UNIVERSITY OF CALCUTTA

Notification No. CSR/45/2026

It is notified for information of all concerned that in terms of the provisions of Section 54 of the Calcutta University Act, 1979, (as amended), and, in the exercise of his powers under 9(6) of the said Act, the Vice-Chancellor has, by an order dated 22.04.2026, approved the revised complete Syllabus including Question Patterns and PO/Co/PSO of 4-year Honours & Honours with Research and 3-year MDC of Economics under CCF, 2022.

The above shall take immediate effect from the Even semester examinations, 2026 and onwards.

08/05/2026

Prof.(Dr.) Debasis Das

Registrar

SENATE HOUSE

Kolkata-700073

08.05.2026

ECONOMICS SYLLABUS

Major-SEC-Minor-IDC_MDC

1. Syllabus Structure
2. Detailed Syllabus
3. Modalities
4. PO-PSO-CO

CCF (NEP)

UGBOS, ECONOMICS

University of Calcutta

Syllabus structure (Sem 1-8)| Economics (Major- Minor)| University of Calcutta| CCF							
Economics Major - (4 Credits)							
Sem	**Paper**	**Course**	**Name of the Paper**	**Code (Th)**	**Marks**	**Code (Tu/ P)**	**Marks**
1	DSCC1	ECOM	Microeconomics (I)	ECOM-H-CC1-1-Th	75(3)	ECOM-H-CC1-1-Tu	25(1)
2	DSCC2	ECOM	Macroeconomics (I)	ECOM-H-CC2-2-Th	75(3)	ECOM-H-CC2-2-Tu	25(1)
3	DSCC3	ECOM	Microeconomics (II)	ECOM-H-CC3-3-Th	75(3)	ECOM-H-CC3-3-Tu	25(1)
	DSCC4	ECOM	Development Economics	ECOM-H-CC4-3-Th	75(3)	ECOM-H-CC4-3-Tu	25(1)
4	DSCC5	ECOM	Mathematical Economics (I)	ECOM-H-CC5-4-Th	75(3)	ECOM-H-CC5-4-Tu	25(1)
	DSCC6	ECOM	Macroeconomics (II)	ECOM-H-CC6-4-Th	75(3)	ECOM-H-CC6-4-Tu	25(1)
	DSCC7	ECOM	Statistics for Economics	ECOM-H-CC7-4-Th	75(3)	ECOM-H-CC7-4-Tu	25(1)
	DSCC8	ECOM	Indian Economics	ECOM-H-CC8-4-Th	75(3)	ECOM-H-CC8-4-Tu	25(1)
5	DSCC9	ECOM	Microeconomics (III)	ECOM-H-CC9-5-Th	75(3)	ECOM-H-CC9-5-Tu	25(1)
	DSCC10	ECOM	Macroeconomics (III)	ECOM-H-CC10-5-Th	75(3)	ECOM-H-CC10-5-Tu	25(1)
	DSCC11	ECOM	Mathematical Economics (II)	ECOM-H-CC11-5-Th	75(3)	ECOM-H-CC11-5-Tu	25(1)
	DSCC12	ECOM	Econometrics	ECOM-H-CC12-5-Th	75(3)	ECOM-H-CC12-5-Tu	25(1)
6	DSCC13	ECOM	International Economics	ECOM-H-CC13-6-Th	75(3)	ECOM-H-CC13-6-Tu	25(1)
	DSCC14	ECOM	Environmental & Resource Economics	ECOM-H-CC14-6-Th	75(3)	ECOM-H-CC14-6-Tu	25(1)
	DSCC15	ECOM	Public Economics	ECOM-H-CC15-6-Th	75(3)	ECOM-H-CC15-6-Tu	25(1)
	Summer Internship (3 Credits): To be completed in Sem2/Sem4/ Sem6 following CU guidelines.						
7	DSCC16	ECOM	Advanced Microeconomics	ECOM-H-CC16-7-Th	75(3)	ECOM-H-CC16-7-Tu	25(1)
	DSCC17	ECOM	Advanced Macroeconomics	ECOM-H-CC17-7-Th	75(3)	ECOM-H-CC17-7-Tu	25(1)
	DSCC18	ECOM	Financial Economics	ECOM-H-CC18-7-Th	75(3)	ECOM-H-CC18-7-Tu	25(1)
	DSCC19	ECOM	Economic Thought	ECOM-H-CC19-7-Th	75(3)	ECOM-H-CC19-7-Tu	25(1)
	DSCC20	ECOM	Economic History of India	ECOM-H-CC20-7-Th	75(3)	ECOM-H-CC20-7-Tu	25(1)
8	DSCC21	ECOM	Research Methodology (I)	ECOM-H-CC21-8-Th	75(3)	ECOM-H-CC21-8-Viva	25(1)
	DSCC22	ECOM	Research Methodology (II)	ECOM-H-CC22-8-Th	50 (2)	ECOM-H-CC22-8-Pr. & Viva	50 (2)
	DSCC23	ECOM	Advanced Indian Economics (HONOURS w/o RESEARCH)	ECOM-H-CC23-8-Th	75(3)	ECOM-H-CC23-8-Tu	25(1)
	DSCC(RI)		Research Internship (HONOURS WITH RESEARCH)	ECOM-H-(RI)-8-Res In	75(3)	ECOM-H-(RI)-8-Viva	25(1)

8	DSCC24	ECOM	Development Studies (HONOURS w/o RESEARCH)	ECOM-H-CC24 -8-Th	75(3)	ECOM-H-CC24-8-Tu	25(1)
	DSCC25	ECOM	Project (HONOURS w/o RESEARCH)	ECOM-H-CC25 -8-Th	75(3)	ECOM-H-CC25-8-Tu	25(1)
	DSCC(D)	ECOM	Dissertation (HONOURS WITH RESEARCH)	ECOM-H-(D)-8-Diss	150 (6)	ECOM-H-(D)-8-Viva	50 (2)

Economics Major - SEC (4 Credits)							
Sem	**Paper**	**Course**	**Name of the Paper**	**Code (Th)**	**Marks**	**Code (Tu/ P)**	**Marks**
1	SEC1	ECOM	Introductory Statistics & Application (I)	ECOM-H-SEC1-1-Th	75(3)	ECOM-H-SEC1-1-Tu	25(1)
2	SEC2	ECOM	Introductory Statistics & Application (II)	ECOM-H-SEC2-2-Th	25(1)	ECOM-H-SEC2-2-P	75(3)
3	SEC3	ECOM	Data Analysis and Research Methodology	ECOM-H-SEC3-3-Th	50(2)	ECOM-H-SEC3-3-P	50(2)

Economics - IDC (3 Credits)							
Sem	**Paper**	**Course**	**Name of the Paper**	**Code (Th)**	**Marks**	**Code (Tu/ P)**	**Marks**
1/2/3	IDC	ECOD	Elementary Economics	ECOD-IDC-1/2/3-Th	50(2)	ECOD-IDC-1/2/3-Tu	25(1)

Economics - Minor (4 Credits)							
Sem	**Paper**	**Course**	**Name of the Paper**	**Code (Th)**	**Marks**	**Code (Tu/ P)**	**Marks**
1 (or 3)	MN1	MECO	Microeconomics (I)	MECO-CC1-1-Th/ MECO-CC1-3-Th	75(3)	MECO-CC1-1-Tu/ MECO-CC1-3-Tu	25(1)
2 (or 4)	MN2	MECO	Macroeconomics (I)	MECO-CC2-2-Th/ MECO-CC2-4-Th	75(3)	MECO-CC2-2-Tu/ MECO-CC2-4-Tu	25(1)
Either 5, (or 6*)	MN3	MECO	Development Economics	MECO-CC3-5/6-Th	75(3)	MECO-CC4-5/6-Tu	25(1)
	MN4	MECO	Indian Economics	MECO-CC4-5/6-Th	75(3)	MECO-CC4-5/6-Tu	25(1)

*** Students should study both the papers (i.e., MN3 & MN4) in the same semester (i.e., either both in 5th semester or both in 6th semester)**

Economics (MDC) Syllabus structure (Sem 1-6)| University of Calcutta| CCF								
ECONOMICS [MDC- CC] (4 Credits)								
Sem	**SUBJECT**	**Paper**	**Course**	**Name of the Paper**	**Code (Th)**	**Marks**	**Code (Tu)**	**Marks**
1	CC1/ CC2	CC 1	MECO-CC	Microeconomics (I)	MECO-MDC-CC1-1-Th	75(3)	MECO-MDC-CC1-1-Tu	25(1)
2	CC1/ CC2	CC 2	MECO-CC	Macroeconomics (I)	MECO-MDC-CC2-2-Th	75(3)	MECO-MDC-CC2-2-Tu	25(1)
3	CC1/ CC2	CC 3	MECO-CC	Development Economics	MECO-MDC-CC3-3-Th	75(3)	MECO-MDC-CC3-3-Tu	25(1)
4	CC1/ CC2	CC 4	MECO-CC	Indian Economics	MECO-MDC-CC4-4-Th	75(3)	MECO-MDC-CC4-4-Tu	25(1)
	CC1/ CC2	CC 5	MECO-CC	Sustainable Development	MECO-MDC-CC5-4-Th	75(3)	MECO-MDC-CC5-4-Tu	25(1)
5	CC1/ CC2	CC 6	MECO-CC	Economic History of India (1857-1947)	MECO-MDC-CC6-5-Th	75(3)	MECO-MDC-CC6-5-Tu	25(1)
	CC1	CC 7	MECO-CC	Public Finance	MECO-MDC-CC7-5-Th	75(3)	MECO-MDC-CC7-5-Tu	25(1)
6	CC2				MECO-MDC-CC7-6-Th		MECO-MDC-CC7-6-Tu	
	CC1/ CC2	CC 8	MECO-CC	Rural Development	MECO-MDC-CC8-6-Th	75(3)	MECO-MDC-CC8-6-Tu	25(1)

Sem		ECONOMICS [MDC- Minor] (4 Credits)					
	Paper	**Course**	**Name of the Paper**	**Code (Th)**	**Marks**	**Code (Tu)**	**Marks**
3	MN 1	MECO-MDC	Microeconomics (I)	MECO-MDC-MN1-3-Th	75(3)	MECO-MDC-MN1-3-Tu	25(1)
4	MN 2	MECO-MDC	Macroeconomics (I)	MECO-MDC-MN2-4-Th	75(3)	MECO-MDC-MN2-4-Tu	25(1)
5	MN 3	MECO-MDC	Development Economics	MECO-MDC-MN3-5-Th	75(3)	MECO-MDC-MN3-5-Tu	25(1)
	MN 4	MECO-MDC	Indian Economics	MECO-MDC-MN4-5-Th	75(3)	MECO-MDC-MN4-5-Tu	25(1)
6	MN 5	MECO-MDC	Sustainable Development	MECO-MDC-MN5-6-Th	75(3)	MECO-MDC-MN5-6-Tu	25(1)
	MN 6	MECO-MDC	Economic History of India (1857-1947)	MECO-MDC-MN6-6-Th	75(3)	MECO-MDC-MN6-6-Tu	25(1)

Sem	Economics [MDC-SEC] (4 Credits)						
	Paper	**Course**	**Name of the Paper**	**Code (Th)**	**Marks**	**Code (Tu)**	**Marks**
1/ 2/ 3	SEC1/ SEC2/ SEC3	MECO-SEC(A)	Economic Data Analysis and Report Writing	MECO-MDC-SEC(A)-1-Th/ MECO-MDC-SEC(A)-2-Th/ MECO-MDC-SEC(A)-3-Th	75(3)	MECO-MDC-SEC(A)-1-Tu/ MECO-MDC-SEC(A)-2-Tu/ MECO-MDC-SEC(A)-3-Tu	25(1)
		MECO-SEC(B)	Entrepreneurship and Development	MECO-MDC-SEC(B)-1-Th/ MECO-MDC-SEC (B)-2-Th/ MECO-MDC-SEC (B)-3-Th	75(3)	MECO-MDC-SEC(B)-1-Tu/ MECO-MDC-SEC(B)-2-Tu/ MECO-MDC-SEC(B)-3-Tu	25(1)
MDC Minor students have to study either MECO-SEC (A) or MECO-SEC (B) as their Skill Enhancement Course (SEC)							

Sem	Economics [MDC-IDC] (3 Credits)						
	Paper	**Course**	**Name of the Paper**	**Code (Th)**	**Marks**	**Code (Tu)**	**Marks**
1/ 2/ 3	IDC1/ IDC2/ IDC3	MECO-ECOD	Elementary Economics	ECOM-MDC-IDC1-1-Th/ ECOM-MDC-IDC2-2-Th/ ECOM-MDC-IDC3-3-Th	50(2)	ECOM-MDC-IDC1-1-Tu/ ECOM-MDC-IDC2-2-Tu/ ECOM-MDC-IDC3-3-Tu	25(1)

Numbers in the parenthesis in the Marks column (Col. 6 & 8) indicate corresponding Credits

University of Calcutta
CCF
Economics Syllabus (1st Sem – 8th Sem)
Major – Minor – MDC

Sem1

Paper	Course	Name of the Paper	Credit	Pg. no.
DSCC1	ECOM	Microeconomics (I)	3+1	4
SEC1	ECOM	Introductory Statistics & Application (I)	3+1	7
MN1	MECO	Microeconomics (I)	3+1	4
CC1/CC2	MECO-MDC-CC	Microeconomics (I)	3+1	4
SEC1	MECO-SECA	Economic Data Analysis and Report Writing	3+1	9
SEC1	MECO-SECB	Entrepreneurship and Development	3+1	11
IDC1	ECOD	Elementary Economics	2+1	13

Sem2

Paper	Course	Name of the Paper	Credit	Pg. no.
DSCC2	ECOM	Macroeconomics (I)	3+1	16
SEC2	ECOM	Introductory Statistics & Application (II)	1+3	18
MN2	MECO	Macroeconomics (I)	3+1	16
CC1/CC2	MECO-MDC-CC	Macroeconomics (I)	3+1	16
SEC2	MECO-SECA	Economic Data Analysis and Report Writing	3+1	9
SEC2	MECO-SECB	Entrepreneurship and Development	3+1	11
IDC2	ECOD	Elementary Economics	2+1	13

Sem 3

Paper	Course	Name of the Paper	Credit	Pg. no.
DSCC3	ECOM	Microeconomics (II)	3+1	20
DSCC4	ECOM	Development Economics (I)	3+1	23
SEC3	ECOM	Data Analysis and Research Methodology	2+2	25
MN1	MECO	Microeconomics (I)	3+1	4
CC1/CC2	MECO-MDC-CC	Development Economics	3+1	23
MN1	MECO-MDC-Minor	Microeconomics (I)	3+1	4
SEC3	MECO-SEC	Economic Data Analysis and Report Writing	3+1	9
SEC3	MECO-SEC	Entrepreneurship and Development	3+1	11
IDC3	ECOD	Elementary Economics	2+1	13

Sem 4

Paper	Course	Name of the Paper	Credit	Pg. no.
DSCC5	ECOM	Mathematical Economics (I)	3+1	28
DSCC6	ECOM	Macroeconomics (II)	3+1	31
DSCC7	ECOM	Statistics for Economics	3+1	34
DSCC8	ECOM	Indian Economics	3+1	37
MN2	MECO	Macroeconomics (I)	3+1	16
CC1/CC2	MECO-MDC-CC	Indian Economics	3+1	37
CC1/CC2	MECO-MDC-CC	Sustainable Development	3+1	40
MN2	MECO-MDC-Minor	Macroeconomics (I)	3+1	16

