry, P., & Le Fur, Y. (2022). Corporate finance: theory and practice. John Wiley & Sons.

**Note:** Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.

## Discipline Specific Elective 22 (DSE-22): Economics of Education

Semester	Course title & Code	Credits	Duration (per week)			Eligibility Criteria	Prerequisite
			Lecture	Tutorial	Practical/ Practice		
VI/VIII	Economics of Education – ECON052	4	3	1	0	Class 12th	Game Theory and Strategic Interactions (ECON013)

### Learning Objectives

The Learning Objectives of this course are as follows:

- This course discusses the economic aspects of current issues in education, using both economic theory and econometric tools.
- Topics include discussion of basic human capital theory, production of education, costing and finance of education, the growing impact of education on earnings and earnings inequality, the labour market for teachers, implications of the introduction of technology (computers) on education, the effectiveness of mid-career training for adult workers, the roles of school choice, and educational outcomes and inequality in demand for education and educational outcomes.

### Learning outcomes

The Learning outcomes of this course are as follows:

- This course will develop skills amongst the students to conduct research and analysis in the field of economics of education.

### Syllabus

#### UNIT I: The Role of Education in Human Development (12 hours)

Macro issues in education, human capital theory, returns to education, signalling theory, education and labour market outcomes, costs and benefits of education, education production analysis and early childhood education.

#### UNIT II: Analysis of School Education (12 hours)

Challenges, educational interventions and attainments, financing, accountability and standards

#### UNIT III: Higher Education and Training (9 hours)

Issues of higher education in India, role of internship and apprenticeship in improving labour market outcomes

#### UNIT IV: Education and Inequality (12 hours)

Inequality in uptake and outcomes, and the role of affirmative action.

### Recommended readings

- Bradley, S., & Green, C. (Eds.). (2020). The Economics of Education: A Comprehensive Overview.
- Lovenheim, M., & Turner, S. E. (2017). Economics of education. Macmillan Higher Education.
- Altinok, Nadir, and Geeta Kingdon. "New evidence on class size effects: A pupil fixed effects approach." Oxford Bulletin of Economics and Statistics 74, no. 2 (2012): 203-234.

- Angrist, Joshua D., and Victor Lavy. "Using Maimonides' rule to estimate the effect of class size on scholastic achievement." *The Quarterly Journal of Economics* 114, no. 2 (1999): 533-575
- Abhijit Banerjee, Shawn Cole, Esther Duflo, Leigh Linden. "Remedying Education: Evidence from Two Randomized Experiments in India", *Quarterly Journal of Economics*, 122, No. 3, Aug 2007, Pages 1235–1264.
- Hanushek, Eric A. "Assessing the effects of school resources on student performance: An update." *Educational evaluation and policy analysis* 19, no. 2 (1997a): 141-164.
- Hanushek, Eric A. "Outcomes, incentives, and beliefs: Reflections on analysis of the economics of schools." *Educational Evaluation and Policy Analysis* 19, no. 4 (1997b): 301-308.
- Hattie, John. "The paradox of reducing class size and improving learning outcomes." *International journal of educational research* 43, no. 6 (2005): 387-425.
- Hanushek, E. A., Machin, S. J., & Woessmann, L. (Eds.). (2016). *Handbook of the economics of education*. Elsevier.
- Ronald G., Ehrenberg and Robert S., Smith. *Modern Labor Economics: Theory and Public Policy*, 11th edition, Addison Wesley
- Hanushek, Eric A., 2005, *Economic Outcomes and School Quality*, International Academy of Education and International Institute for Educational Planning.
- Majumdar, M. (2017). Access, success, and excess: Debating shadow education in India. In *Routledge Handbook of Education in India* (pp. 273-284). Routledge India.
- Blatchford, P., & Mortimore, P. (1994). The issue of class size for young children in schools: What can we learn from research?. *Oxford review of education*, 20(4), 411-428.
- Kingdon, G. G., & Teal, F. (2007). Does performance related pay for teachers improve student performance? Some evidence from India. *Economics of Education Review*, 26(4), 473-486.
- Kingdon, G. G. (2020). The private schooling phenomenon in India: A review. *The Journal of Development Studies*, 56(10), 1795-1817.
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- Afridi, F., Barooah, B., & Somanathan, R. (2020). Designing effective transfers: Lessons from India's school meal program. *Review of Development Economics*, 24(1), 45-61.
- Singh, A., Park, A., & Dercon, S. (2014). School meals as a safety net: an evaluation of the midday meal scheme in India. *Economic Development and Cultural Change*, 62(2), 275-306.
- Afridi, F., Barooah, B., & Somanathan, R. (2020). Improving learning outcomes through information provision: Experimental evidence from Indian villages. *Journal of Development Economics*, 146, 102276.
- Banerjee, A. V., Cole, S., Duflo, E., & Linden, L. (2007). Remedying education: Evidence from two randomized experiments in India. *The Quarterly Journal of Economics*, 122(3), 1235-1264.
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- Cullen, Julie Berry, Brian A Jacob, and Steven Levitt (2006) 'The effect of school choice on participants: Evidence from randomized lotteries.' *Econometrica* 74(5), 1191–1230
- Kingdon, G. G. (2007). The progress of school education in India. *Oxford Review of Economic Policy*, 23(2), 168-195
- Barooah, V. K. (2012). Social identity and educational attainment: the role of caste and religion in explaining differences between children in India. *Journal of Development Studies*, 48(7), 887-903.
- Chin, A. (2005). Can redistributing teachers across schools raise educational attainment? Evidence from Operation Blackboard in India. *Journal of development Economics*, 78(2), 384-405.
- Ghosh, P., & Bray, M. (2018). Credentialism and demand for private supplementary tutoring: A comparative study of students following two Examination boards in India. *International Journal of Comparative Education and Development*.
- Gandhi Kingdon, G. (2002). The gender gap in educational attainment in India: How much can be explained?. *Journal of Development Studies*, 39(2), 25-53.
- Azam, M., & Kingdon, G. G. (2013). Are girls the fairer sex in India? Revisiting intra-household allocation of education expenditure. *World Development*, 42, 143- 164.