Sem 5

Paper	Course	Name of the Paper	Credit	Pg. no.
DSCC9	ECOM	Microeconomics (III)	3+1	42
DSCC10	ECOM	Macroeconomics (III)	3+1	44
DSCC11	ECOM	Mathematical Economics (II)	3+1	46
DSCC12	ECOM	Econometrics	3+1	48
MN3	MECO	Development Economics	3+1	23
MN4	MECO	Indian Economics	3+1	37
CC1/CC2	MECO-MDC-CC	Economic History of India (1857-1947)	3+1	50
CC1	MECO-MDC-CC	Public Finance	3+1	52
MN3	MECO-MDC-Minor	Development Economics	3+1	23
MN4	MECO-MDC-Minor	Indian Economics	3+1	37

Sem 6

Paper	Course	Name of the Paper	Credit	Pg. no.
DSCC13	ECOM	International Economics	3+1	54
DSCC14	ECOM	Environmental & Resource Economics	3+1	57
DSCC15	ECOM	Public Economics	3+1	59
Internship	ECOM	Summer Internship	3	-
MN3	MECO	Development Economics	3+1	23
MN4	MECO	Indian Economics	3+1	37
CC2	MECO-MDC-CC	Public Finance	3+1	52
CC1/CC2	MECO-MDC-CC	Rural Development	3+1	61
MN5	MECO-MDC-Minor	Sustainable Development	3+1	40
MN6	MECO-MDC-Minor	Economic History of India (1857-1947)	3+1	50

Sem 7

Paper	Course	Name of the Paper	Credit	Pg. no.
DSCC16	ECOM	Advanced Microeconomics	3+1	63
DSCC17	ECOM	Advanced Macroeconomics	3+1	67
DSCC18	ECOM	Financial Economics	3+1	69
DSCC19	ECOM	Economic Thought	3+1	71
DSCC20	ECOM	Economic History of India	3+1	74

Sem 8

Common Papers for both "**HONOURS WITH RESEARCH**" and "**HONOURS WITHOUT RESEARCH**" students:

Paper	Course	Name of the Paper	Credit	Pg. no.
DSCC21	ECOM	Research Methodology (I)	3+1	78
DSCC22	ECOM	Research Methodology (II)	2+2	81

Papers for "**HONOURS WITH RESEARCH**" students:

Paper	Course	Name of the Paper	Credit	Pg. no.
DSCC2(RI)	ECOM	Research Internship	3+1	87
DSCC(D)	ECOM	Dissertation	6+2	98

Papers for "**HONOURS WITHOUT RESEARCH**" students:

Paper	Course	Name of the Paper	Credit	Pg. no.
DSCC23	ECOM	Advanced Indian Economics	3+1	84
DSCC24	ECOM	Development Studies	3+1	91
DSCC25	ECOM	Project	3+1	94

1 Microeconomics (I)

Theory
Marks: 75, Credits: 3
No. of Lecture hours (Th): 45

1.1 Exploring the subject matter of Economics

5 lecture hours

- Scope and Method of Economics: Wants, Scarcity, Competing Ends and Choice - Defining Economics, Thinking like an economist: Basic Economics Questions, Households and firms, Demand and Supply, Basic concepts of Utility, basic concepts of production-Production function, Definition of Average and Marginal Product, Microeconomics and Macroeconomics, Normative Economics and Positive Economics
- Principles of Microeconomics – principles of individual decision making and principles of economic interactions – trade off, opportunity cost, efficiency, marginal changes and cost-benefit, trade, market economy, property rights, market failure, externality and market power.
- Interdependence and the Gains from Trade- production possibilities frontier and increasing costs, absolute and comparative advantage, comparative advantage and gains from trade.

1.2 Utility Theory

20 lecture hours

(Focus on intuitive explanation and diagrams. Learning to analyze without using calculus is a must.)

- Cardinal and Ordinal Approach.
- Utility in Cardinal Approach- Utility and choice, Total Utility and Marginal Utility, Utility and choice-maximization, marginal utility, theory of demand
- Ordinal utility: Assumptions on preference ordering, Indifference curve (IC), Marginal rate of substitution and convexity of IC, Budget constraint, Consumers 'equilibrium-interior and corner,

1.3 Demand and Supply: How Markets Work

8 lecture hours

- Elementary theory of Demand: Factors influencing household demand and market demand, the demand curve, movement along and shift of the demand curve
- Elementary theory of Supply: factors influencing supply, the supply curve, movement along and shift of the supply curve
- The Elementary theory of market price: Determination of equilibrium price in a competitive market.

1.4 Market and Adjustments

4 lecture hours

- The Evolution of Market Economies, Price System and the Invisible Hand
- The Decision-takers - households, firms and central authorities
- The Concepts of Markets- individual market, separation of individual markets, interlinking of individual markets. Difference among markets- competitiveness, goods and factor markets, free and controlled markets. Market and non-market sectors, public and private sectors, economies- free market, command and mixed.
- Different goods: Public goods, Private goods, Common resources and Natural Monopolies.

1.5 Market Sensitivity and Elasticity

8 lecture hours

- Importance of Elasticity in Choice-Decisions
- Method of Calculation- Arc Elasticity, Point Elasticity-definition
- Demand and supply Elasticities-types of elasticity and factors affecting elasticity, Demand Elasticity and Revenue, Long run and Short run elasticities of Demand and Supply
- Income and Cross Price Elasticity
- Applications: Case studies – OPEC and Oil Price

Texts/ References:

1. G.Mankiw. 2007, Economics: Principles and Applications, India edition by South Western, Cengage Learning
2. R.G. Lipsey. An Introduction to Positive Economics, ELBS (6th edition)
3. Lipsey, R. and Chrystal, A. 2007 Economics, OUP
4. Pindyck, Rubinfeld and Mehta, Microeconomics, Pearson
5. G.S.Maddala and E. Miller, 1989, Microeconomics, Prentice Hall, McGraw Hill International Editions
6. Karl e Case and Ray C Fair, Principles of Economics, Pearson Education, 8th Edition, 2007
7. P Samuelson and W.Nordhaus, Economics, McGraw hill International Edition (14th edition or later edition)
8. J.E.Stiglitz and C.E.Walsh, Principles of Economics, WW Norton and Company, NY, (3rd edition or later edition)
9. Hal. R Varian , Intermediate Microeconomics, A modern Approach, WW Norton and Company, 8th edition, 2010 (T)
10. Gravelle, H. and Rees,R. , Microeconomics, Prentice Hall
11. Ryan, W.J.L. and Pearce : Price Theory and Applications , Macmillan Education, UK

12. Ferguson, C.E. and Gould, J.P. : Microeconomic Theory, Aitbs Publishers and Distributors, New Delhi.

13. Satya Chakrabarty, Microeconomics, Allied Publishers

14. Gould, J.P and E.P. Lazear: Microeconomics Theory, McGraw-Hill

Tutorial
Marks: 25, Credit: 1
No. of Lecture hours (Tu): 15

- Mode of Tutorial Examination: Presentation (15 Marks) & Viva (10 Marks).
- Tutorial contact hours: 15 [for Revision, Doubt Clearing, Solving Problems]
- Tutorial classes are introduced per course to give the students an idea of detailed understanding of the course and also to build their confidence on the subject in terms of (i) solving problems, (ii) presenting a paper in terms of board work or power point,(iii) preparation of term paper etc.
- A Tutorial class also helps a teacher to clarify any topic in detail to the students.
- A Tutorial contact hour has been meant to promote teacher-student academic interaction.

2 Introductory Statistics and Applications (I)

Theory
Marks: 75, Credits: 3
No. of Lecture hours (Th): 45

2.1 Introduction and Overview

Lecture hours 10

- Subject matter of Statistics
- Basic Steps in Statistical Methods – Collection, Presentation and Analysis of Data
  - Collection of Data – Primary and Secondary sources – their comparison, methods of Collection of data
  - Concepts – Variable and Attribute (categorical variable) – Discrete, Continuous and Categorical Variables, Complete Enumeration Survey and Sample Survey, Population and Sample
  - Presentation of data – Textual, Tabular, Diagrammatic
  - Frequency Distribution – Construction of Ogives, Column diagram, Frequency Polygon, Histogram, Frequency Curve
  - Analysis of Data – Univariate and Bivariate Analysis (Concepts only)

[References: Gun, A. M., M.K. Gupta and B. Dasgupta (GGDG) (2022), Fundamentals of Statistics, Volume One, World Press Private Limited Kolkata – Chapter on 'Collection and Presentation of Data'; Chapter on 'Frequency Distributions']

2.2 Descriptive Statistics

Lecture hours 35

- **Central Tendency** Lecture hours 10
  - Measures of central tendency for ungrouped and grouped data – arithmetic mean, geometric mean, harmonic mean, median and mode–Composite measures; Comparison of different measures, Quartiles, Deciles and Percentiles
  - Index numbers – Price Index Numbers – problems of construction, methods of construction – aggregative (simple and weighted) and averaging price-relatives (simple and weighted), Laspayre's, Paasche's index numbers, Fisher's Index Number, Quantity Index Numbers, Tests of Index Numbers, Fixed Base and Chain Base, Wholesale price index and cost of living index, Uses of index numbers
- **Dispersion** Lecture hours 10
  - Absolute measures of dispersion for ungrouped and grouped data – range, quartile deviation, mean deviation, standard deviation –Composite SD; Comparison of different measures
  - Relative measures - coefficient of variation, coefficient of mean deviation, coefficient of quartile deviation
  - Distribution of income and wealth – Lorenz curve, Gini Coefficient, Theil's Index

- **Skewness and Kurtosis** Lecture hours 5

  - Moments – central and non-central – computation, conversion
  - Measures of skewness – Bowley's measure, coefficient of quartile deviation, measure based on moments
  - Measure of kurtosis – measure based on moments

- **Bivariate Analysis** Lecture hours10

  - Bivariate data – scatter diagram, Simple correlation coefficient – computation, limitations, and properties
  - Spearman's Rank Correlation (with and without tie) - formulas and applications
  - Simple linear regression – Least squares technique – Properties

[Ref: GGDG ,Volume One – Chapter on 'Measures of Central Tendency', Chapter on 'Measures of Dispersion', Chapter on 'Moments and Measures of Skewness & Kurtosis', Chapter on 'Bivariate Frequency Distributions', Volume Two – Chapter on 'Index Numbers'; Sen, A. On Economic Inequality – Chapter on 'Measures of Inequality', OUP 1973]

Additional References

1. Freund, John E., Mathematical Statistics, Prentice Hall,1992.
2. Mood, A. M., F. A. Graybill and D. C. Boes, Introduction to the Theory of Statistics, McGraw Hill, 1974.

Tutorial
Marks: 25, Credit: 1
No. of Lecture hours (Tu): 15

- Mode of Tutorial Examination: Presentation (15 Marks) & Viva (10 Marks).
- Tutorial contact hours: 15 [for Revision, Doubt Clearing, Solving Problems]
- Tutorial classes are introduced per course to give the students an idea of detailed understanding of the course and also to build their confidence on the subject in terms of (i) solving problems, (ii) presenting a paper in terms of board work or power point,(iii) preparation of term paper etc.
- A Tutorial class also helps a teacher to clarify any topic in detail to the students.
- A Tutorial contact hour has been meant to promote teacher-student academic interaction.

3 Economic Data Analysis and Report Writing (EDARW)

Theory
Marks: 75, Credits: 3
No. of Lecture hours (Th): 45

3.1 Tabular and Graphical representation of Statistical Data

10 lecture hours

- Tabular representation of data for analysis
- Graphical representation of data-use of line diagram, bar chart, divided bar chart, pie chart
- etc.
- Frequency distribution table: uses and implications
- Pictorial descriptions of frequency table: frequency polygon, histogram, ogive etc.

3.2 Basic Descriptive Statistics and its role in Data Analysis

25 lecture hours

- Measures of Central Tendency
  - Concept of arithmetic mean, geometric mean and harmonic mean-their uses (explicit mathematical proof of the properties of different types mean are not required).
  - The concept of median and mode-their uses in analyzing economic data.
  - Comparison of mean, median and mode as measures of central tendency
- Measures of dispersion:
  - Range, mean deviation, standard deviation and quartile deviation.
  - Properties of various measures and their implications (explicit proof of properties is not required).
  - Comparison of various measures of dispersion.
  - Significance of the concept of coefficient of variation.
  - Use of range, standard deviation and coefficient of variation in measuring income inequality.
  - Basic concept of Gini coefficient and Lorenz curve.
- Introductory ideas of correlation and regression analysis.

3.3 Elements of Report writing

10 lecture hours

- Locating the basic issues- theme based literature survey and motivation behind any study-objectives of the study-development of writing skills
- Methodological issues: Use of tables and graphs. Use of various measures of central tendency and dispersion in analyzing the results.

- Insertion of footnotes or end notes.
- Preparation of Bibliography

References

1. Goon, A. M, Gupta, M. K, and Dasgupta, B. Fundamentals of Statistics (Volume One), The World Press Private Ltd.
2. A.L. Nagar and R.K. Das : Basic Statistics, 2nd edition, Oxford University Press.
3. C.R. Kothari: Research Methodology: Methods and Techniques (second revised edition), New Age India (P) Ltd Publishers.

Tutorial
Marks: 25, Credit: 1
No. of Lecture hours (Tu): 15

- Project/ Term Paper/ Essay writing on any topic from the syllabus in consultation with the concerned teachers.
- Tutorial contact hours: 15 [for Revision, Doubt Clearing, Solving Problems]
- Tutorial classes are introduced per course to give the students an idea of detailed understanding of the course and also to build their confidence on the subject in terms of (i) solving problems, (ii) presenting a paper in terms of board work or power point,(iii) preparation of term paper etc.
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- A Tutorial contact hour has been meant to promote teacher-student academic interaction.

4 Entrepreneurship and Development (ED)

Theory
Marks: 75, Credits: 3
No. of Lecture hours (Th): 45

4.1 Basic issues of Entrepreneurship and Economic Development

15 lecture hours

- Basic features of Entrepreneurship
- Entrepreneurship and its linkages with economic development
- Growth of entrepreneurship in India—Role of Entrepreneurship in Economic Development.
- Planning Commission's guidelines for formulating a project report by an entrepreneur
- Problem of Rural entrepreneurship in India

4.2 Financial resources for new ventures of an entrepreneur

10 lecture hours

- Sources of finance—capital structure.
- Institutional support to enterprises—national small industries board – state small industries development corporation— district industries center— industrial estates-Indian experience

4.3 Growth strategies in small business

10 lecture hours

- Stages of growth,
- Types of growth strategies-Expansion, Diversification, Joint Venture, Merger and Subcontracting

4.4 Sickness in Small Business

10 lecture hours

- Concept of industrial sickness
- Symptoms of sickness in small business
- Causes and consequences of sickness in small business

References

1. S.S Khanka— Entrepreneurial Development, S.Chand & Company Ltd
2. Rajeev Roy— Entrepreneurship, 3E , Oxford University Press
3. Bill Bolton and John Thompson —- Entrepreneurs: Talent, Temperament and Technique, Butterworth and Heinemann.

4. David .H Holt—Entrepreneurship New Venture Creation

5. Poornima M. Charantimath: Entrepreneurship Development and Small Business Enterprises (2nd Edition) Pearson.

6. Misra D. and Puri K. Indian Economy, Himalaya Publishing House

7. Datt and Sundharam (Revised by G.Datt and A. Mahajan) , Indian Economy, 70th edition, S. Chand

Tutorial
Marks: 25, Credit: 1
No. of Lecture hours (Tu): 15

- Project/ Term Paper/ Essay writing on any topic from the syllabus in consultation with the concerned teachers.
- Tutorial contact hours: 15 [for Revision, Doubt Clearing, Solving Problems]
- Tutorial classes are introduced per course to give the students an idea of detailed understanding of the course and also to build their confidence on the subject in terms of (i) solving problems, (ii) presenting a paper in terms of board work or power point,(iii) preparation of term paper etc.
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- A Tutorial contact hour has been meant to promote teacher-student academic interaction.