- Asadullah, M. N. (2005). The effect of class size on student achievement: Evidence from Bangladesh. *Applied Economics Letters*, 12(4), 217-221.
- Tholen, G., Brown, P., Power, S., & Allouch, A. (2013). The role of networks and connections in educational elites' labour market entrance. *Research in Social Stratification and Mobility*, 34, 142-154.
- Silva, P., Lopes, B., Costa, M., Melo, A. I., Dias, G. P., Brito, E., & Seabra, D. (2018). The million-dollar question: can internships boost employment?. *Studies in Higher Education*, 43(1), 2-21.
- Wright, E., & Mulvey, B. (2021). Internships and the graduate labour market: how upper-middle-class students 'get ahead'. *British Journal of Sociology of Education*, 42(3), 339-356.
- Deshpande, A. (2005). Affirmative action in India and the United States.

**Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.**

## Discipline Specific Elective 23 (DSE-23): Forecasting Methods for Economics

Semester	Course title & Code	Credits	Duration (per week)			Eligibility Criteria	Prerequisite
			Lecture	Tutorial	Practical/ Practice		
VI/VIII	Forecasting Methods for Economics – ECON053	4	3	1	0	Class 12th	Basic Econometrics (ECON024)

### Learning Objectives

The Learning Objectives of this course are as follows:

- This course builds on the compulsory Basic Econometrics course and teaches students a broad set of commonly used econometric methods for forecasting econometric variables.
- These include both quantitative and qualitative Forecasting Techniques including VAR, VECM, ARIMA etc.

### Learning outcomes

The Learning outcomes of this course are as follows:

- Students will learn the theoretical and practical basis for forecasting techniques widely used in empirical research and consider their application in a wide range of problems.

### Syllabus

#### UNIT I: Basics of Forecasting (6 hours)

Tools for forecasting, forecasting methods and applications, forecast horizon

#### UNIT II: Quantitative Forecasting Techniques (9 hours)

Definition, Time Series- Naïve, Average, Simple Moving Average, Weighted Moving Average, Exponential Smoothing; Forecast Errors Accuracy, Trend Projection, Seasonal Indexes, Holt's, winter's Model, Linear Regression. Smoothing Techniques, Exponential smoothing methods, Decomposition methods.

**UNIT III: Box-Jenkins Methodology:** Unit roots; Autoregressive models, moving average models, mixed autoregressive and moving average models; Identification, estimation, diagnostic checking and Forecasting (9 hours)

#### UNIT IV: Forecasting with Multiple Regression Models (6 hours)

#### UNIT V: Cointegration, Granger Causality, Error Correction (6 hours)

#### UNIT VI: Qualitative Forecasting Techniques (9 hours)

Definition, Delphi, Precautions in administering Delphi, Sales force composite, Consumer Panel Survey, Nominal group, and their Drawbacks.

### Recommended readings

- Spyros G. Makridakis, Steven C. Wheelwright, Rob J Hyndman (2008), Forecasting: Methods and Applications, Wiley Publications.

- Dimitrios Asteriou and Stephen G. Hall, 4th edition, Applied Econometrics, 2021, Palgrave Macmillan.
- Hyndman, R.J., & Athanasopoulos, G. (2021) Forecasting: principles and practice, 3rd edition, OTexts: Melbourne, Australia. OTexts.com/fpp3.
- Asteriou, D and Hall, Stephen G, Applied Econometrics, 4th Edition, 2021, Palgrave Macmillan.
- James Stock and Mark Watson, Introduction to Econometrics, 4th Edition, 2019, Pearson.
- Wooldridge, J. (2014). Introduction to econometrics: A modern approach, 5th ed. Cengage Learning.
- Gujarati, D., Porter, D. (2012). Basic econometrics, 5th ed. McGraw-Hill.
- Badi H. Baltagi, Econometrics, 5th Edition, 2011, Springer.
- J. Johnston and J. DiNardo (2001), Econometric Methods, Fourth Edition, Irwin McGraw Hill
- G.S. Maddala and Kajal Lahiri, Introduction to Econometrics, 4th Edition, 2012, Wiley.
- Diebold, F.X. (2017), Forecasting, Department of Economics, University of Pennsylvania.

**Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.**

## Discipline Specific Elective 24 (DSE-24): History of Economic Thought

Semester	Course title & Code	Credits	Duration (per week)			Eligibility Criteria	Prerequisite
			Lecture	Tutorial	Practical/ Practice		
VI/VIII	History of Economic Thought – ECON054	4	3	1	0	Class 12th	NIL

### Learning Objectives

The Learning Objectives of this course are as follows:

- This course intends to acquaint students to an evolution of the history of economic thought from its initial thinkers to ideas of institutionalism and the reinvention of liberalism.
- The course will discuss selected authors on economic theory to understand them within the framework of intellectual debate and change.
- The idea is to expose students to the milestones in economic theory and provide a more holistic understanding of the evolution of contemporary economics.
- The course attempts to fulfil the need to integrate the history of economics with the teaching of the principles of economics.

### Learning outcomes

The Learning outcomes of this course are as follows:

- The students will develop an understanding of the historical antecedents and methodological premises of the theories in economics.
- They will also have a grounding in the set of ideas that inform academic debates and the making of policies related to the economy in the contemporary world.

### Syllabus

#### UNIT I: Introduction (9 hours)

Why study economic thought; history of economic thought or histories of economic thought.

#### UNIT II: The surplus approach and the rise of political economy (9 hours)

Value, Price, Money, Income Distribution, Macroeconomic Setting, Growth and Trade: Reading Adam Smith, David Ricardo and Karl Marx.

#### UNIT III: Marginalism and Keynesianism (9 hours)

Utility, technology and price : Jevons, Menger, Walras and Marshall. Keynes, Kalecki and the principle of effective demand.

#### UNIT IV: Institutionalism and Evolutionary Economics (9 hours)

Industrial and Pecuniary employments in Thorstein Veblen; labour as an overhead cost: competition and Knowledge – perfect, imperfect and Rivalrous; Schumpeter: creative destruction, innovation and business cycle.