5 Elementary Economics

Theory
Marks: 50, Credits: 2
No. of Lecture hours (Th): 30

5.1 Elementary Microeconomic Concepts:

10 Lecture Hours

- Theory of Demand and Supply–Determinants, Law of demand and supply, Demand and supply curves
- Elasticity of Demand and Supply–Concepts of Price and income elasticity and implications
- Theory of Production and Cost—Production function–Concepts of TP, AP, MP, short run-long run and different cost curves-social and external costs
- Market–Different forms-TR, AR and MR– Pricing and Output Decisions under Perfect competition and monopoly–features and equilibrium (diagrammatic representation only)

5.2 Elementary Macroeconomic Concepts:

10 Lecture Hours

- National Income Accounting –Circular flow– concepts of GNP, GDP, NNP, NDP, National Income
- Money and Banking–Different measures of money supply, Difference between central and commercial bank and their functions
- Inflation –Definition, types and anti-inflationary policy
- Fiscal Policy & Monetary Policy -Objectives and Instruments
- International Trade and contemporary issues–Balance of Payments (BOP)–Concepts autonomous and accommodating transactions, Functions of IMF, World Bank, WTO Exchange Rates—PPP (Concepts only)

5.3 Elementary Economic Development Concepts:

5 Lecture Hours

- Growth vs. Development
- Development Indicators - Human Development Index (HDI), Gender (GDI), Poverty (MPI), Inequality (GINI) Indices—India's rank
- Sustainable development–concepts and Goals

5.4 Elementary Concepts of Indian Economics:

5 Lecture Hours

- Economic Reforms in India—Background, Basic steps of trade, industry and financial sector reforms
- NITI AYOG - Structure and objectives

References:
Unit-1

1. G.Mankiw. 2007, Economics: Principles and Applications, India edition by South Western, Cengage Learning
2. R.G. Lipsey. An Introduction to Positive Economics, ELBS (6th edition)
3. Pindyck, Rubinfeld and Mehta, Microeconomics, Pearson
4. G.S.Maddala and E. Miller, 1989, Microeconomics, Prentice Hall, McGraw Hill International Editions
5. Ferguson, C.E. and Gould, J.P. : Microeconomic Theory, Aitbs Publishers and Distributors, New Delhi.

Unit-2

1. Dornbusch, Fischer and Startz, Macroeconomics, McGraw Hill, 11th edition, 2010.
2. N. Gregory Mankiw. Macroeconomics, Worth Publishers, 2010.
3. Branson,William, Macroeconomic Theory and Policy, East West Press
4. Salvatore, D, Internaional Economics, John Wiley and sons
5. Sikdar Soumyen, Principles of Macroeconomics, Oxford University Press.
6. https://www.imf.org/en/Home
7. https://www.worldbank.org/en/home
8. https://www.wto.org/

Unit-3

1. Thirlwall, A.P, Growth and Development, Fourth Edition, ELBS
2. Todaro, M.P, Economic Development, Sixth Edition, AWL

Unit-4

1. Puri, V.K & Mishra, S.K, Indian Economy, Himalaya Publishing House
2. Dutt & Sundharam, Indian Economy, S. Chand

Tutorial
Marks: 25, Credit: 1
No. of Lecture hours (Tu): 15

- Project/ Term Paper/ Essay writing on any topic from the syllabus in consultation with the concerned teachers.
- Tutorial contact hours: 15 [for Revision, Doubt Clearing, Solving Problems]
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6 Macroeconomics (I)

Theory
Marks: 75, Credits: 3
No. of Lecture hours (Th): 45

6.1 National Income Accounting

Lecture hours 12

- Macroeconomic data- Basic concepts of National Income accounting. The circular flow (three sector).
- Concepts of GNP, GDP, NNP, and NDP at market price and at factor cost- Real and Nominal, -Implicit deflator.
- The measurement of National Income. The problem of double counting.
- The role of Government. Concepts of Corporate Income, Corporate Savings, Personal Income, Personal Disposable Income and Personal Savings.
- Saving-Investment gap and its relation with budget deficit and trade surplus. National Income accounting and cost of living.

6.2 Income Determination in the Short Run (Part-I):

Lecture hours 12

The Simple Keynesian Model in a Closed Economy

- Consumption Function; the Keynesian Saving Function; stability of equilibrium; the concept of effective demand- the concept of demand-determined output
- Equilibrium Income determination in SKM; the Simple Keynesian Multiplier ; the paradox of thrift; the SKM in a Closed Economy with Government; Government expenditure and Tax
- Balanced Budget Multiplier

6.3 Basic theory of Investment

Lecture hours 3

- Investment function: Determinants of investment. -Concepts of Marginal productivity of capital
- Marginal efficiency of capital (MEC) and Marginal efficiency of investment (MEI).

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6.4 The Classical system

Lecture hours 12

- Basic ideas of Classical Macroeconomics; Say ‘s Law and Quantity Theory of Money
- Loanable fund theory

- The Classical Theory of Income and Employment determination
- Full Employment and wage-price flexibility; Neutrality of Money
- Classical Dichotomy (Basic Concept).

6.5 Inflation

Lecture hours 6

- Concepts and types - Inflationary Gap, Demand pull vs. Cost push inflation,
- Anti-inflationary policy

Tutorial
Marks: 25, Credit: 1
No. of Lecture hours (Tu): 15

- Mode of Tutorial Examination: Presentation (15 Marks) & Viva (10 Marks).
- Tutorial contact hours: 15 [for Revision, Doubt Clearing, Solving Problems]
- Tutorial classes are introduced per course to give the students an idea of detailed understanding of the course and also to build their confidence on the subject in terms of (i) solving problems, (ii) presenting a paper in terms of board work or power point,(iii) preparation of term paper etc.
- A Tutorial class also helps a teacher to clarify any topic in detail to the students.
- A Tutorial contact hour has been meant to promote teacher-student academic interaction.

Text/ References:

1. Dornbusch, Fischer and Startz, Macroeconomics, McGraw Hill, 11th edition, 2010.
2. N. Gregory Mankiw. Principles of Macroeconomics, Indian Imprint of South Western by Cengage India, 6th edition, 2015.
3. N. Gregory Mankiw. Macroeconomics, Worth Publishers, 2010.
4. Ghosh Chandana and Ghosh Ambar, Macroeconomics, PHI Learning Pvt Ltd, 2014.
5. Richard T. Froyen, Macroeconomics, Pearson Education Asia, 2nd edition, 2005.
6. Andrew B. Abel and Ben S. Bernanke, Macroeconomics, Pearson Education, Inc., 7th edition, 2011.
7. Venieris, Y.P. and Sebold F.D., Macroeconomics: Models and Policy, John Wiley and Sons, 1977.
8. Ackley Gardner (old), Macroeconomic Theory, Macmillan, 1961
9. Ackley Gardner(new), Macroeconomics : Theory and Policy : Macmillan
10. J.R.Hicks. The Social Framework: An introduction to Economics, Clarendon Press, 3rd Edition, 1960
11. Sikdar Soumyen, Principles of Macroeconomics, Oxford University Press

7 Introductory Statistics and Applications (II)

Theory
Marks: 25, Credit: 1
No. of Lecture hours (Th): 15
[For Semester-II]

7.1 Basic ideas of economic data

15 lecture hours

- Types of data-cross section, time series, pooled data, panel data etc.
- Nature of field survey data – types of cross section data
- Advantages and disadvantages of field survey data
- Importance of field survey data for economic analysis
- Role of pilot survey

Practical
Marks: 75, Credit: 3
No. of Lecture hours (Pr): 45
[For Semester-II]

- Practical: – Computer Laboratory based Worksheet Program (50 marks) & Viva (25 marks)
- Applications of use of Microsoft Excel software will be demonstrated in the computer laboratory in practical classes and the practical examination will be conducted in the usual manner as mentioned in CSR.
- To be more specific, the practical examination of the project is to be conducted jointly by the supervisor and an external examiner on the basis of the use of the Worksheet Program software in the computer laboratory (by determining the various measures of descriptive statistics in front of the examiners just like that of a practical examination) and also on the basis of a viva-voce based on the candidate's knowledge in this context.

7.2 Topics under worksheet Program: (Microsoft Excel)

2.1 Concept on Data Frame:

(13 lecture hours)

(Understanding the purpose and benefits of using worksheets in data management and analysis - Familiarizing students with Microsoft Excel, and their user interface)

- – Data Entry and Formatting
  - Variables & Observations (Inputting data into cells accurately and efficiently - Applying formatting options to enhance data presentation (e.g., number formatting, date formatting, cell borders).
  - Data Validation and Conditional Formatting (Setting validation rules to ensure data accuracy and consistency - Applying conditional formatting to highlight specific data patterns or trends.)
  - Data Sorting and Filtering (Sorting data in ascending or descending order based on specific criteria - Filtering data to display only relevant information).

- Basic Formulas and Functions (Understanding the concept of formulas and their role in performing calculations - Using basic mathematical operators (+, -, *, /) to create formulas - Utilizing built-in functions (e.g., SUM, AVERAGE, MAX, MIN, AND, IF, OR, COUNTIF, VLOOKUP, HLOOKUP) to perform common calculations)
- Importing and Exporting Data (Importing data from external sources (e.g., CSV files, databases) into worksheets - Exporting spreadsheet data to different file formats (e.g., CSV, PDF) for sharing or further analysis).

2.2 Frequency Analysis and Data Visualization:

(12 lecture hours)

(Creating charts and graphs to visually represent data - Selecting appropriate chart types based on data characteristics - Customizing chart elements (e.g., titles, axes, legends) to improve readability)

- Raw Data to Group Data
- Different type so Frequency Table
- Different Types of Tabulation (e.g.: Two Way, Three Way, Pivot Table etc.)
- Different Types of Frequency Graphs (Bar Chart, Column Charts, Frequency Polygon, Histogram, Pie Diagram)
- Customization of Graphs Frame

2.3 Descriptive Statistics:

(20 lecture hours)

(Applying descriptive statistics functions to analyze data - Calculating measures of central tendency and dispersion - Bivariate Analysis).

- Calculation of Mean, Median & Mode (Un-Grouped & Grouped Data)
- Dispersion & Inequality Measures (Un-Grouped & Grouped Data)
- Findings the Observations from different Descriptive Statistical Measures with Graphics (e.g.: Box Plot, Histogram, Lorenz Curve etc.)
- Scatter Diagram - Correlation Coefficient
- Simple Regression (Two Variables) - Estimation of Predicted Value & Regression Residuals
- Random Number Generation

Suggested Readings: Microsoft Excel
Books:

1. "Mastering Data Analysis with Excel" by Michael Alexander. "Data Analysis Using Excel" by Michael Middleton; Wiley, 2020
2. "Excel Bible" by John Walkenbach; Wiley, 2019
3. "Excel Charts and Graphs: Master Data Visualization Techniques" by Paul McFedries; Wiley, 2016
4. "Excel Formulas and Functions for Dummies" by Ken Bluttman; For Dummies, 2015
5. "Microsoft Excel 2016 Step by Step" by Curtis Frye; Microsoft Press, 2015

Weblinks:

1. MS Excel: https://www.w3schools.com/EXCEL/index.php
2. MSExcel: https://support.microsoft.com/en-au/office/ excel-video-training-9bc05390-e94c-46af-a5b3-d7c22f6990bb

8 Microeconomics (II)

Theory
Marks: 75, Credits: 3
No. of Lecture hours (Th): 45
[For Semester-III]

8.1 Theories of Consumer Behaviour and Applications

14 lecture hours

- Derivation of Demand Curves from ICs, composite good convention. Application: Cash subsidy versus subsidy in kind
- Price consumption curve, Income consumption curve and Engel curve. Price effect - Income and Substitution effect (Hicks and Slutsky), inferior goods and Giffen goods, Marshallian and compensated demand curves
- Application of Consumer Behaviour-Labour-leisure trade-off- Inter-temporal choice (saving and borrowing)
- Revealed preference - The Idea, From Revealed Preference to Preference, Recovering Preferences, The Weak Axiom of Revealed Preference, How to check WARP, The Strong Axiom of Revealed Preference, How to Check SARP
- Choice under uncertainty – utility function and expected utility, risk aversion and risk preference

8.2 Production and Costs

13 lecture hours

- Technology – general concept of Production Function, production with one and two variable inputs, total average and marginal products, short run and long run, returns to factor and returns to scale, Isoquants, marginal rate of technical substitution, isocost line and firm's equilibrium–Output maximization and Cost Minimization–Expansion path and Ridge lines- elasticity of substitution
- Types of production functions- Cobb-Douglas, fixed-coefficient and CES functions
- Cost structure- implicit cost, explicit cost, accounting cost, sunk cost, economic cost, fixed cost, variable cost, total, average and marginal cost. Determinants of short run cost, cost curves, short versus long run cost curves, economies of scale

8.3 The Firm and Perfect Market Structure

10 lecture hours

- Organization, Firms and Profit Maximization
- Relationship among Total Revenue, Average Revenue, Marginal Revenue and Price elasticity of demand
- Marginal Revenue, Marginal Cost and Profit Maximization

- Perfect competition- short run competitive equilibrium of the firm, short run supply curve of firm and industry, Output choice and competitive equilibrium in long run, Economic rent and profit, long-run industry supply- constant, increasing and decreasing cost.
- Consumer and Producer surplus, welfare and efficiency of competitive equilibrium. Government intervention and dead weight loss, Application- Minimum prices and price supports (price ceiling and price floors)
- Tax and market adjustment, Elasticity and Tax incidence

8.4 Input Market in Perfect Competition

8 lecture hours

- Basic concepts- derived demand, productivity of an input, marginal product of an input, value of marginal product and marginal revenue product
- Marginal productivity theory of distribution
- Labor market-supply of labour, competitive labor markets
- Land markets and rent– Ricardian Theory and Modern theory

Texts/ References:

1. Pindyck, Rubinfeld and Mehta, Microeconomics, Pearson
2. G.S.Maddala and E. Miller, 1989, Microeconomics, Prentice Hall, McGraw Hill International Editions
3. Hal. R Varian , Intermediate Microeconomics, A modern Approach, WW Norton and Company, 8th edition, 2010 (T)
4. Gravelle, H. and Rees ,R., Microeconomics, Prentice Hall
5. Ferguson, C. E. and Gould, J.P., Microeconomic Theory, Aitbs Publishers and Distributors, New Delhi.
6. Lipsey, R. and Chrystal, A., 2007, Economics, OUP
7. R.G. Lipsey. An Introduction to Positive Economics, ELBS (6th edited Cengage Learning)
8. Karl e Case and Ray C Fair, Principles of Economics, Pearson Education, 8th Edition, 2007
9. P Samuelson and W.Nordhaus, Economics, McGraw hill International Edition (14th edition or later edition)
10. J.E.Stiglitz and C.E.Walsh, Principles of Economics, WW Norton and Company, NY, (3rd edition or later edition)
11. Ryan, W.J.L. and Pearce : Price Theory and Applications , Macmillan Education, Publishers and Distributors, New Delhi.
12. Satya Chakrabarty, Microeconomics, Allied Publishers
13. Gould, J.P and E.P. Lazear: Microeconomics Theory, McGraw-Hill
14. Kousoyiannis A, Modern Microeconomics, Macmillan

Tutorial
Marks: 25, Credit: 1
No. of Lecture hours (Tu): 15
[For Semester-III]

- Mode of Tutorial Examination: Presentation (15 Marks) & Viva (10 Marks).
- Tutorial contact hours: 15 [for Revision, Doubt Clearing, Solving Problems]
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9 Development Economics

Theory
Marks: 75, Credits: 3
No. of Lecture hours (Th.): 45

9.1 Introduction to Development Economics

9 Lecture Hours

- Definition and Scope of Development Economics - Historical Perspective of Development Theories (Brief Idea Only)
- Growth Vs. Development - Goals and Indicators of Economic Development – HDI (concepts only)
- Income Approach and Capability Approach
- International Comparisons - Challenges and Opportunities in Developing Economies