#### UNIT V: Neoliberalism and Post-Keynesianism Theory, policy, critique and prospects. Milton Friedman (9

hours)

### Recommended readings

- Munday, S. C. (1996). A Brief History of Economic Thought. In Current Developments in Economics (pp. 15-32). Palgrave, London.
- Roncaglia, Alessandro (2017). *A Brief History of Economic Thought*. Cambridge University Press
- Sandelin, B., Trautwein, H. M., & Wundrak, R. (2014). A short history of economic thought. Routledge.
- Medema, S. G., & Samuels, W. J. (2013). The history of economic thought: a reader. Routledge.
- Backhouse, R.E., 1987. A history of modern economic analysis. Basil Blackwell.
- Schumpeter, Joseph A: "The Development of Economics as a Science" in Economic Doctrine and Method. New York, OUP. 1954, Chapter 1, pp 9-44
- Kaul, Nitasha: Imagining Economics Otherwise, Encounters With Identity/Difference. First published in 2008, Reprint 2009. Routledge, New Delhi, pp 73-79
- Foley, D. 2009. Adam's Fallacy: A Guide to Economic Theology. Cambridge, MA and London, England: Harvard University Press.
- Galbraith, J.K., 1987. A history of economics: The past as the present. London: H. Hamilton.
- Foley, D. 2009. Adam's Fallacy: A Guide to Economic Theology. Cambridge, MA and London, England: Harvard University Press.
- Hunt, E.K. and Lautzenheiser, M., 2015. History of economic thought: A critical perspective. Routledge.
- Martins, N.O., 2013. The Cambridge revival of political economy. Routledge.
- Mazzucato, M., 2018. The value of everything: Making and taking in the global economy. Hachette UK.
- Medema, S.G. and Samuels, W.J., 2013. The history of economic thought: a reader. Routledge
- Screpanti, E. and Zamagni, S., 2005. An outline of the history of economic thought. OUP Oxford.
- Temin, P. and Vines, D., 2014. Keynes: useful economics for the world economy. MIT Press.
- Vaggi, G. and Groenewegen, P., 2016. A concise history of economic thought: From mercantilism to monetarism. Springer.
- Gustafsson, B., Knudsen, C. and Uskali, M. eds., 1993. Rationality, institutions and economic methodology. Routledge.
- Veblen, T B: The Engineers and the Price System. New York, Augustus M Kelley, 1965. Pp 27-51
- Commons, J R: Institutional Economics. AER, Volume 21 1931, pp 648-657
- Clark, J M: Studies in the Economics of Overhead Costs. University of Chicago Press, 1923. Pp 357-385
- Stigler: Perfect Competition, "Historically Contemplated", in JPE, vol. 65, Number 1, February 1957, pp 1-17
- Kirzner, I: Competition Regulation and the Market Process: An Austrian Perspective. (Link to be provided).
- Friedman, M: "Neo Liberalism and its Prospects", from The Collected Works of Milton Friedman pp 89-93
- Chernomas, Robert and Hudson, Ian: The Profit Doctrine. Pluto Press. Chapter Title: 'Milton Friedman: The Godfather of the Age of Instability and Inequality.
- Bo Sandelin, Hans-Michael Trautwein, Richard Wundrak A Short History of Economic Thought. Routledge. Third Edition. 2014.
- Daron Acemoglu, Francisco A. Gallego, and James A. Robinson Institutions, Human Capital and Development. NBER Working Paper No. 19933. February 2014.
- Daron Acemoglu, Simon Johnson, and James Robinson. Institutions as the Fundamental Cause of Long-Run Growth. NBER Working Paper No. 10481. May 2004
- Heilbroner, R. L. (1986). *The Worldly Philosophers*. New York, Simon & Schuster.

**Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.**

## Discipline Specific Elective 25 (DSE-25): Industrial Organisation

Semester	Course title & Code	Credits	Duration (per week)			Eligibility Criteria	Prerequisite
			Lecture	Tutorial	Practical/ Practice		
VI/VIII	Industrial Organisation – ECON055	4	3	1	0	Class 12th	Game Theory and Strategic Interactions (ECON013)

### Learning Objectives

The Learning Objectives of this course are as follows:

- The course assumes knowledge of intermediate microeconomics and game theoretical tools. The students should also be comfortable with applications of calculus.
- This course studies imperfectly competitive market and primarily focuses on firms' strategies in oligopolistic market environments.
- This is the foundation course which aims to prepare the students for further study and research.
- Along with classical models of industrial organisation, the course also covers some contemporary topics like mergers and acquisitions, patents, advertising and networks.
- The learning from this course would be useful to understand and analyse different anti-competitive practices of the firms and the need for designing better competition policy for regulating the market.

### Learning outcomes

The Learning outcomes of this course are as follows:

- The students will be able to learn classical models in imperfectly competitive market, understand why regulation of firms is necessary.
- They will be able to relate modern issues of industrial organisation

### Syllabus

**UNIT I:** Imperfectly Competitive Market Product Differentiation, Bertrand, Cournot, Hotelling, Salop, Monopolistic Competition (6 hours)

**UNIT II:** Dynamic Models of Oligopoly, Cartels, Collusion and Entry Deterrence, Anti-trust (9 hours)

**UNIT III:** Vertical Relation and Vertical Restraint; Double Marginalization, Successive Oligopoly, Raising Rival's Cost, Resale Price Maintenance (RPM), Exclusive Dealing (6 hours)

**UNIT IV:** Mergers and Acquisitions, Horizontal and Vertical Integration (6 hours)

**UNIT V:** Technology, Innovation, R&D; Market structure and innovation, R&D, Patents, Technology Transfer (6 hours)

**UNIT VI:** Networks; network Effects, Markets for a Single Network Good and Several Network goods (6 hours)

**UNIT VII:** Advertisement; Social Costs and Benefits of Advertising, Market Structure, Advertising as Barrier to Entry, Product Differentiation and Competition (6 hours)

**Recommended readings**

- Cabral, L. M. B. (2017), *Introduction to Industrial Organization*. Second edition, Cambridge, Mass: MIT Press.
- Church, J. R., and Roger Ware, (2000), *Industrial Organization: A Strategic Approach*. Boston: Irwin McGraw Hill.
- Shy, O., (1995), *Industrial Organization - Theory and Applications*, MIT Press.
- Watson, J., (2013) *Strategy: An Introduction to Game Theory*, W. W Norton & Company.
- Waldman, D. and Jansen E., (2013), *Industrial Organization: Markets and Strategies* (second edition), Pearson.
- Belleflamme, P., and Peitz, M. (2010), *Industrial organization: markets and strategies*. Cambridge, UK, Cambridge University Press.
- Tirole, J. (1988), *The theory of industrial organization*, Cambridge, MA: MIT Press.

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## Discipline Specific Elective 26 (DSE-26): Introduction to Causal Inference

Semester	Course title & Code	Credits	Duration (per week)			Eligibility Criteria	Prerequisite
			Lecture	Tutorial	Practical/ Practice		
VI/VIII	Introduction to Causal Inference– ECON056	4	3	2	0	Class 12th	Basic Econometrics (ECON024)

### Learning Objectives

The Learning Objectives of this course are as follows:

- This course intends to provide students with the essential econometric tools required for causal inference analysis.
- The course will give an overview about potential outcomes framework, data design and analysis.

### Learning outcomes

The Learning outcomes of this course are as follows:

- The students will be able to understand, design and implement various techniques of causal inference for data analysis as a tool for research.
- The students will be able to do an independent research project based on the techniques they will learn in this course.

### Syllabus

**UNIT I:** Potential Outcomes Framework (9 hours)

Causal Inference and Potential Outcomes Framework

**UNIT II:** Research Design (9 hours)

Observational data and experimental data; sample selection

**UNIT III:** Methods of Analysis (9 hours)

Overview: Ordinary Least Squares (OLS) and Limited Dependent Variables (LDV) Models, Instrumental Variables

**UNIT IV:** Panel Data (including Difference-in-Difference) (9 hours)

Regression Discontinuity Design (RDD); Introduction to Matching

**UNIT V:** Hands-on Training (9 hours)

Project work using econometric software (EViews/ R/Stata/EXCEL/SPSS/Julia)

### Recommended readings

- Huntington-Klein, N. (2021). The effect: An introduction to research design and causality. Chapman and Hall/CRC.
- Imbens, G. W., & Rubin, D. B. (2015). Causal inference in statistics, social, and biomedical sciences. Cambridge University Press.
- Stock, J. H., & Watson, M. W. (2015). Introduction to econometrics (3rd updated edition).
- Rosenbaum, P. (2018). Observation and experiment. Harvard University Press.

- Angrist, J. D., & Pischke, J. S. (2014). *Mastering metrics: The path from cause to effect*. Princeton university press.
- Imai, K. (2018). *Quantitative social science: An introduction*. Princeton University Press.
- Cunningham, S. (2018). *Causal inference: The mixtape* (V. 1.7)
- Gertler, Paul J.; Martinez, Sebastian; Premand, Patrick; Rawlings, Laura B.; Vermeersch, Christel M. J.. (2016). *Impact Evaluation in Practice, Second Edition*. Washington, DC: Inter-American Development Bank and World Bank.
- White, H., Raitzer, D. A. (2017). *Impact Evaluation of Development Interventions: A Practical Guide*. Philippines: Asian Development Bank.
- Glewwe, P., & Todd, P. (2022). *Impact Evaluation in International Development*.
- Carolina Arteaga, The effect of human capital on earnings: Evidence from a reform at Colombia's top university, *Journal of Public Economics*, Volume 157, 2018, 212- 225
- Bertrand, M., & Mullainathan, S. (2004). Are Emily and Greg more employable than Lakisha and Jamal? A field experiment on labor market discrimination. *American Economic Review*, 94(4), 991-1013.

**Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.**

## Discipline Specific Elective 27 (DSE-27): Introduction to Macroeconomic Dynamics

Semester	Course title & Code	Credits	Duration (per week)			Eligibility Criteria	Prerequisite
			Lecture	Tutorial	Practical/ Practice		
VI/VIII	Introduction to Macroeconomic Dynamics – ECON057	4	3	1	0	Class 12th	Advanced Mathematical Methods for Economics (ECON009)

### Learning Objectives

The Learning Objectives of this course are as follows:

- This is a course which introduces the student to the basics of macroeconomic modelling through dynamic optimization.
- This includes Bellman equation, Euler's equation, Hamiltonian techniques and optimal control approaches.

### Learning outcomes

The Learning outcomes of this course are as follows:

- The student gets insights about the construction of abstract macroeconomic models.
- This enables appreciation of a good body of macroeconomic literature in different spheres.
- The course would prove to particularly useful for those interested in pursuing macroeconomics as a field of research and inquiry.

### Syllabus

#### UNIT I: Dynamic Optimization (15 hours)

Difference equations; differential equations; phase plane analysis; dynamic optimization

#### UNIT II: Infinite Horizon and Overlapping Generations model (15 hours)

Optimal growth, Ramsey Cass Koopmans model; overlapping generations model, Diamond Dybvig Model

#### UNIT III: Optimal Control Theory (15 hours)

#### Recommended readings

- Hoy, Livernois, McKenna, Rees, Stengos (2011), *Mathematics for Economics*, Addison- Wesley.
- Chiang, Alpha C (1992), *Elements of Dynamic Optimization*, McGraw Hill.
- Romer, David (2019) *Advanced Macroeconomics*. McGrawHill India.
- Barro, Robert and Sala i Martin, Xavier (2004) *Economic Growth*. Second Edition
- Blanchard, Olivier and Fischer, Stanley (1996), *Lectures on Macroeconomics*, Prentice Hall. Eastern Economy Edition.
- Turnovsky, Stephen (1995) *Methods of macroeconomic dynamics* Prentice Hall India. Eastern Economy Edition.
- Heijdra, Ben (2017) *Foundations of Modern Macroeconomics*. Oxford.

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## Discipline Specific Elective 28 (DSE-28): Labour Economics

Semester	Course title & Code	Credits	Duration (per week)			Eligibility Criteria	Prerequisite
			Lecture	Tutorial	Practical/ Practice		
VI/VIII	<b>Labour Economics—ECON058</b>	4	3	1	0	<b>Class 12th</b>	<b>Game Theory and Strategic Interactions (ECON013)</b>

### Learning Objectives

The Learning Objectives of this course are as follows:

- The curriculum is an introduction to labor economics, with an emphasis on applied microeconomic theory and empirical methods critical to microeconomic analysis, as well as the link between research and public policy.
- This course particularly focuses on some of the core theories on labor economics e.g. labor supply, labor demand, role of human capital, incentives, agency, efficiency wages, wage differential and discrimination. The main objective of this course is to enlighten students with some core topics in labor economics with some of the important empirical methods.