9.2 Poverty, Inequality, And Development

12 Lecture Hours

- Causes and Consequences of Poverty in Developing Economies
- Measurement 0f Poverty: Poverty Line, Poverty Indices – Human Poverty Index (HPI), Multidimensional Poverty Index (MPI) - Vicious Circle of Poverty Hypothesis
- Income Inequality and Wealth Distribution – A Comparison of Commonly Used Inequality Measures (Lorenz Curve, Gini Coefficient)
- Gender Inequality - Gender Inequality Index (GII)

9.3 Dual Economy and Development Strategies

12 Lecture Hours

- Concept of Dual Economy - Structural heterogeneity in developing economies
- Rostow's Stages of Economic Growth
- Surplus Labour and Disguised Unemployment - Basic Concepts
- Lewis Model of Economic Development with Unlimited Supply of Labour
- Harris - Todaro Model of Migration and Urban Unemployment
- Balanced and Unbalanced Growth as Development Strategies (Nurkse, Rosenstein-Rodan, Hirschman) - Comparison
- Choice of Techniques - Labour-intensive vs. capital-intensive techniques - Factor endowments and relative prices - Employment vs. productivity trade-off - Appropriate technology debate
- Big Push Theory - Coordination failure and indivisibilities - Role of government and planning
- Contemporary Relevance and Synthesis - Structural transformation in modern economies - Informal sector dynamics

9.4 Financial Inclusion and Development

12 Lecture Hours

- Financial Inclusion and Its Impact on Economic Development
- Access to Credit and Financial Services in Rural Areas - Microfinance and Its Role in Poverty Alleviation
- Role of Banks and Financial Institutions in Promoting Development
- Objectives and Functions of IMF, World Bank, WTO

Text/ References:

1. “Economic Development” by Todaro and Smith, Pearson Education, 2009
2. “Development Economics” by Debraj Ray, Oxford University Press, 2009.
3. “Analytical Development Economics” by Kaushik Basu, OUP
4. “Growth & Development” by A. P. Thirlwall
5. "Economics of Development" by Dwight H. Perkins, Steven Radelet, David L. Lindauer, and Steven A. Block
6. "Poverty, Inequality, and Development: Essays in Honor of Erik Thorbecke" edited by Hans Binswanger-Mkhize, Kym Anderson, and Kym Anderson
7. "The End of Poverty: Economic Possibilities for Our Time" by Jeffrey D. Sachs
8. "Financial Inclusion: Theory and Measurement" edited by J. D. von Pischke, C. R. Cull, and T. Harten
9. "Financial Inclusion, Growth, and Inequality" by Thorsten Beck
10. "Microfinance for Bankers and Investors: Understanding the Opportunities and Challenges of the Market at the Bottom of the Pyramid" by Elisabeth Rhyne

Web-links:

1. World Bank: https://www.worldbank.org/
2. International Monetary Fund (IMF): https://www.imf.org/
3. United Nations Conference on Trade and Development (UNCTAD): https://unctad.org/
4. The United Nations Development Programme (UNDP): https://www.undp.org/

Tutorial
Marks: 25, Credits: 1
No. of Lecture hours (Tu.): 15

- Mode of Tutorial Examination: Presentation (15 Marks) & Viva (10 Marks).
- Tutorial contact hours: 15 [for Revision, Doubt Clearing, Solving Problems]

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10 Data Analysis and Research Methodology

Theory
Marks: 50, Credits: 2
No. of Lecture hours (Th.): 30
[For Semester-III]

10.1 Methodologies of collection of data

5 lecture hours

- Complete enumeration vs. sample survey
- Sampling techniques: basic ideas of simple random sampling (with and without replacement), stratified random sampling, circular sampling, sampling proportional to size (mathematical proof/mathematical demonstration not required for any type of sampling)
- Practical methods of drawing random sample using random number tables.
- Prerequisites for field survey –preparation of blank tables
- Preparation of questionnaire depending on nature of survey- illustrations on the basis of preparation of hypothetical questionnaire

Textbook:

1. Goon, A. M, Gupta, M. K, and Dasgupta, B. Fundamentals of Statistics (Volumes One and Two),The World Press Private Ltd
2. "Research Methodology: Methods and Techniques" by C.R. Kothari and Gaurav Garg

Reference:

1. "Elementary Survey Sampling" by Richard L. Scheaffer, William Mendenhall, and R. Lyman Ott

10.2 Recording & Validating of data

5 lecture hours

- Recording of data after completion of survey: Manual & Digital
- Tabular representation of data collected
- Cross checking of data after tabular representation
- Role of units of measurement

Textbook:

1. Goon, A. M, Gupta, M. K, and Dasgupta, B. Fundamentals of Statistics (Volumes One and Two),The World Press Private Ltd
2. "Fundamentals of Applied Statistics" by S.C. Gupta and V.K. Kapoor

Reference:

1. "Survey Methodology" by Robert M. Groves et al.

10.3 Elements of Report writing

5 lecture hours

- Locating the basic issues- theme based literature survey and motivation behind any study-objectives of the study-development of writing skills.
- Methodological issues: Use of tables and graphs.
- Use of various measures of central tendency and dispersion in analysing the results.
- Insertion of footnotes or endnotes.
- Preparation of Bibliography

Textbook:

1. Goon, A. M, Gupta, M. K, and Dasgupta, B. Fundamentals of Statistics (Volumes One and Two),The World Press Private Ltd
2. "Business Research Methods" by Donald R. Cooper and Pamela S. Schindler

Reference:

1. "The Craft of Research" by Wayne C. Booth et al.

10.4 Basics of Power Query in MS Excel, Power BI

15 lecture hours

- Power Query in Excel - Connect, Transform, Combine, Load
- Power BI - Loading Excel data, Visualize data, Explore data, Make informed decisions

Reference:

1. “Cleaning Excel Data with Power Query: Straight to the Point” Du Soleil, Oz; Independent Publishers Group, 2019
2. https://learn.microsoft.com/en-us/power-bi/fundamentals/ desktop-what-is-desktop?source=recommend

Practical
Marks: 50, Credits: 2
No. of Lecture hours (Tu.): 30
[For Semester-III]

- Practical: – Sample Survey (Preparation of Questionnaire & Data Collection: 25 marks), Report Writing (Presentation using MS Excel Dynamic Dashboard, Interpretation & Analysis: 15 marks) & Viva (10 marks).
- Total Practical Hours: 30
- Students will Prepare a Questionnaire and Collect Primary Data, and then they should make Statistical Analysis based on the use of Excel Worksheet Program software (Microsoft Excel). They are to prepare one Dynamic Interactive Dashboard in this context.

- Students should have good knowledge about the sampling procedure used in collecting data. On the day of the Practical examination students should carry the data set used in the report.
- It is a computer laboratory-based Practical based on which the project report will be constructed. Use of computer laboratory is essential for running the Worksheet Program and for handling the data.
- Small Sample Survey, Data Analysis & Report Writing may be done by a single student or by a group of students (not exceeding 5 students in a single group) depending on the decision of the internal examiner/ supervisor.
- The Report should be supervised by a subject teacher approved by the institution. But viva-voce will always be with respect to individual student, not for the group as a whole.
- The norm of examination for this Practical part of the course will be decided as per university modalities. To be more specific, the Practical examination of the project is to be conducted on the basis of the content of the survey report, use of Excel Worksheet Program in the computer laboratory and also on the basis of a viva-voce based on the candidate's knowledge about the data set along with economic insights. Data should be primary, and data to be justified by the student.

11 Mathematical Economics (I)

Theory
Marks: 75, Credits: 3
No. of Lecture hours (Th): 45
[For Semester-IV]

11.1 Preliminaries

20 Lecture hours

- **Sets and their operations** – Cartesian Products of sets, Open and Closed sets, Convex sets
- **Matrices** – Elementary Operations, Rank of a Matrix, Determinant and Inverse of a square matrix, Solution of a system of linear equations using Cramer's rule, Eigen values and Eigen vectors
- **Functions of One Real Variable**
  - Geometric properties of functions – Increasing and Decreasing functions, convex and concave functions, Quasi-concave and Quasi-convex functions, Domain and Range of a Function, Concepts of monomial and polynomial functions, Linear and Non-linear functions, Explicit and Implicit functions, Number System
  - Limit and Continuity of a Function – Different Limit Theorems (without proofs)
  - Differentiability of a function – Concept of first principle – First-order differentiation and Second-order differentiation; L'Hospital's Rule
  - First derivative and slope of a function, Second derivative and curvature of a function
  - Graphs of Linear, Quadratic, Polynomial, Power, Exponential and Logarithmic
  - Functions
  - Quasi-convexity and quasi-concavity of functions – conditions for checking
  - Applications in economics – Marginal and Average functions, Elasticity
- **Functions of several variables**
  - Partial and total derivatives – Hessian Matrix
  - Monotonic transformation of a function, Homogeneous and homothetic function, Euler's theorem
  - Implicit Function Theorem (without proof), System of non-linear equations – Jacobian determinant and existence of solution
  - Conditions for convexity / concavity, conditions for quasi-convexity /quasi- concavity for two-variable functions
  - Level curves – definition, slope and curvature
  - Applications in economics – Utility function – Marginal Utility, Indifference curves; Demand function – various elasticities of demand; Production function – Marginal Product, Isoquants and Output elasticity; Comparative Static Analysis

[Ref: Chiang, A.C. and Wainwright (CW), Fundamental Methods of Mathematical Economics, McGraw-Hill Book Co. – Chapters on 'Economic Models', 'Equilibrium Analysis in Economics', 'Linear Models and Matrix Algebra', 'Linear Models and Matrix Algebra (continued), 'Comparative Statics and the Concept of Derivative', 'Rules of Differentiation and their Use in Comparative Statics', 'Comparative Static Analysis of General Functions Models' 'The Case of More than One Choice Variable', 'Optimization with Equality Constraints']

11.2 Single Variable Optimization

10 Lecture hours

- Concepts of Local and Global Maximum/Minimum, Maximum/Minimum on the Boundary and in the Interior
- Stationary/Extreme Points and Values
- Significance of First order and second order conditions of maximization/ minimization
- **Applications in economics** –
  - Profit maximization with respect to output for a competitive firm
  - Effects of (a) lump-sum tax (b) specific tax (c) ad valorem tax under perfect competition

[Ref: CW – Ch. on 'Optimization: A Special Variety of Equilibrium Analysis'; Henderson, J. M. and R.E. Quandt, R. E. (HQ), Microeconomic Theory: A Mathematical Approach, Tata McGraw-Hill Publishing Company Limited – Ch. On 'Market Equilibrium']

11.3 Optimization of Several Variable Functions

15 Lecture hours

- **Concepts of Unconstrained and Constrained optimization**
- **Unconstrained optimization of a Function of two variables** - conditions for maximization / minimization – stationary point / extreme values, Hessian determinant and the concepts of positive definite and negative definite
  - Applications in economics - Profit maximization with respect to factor-uses for a competitive firm when Production function is given
- **Constrained Optimization with Equality Constraint** – Conditions for maximization/minimization, Lagrange method and Bordered Hessian determinant, Value Function and Envelope theorem
  - Applications in Economics –
  - Utility maximization problem – Derivation of demand curves, income consumption curve, indirect utility function, Interpretation of Lagrange multiplier, Roy's identity
  - Expenditure minimization problem – Derivation of compensated demand function, Shephard's Lemma, Slutsky's equation
  - Optimal choice of labour and leisure
  - Cost minimization problem – Derivation of factor demand function for a cost-minimising firm, cost function, expansion path
- **Constrained optimization with Inequality Constraint** – Application of Kuhn-Tucker conditions
- **Linear Programming Problem** – Formulation of an LPP, Graphical solution, Basic feasible solution, Slack and surplus variables, Duality, Duality Theorems (without proofs)
  - Economic Applications –

– Diet problem, Production problem, Leontief Static Open Model and Leontief Static Closed Model and Hawkins-Simon conditions – Economic interpretation of Dual

[Ref: CW – Chapters on 'Optimizations: A Special Variety of Equilibrium Analysis', 'The Case of More than One Choice Variable', 'Optimization with Equality Constraints', 'Further topics in optimization'; Chiang, Alpha C., 'Linear Programming', 'Linear Programming (continued)'; HQ – Chapter on 'Topics in consumer behavior', 'The theory of the firm'; Dorfman, R., Samuelson, P.A. and Solow, R. M., Linear Programming and Economic Analysis, Dover Publications – Ch. on 'The Statical Leontief System']

Additional References

1. Dixit, A. K., Optimization in Economic Theory, Oxford University Press.
2. Hoy, M., Levernois, McKenna, C., Rees, R. and Stengos, T. Mathematics for Economics, PHI Learning Private Limited.
3. Intrilligator, Michael D., Mathematical Optimization and Economic Theory, PHI Learning Private Limited.
4. Renshaw,G., Maths for Economics, Oxford University Press.
5. Simon, C. P. and L. Blume, Mathematics for Economists, W. W. Norton & Company Ltd.
6. Sydsaeter, K., Hammond, P. J. and Storm, A., Essential Mathematics for Economic Analysis, Pearson.
7. Silberberg, E. and Suen, W., The Structure of Economics: A Mathematical Analysis, McGraw-Hill.

Tutorial
Marks: 25, Credit: 1
Tutorial contact hours (Tu): 15
[For Semester-IV]

- Mode of Tutorial Examination: Presentation (15 Marks) & Viva (10 Marks).
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12 Macroeconomics (II)

Theory
Marks: 75, Credit: 3
No. of contact hours (Th): 45
[For Semester-IV]

12.1 Income Determination in the Short-run (Part-II): The IS-LM Model

10 lecture hours

- IS-LM Model - equilibrium, stability and comparative statics-Crowding out -Effects of fiscal and monetary policies.

12.2 Aggregate Demand and Aggregate Supply- the Complete Keynesian Model

10 lecture hours

- Derivation of aggregate demand curve.
- Derivation of aggregate supply curves both in the presence and absence of wage rigidity.
- Equilibrium, stability, and comparative statics-effects of monetary and fiscal policies. Effects of wage cut.
- Unemployment equilibrium and its causes- possible solutions including real balance effect.

12.3 Keynes vs. Classics

7 lecture hours

- Keynesian vs. classical system.
- Hybrid models under Classical/Keynesian framework.
- Friedman's restatement of classical ideas

12.4 Money Supply, Monetary Policy and Government Budgetary Operations

10 lecture hours

- Measures of money supply with special reference to India (M1, M2, M3 and M4)
- Balance sheet view of money supplied by the banking sector as a whole
- High powered money –definition
- Balance sheet of Reserve Bank of India and High-powered money
- Balance sheet of Commercial banks and basic ideas of money multiplier theory.
- Deposit multiplier, currency multiplier, reserve multiplier, credit multiplier and money multiplier in the context of the theory of money supply

- Interest sensitivity of money supply and the slope of the LM curve
- Monetary policy – Open Market Operations, Statutory Liquidity Ratio, Bank rate, variable reserve ratio, repo rate.
- Government Budget Deficit –Deficit financing and monetary policy.

12.5 Inflation-Unemployment Trade-off and Expectations

8 lecture hours

- Inflation and unemployment trade-off.
- Four models of aggregate supply: The Sticky-Wage Model, The Worker-misperception Model, The Imperfect Information Model, and The Sticky-Price Model.
- Deriving the Phillips Curve from Aggregate Supply Curve.
- Short run and long- run Phillips curve – role of adaptive expectations and rational expectations.
- Disinflation, Sacrifice Ratio and policy ineffectiveness.