### Learning outcomes

The Learning outcomes of this course are as follows:

- The students will be able to understand basic theories of labor markets, issues of un-employment, and forms of employment.
- They will learn to critically analyse labour markets in diverse settings including in the macroeconomic context.
- This course will enable the students to evaluate the government policies on labor market critically.

### Syllabus

#### UNIT I: Labor Supply (Static and Intertemporal) (9 hours)

Measuring the Labor Force, Basic Facts about Labor Supply, The Worker's Preferences, The Budget Constraint, The Hours of Work Decision, To Work or Not to Work? The Labor Supply Curve, Estimates of the Labor Supply Elasticity, Labor Supply of Women, Labor Supply over the Life Cycle, Policy Application: Welfare Programs and Work Incentives, Policy Application: The Earned Income Tax Credit, Policy Application: The Decline in Work Attachment among Older Workers.

#### UNIT II: Labor Demand (9 hours)

The Production Function, The Employment Decision in the Short Run, The Employment Decision in the Long Run, The Long-Run Demand Curve for Labor, The Elasticity of Substitution, Marshall's Rules of Derived Demand, Factor Demand with Many Inputs, Overview of Labor Market Equilibrium, Adjustment Costs and Labor Demand, Trade and Labor Demand, Policy Application: Affirmative Action and Production Costs, Policy Application: The Employment Effects of Minimum Wages Application: Rosie the Riveter as an Instrumental Variable

#### UNIT III: Human Capital (6 hours)

Education in the Labor Market: Some Stylized Facts, The Schooling Model, Education and Earnings, Estimating the Rate of Return to Schooling, Do Workers Maximize Lifetime Earnings? Schooling as a Signal, Post school Human Capital Investments, On-the-Job Training, On-the-Job Training and the Age-

Earnings Profile, Policy Application: School Construction in Indonesia, Policy Application: School Quality and Earnings, Policy Application: Evaluating Government Training Programs

**UNIT IV: Incentives, Agency and Efficiency Wages (6 hours)**

Moral Hazard, Moral Hazard with Limited Liability, Multitasking, Career Concerns, and Applications, Efficiency Wage Models

**UNIT V: Wage Differential and Wage Structure (9 hours)**

The Market for Risky Jobs, The Hedonic Wage Function, Compensating Differentials and Job Amenities, The Earning Distribution, Measuring Inequality, The Wage Structure: Basic Facts, Inequality across generations. Policy Application: How much is a life worth? Policy Application: Safety and Health Regulations, Policy Application: Health Insurance and the Labor Market, Policy Application: Why did wage inequality increase?

**UNIT VI: Discrimination (Race and Gender) (6 hours)**

Race and Gender in the Labor Market, The Discrimination Coefficient, Employer Discrimination, Employee Discrimination, Customer Discrimination, Statistical Discrimination, Experimental Evidence on Discrimination, Measuring Discrimination, Discrimination against Other Groups, Policy Application: Determinants of the Black–White Wage Ratio, Policy Application: Determinants of the Female–Male Wage Ratio.

**Recommended readings**

- George J. Borjas, *Labor Economics*, McGraw Hill (7th Edition)
- P. Cahuc, Stéphane Carcillo, and André Zylberberg. *Labor Economics*, Second Edition. MIT Press, 2014
- Lectures in Labor Economics By Daron Acemoglu and David Autor
- Acemoglu, D., D. Autor and D. Lyle, “Women, War and Wages: The Effect of Female Labor Supply on the Wage Structure at Mid-century,” *Journal of Political Economy* (2004) 112: 497-551.
- Angrist, J. D., & Pischke, J. S. (2008). *Mostly harmless econometrics*. Princeton university press.
- Angrist, J. D., Caldwell, S., & Hall, J. V. (2021). Uber versus taxi: A driver’s eye view. *American Economic Journal: Applied Economics*, 13(3), 272-308.
- Ashenfelter, O., K. Doran, and B. Schaller, “A Shred of Credible Evidence on the Long-run Elasticity of Labour Supply,” *Economica* (2010), 77: 637
- Bertrand, M. and S. Mullainathan, “Are Emily and Greg More Employable Than Lakisha and Jamal? A Field Experiment on Labor Market Discrimination,” *American Economic Review* 94 (2004): 991-1013 (Primary Reading)
- Cappelli, Peter and Keith Chauvin (1991) “An Interplant Test of the Efficiency Wage Hypothesis.” *Quarterly Journal of Economics*, 106(3), 769 – 787.
- Card, David and A. B. Krueger, “Minimum Wages and Employment: A Case Study of the Fast-Food Industry in New Jersey and Pennsylvania,” *American Economic Review* (1994) 84: 772- 793.
- Carl Shapiro and Joseph Stiglitz (1984) “Equilibrium Unemployment as Worker Discipline Device,” *American Economic Review*, vol. 74(3), pages 433-44, June.
- Cesarini, D., Lindqvist, E., Notowidigdo, M. J., & Östling, R. (2017). The effect of wealth on individual and household labor supply: evidence from Swedish lotteries. *American Economic Review*, 107(12), 3917-46.
- Charles, K.K. and J. Guryan, “Prejudice and Wages: An Empirical Assessment of Becker’s The Economics of Discrimination,” *Journal of Political Economy* (2008), 116(5): 773-809.
- D. Acemoglu, and J-S. Pischke (1999). “Beyond Becker: Training in Imperfect Labor Markets,” *Economic Journal* vol 109 February 1999, pp F112-142.
- D. Autor, (2001) “Why Do Temporary Help Firms Provide Free General Skills Training?”, *Quarterly Journal of Economics*, Vol. 116, No. 3, pp. 1409-1448. (M)
- D. Card, “Using Regional Variation to Measure the Effect of the Federal Minimum Wage,” *Industrial and Labor Relations Review*, October 1992.
- D. Card, “Estimating the Return to Schooling: Progress on Some Persistent Econometric Problems.” *Econometrica* 69 (September 2001).

- Fehr, E. and L. Goette, "Do Workers Work More if Wages are High? Evidence from a Randomized Field Experiment," *American Economic Review* (2007), 1: 298-317.
- Goldin, C., and C. Rouse, "Orchestrating Impartiality: The Impact of "Blind" Auditions on Female Musicians," *American Economic Review* (2000), 90 (4): 715-741.
- Imbens, D. Rubin, and B. Sacerdote, "Estimating the Effect of Unearned Income on Labor Supply: Evidence from a Survey of Lottery Players," *American Economic Review* 91 (2001).
- J. Tyler, Richard J. Murnane and John Willett, "Estimating the Labor Market Signaling value of the GED," *Quarterly Journal of Economics*, May 2000. (M)
- J.D. Angrist and A. Krueger, "Does Compulsory Schooling Attendance Affect Schooling and Earnings?" *Quarterly Journal of Economics*, 106[4], Nov 1991, 979- 1014.
- Krueger, Alan B, and Lawrence H. Summers (1988) "Efficiency Wages and the Inter-Industry Wage Structure," *Econometrica*, 56(2) 259 - 93.
- Maiti, D., & Mukherjee, A. (2013). Trade cost reduction, subcontracting and unionised wage. *Labour Economics*, 21, 103-110.
- P. Martorell and D. Clark, "The Signaling Value of a High School Diploma," *Journal of Political Economy*, 122[2], April 2014.
- Saha, B., Sen, K., & Maiti, D. (2013). Trade openness, labour institutions and flexibilisation: Theory and evidence from India. *Labour Economics*, 24, 180-195.
- T. MaCurdy, "An Empirical Model of Labor Supply in a Life-Cycle Setting," *Journal of Political Economy*, 89[6], December 1981, 1059-1085.
- Weber, A. and E. Del Bono "Do Wages Compensate for Anticipated Working Time Restrictions? Evidence from Seasonal Employment in Austria", *Journal of Labor Economics*, 26(1), 181-221, 2008.

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## Discipline Specific Elective 29 (DSE-29): Sectoral Issues in Indian Economy

Semester	Course title & Code	Credits	Duration (per week)			Eligibility Criteria	Prerequisite
			Lecture	Tutorial	Practical/ Practice		
VI/VIII	Sectoral Issue in Indian Economy – ECON059	4	3	1	0	Class 12th	NIL

### Learning Objectives

The Learning Objectives of this course are as follows:

The course imparts in-depth knowledge on the issues relating to the agricultural and industrial economy of India, with the focus on the evolutionary path undertaken and the resultant concerns. This will cover issues of MSMEs and small farms to inform the problems industrialisation as well as increased productivity of agriculture.

### Learning outcomes

The Learning outcomes of this course are as follows:

This course will familiarize students with the problems, issues, current debates, and policy interventions for long-term sustainability, efficiency, and resilience. The students will be able to understand, comprehend and critically analyse the issues and policies and would be able to form a well-informed and well-articulated opinion of their own.

### Syllabus

#### UNIT I: Agricultural Performance since Independence: (6 hours)

Output and productivity growth Agricultural Performance since Independence in the context of land and labour

#### UNIT II: The Policy Environment: Food security and nutritional concerns, MSPs, Agricultural price policy, subsidies/cash transfers, The public distribution system; Capital formation (9 hours)

#### UNIT III: Current Issues in Indian Agriculture (selected topics) (15 hours)

Resource Use Efficiency-Fertiliser, Water, Other inputs; Diversification for future Growth and enhanced farm income; Sustainable agricultural growth—concepts and constraints; Prospects for dryland/organic/zero budget farming; trade and competitiveness; use of new technology and artificial intelligence; Marketing/infrastructure; Crop insurance/agricultural finance

#### UNIT IV: Industry (15 hours)

Overview of the Industrial Scene in India- Trends in growth and productivity; Competitiveness and changes in Policy Regimes- domestic competitiveness and export; Issues relating to Indian Industry (selected topics); Scale and ownership, MSMEs and large industries, Public and Private Sector, Employment growth, labour and capital (domestic and foreign), formal and informal sectors, Infrastructural bottle-necks, research and development.

### Recommended readings

- Sukhamoy Chakravarty (1984) Aspects of India's Development Strategy for 1980s? EPW vol 19 no 20-21
- J. Bhagwati (1993), India in Transition: Freeing the Economy, Clarendon Oxford 1993
- K. V. Ramaswamy (2015) Labour, Employment and Economic Growth in India Cambridge University Press
- Isher Judge Ahluwalia (1985) Industrial Growth in India: Stagnation Since the Mid-sixties, Oxford University Press
- R. Nagaraj (2015) Can the Public Sector Revive the Economy? Review of the Evidence and a Policy Suggestion EPW vol 50 no 5
- S N Rajesh Raj, Kunal Sen (2020) The 'Missing Middle' Problem in Indian Manufacturing. What Role Do Institutions Play? EPW April 18, 2020 vol 55 no 16
- Indian Industrialisation, ICSSR Research and Surveys and Explorations in Economics vol.1 (2015)- C P Chandrasekhar (ed), Oxford University Press, Delhi
- Sabyasachi Mitra, Abhijit Sen Gupta, and Atul Sanganerla (2020) Drivers and Benefits of Enhancing Participation in Global Value Chains: Lessons for India, ADB South Asia Working Paper No. 79
- Raghuram Rajan (2015) Make in India, largely for India, Indian Journal of Industrial Relations, Vol. 50, No. 3 (January 2015), pp. 361-372
- Vaidyanathan, A. (1994), "Performance of Indian Agriculture since Independence" in Kaushik Basu (ed.), Agrarian Questions Oxford University Press.
- Mahendra Dev (2016) Water Management and Resilience in Agriculture vol 51, No 8 EPW Economic & Political Weekly
- Ramesh Chand (2012) Development Policies and Agricultural Markets EPW DECEMBER 29, 2012 vol 47 no 52
- Yoginder K Alagh (2021) Globalisation and the Indian Farmer EPW vol 56 no 28
- Chatterjee, S., Kapur, D. (2017). Six puzzles in Indian agriculture. India Policy Forum 2016, Vol. 17.
- NABARD Foundation Day, Paper on enhancing Farmers' income by K J S Satyasai and Nirupam Mehrotra. 12 July 2016
- Acharya, S.S. (2007) "Agribusiness in India: Facts and Emerging Issues", Agricultural Economics Research Review, Vol. 20, Conference Issue, pp. 409-424
- Mohan, R., (2006) Agricultural Credit in India: Status, Issues and Future Agenda, Economic and Political Weekly, March 18, 2006, pp 1013-1021.
- Mishra S.N. and Chand, R., (1995) Public and Private Capital Formation in Indian Agriculture: Comments on Complementarity Hypothesis, Economic and Political Weekly, June 24th, 1995
- GOI (2007), Report of The Working Group on Risk Management in Agriculture for the Eleventh Five Year Plan (2007-2012), GOI, New Delhi
- Indian Agriculture Towards 2030-Pathways for Enhancing Farmers' Income, Nutritional Security and Sustainable Food and Farm Systems (2021) An open-access Springer publication.
- Government of India (2017) "Report of the Committee on Doubling Farmers' Income". Ministry of Agriculture and Farmers' Welfare, Government of India
- PRS Legislative Research (2017), Swaminathan Report: National Commission on Farmers, at Swaminathan Report: National Commission on Farmers, PRS India
- Acharya SS and NL Agarwal (2016), Agricultural Marketing in India, New Delhi: CBS Publishers and Distributors
- Expert Committee Report on Marketing Infrastructure & Agricultural Marketing Reforms (2000) Government of India, Department of Agricultural & Cooperation Krishi Bhavan, New Delhi