Texts/ References:
Textbooks:

1. Dornbusch, Fischer and Startz, Macroeconomics, McGraw Hill, 11th edition, 2010.
2. N. Gregory Mankiw. Macroeconomics, Worth Publishers, 2010

References

1. Richard T. Froyen, Macroeconomics, Pearson Education Asia, 2nd edition, 2005.
2. Ackley Gardner (old), Macroeconomic Theory, Macmillan, 1961
3. Ackley Gardner(new), Macroeconomics: Theory and Policy: Macmillan,1978
4. Ghosh Chandana and Ghosh Ambar, Macroeconomics, PHI Learning Pvt Ltd, 2014
5. Andrew B. Abel and Ben S. Bernanke, Macroeconomics, Pearson Education, Inc., 7th edition, 2011.
6. Venieris, Y.P. and Sebold F.D., Macroeconomics: Models and Policy, John Wiley and Sons, 1977
7. Richard T. Froyen, Macroeconomics, Pearson Education Asia, 10th edition, 2016.
8. William Branson. Macroeconomic Theory and Policy, Indian reprint, East West Press, 3rd edition, 2014.
9. Levacic Rosalind and Rebmann Alexander, Macroeconomics: An Introduction to Keynesian and Neo-Keynesian Controversies, Palgrave Macmillan, 1982.
10. Sikdar Soumen, Principles of Macroeconomics, Oxford University Press
11. Blaug Mark, Economic Theory in Retrospect, 5th Edition, Cambridge University Press, 1997

12. Mueller, M. (edited), Readings in Macroeconomics, London: Holt, Rinehart and Winston, 1973.

Tutorial
Marks: 25, Credit: 1
Tutorial contact hours (Tu): 15
[For Semester-IV]

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13 Statistics for Economics

Theory
Marks: 75, Credits: 3
No. of Lecture hours (Th): 45
[For Semester-IV]

13.1 Elementary Probability Theory

8 Lecture hours

- Sample spaces and events (concepts and definitions using set theory)
- Classical and Axiomatic definitions of probability and their comparison
- Conditional Probability and Independence of Events, Pairwise and Mutual independence
- Theorem of total probability, Theorem of compound probability, Bayes' Theorem and their applications

[Ref: Goon, A. M, Gupta, M. K, and Dasgupta, B. (GGDG) Fundamentals of Statistics, Volume One, The World Press Private Ltd – Chapter on 'Elements of Probability Theory']

13.2 Probability Distributions

15 Lecture hours

- Random variable (discrete and continuous) – probability distribution, probability mass function (pmf), probability density function (pdf), distribution function
- Expected values of random variables – mean, variance, raw moment, central moment, moment generating function (mgf)
- Properties of commonly used discrete and continuous distributions:
  - Binomial – pmf, mean, variance, moment generating function, measures of skewness and kurtosis
  - Poisson – pmf, mean, variance, moment generating function, measures of skewness and kurtosis
  - Normal – pdf, mean, median, mode, variance, moment generating function, measures of skewness and kurtosis points of inflection
- Joint distribution of random variables (discrete and continuous) – joint pmf/ pdf, marginal pmf/pdf, conditional pmf/pdf – independence of jointly distributed random variables

[Ref: GGDG Vol 1 – Chapters on 'Univariate Theoretical Distributions', 'Elements of Probability Theory']

13.3 Sampling Theory and Distribution

7 Lecture hours

- Concepts of Complete enumeration survey and sample survey, sampling and non- sampling errors, Population, sample, statistic, parameter, sample size, population size, random sampling, sampling distribution and standard error of a statistic
- Some Methods of Random Sampling:
  - Simple random sampling (SRS) with replacement (WR) and without replacement (WOR) – Practical methods of drawing SRSWR and SRSWOR
  - Mean and standard error of sample mean in cases of SRSWR and SRSWOR
  - Mean and standard error of sample proportion in cases of SRSWR and SRSWOR
  - Mean of sample variance in case of SRSWR
  - Stratified sampling (basic concept only)
  - Multi-stage sampling (basic concept only)
- Some Basic Distributions –
  - Chi-square, Student's t and F distributions – definitions, important properties (mean, variance, skewness - without derivations)

[Ref: GGDG Vol 1 – Chapter on 'Random Sampling and Sampling Distributions'; Murthy, M.N., Sampling Theory, Chapters on 'Need for Sample Survey', 'Concepts, Definitions and Notations', Simple Random Sampling', 'Stratified Sampling', 'Multi-stage Sampling']

13.4 Statistical inference

15 Lecture hours

- Basic ideas of Estimation and Testing, Point Estimation and Interval Estimation
- Point Estimation – Criteria of a good estimator – unbiasedness, minimum variance, mean square error, Consistency and Sufficiency
  - Basic principles of Ordinary Least Square, Maximum Likelihood Method, Method of Moments
  - MLEs of parameters of Binomial, Poisson and Normal distributions
- Interval Estimation –
  - Confidence interval for population mean and SD of Normal distribution
  - Confidence interval for Population Proportion
- Testing of hypothesis – Concepts of null hypothesis, alternative hypothesis, Type I and Type II errors, Power of a test, p-value
  - Testing related to mean and SD of normal distribution
  - Testing related to Population Proportion

[Ref: GGDG Vol 1 – Chapters on 'Basic Principles of Statistical Inference and Exact Tests and Confidence Intervals']

Additional References:

1. Cochran, William G., Sampling Techniques, John Wiley.
2. Freund, John E., Mathematical Statistics, Prentice Hall.
3. Mood, A.M., Graybill, F. A. and Boes, D.C., Introduction to the Theory of Statistics, McGraw Hill.

Tutorial
Marks: 25, Credit: 1
Tutorial contact hours (Tu): 15
[For Semester-IV]

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14 Indian Economics

Theory
Marks: 75, Credits: 3
No. of Lecture hours (Th.): 45
[For Semester-IV]

14.1 Economic Development since Independence

(15 hours)

- Growth and development under different policy regimes (from planning to market-based development)
  - Objectives, achievements and failures of Planning
  - Economic crisis during the late 1980s
  - Economic Reforms – Critical Analysis
- Structural changes in the post-reforms period
- Regional variation of growth and development

14.2 Population and Human Development

(9 hours)

- Demographic trends and issues
- Health: Basic problems and Government measures
- Education: Basic problems and Government measures, Right to Education (RTE) Act 2009

14.3 Growth and Distribution: Policy perspectives

(9 hours)

- Trends in GDP and per capita GDP
- Poverty and Inequality
- Unemployment, Youth unemployment (School Transition to Work)

14.4 Economic Reforms in India

(12 hours)

- Industrial Sector Reform
- Financial Sector Reforms
- Fiscal Sector Reforms
- Trade & External Sector Reforms
- Labour market Reforms

- Reforms in the Public Sector

References Books:

1. "Indian Economy" by Ramesh Singh
2. "Indian Economy: Performance and Policies" by Uma Kapila
3. "Indian Economy: Problems and Development" by A.M. Gokhale and S.S. Acharya
4. "Indian Economy since Independence" by Uma Kapila
5. "Indian Economy: Economic Development and Policy" by Mishra and Puri
6. "Indian Economy: Economic Development and Policy" by Dutt and Sundaram
7. "India's Economic Development Since 1947: 1947-1970" by T.V. Sathyamurthy
8. "The Evolution of the Indian Economy: 1900 to the Present Day" by Irfan Habib
9. "India's Economic Reforms and Development: Essays for Manmohan Singh" edited by Isher Judge Ahluwalia and I.M.D. Little
10. "India's Economic Policy: Preparing for the Twenty-First Century" by I.G. Patel and Ismail Serageldin
11. "India Unbound: The Social and Economic Revolution from Independence to the Global Information Age" by Gurcharan Das
12. "The Indian Economy: Problems and Prospects" by Bimal Jalan
13. "India: Economic Reforms and Growth" by Jagdish Bhagwati
14. "India's Economic Transformation" edited by K.L. Krishna and S. Mahendra Dev
15. "India's Economy: Performance and Challenges" by S.K. Ray
16. "India's Economy: Problems and Prospects" by Arvind Panagariya
17. "The Oxford Handbook of the Indian Economy" edited by Chetan Ghate
18. "Indian Economy: Environment and Policy" by Gaurav Datt and Ashwini Deshpande
19. "Indian Economy: Issues and Policies" by D.K. Hathi and C.B. Mamoria
20. "The Indian Economy: A Macroeconomic Perspective" by S.S. Bhalla
21. "The Indian Economy: Issues, Policies and Performance" edited by Rajib Bhattacharya, & Ananya Ghosh dastidar, 2024, Routledge India
22. "Bharatiyo Arthaniti", Sudakshina Gupta (Paschimbanga Rajya Pustak Parshad)

Web-links:

- Reserve Bank of India: https://www.rbi.org.in/
- Ministry of Finance, Government of India: https://www.finmin.nic.in/
- Planning Commission (now NITI Aayog): https://niti.gov.in/

Tutorial
Marks: 25, Credits: 1
No. of Lecture hours (Tu.): 15
[For Semester-IV]

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15 Sustainable Development

Theory
Marks: 75, Credits: 3
No. of Lecture hours (Th): 45
[For Semester-IV]

15.1 The Approach Towards Sustainability-Introductory ideas

10 lecture hours

- Key environmental issues and problems - Economic way of thinking about these problems
- Circular flow of Environmental Pollutants and Waste Recycling - Laws of Thermodynamics
- Renewable and Non-renewable Resources - The issue of Sustainability

15.2 The Meaning of Sustainable Development

20 lecture hours

- Different definitions of Sustainable Development
- Rules of Sustainable Development
- Measures of Sustainable Development
- Sustainable Management of resources-the role of property rights
- Stakeholders associated with Sustainable Management of different types of renewable resources: fishery, forestry and water
- The concept of Sustainable livelihood in the context of sustainable resource management.

15.3 Trans-boundary pollution, Climate Change and Sustainable Development

15 lecture hours

- Implementation of Environmental policies in Developing Countries and International experience;
- Transboundary Environmental Problems - International Meetings, Protocols and Treaties;
- Economics of Climate Change - Basic ideas of the Carbon Credit Market – Clean Development Mechanism and International Emission Trading.

Texts

1. Rabindranath Bhattacharya: Environmental Economics: An Indian Perspective, Oxford University Press.
2. Pearce and Turner: Environmental and Natural Resource Economics, John Hopkins University Press,1991

References

1. Roger Perman, Yue Ma, Michael Common, David Maddison and James McGilvray, - Natural Resource and Environmental Economics, Pearson Education/Addison Wesley, 4th edition, 2011.
2. Charles Kolstad, - Intermediate Environmental Economics, Oxford University Press, 2nd edition, 2010.
3. IPCC (Intergovernmental Panel on Climate Change), Fifth Assessment Report, 2014.
4. National Water Policy 2012, Ministry of Water Resources, Government of India.
5. National Forest Policy 2016: Ministry of Environment and Forests, Government of India
6. National Policy on Marine Fisheries, 2017: Ministry of Animal Husbandry, Dairying and Fisheries, Government of India.

Tutorial
Marks: 25, Credits: 1
No. of Lecture hours (Tu): 15
[For Semester-IV]

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16 Microeconomics (III)

Theory
Marks: 75, Credits: 3
No. of Lecture hours (Th): 45
[For Semester-V]

16.1 Imperfect Market Structure

20 lecture hours

- Monopoly and barriers to entry- output determination and price rule, measure and sources of monopoly power, social costs of monopoly power-Deadweight loss
- Pricing with market power- first, second- and third-degree price discrimination, intertemporal price discrimination-peak-load pricing and two-part tariff-multiplant monopoly
- Monopolistic competition- short run and long run equilibrium, excess capacity
- Oligopoly- Oligopoly equilibrium as Nash equilibrium, Cournot, Bertrand and Stackelberg Model- use of isoprofit curves and simple game theoretic interpretation. Sweezy‘s kinked demand curve model and non-collusive equilibrium. Competition versus collusion- the Prisoners‘ Dilemma. Collusive Oligopoly –Cartels and Price Leadership

16.2 Input market under Imperfect Competition

5 lecture hours

- Monopsony, bilateral monopoly in labour market—Monopolistic and monopsonistic exploitation

16.3 General Equilibrium, Efficiency and Welfare

20 lecture hours

- General Equilibrium and Economic Efficiency- Exchange, production and welfare, Pareto Optimality, Edgeworth box and contract curve, Pareto efficiency and perfect competition
- Reasons for Market failure, Pareto efficiency and market failure (externalities and public goods), property right and Coase Theorem
- Markets with asymmetric information-adverse selection, moral hazards, agency problems (concepts only)

Tutorial
Marks: 25, Credits: 1
No. of Lecture hours (Tu): 15
[For Semester-V]

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Texts/ References:

1. Pindyck, Rubinfeld and Mehta, Microeconomics, Pearson
2. Hal. R Varian, Microeconomic Analysis, WW Norton and Company, 3rd edition, 2013
3. J Tirole, Theory of Industrial Organisation, MIT Press, 1988
4. K Binmore, Fun and Games: A text on Game Theory, OUP,1991
5. Anindya Sen, Microeconomics, OUP
6. C. Snyder and W. Nicholson, Fundamentals of Microeconomics, Cengage Learning, 2010
7. Satya Chakrabarty, Microeconomics, Allied Publishers
8. Ferguson, C. E. and Gould, J.P., Microeconomic Theory, Aitbs Publishers and Distributors, New Delhi.
9. Cohen, K.J. and Cyert, R.M.,Theory of the Firms: Resource Allocation in a Market Economy , Prentice Hall India,1981
10. Chauhan, S.P.S. , - Microeconomics- An Advanced Treatise, Prentice Hall India, 2009.
11. Walter Y.Oi- " A Disneyland Dilemma: Two Part Tariffs for a Mickey Mouse Monopoly" The Quarterly Journal of Economics, Vol. 85, No. 1 (Feb., 1971), Oxford University Press (For Two-part Tariff only)

17 Macroeconomics (III)

Theory
Marks: 75, Credits: 3
No. of Lecture hours (Th): 45
[For Semester-V]

17.1 Basic Tenets of New Classical and New Keynesian Theories

10 Lectures

- New Classical Theory-The concept of rational expectations and the theory of real business cycle-introductory ideas
- New Keynesian Theory- nominal rigidities and real rigidities, rigidities in interest rates and credit rationing-introductory ideas

17.2 Macroeconomic Foundations

15 Lectures

- Consumption: Keynesian consumption function; Fisher's theory of optimal inter-temporal choice; life-cycle and permanent income hypotheses; Dusenberry's relative income hypothesis;
- Demand for money: Regressive Expectations and Tobin's portfolio choice models; Baumol's inventory theoretic money demand.

17.3 Economic Growth

20 lectures

- Harrod and Domar models of economic growth.
- Solow one sector growth model-steady state-golden rule- -dynamic efficiency.
- Technological progress
- Elements of endogenous growth theory-basic ideas-the AK model

Textbooks:

1. N. Gregory Mankiw. Macroeconomics, Worth Publishers, 2010
2. Ghosh Chandana and Ghosh Ambar, Macroeconomics, PHI Learning Pvt Ltd, 2014

References

1. Richard T. Froyen, Macroeconomics, Pearson Education Asia, 2nd edition, 2005.
2. Romer David , Advanced Macroeconomics, McGraw Hill Education, 4th edition, 2011.
3. Ghosh Chandana and Ghosh Ambar, Economics of the Public Sector, PHI Learning Pvt Ltd, 2008
4. Andrew B. Abel and Ben S. Bernanke, Macroeconomics, Pearson Education, Inc., 7th edition, 2011.

5. Richard T. Froyen, Macroeconomics, Pearson Education Asia, 10th edition, 2016.
6. Steven M. Sheffrin, Rational Expectations, Cambridge University Press, 2nd edition, 1996.
7. William Branson. Macroeconomics , Harper and Row, 3rd edition, 1989
8. Snowdon and Vane (ed), A Macroeconomics Reader, Routledge, Taylor and Francis Group.
9. R. Barro. Macroeconomics, 5th edition, The MIT Press, 1989
10. A.K.Sen (ed). Growth Economics, Penguin, 1970
11. Barro, R.J. and Xavier Sala-i-Martin , Economic Growth,
12. Errol D'Souza. Macroeconomics, Pearson Education (New Delhi), 2009.
13. Dornbusch, Fischer and Startz, Macroeconomics, McGraw Hill, 11th edition, 2010.
14. Laidler, E.W. ,The Demand for Money : Theories and Evidence, Dun-Donnelley Publishing Corporation, New York, 1978.