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## Discipline Specific Elective 30 (DSE-30): Topics in Game Theory

Semester	Course title & Code	Credits	Duration (per week)			Eligibility Criteria	Prerequisite
			Lecture	Tutorial	Practical/ Practice		
VI/VIII	Topics in Game Theory – ECON060	4	3	1	0	Class 12th	Game Theory and Strategic Interactions (ECON013)

### Learning Objectives

The Learning Objectives of this course are as follows:

- This course deals with extensive form games. Students learn the concepts of subgame- perfect equilibrium, Bayesian and Perfect Bayesian equilibrium in static and dynamic forms.

### Learning outcomes

The Learning outcomes of this course are as follows:

- The students will learn how to model multi-person decision making in an interactive setting.
- They will understand how to formulate different real-life situations as games and learn to predict the optimal strategies of players and how the players can exploit strategic situations for their own benefit.

### Syllabus

#### UNIT I: Extensive form games with perfect information (9 hours)

Extensive games with perfect information; strategies and outcomes; Nash equilibrium; subgame perfect equilibrium; backward induction in finite games; commitment; bargaining; Stackelberg's model of duopoly; a race; other illustrations

#### UNIT II: Simultaneous move games (9 hours)

Entry into a monopolized industry; electoral competition with strategic voters; committee decision-making; exit from a declining industry

#### UNIT III: Bayesian games (9 hours)

Strategies; Bayesian Nash equilibrium; Cournot's duopoly game with imperfect information; providing a public good; auctions; juries; other applications.

#### UNIT IV: Extensive form games with imperfect information (9 hours)

Strategies; Nash equilibrium; beliefs and sequential equilibrium; perfect Bayesian equilibrium; signaling games; applications.

#### UNIT V: Repeated Games (9 hours)

Payoffs, strategies, Nash equilibrium and subgame perfect equilibrium of repeated games

### Recommended readings

- Martin J. Osborne, *An Introduction to Game Theory*, Oxford University Press, New Delhi, 2004.

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## DISCIPLINE SPECIFIC ELECTIVE COURSE 31(DSE-31) : FINANCIAL DERIVATIVES

### Credit distribution, Eligibility and Pre-requisites of the Course

Semester	Course title & Code	Credits	Duration (per week)			Eligibility Criteria	Prerequisite
			Lecture	Tutorial	Practical / Practice		
VI/VIII	Financial Derivatives ECON077	4	3	1	0	Class XII with Mathematics	Introductory Mathematical Methods for Economics ECON002

### Learning Objectives

- To equip students with essentials tools for understanding Finance at undergraduate level.
- To provide analytical knowledge to understand complex financial Derivatives.
- To provide advance skills for pricing and formulating trading strategies using Derivative products

### Learning outcomes

- After studying this course, students would be able to understand the core concepts of financial derivatives. The course would develop an analytical knowledge for understanding the mechanics and characteristics of derivative products such as Future, Options and SWAP agreements.
- After studying this course, students would be able to understand and formulate complex trading strategies adopted using financial derivative products.

### SYLLABUS OF DSE: FINANCIAL DERIVATIVES

#### Unit 1: Futures Contract & SWAP (15 Hours)

##### Part I: Futures/Forward Contracts: Properties, Pricing and Hedging

a) Introduction to derivatives and options; forward and futures contracts; options; other derivatives

Hull Chapter - 2: Mechanics of Futures Markets (Sections 2.1 - 2.4 & 2.11)

b) Forward and future prices

Hull Chapter-5: Determination of Forward & Futures Prices (Sections 5.1 - 5.5, 5.9, 5.11 & 5.12)

c) Stock index futures & the use of futures for hedging

Hull Chapter - 3: Hedging Strategies using Futures

##### Part II: Interest Rate Futures

d) Interest rate futures & duration-based hedging strategies

Hull Chapter - 6: Interest rate futures (6.1 to 6.4) [exclude page-158 & 159]

##### Part III: SWAP & FRA

e) Forward Rate, Forward Rate Agreement and SWAP

Hull Chapter - 4: Interest rate (4.1 to 4.3, 4.6 and 4.7)

Kolb Chapter – 37: Forward Rate Agreements (Page 575- 577)

Hull Chapter - 7: Swaps (7.1 to 7.4)

Kolb Chapter – 1: Swap Contracts (Page 11-13); Chapter - 28: Pricing and Valuation of SWAP (page 407-410)

## **Unit 2: Options Contract (30 Hours)**

### **Part I: Introduction and Properties of Option Contracts**

f) Option markets; call and put options; factors affecting option prices; put-call parity

Hull Chapter - 10: Mechanics of options markets (10.1 to 10.7);

Hull Chapter -11: Properties of stock options (Full Chapter)

### **Part II: Option Strategies**

g) Option trading strategies: spreads; straddles; strips and straps; strangles

Hull Chapter -12: Trading strategies involving options (Full Chapter)

### **Part III: Pricing of Options, BSM and Greek letters**

h) The principle of arbitrage; discrete processes and the binomial tree model; risk neutral valuation, Black Scholes Merton (BSM) Model, Greek letters

Hull Chapter - 13: Binomial trees. Sections 13.1-13.4, 13.6 - 13.9 & Appendix (Derivation of BSM)

Hull Chapter - 14: Section 14.6 ITO<sup>^</sup> 'S Lemma

Hull Chapter - 15: The Black–Scholes–Merton Model: Sections 15.3, 15.4, 15.5, 15.6, 15.8,15.11

Hull Chapter - 19: The Greek Letters

### **Recommended readings**

Hull, John C.,Options, Futures and Other Derivatives, Pearson Education, Inc, 9th Edition (Global Edition), 2018.