Tutorial
Marks: 25, Credit: 1
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[For Semester-V]

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18 Mathematical Economics (II)

Theory
Marks: 75 Credits: 3
No. of Lecture hours (Th): 45
[For Semester-V]

18.1 Game Theory

10 Lecture hours

- Concept of a game – Pure Strategy and Mixed Strategy, Constant-sum and Non-constant-sum game – Constant-sum game as a zero-sum game
- Static Games – Pure Strategy Solution Methods, viz., Maximin–Minimax technique, Dominant strategy equilibrium, Iterated dominant strategy equilibrium, Nash equilibrium and Mixed Strategy Solution Method
- Some Common Games – Prisoners' Dilemma, Battle of Sexes, Matching Pennies
- Dynamic Games – Method of Backward Induction (Basic concept)

[Ref : Gibbons, R., Game Theory for Applied Economists, Princeton University Press – Ch. on 'Static Games of Complete Information']

18.2 Integration of Functions

5 Lecture hours

- Integration of functions
- Integration by Substitution and Integration by parts
- Applications in Economics – finding total functions from marginal functions, Present Value

[Ref: Chiang, A.C. and Wainwright (CW), Fundamental Methods of Mathematical Economics, McGraw-Hill Book Co. – Ch. on 'Economic Dynamics and Integral Calculus']

18.3 Difference Equations

10 Lecture hours

- First order linear difference equations and their solutions
- Second order linear difference equations and their solutions
- Non-linear Difference Equations – Qualitative-Graphic Approach
- Applications in Economics – Cobweb model, A model with lagged adjustment, Samuelson's multiplier-accelerator model

[Ref: CW – Chapters on 'Discrete time: first order difference equations', 'Higher Order Difference Equations'; HQ – Chapter on 'Market equilibrium']

18.4 Differential Equations

20 Lecture hours

- First order linear differential equations and their solutions
- Second order linear differential equations and their solutions
- Solution of linear system of Differential Equations (i) via Eigen values(ii) by substitution
- Fixed Point and stability
- Qualitative-Graphic Approach – One-variable and Two-variable Phase Diagrams
- Linearization of a Non-linear Differential-Equation System and Stability Analysis
- Applications in microeconomics and macroeconomics – Price dynamics in a single market, Multi-market equilibrium and stability, A model with inflation-unemployment interaction, Solow model, ISLM model

[Ref: CW – Chapters on 'Continuous Time: First Order Differential Equations', 'Higher Order Differential Equations', 'Simultaneous differential equations and difference equations'; Strogatz, Steven H., Non-linear Dynamics and Chaos, Sarat Book Distributors (for 4.4); Silberberg, E. and Suen, W., The Structure of Economics: A Mathematical Analysis, McGraw-Hill, Ch. on 'Equilibrium, Dis-equilibrium, and the Stability of Markets']

Additional References

1. Aliprantis, D.C. and Chakrabarti, S. K., Games and Decision-Making, Oxford University Press.
2. Allen, R.G.D., Mathematical Analysis for Economists, Macmillan and Co. Limited.
3. Hoy, M., Levernois, McKenna, C., Rees, R. and Stengos, T. Mathematics for Economics, PHI Learning Private Limited.
4. Renshaw,G., Maths for Economics, Oxford University Press.
5. Sydsaeter, K., Hammond, P. J. and Storm, A., Essential Mathematics for Economic Analysis, Pearson.

Tutorial
Marks: 25 Credit: 1
Tutorial contact hours (Tu): 15
[For Semester-V]

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19 Econometrics

Theory
Marks: 75 Credits: 3
No. of Lecture hours (Th): 45
[For Semester-V]

19.1 Nature and Scope of Econometrics

3 lecture hours

- Distinction between Economic Model and Econometric model.
- Concept of stochastic relation, Role of random disturbance in econometric model.
- Application of Econometrics in different branches of social science.

19.2 Classical Linear Regression Model

Simple linear regression model (SLRM) and multiple linear regression model (MLRM) with two regressors

27 lecture hours

- The classical assumptions (basic interpretation); Concepts of population regression function and sample regression function, SLRM and MLRM.
- Estimation of SLRM and MLRM (with two regressors only) by method of ordinary least squares.
- Properties of the Least Squares Estimators in SLRM- Gauss-Markov theorem.
- Testing of hypotheses in SLRM and MLRM – Single Test and Joint Test
- Goodness of fit (in terms of R2, adjusted R2 and F statistic), Analysis of Variance (ANOVA).
- Economic Interpretation of Regression results – Statistical significance and economic importance.
- Simple correlation, partial correlation and multiple correlation (Definition, and interpretation in the context of SLRM and MLRM).

19.3 Qualitative (Dummy) Independent Variables

10 lecture hours

- Intercept dummy and Slope dummy (only interpretation of the model).
- Forecasting - Ex-post forecast and Ex-ante forecast, forecast error (only for two variable model).

19.4 Violations of Classical Assumptions

5 lecture hours

- Multicollinearity - Consequences, Detection (Variance Inflationary Factor) and Remedies.
- Heteroscedasticity - Consequences, Detection (Lagrange Multiplier test) and Remedies.
- Autocorrelation - Consequences, Detection (Durbin-Watson test) and Remedies.

Text Books

1. Gujarati, Damodar (2004), Basic Econometrics, McGraw-Hill.
2. Wooldridge, Jeffrey M. (2013), Introductory Econometrics – A Modern Approach, CENGAGE learning.

Reference Books

1. Maddala, G. S. (2002), Introduction to Econometrics, Macmillan Publishing Company.
2. Pindyck, R. and D. Rubinfeld (1997), Econometric Models and Economic Forecasts, McGraw-Hill.

Tutorial
Marks: 25 Credit: 1
Tutorial contact hours (Tu): 15
[For Semester-V]

- Mode of Tutorial Examination: Presentation (15 Marks) & Viva (10 Marks).
- Tutorial contact hours: 15 [for Revision, Doubt Clearing, Solving Problems]
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20 Economic History of India (1857-1947)

Theory
Marks: 75 Credits: 3
No. of Lecture hours (Th): 45

20.1 Colonial India: Background and Introduction

10 lecture hours

- Overview of the colonial economy
- Macro Trends: National Income; Population; Occupational structure.

20.2 Agriculture

10 lecture hours

- Agrarian structure and land relations
- Agricultural markets and institutions – credit, commerce and technology;
- Trends in performance and productivity
- Famines.

20.3 Railways and Industry

10 lecture hours

- Railways
- The de-industrialisation debate
- Evolution of entrepreneurial and industrial structure
- Nature of industrialisation in the inter-war period
- Constraints to industrial breakthrough, Labour relations.

20.4 Economy and State in the Imperial Context

15 lecture hours

- The imperial priorities and the Indian economy
- Drain of wealth
- International trade, Capital flows and the colonial economy – changes and continuities
- Government and fiscal policy.

Text

• Bhattacharya, Dhiresh, A Concise History of Indian Economy, Progressive Publishers, 1972

References

• Irfan Habib, Indian Economy 1858-1914, A People's History of India, Vol.28, Tulika, 2006.
• B.R. Tomlison, 1975, India and the British Empire 1880-1935, IESHR, Vol.XII.

- Dharma Kumar, the Fiscal System, CEHI, Chapter 12.
- Basudev Chatterjee, Trade, Tariffs and Empire, OUP 1992, Epilogue.
- Amiya Kumar Bagchi, Private Investment in India 1900-1939, Taylor and Francis, 2000.

Tutorial
Marks: 25 Credit: 1
Tutorial contact hours (Tu): 15

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21 Public Finance

Theory
Marks: 75 Credits: 3
No. of Lecture hours (Th): 45

21.1 Core Concepts

15 lecture hours

- Public Goods and Externalities: Understanding the characteristics of public goods, market failures, and the role of government in addressing externalities.
- Public Revenue: Sources of government revenue including taxation (direct and indirect), fees, and other non-tax revenues.
- Public Expenditure: The allocation of public funds for various government activities, including social welfare, infrastructure, and defence.
- Public Debt: The concept of public debt, its implications for the economy, and debt management strategies.
- Taxation: Progressive, Regressive and Proportional

21.2 Basic Concepts of Public Finance Theories

10 lecture hours

- Benefit Principle
- Ability-to-Pay Principle
- Public Choice Theory (Basics)
- Fiscal Federalism

21.3 Issues from Indian Public Finance

20 lecture hours

- Current Issues of India's Tax System.
- Working of Monetary and Fiscal Policies in India.
- Analysis of Indian Budgetary System

Text

1. Ganguly Subrata, Public Finance : A Normative Approach, Nababharat Publishers
2. Majumdar D. and Bhattacharya S., Sarkari Aay- Byay Tatyer Bhumika, ABS Publishing House, 2024

References

1. Musgrave, R.A. and P.B. Musgrave, Public Finance in Theory and Practice, Mc- Graw Hill, 1989.

2. M.M Sury, Government Budgeting in India, Commonwealth Publishers, 1990.

3. Shankar Acharya, - Thirty years of tax reform in India, Economic and Political Weekly, May 2005.

4. Government of India, Report of the 13th Finance Commission.

5. Economic Survey, Government of India (latest).

6. State Finances: A Study of Budgets, Reserve Bank of India (latest).

Tutorial
Marks: 25 Credit: 1
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22 International Economics

Theory
Marks: 75, Credits: 3
No. of Lecture hours (Th): 45
[For Semester-VI]

22.1 Absolute and Comparative Advantages of Trade

7 lecture hours

- Adam Smith's theory of Absolute Advantage.
- David Ricardo's theory of Comparative Advantage.
- Arbitrage as the basis and direction of trade; fundamental sources of cross-country price differences and arbitrage-concept of comparative advantage; externalities, regulation and perverse comparative advantage
- One factor economy, production possibility frontier, relative demand and relative supply, terms of trade, trade in the Ricardian world, Determination of intermediate TOT, Complete vs. Incomplete specialization, Complete specialization and gains from trade.

22.2 The Building Blocks of Trade Theory

10 lecture hours

- The concept of community indifference curve-Justification and properties.
- The need for trade indifference curves, derivation of trade indifference curves, properties of trade indifference map, Offer curves and its properties. Three important elasticities-the elasticity of offer curves, the elasticity of demand for imports, the elasticity of supply of exports. International equilibrium and offer curves, terms of trade (TOT) and stability, the Marshall-Lerner condition,
- Gains from Trade (GFT) theorem, illustration of GFT, decomposition of GFT, substitution possibilities and magnitude of GFT.

22.3 Factor Endowment and Trade (Heckscher-Ohlin-Samuelson Model)

15 lecture hours

- Heckscher-Ohlin (HO)theorem and price vs. physical definitions of relative factor abundance.
- Role of homotheticity of tastes in the context of physical definition
- Factor Intensity Reversal in the context of price and physical definitions and invalidity of HO Theorem.
- Factor intensity ranking, one-to-one correspondence between commodity price ratio & factor price ratio (Stolper-Samuelson Theorem), One to one correspondence between endowment ratio and production proportion (Rybczynski theorem) .
- The Factor Price Equalization Theorem-Factor price equalization and complete specialization.

- Incomplete Specialization, Factor price equalization and Factor Intensity Reversal
- Empirical studies- Leontief Paradox.

22.4 Trade Policy

10 lecture hours

- Partial Equilibrium Analysis of Tariff - cost–benefit, Quota, Quota- Tariff equivalence & non-equivalence, monopoly effects of quota, subsidy and voluntary export restraint.
- General Equilibrium Analysis- distinction between large and small economy, welfare effects of a tariff on small country and large country. Tariff ridden offer curve, Tariff war, Optimum tariff for large economy, Metzler's Paradox.

22.5 Balance of Payments

3 lecture hours

- Balance of Payments accounts. Autonomous and accommodating transactions. Basic concepts of Fixed and Flexible exchange rate

Texts

1. P. Krugman and M. Obstfeld- International Economics (8th Edition) ; Pearson Education
2. R. Caves, J. Frankel and R.W. Jones – World Trades & Payments (9th Ed); Pearson Education.
3. Rajat Acharyya- International Economics; Oxford University Press

References

1. J.R. Markusen, J.R. Melvin, W.H. Kaempfer, K.E. Maskus – International Trade – Theory and Evidence, McGraw Hill
2. B. Sodersten, and G. Reed (1994) : International Economics , Macmillan, London, 3rd edition.
3. M. Chacoliades (1978) : International Trade: Theory and Policy, New York, McGraw-Hill
4. R. Dornbusch : Open Economy Macroeconomics, Basic Books, Inc. Publishers, New York.
5. Jones, R.W. : The Structure of Simple General Equilibrium Models, Journal of Political Economy, Vol 73, 1965, pp 551-572
6. Jones, R.W. : A Three Factor Model in Theory, Trade and History, in Bhagwati. J. et al (eds) Trade, Balance of Payments and Growth, 1971, North Holland, Amsterdam.
7. Chaudhuri, S. and Mukhopadhyay, U.: Foreign Direct Investment in Developing Countries: A Theoretical Evaluation, Springer, Chapter 2 only, 2014.

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23 Environmental & Resource Economics

Theory
Marks: 75, Credits: 3
No. of Lecture hours (Th.): 45
[For Semester-VI]

23.1 Environment, Ecology, and Economy

10 lecture hours

- What is environmental economics
- Interlinkages between the Economy and Environment - Circular Economy
- Elements of Environmental Degradation

23.2 Efficiency and Market Failure

8 lecture hours

- Externalities, Public Goods/ Bads, and Market Failure
- Property Rights and the Coase Theorem

23.3 Environmental Regulations and the Economics of Environmental Policies

12 lecture hours

- History - The Design
- Monitoring and Enforcement
- Pigouvian Fees – Single Polluter, Multiple Polluters, Fees vs. Subsidies
- Regulating Pollution: Command and Control, Economic Incentives
- Tradable Pollution Permits (Basic Concepts only)

23.4 Measuring the values of Environmental Costs and Benefits

15 lecture hours

- Concept of Total Economic Value: User Value & Non-User Value
- Actual Market based Valuation, Future Use Value, Bequest Value, Vicarious Value
- Objective Standard based Valuation
- Subjective Preference based Valuation - Revealed Preference based Valuation: Travel Cost Method (TCM) & Hedonic Price Theory (HPT)
- Stated Preference Method - Constructed Market: Contingent Valuation Method (CVM)

Reference:

1. Bhattacharya R. (ed.), Environmental Economics - An Indian Perspective, OUP.

2. Saha D., Handbook of Environmental Economics, Cambridge Scholars Publishing, 2024

3. Kolstad C, Environmental Economics, OUP

4. Hanley N, Shogren J.F. & White B., Environmental Economics in Theory and Practice, Macmillan

5. Pearce and Turner: Environmental and Natural Resource Economics, John Hopkins University Press,1991

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No. of Lecture hours (Tu.): 15
[For Semester-VI]

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24 Public Economics

Theory
Marks: 75, Credits: 3
No. of Lecture hours (Th): 45
[For Semester-VI]

24.1 Government in a Market Economy

6 lecture hours

- Revisiting the concept of Market failure and externalities; public and merit goods; Mixed good, Club good, Partial Public good
- Government intervention-allocation, Distribution, Stabilization and Regulatory functions

24.2 Choice and Public Economics

12 lecture hours

- Characteristics of Pure Public Good; Distinction between Pure Public Good and Private Good;
- Market Failure in case of Pure Public Good, Optimal provision of Public Goods - Public Provision of Public Goods,
- Samuelson Model and Lindahl Equilibrium

24.3 The Revenue and Expenditure of the Government

15 lecture hours

- Classification of Taxes; Canons of Taxation;
- Principles of Taxation - Benefit Principle, Ability to Pay Principle, Equal Sacrifice Principle, ;
- Incidence and Burden of Taxation;
- Effects of taxation on work efforts, risk-bearing and on savings,
- The Laffer curve;
- Comparison between direct and indirect taxes – income and substitution effects;
- Optimal Taxation

24.4 Public Finance

12 lecture hours

- Meaning and Classification of Public Expenditure - government budget and its types– primary deficit, fiscal deficit, revenue deficit and budget deficit
- Meaning of Public Debt; Domar's model of public debt, Ricardian Equivalence, Sources of Public Borrowings: internal and external borrowing; Effects of Public Debt.
- Fiscal federalism-concepts of tax devolution

References:

1. J. F. Due and A. F. Friedlander. Government Finance-Economics of Public Sector, AITBS Publishers and Distributors, 1994
2. J. Hindriks and G. D. Myles. Intermediate Public Economics, The MIT Press; Annotated Edition, 2006.
3. R.A. Musgrave and P.B. Musgrave, Public Finance in Theory & Practice, McGraw Hill Publications, 5th edition, 1989.
4. Amaresh Bagchi (ed), Readings in Public Finance, OUP
5. J. E. Stiglitz. Economics of Public Sector,W. W Norton and Company, 3rd Edition, 2000.
6. A Ghosh and C. Ghosh, Economics of the Public Sector, Prentice Hall India Learning Private Limited; 2nd Revised edition (2014)

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25 Rural Development

Theory
Marks: 75, Credits: 3
No. of Lecture hours (Th): 45
[For Semester-VI]

25.1 Understanding Rural India

7 lecture hours

- Basic Elements of Rural Development
- Growth versus Development
- Why Rural Development
- Rising Expectations and Development
- Development and Change

25.2 Rural Economy of India

8 lecture hours

- Size and Structure of the Rural Economy - Population & resources
- The Characteristics of the Rural Sector
- The Role of the Agricultural Subsector
- The Role of the Non-agricultural Subsector
- Challenges and Opportunities

25.3 Measures of Rural Development

8 lecture hours

- Measures of Level of Rural Development: PQLI & HDI
- Measures of Income Distribution: Lorenz Curve & Gini Coefficient
- Measures of Development Simplified
- Concepts and Measures of Rural Poverty: Definition, Criteria, Measures

25.4 Rural Governance and Institutions

10 lecture hours

- Panchayati Raj institutions and their role,
- Rural Credit, NABARD, RRB,
- Self-help groups (SHGs) and microfinance,
- Role of NGOs in rural development

25.5 Selected Government Programmes and Rural Development

12 lecture hours

- Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA),
- Pradhan Mantri Awas Yojana-Gramin (PMAY-G),
- Mid-Day Meal Scheme (MDM),
- National Rural Livelihoods Mission (NRLM),
- National Rural Health Mission (NRHM),
- Pradhan Mantri Gram Sadak Yojana (PMGSY)

References

1. Katar Singh , Rural Development: Principles, Policies and Management, Sage Publications, New Delhi.
2. K.G. Karmakar, Rural Credit and Self-Help Groups, Sage Publications, New Delhi
3. S.Sau, Rural Industrialization –Development Trajectory in India, Farma K.L.M., Kolkata
4. Misra D. and Puri K. Indian Economy, Himalaya Publishing House
5. Datt and Sundharam (Revised by G.Datt and A. Mahajan), Indian Economy, 70th edition, S. Chand
6. Udai Pareek, Rural Development: Planning and Implementation

Other References:

- Reports and Publications: Government of India publications, such as those from NITI Aayog, Ministry of Rural Development, and Planning Commission, offer valuable insights into rural development policies and programs.
- Government Websites: Websites of ministries and departments related to rural development (e.g., Ministry of Rural Development, NITI Aayog) offer data, reports, and policy documents.

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26 Summer Internship

Notifications:

1. UGC Notification (www.ugc.gov.in/pdfnews/0063650_Draft-Guidelines-for-Internship-and-Research-Internship-for-Under-Graduate-Students.pdf)
2. Notification no. CSR/48/2023 (https://www.caluniv.ac.in/ccf-ug/files/CSR-48-2023.pdf)
3. Corrigendum (https://www.caluniv.ac.in/ccf-ug/files/corri-SI-CUS-111(Cir.)-24.pdf)
4. Explanation (https://www.caluniv.ac.in/ccf-ug/files/Notice-SIP-CUS-155-24.pdf)
5. Notification no. CSR/29/2024 (https://www.caluniv.ac.in/ccf-ug/files/SIS-UGCSR-29.pdf). **Economics: Page no.7**

27 Advanced Microeconomics

DSCC16
Theory
Marks: 75, Credits: 3
No. of Lecture hours (Th): 45
[For Semester-VII]

Syllabus Outline

I. Consumer Behaviour

Choice of a Representative Consumer – Duality Approach - Indirect Utility Function, Expenditure Function - Consumer Surplus, Equivalent and Compensating Variation - Revealed Preference – Choice Under Uncertainty - Problem of Aggregation.

II. Theory of the Firm and the Competitive Market

Cost Minimization – Envelope Theorem for Constrained Optimization – Duality; The Competitive Firm – Market Equilibrium – Pareto Efficiency – Taxes and Subsidies.

III. General equilibrium

The Exchange Economy – Brouwer's Fixed Point Theorem and Existence Theorem –Producer Economy - The Production Model- Fixed and Flexible Coefficients –Jones (1965) and Jones (1971) models.

Pareto Optimality – Pareto optimality and social welfare-Concept of Core - First and Second Fundamental Theorems of Welfare Economics (Intuition only).

IV: Welfare

Basic elements of Welfare Economics

Recommended Reading & References

1. **Primary Textbooks :**
   (a) Varian, H. R. (2009). Microeconomic Analysis (3rd ed.). Viva Books Pvt. Ltd.
   (b) Mas-Colell, A., Whinston, M. D., & Green, J. R. (2012). Microeconomic Theory. Oxford University Press, India.
   (c) Gravelle, H., & Rees, R. (2004). Microeconomics (3rd ed.). Pearson Financial Times/ Prentice Hall.
2. **Highly Recommended Complementary Texts:**
   (a) Jehle, G. A., & Reny, P. J. (2011). Advanced Microeconomic Theory (3rd ed.). Pearson. (Often more concise than MWG for some proofs)
   (b) Kreps, D. M. (1990). A Course in Microeconomic Theory. Princeton University Press. (Excellent for developing intuition)
   (c) Chakravarty, S. (2002). Advanced Microeconomic Theory (2nd ed.). Allied Publishers
   (d) Sen, A. (1999): Microeconomics : Theory and Applications, OUP
   (e) Caves, R. E., Frankel, J. A., & Jones, R. W. (2007). World Trade and Payments: An Introduction (10th ed.). Pearson/Addison-Wesley.
3. **Mathematical Background:**
   (a) Simon, C. P., & Blume, L. (1994). Mathematics for Economists. W. W. Norton & Company. (Indispensable reference)

(b) Chiang, A. C., & Wainwright, K. (2005). Fundamental Methods of Mathematical Economics (4th ed.). McGraw-Hill.

(c) Oz Shy (1997): Industrial Organization : Theory and Applications, MIT Press

Detailed Syllabus

27.1 Consumer Behaviour

(12 Hours)

27.1.1 Choice of a Representative Consumer & Utility Maximization

- Preferences, Axioms of Choice
  - Utility Function Existence
  - Utility Maximization Problem (UMP)
  - Marshallian Demand Functions

27.1.2 Indirect Utility Function & Expenditure Function

- Indirect Utility Function: Properties (0° homogeneity, wealth monotonicity, price quasi-convexity)
  - Expenditure Minimization Problem (EMP)
  - Expenditure Function: Properties (1° homogeneity, monotonicity, concavity in prices)
  - Duality: UMP $\leftrightarrow$ EMP

27.1.3 Duality Approach & Consumer Relationships

- Hicksian Demand Functions (Compensated Demand)
  - Shephard's Lemma & Its Implications
  - Roy's Identity (Linking Marshallian Demand to Indirect Utility)
  - Slutsky Equation (Decomposition into Substitution & Income Effects)
  - Integrability problem

27.1.4 Revealed Preference & Aggregation

- Weak Axiom of Revealed Preference (WARP)
  - Strong Axiom of Revealed Preference (SARP)

27.1.5 Consumer Surplus, Compensating & Equivalent Variation

- Exact Welfare Measures: Compensating Variation (CV) & Equivalent Variation (EV)
  - Relationship to Consumer Surplus
  - Quasilinear Utility & Exact Welfare Measurement
  - Applications: Tax Policy Evaluation (Income Tax vs. Quantity Tax)

27.1.6 Choice Under Uncertainty

- Expected Utility Theory: VNM Utility Axioms
  - Risk Aversion: Arrow-Pratt Measures
  - Certainty Equivalent & Risk Premium
  - Applications: Insurance Demand, Portfolio Choice

27.2 Theory of the Firm and the Competitive Market

(10 Hours)

27.2.1 Technology, Production & Profit Maximization

- Production Sets & Transformation Functions
  - Production Functions: Short vs. Long Run
  - Technical Rate of Substitution (TRS)
  - Returns to Scale (CRS, DRS, IRS)
  - Profit Maximization Problem (PMP): First-Order Conditions, Comparative Statics

27.2.2 Cost Minimization & The Envelope Theorem

- Cost Minimization Problem (CMP): Conditional Factor Demands
  - Cost Function: Short & Long Run
  - Envelope Theorem for Constrained Optimization (Crucial Tool)
  - Hotelling's Lemma (From Profit Function)
  - Shephard's Lemma (From Cost Function)

27.2.3 Duality in Production & The Competitive Firm

- Duality: PMP $\longleftrightarrow$ CMP
  - Properties of Profit & Cost Functions
  - The Competitive Firm's Supply Decision
  - Envelope Theorem Derivations: $\partial\pi*/\partial w = -x, \partial\pi*/\partial p = y$

27.2.4 Market Equilibrium, and Elements of Market Imperfections

- Competitive Market Equilibrium: Existence, Uniqueness, Stability
  - Taxes and Subsidies Analysis: Analysis under competitive framework
  - Basic ideas of monopolistically competitive market with love for variety (Dixit-Stiglitz type) and IRS

27.3 General Equilibrium

(12 Hours)

27.3.1 The Exchange Economy

- Edgeworth Box Analysis
  - Contract Curve & Pareto Efficient Allocations
  - Walrasian Equilibrium (Competitive Equilibrium)

27.3.2 Existence, Uniqueness & Stability of Equilibrium

- Existence: Fixed-Point Theorems (Brouwer, Kakutani)
  - Uniqueness: Conditions (e.g., Gross Substitutes)
  - Stability: Tatonnement Process & Dynamic Adjustment

27.3.3 General Equilibrium with Production

- The Production economy - Fixed and Flexible coefficients

- Jones (1965) model – Capital Intensity condition – equational structure and working - Rybczynski and Stolper-Samuelson Theorems *(Intuition only: mathematical proofs are not required for both the theorems)*

- Jones (1971) model – equational structure and working- Price magnification effect (intuition only) - Fixed and variable coefficients

Note: Specific Jones models are covered in Caves et al.; MWG covers General GE Theory.

27.4 Welfare

(11 Hours)

27.4.1 Basic elements of Welfare Economics

- Pareto Efficiency and Pareto improvement.

- The concept of Core of an exchange economy.

- Pareto optimality and maximization of social welfare

- First and Second Fundamental Theorems of Welfare Economics *(Intuitive analysis of the Theorems. Mathematical Proofs are not required.)*

Note: For Core and First and Second Fundamental Approach one can consult Chakraborty, S. for a lucid treatment

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28 Advanced Macroeconomics

DSCC17
Theory
Marks: 75, Credits: 3
No. of Lecture hours (Th): 45
[For Semester-VII]

28.1 Open Economy Macroeconomy

15 lecture hours

- Balance of payments
- Mundell-Fleming Model
- Comparative Static involving fiscal and monetary policy

28.2 Rational Expectation

10 lecture hours

- Adaptive versus rational Expectation
- Dornbusch's overshooting Model
- Lucas critique and policy irrelevance
- Hall's random walk consumption model

28.3 Investment

5 lecture hours

- Neoclassical theory of Investment
- Shadow price theory of investment
- Tobin's q

28.4 Economic Growth

15 lecture hours

- Dynamic optimization
- Maximum principle Hamiltonian method
- Ramsey-Cass- Koopman's Growth Model
- Romer's endogenous growth model

Text / References

1. Romar D, Advanced macroeconomics. McGraw-Hill Irwin
2. D'souza E, Macroeconomics, Pearson

3. Sheffrin S M, Rational Expectations, Cambridge University Press

4. Minford P, Peel D, Advanced Macroeconomics, Edward Elgar Publishing

5. Chiang A C, Elements of Dynamic Optimization, Waveland Press

6. Hoy M, John Livernois J, McKenna C , Rees R, Stengos T, Mathematics for Economics, MIT Press

7. Dornbusch R, Open Economy Macroeconomics, Basic Books

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- Tutorial classes are introduced per course to give the students an idea of detailed understanding of the course and also to build their confidence on the subject in terms of (i) solving problems, (ii) presenting a paper in terms of board work or power point,(iii) preparation of term paper etc.
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- A Tutorial contact hour has been meant to promote teacher-student academic interaction.

29 Financial Economics

DSCC18
Theory
Marks: 75, Credits: 3
No. of Lecture hours (Th): 45
[For Semester-VII]

29.1 Financial institutions and Markets

2 lecture hours

- Financial institutions and markets- nature, features and role
- Money and capital markets: organization, role of financial derivatives and other innovations.

29.2 Investment Theory and Portfolio Analysis

22 lecture hours

- **Deterministic cash-flow streams:** 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; immunization; the term structure of interest rates; yield curves; spot rates and forward rates.
- Risk and risk aversion, capital allocation across risky and risk-free portfolios, the risk free asset, portfolios of one risky and one risk-free asset, risk tolerance and asset allocation, passive strategies: the capital market line, Markowitz Portfolio Optimization Model
- The Capital Asset Pricing Model (CAPM), assumptions and extensions of CAPM, the CAPM and investment industry

29.3 Options, Future and other Derivative Instruments

16 lecture hours

- Option markets, The option contract, values of options at expiration, option strategies, the put-call parity relationship, option valuation, binomial option pricing,
- Futures Markets, Future contracts, trading mechanics, future prices, Futures, swaps and risk management: foreign exchange futures, swaps, commodity futures pricing

29.4 Corporate Finance

5 lecture hours

- Capital structure and the cost of capital; corporate debt and dividend policy

Text / References

1. Bodie Z, Kane A, Marcus A.J, Mohanty P, Investments, Mcgraw-Hill, 13 th Edition 2026
2. Mishkin F S, and Eakins S G, Financial Markets and Institutions, Pearson Education, 6th edition, 2009.

3. Hull, John C., Options, Futures and Other Derivatives, Pearson Education, 6th edition, 2005.

4. David G. Luenberger, Investment Science, Oxford University Press, USA, 1997.

5. Thomas E. Copeland, J. Fred Weston, Shastri K, Financial Theory and Corporate Policy, Prentice Hall, 4th edition, 2003.

6. Brealey R A ,Stewart C. Myers, Principles of Corporate Finance, McGraw-Hill, 7th edition, 2002.

7. Stephen A. Ross, Randolph W. Westerfield , Bradford D. Jordan, Fundamentals of Corporate Finance. McGraw-Hill, 7th edition, 2005.

8. Burton G. Malkiel, A Random Walk Down Wall Street, W.W. Norton & Company, 2003.

9. Sharpe W, Alexander G , Bailey J, Investments, Prentice Hall of India, 6th edition, 2003.

Tutorial
Marks: 25, Credit: 1
No. of Lecture hours (Tu): 15
[For Semester-VII]

- Mode of Tutorial Examination: Presentation (15 Marks) & Viva (10 Marks).
- Tutorial contact hours: 15 [for Revision, Doubt Clearing, Solving Problems]
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30 Economic Thought

DSCC19
Theory
Marks: 75, Credits: 3
No. of Lecture hours (Th): 45
[For Semester-VII]

30.1 History of Economic Thought

(3 Lecture Hours)

Meaning, Scope, and Methodology:

Introduction to the evolution of economic ideas; distinction between economic history and history of economic thought; Absolutist vs. Relativist approaches.