Robert W. Kolb, James A. Overdahl, Financial Derivatives: Pricing and Risk Management, John Wiley & Sons, 2010

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## Discipline Specific Elective 32 (DSE-32): Political Economy and Globalisation

Semester	Course title & Code	Credits	Duration (per week)			Eligibility Criteria	Prerequisite
			Lecture	Tutorial	Practical/ Practice		
IV/VI/VIII	Political Economy and Globalisation – ECON078	4	3	1	0	Class 12th	NIL

### Learning Objectives

The Learning Objectives of this course are as follows:

- To explore some of the fundamental structural changes and dynamics of the advanced capitalist system since the early twentieth century to the contemporary period.
- To analyse the changes in the organization of production, labour market institutions as well as shifts in corporate, managerial, fiscal, financial and inter-firm governance structures.
- To analyse the role of state in the era of globalization. It also integrates contemporary issues of gender and environment in a political economy framework.

### Learning outcomes

After completion of the course the learners will be able to:

- Do critical analysis in an integrated and broader political economy framework.
- Analyze some of the most contemporary trends and developments at the global level and evaluate them.
- Analyze the issues studied in the compulsory courses on the Indian Economy and Development Economics.

### Syllabus

**UNIT I:** Changing Dynamics of Capitalist Production, Organisational Form and Labour Process (9 hours)  
Historical Overview; changing dynamics of the organisation of production, markets and labour process; Evolution of the multinational corporations and their economic logic; changing nature of employment, job security and labour rights.

**UNIT II:** The State and the Economy (9 hours)

State and the economy; political economy of macroeconomic policy; state in the international political economy - globalisation and imperialism.

**UNIT III:** Neoclassical political economy (9 hours)

State and rent seeking; market failure; government failure and decentralized development; institutions and economic development; theory of political transitions.

**UNIT IV:** Political economy of fiscal consolidation and financialization (9 hours)

Principles of Political economy of Taxation; changing role of finance and the shifts in corporate governance structures: financialization – its nature and consequences.

## UNIT V: Broader Perspectives (Gender and Environment) (9 hours)

Dimensions of Gender in work, accumulation and globalization; political economic issues in environment, sustainability and inequality.

### Recommended readings

- Acemoglu, D and J. A. Robinson (2001). "A Theory of Political Transitions", *The American Economic Review*, Vol. 91, No. 4 (September), pp. 938- 963
- Acemoglu, D., & Robinson, J. A. (1999). On the political economy of institutions and development. *American Economic Review*, 91(4), 938-63.
- Acemoglu, D., Golosov, M., & Tsyvinski, A. (2007). Political economy and the structure of taxation. MIT mimeo.
- Bardhan, Pranab (1996) Decentralised development. *Indian Economic Review*, 1996.
- Beaud, Michel (2001). A History of Capitalism, 1500-2000, translated by Tom Dickman and Anny Lefebvre, New York: Monthly Review Press.
- Boyce, J. K. (2002). *The Political Economy of the Environment*, Edward Elgar.
- Chang, D. (2009). "Informalising Labour in Asia's Global Factory" *Journal of Contemporary Asia*, 39:2, 161-179.
- Datta-chaudhuri, Mrinal (1990) Market failure and Government Failure. *Journal of Economic Perspectives*. Volume 4, Number 3—Summer 1990—Pages 25—39.
- Di John, J. (2006). The political economy of taxation and tax reform in developing countries (No. 2006/74). WIDER research paper.
- Dore, Ronald (2008). "Financialization of the Global Economy", *Industrial and Corporate Change*, Volume 17, Number 6, pp. 1097-1112.
- Gandini, Alessandro (2019). "Labour Process Theory and the Gig Economy", *Human Relations*, Vol. 72(6). [Particularly pages 1044-1051. The sections of "The point of production in the gig economy", "Emotional labour and gig work", and "Control"].
- Gereffi, G, J. Humphrey and T. Sturgeon (2005): "The Governance of Global Value Chains", *Review of International Political Economy*, Volume 12, pp. 78-104.
- Gottfried, Heidi (2013). *Gender, Work and Economy - Unpacking the Global Economy, Polity*. [Chapter 10 "Gender, Global Labor Markets, Commodity Chains and Mobilities"]
- Hall, P. A. and D. Soskice (2001) 'An Introduction to Varieties of Capitalism' in Hall, P. A. and D. Soskice Varieties of Capitalism: the institutional foundation of comparative advantage, Oxford University Press, pp 1-68
- Huws, Ursula (2016). "A New Paradigm for work Organisation?", *Work Organisation, Labour & Globalisation*, Vol 10 No. 1 pp 7-26, Pluto Journals.
- Hymer, Stephen (1975). "The Multinational Corporation and the Law of Un-even Development", in H. Radice (ed.) *International Firms and Modern Imperialism*, Penguin Books.
- Kim, S. Y., & Spilker, G. (2019). Global value chains and the political economy of WTO disputes. *The Review of International Organizations*, 14(2), 239-260.
- Kiser, E., & Karceski, S. M. (2017). Political economy of taxation. *Annual review of political science*, 20, 75-92.
- Sen, Amartya K. (1990): "Gender and Cooperative Conflicts" in Irene Tinker (ed.) *Persistent Inequalities - Women and World Development*, OUP.
- Srinivasan T N (1985) Neoclassical political economy, the state and economic development. *Asian Development Review* Vol. 3.1985, 2, p. 38-58

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