Reference:

1. Roncaglia, Alessandro (2017), Introduction in A Brief History of Economic Thought, Cambridge University Press, Chp 1, pp – 1 to 9.
2. M. Blaug (1983), Economic Thought in Retrospect (3 rd Edition), Vikas Publishing, New Delhi, pp 1-8.

30.2 Classical Theories of Value and Distribution

$(2 + 2 + 4 + 5 + 5 = 18$ Lecture Hours)

- **Physiocrats - Natural Order and the Circulation of Wealth:**

Natural Order (Ordre Naturel); agriculture as the source of surplus (produit net); Tableau Économique; laissez-faire philosophy.

Reference:

1. M. Blaug (1983), pp 24 – 29.

- **Mercantilism - Wealth, Trade, and State Power:**

Bullionism and the balance of trade doctrine; emphasis on exports and state regulation; zero-sum game perspective.

Reference:

1. M. Blaug (1983), pp 10 – 18.

- **Theories of Adam Smith - The Wealth of Nations and Laissez-Faire:**

Division of labor; theory of value (labor command vs. labor embodied); natural and market prices; the "Invisible Hand."

Reference:

1. Roncaglia, Alessandro (2017), Chp 5, pp 58 – 77.
2. M. Blaug (1983), pp 36 – 40.

- **Ricardo - Distribution and Comparative Advantage:**

Theory of distribution and the Corn Model; theory of rent; inverse wage-profit relationship; comparative advantage.

Reference:

1. Screpanti and Zamagni (2005), pp 88-97
2. Roncaglia, Alessandro (2017), Chp 7, pp 94-103.
3. M. Blaug (1983), pp 91-106.

- **Marx - Critique of Capitalism:**

Historical materialism; labor theory of value; surplus value and exploitation; the breakdown of capitalism.

Reference:

1. Screpanti and Zamagni (2005), pp 142-160

30.3 Evolution of Neo-Classical Paradigm

$(4 + 6 = 10$ Lecture Hours$)$

- **General Equilibrium Theory - Walrasian System:**

The Marginalist Revolution and subjective utility; Walrasian general equilibrium; Pareto optimality.

Reference:

1. Roncaglia, Alessandro (2017), Chp 12, pp 167-174
2. Screpanti and Zamagni (2005), pp 289-289.

- **Keynesian Economics - The General Theory and Macroeconomics:**

Critique of Say's Law; principle of effective demand; consumption function and multiplier; liquidity preference; fiscal policy.

Reference:

1. Roncaglia, Alessandro (2017), pp 199-212
2. Screpanti and Zamagni (2005), pp 142-160

30.4 Evolution of Critical Theories

$(2 + 2 + 1 = 5$ Lecture Hours$)$

- **Post-Keynesian and Marxian Theories - Heterodox Perspectives:**

Kalecki's theory of effective demand; Sraffa's critique of neoclassical capital theory; Neo-Marxist approaches to accumulation.

Reference:

1. Ludo Cuyers, pp 1-5
2. Screpanti and Zamagni (2005), Chp 9, pp 351-363.

30.5 Recent Developments in Economic Theory and Methodology

$(2 + 2 + 2 + 3 = 9$ Lecture Hours$)$

- **Game Theory - Strategic Interaction:**

Strategic interaction; Nash equilibrium; applications in oligopoly and bargaining.

- **Institutional Economics - Institutions and Economic Behavior:**

Old and New Institutional Economics; transaction costs and property rights; role of institutions in economic performance.

- **Feminist Economics - Gender and the Economy:**

Critique of the rational agent model; valuation of unpaid domestic work and care economy.

- **Ecological Economics - Sustainability and Limits to Growth:**

Economy as a subsystem of the ecosystem; entropy and limits to growth; sustainable scale.

Reference:

1. Screpanti and Zamagni (2005) pp 428-435,475-495
2. Waring, M., and Steinem, G. (1988). If women counted: A new feminist economics.
3. Daly, H. E., and Farley, J. (2011). Ecological economics: principles and applications. Island press.

Other References:

1. Schumpeter (1954): History of Economic Analysis, Harvard University Press
2. Screpanti and Zamagni (2005): An Outline of the History of Economic Thought, OUP
3. Blaug (1983): Economic Theory in Retrospect (3/e), Vikas Publishing, New Delhi
4. Meek (1962): Economics of Physiocracy, George Allen & Urwin
5. Ludo Cuyers, Neo-Marxism and Post-Keynesian Economics – From Kalecki to Sraffa and Joan Robinson.
6. Roncaglia, Alessandro (2017), A Brief History of Economic Thought, CUP
7. Waring, M., and Steinem, G. (1988). If women counted: A new feminist economics.
8. Daly, H. E., and Farley, J. (2011). Ecological economics: principles and applications. Island press.

Tutorial
Marks: 25, Credit: 1
No. of Lecture hours (Tu): 15
[For Semester-VII]

- Mode of Tutorial Examination: Presentation (15 Marks) & Viva (10 Marks).
- Tutorial contact hours: 15 [for Revision, Doubt Clearing, Solving Problems]
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31 Economic History of India

DSCC20
Theory
Marks: 75, Credits: 3
No. of Lecture hours (Th): 45
[For Semester-VII]

31.1 Impact of British Rule on India

Lecture Hours (LH): 20

31.1.1 De-industrialisation

(LH: 6)

This section explores the decline of traditional Indian handicraft industries and the theoretical debates surrounding the process of de-industrialisation during the early colonial period.

- The state of Indian industry before British rule (1707–1857).
- The impact of British trade policies and the influx of manufactured goods from England.
- Theoretical implications and the debate on "De-industrialisation" in the 19th century.
- Changes in occupational structure and the decline of the artisanal class.

Readings:

1. Lakshmi Subramanian, History of India 1707-1857, Orient Blackswan, 2010, Chapter 4.
2. A.K. Bagchi, "De-industrialisation in India in the nineteenth century: Some theoretical implications", Journal of Development Studies, 1976.
3. J. Krishnamurty, "Occupational Structure" in Dharma Kumar (editor), The Cambridge Economic History of India (CEHI), Vol. II, 2005, Chapter 6.
4. Tirthankar Roy, The Economic History of India 1857-1947, Oxford University Press, 3rd edition, 2011. (Relevant chapters on Industry).

31.1.2 Commercialization of Agriculture & Famines

(LH: 8)

This section examines the forcible integration of Indian agriculture into the global capitalist market, the shift to cash crops, and the consequent crises of food security and mortality.

- Transition from subsistence to commercial agriculture.
- The production of cash crops for the export market and the commodification of land.
- Vulnerability to Famine: The link between commercialization, railway transport of food grains, and local scarcity.
- Famine relief policies, mortality trends, and the demographic impact of colonial agrarian policies.

Readings:

1. Irfan Habib, Indian Economy 1858-1914 (A People's History of India, Vol. 28), Tulika, 2006.
2. Tirthankar Roy, The Economic History of India 1857-1947, OUP, 2011.
3. Sumit Guha, 1991, "Mortality decline in early 20th century India", Indian Economic and Social History Review (IESHR), pp 371-74 and 385-87.
4. Ira Klein, 1984, "When Rains Fail: Famine relief and mortality in British India", IESHR, Vol. 21.
5. Jean Dreze, "Famine Prevention in India" in Dreze and Sen (eds.) Political Economy of Hunger, WIDER Studies in Development Economics, 1990, pp. 13-35.

31.1.3 Economic Drain

(LH: 6)

This section analyses the drain of wealth from India to Britain, covering trade balances and the fiscal mechanisms of extraction.

- The Drain Theory: Concepts and measurement.
- Export surplus and the "Home Charges".
- Foreign trade patterns and the Balance of Payments.
- The colonial fiscal system as a tool of extraction.

Readings:

1. Irfan Habib, Indian Economy 1858-1914, Tulika, 2006.
2. K.N. Chaudhuri, "Foreign Trade and Balance of Payments" in Dharma Kumar (ed.), CEHI, Chapter 10.
3. Dharma Kumar, "The Fiscal System" in Dharma Kumar (ed.), CEHI, Chapter 12.

31.2 Aspects of Economic Policies in British India

LH: 25

31.2.1 Land Policy

(LH: 5)

This section covers the revenue settlement systems introduced by the British and their impact on the agrarian structure.

- The Permanent Settlement, Ryotwari, and Mahalwari systems.
- Land revenue demand and collection methods.
- Peasant alienation and landlordism.

Readings:

1. Dharma Kumar, "The Fiscal System" in Dharma Kumar (ed.), CEHI, Chapter 12.
2. Tirthankar Roy, The Economic History of India 1857-1947, OUP, 2011.

31.2.2 Policy of Discriminating Protection

(LH: 6)

This section looks at the shift from free trade to protectionism and the rise of Indian industry against colonial interests.

- The debate on Free Trade vs. Protection.
- The tariff policy of the Government of India (1880–1935).
- Rise and growth of economic nationalism in India.
- Trade, tariffs, and the relationship with the British Empire.

Readings:

1. B.R. Tomlison, 1975, "India and the British Empire 1880-1935", IESHR, Vol. XII.
2. Basudev Chatterjee, Trade, Tariffs and Empire, OUP 1992, Epilogue.
3. Chandra B., Rise and Growth of Economic Nationalism in India, Har-Anand Publications, 2010.

31.2.3 Early Industrial Development and Managing Agency System

(LH: 6)

This section focuses on the nature of industrialization, the institutional framework of managing agencies, and labour.

- The rise of modern industries (Cotton, Jute, Steel).
- The Managing Agency System: Structure and role.
- Entrepreneurship patterns in colonial India.
- Emergence and composition of the industrial labour force.

Readings:

1. Rajat Ray (ed.), Entrepreneurship and Industry in India, 1994.
2. M.D. Morris, Emergence of an Industrial Labour Force in India, OUP 1965, Chapter 11 (Summary and Conclusions).
3. Tirthankar Roy, The Economic History of India 1857-1947, OUP, 2011.

31.2.4 Currency and Monetary Policy

(LH: 3)

This section outlines the evolution of currency and banking in India.

- The struggle between the Silver Standard and Gold Standard.
- Currency reforms and the establishment of the Reserve Bank of India.
- Inflation and monetary stability during the colonial period.

Readings:

1. Tirthankar Roy, The Economic History of India 1857-1947, OUP, 2011.

31.2.5 Development of Infrastructure – Railways

(LH: 5)

This section analyses the development of the railway network and its multifaceted impact on the Indian economy.

- Construction and financing of Railways.
- The economic impact of railways on trade and market integration.
- Railways as a "social and economic overhead" vs. an instrument of colonial exploitation.

Readings:

1. John Hurd, "Railways" in Dharma Kumar (ed.), CEHI, Chapter 8, pp. 737-761.
2. Irfan Habib, Indian Economy 1858-1914, Tulika, 2006.
3. Tirthankar Roy, The Economic History of India 1857-1947, OUP, 2011.

Tutorial
Marks: 25, Credit: 1
No. of Lecture hours (Tu): 15

- Mode of Tutorial Examination: Presentation (15 Marks) & Viva (10 Marks).
- Tutorial contact hours: 15 [for Revision, Doubt Clearing, Solving Problems]
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32 Research Methodology (I)

(For BOTH Honours With Research, and Honours Without Research)

DSCC21
Theory
Marks: 75, Credits: 3
No. of Lecture hours (Th): 45
[For Semester-VIII]

32.1 Foundations of Research

(10 Hours)

- **What is Research?** Definition, characteristics, and the scientific method.
- **Types of Research:** Basic vs. Applied, Exploratory vs. Explanatory, and Inductive vs. Deductive reasoning.
- **The Research Process:** From identifying a problem to publishing results.
- **Literature Review:** Searching databases, critical reading, and identifying research gaps; using software for literature review.
- **Data Sources:** Accessing Data Repositories, portals and secondary sources for data; Data reliability and comparability; Interviews/ questionnaire for Primary Data.

Reference:

1. C. R. Kothari and Gaurav Garg, Research Methodology: Methods and Techniques, 4 th edition,
2. New Age International Publishers. Chapter1, Chapter2, Chapter6
3. Ranjit Kumar Research Methodology: A Step-by-Step Guide for Beginners, 5th edition, Sage
4. Publications Chapter 1, Chapter3

32.2 Research Design and Sampling

(10 Hours)

- **Developing Research Questions:** Crafting "SMART" questions and hypotheses. Designing of Questionnaire, (Structured/unstructured, open-ended/ closed-ended), Interview, concept of Pilot Survey
- **Variables and Measurement:** Independent, dependent, and confounding variables.
- **Sampling Techniques:**
  - Probability Sampling: Definition of Simple random, stratified, and cluster sampling.
  - Non-Probability Sampling: Purposive, snowball, and convenience sampling.
- **Reliability and Validity:** Ensuring the consistency and accuracy of research tools.

Reference:

1. John W. Creswell and J. David Creswell Research Design: Qualitative, Quantitative, and Mixed Methods Approaches, 6 th edition, Sage Publications. Chapter 7, Chapter3, Chapter 8, Chapter 9

2. Ranjit Kumar Research Methodology: A Step-by-Step Guide for Beginners ,5th edition, Sage Publications Chapter 4, Chapter5, Chapter 12, Chapter 13

3. C. R. Kothari and Gaurav Garg, Research Methodology: Methods and Techniques, 4 th edition, New Age International Publishers. Chapter3, Chapter 4, Chapter 6

32.3 Qualitative Research Methods

(10 Hours)

- **Philosophy:** Understanding social constructs and subjective experiences.
- **Key Methodologies:**
  - Ethnography: Immersive observation of cultures/groups.
  - Case Studies: In-depth analysis of a single unit or event.
  - Grounded Theory: Building theory from the "ground up."
- **Data Collection Tools:**
  - Focus Group Discussions (FGDs).
  - Participant Observation.
- **Qualitative Analysis:** Thematic analysis, coding (Open, Axial, Selective), and narrative synthesis.

Reference:

1. John W. Creswell, Qualitative Inquiry and Research Design: Choosing Among Five Approaches, 3rd ed, Sage Publications. Chapter2, Chapter3, Chapter4, Chapter7, Chapter8

32.4 Quantitative Research Methods (Overview)

(5 Hours)

- Tools for Survey Research: Mention of econometric and statistical tools, Likert scales.
- Experimental Design: Control groups, randomization, and pre/post-testing.

Reference:

1. C. R. Kothari and Gaurav Garg, Research Methodology: Methods and Techniques, 4 th edition, New Age International Publishers. Chapter 6, Chapter 5, Chapter 3, Chapter 7, Chapter 9

32.5 Research Ethics

(6 Hours)

- The Nuremberg Code and Belmont Report: Historical context of ethics.
- Informed Consent: Ensuring participants understand risks and voluntarily participate.
- Privacy and Anonymity: Protecting participant identities and sensitive data.
- Institutional Review Boards (IRB): The role of ethics committees.
- Academic Integrity: Avoiding plagiarism, data fabrication, and "salami slicing" (multiple publications from one study).

Reference:

1. John W. Creswell and J. David Creswell, Research Design: Qualitative, Quantitative, and Mixed Methods Approaches, 6 th edition, Sage Publications. Chapter 4
2. Yatendra Kumar Singh and Bipin Dubey, Introduction of Research Methods and Publication Ethics; Publisher, Friends Publications. Chapter 2, Chapter 3, Chapter 4
3. Alok Srivastava, Guidelines for Ethical Considerations in Social Research and Evaluation in India, Centre for Media Studies- Institutional Review Board (CMS-IRB), New Delhi, 2020 (www.cmsindia.org/cms-irb)

32.6 Writing and Reporting

(4 Hours)

- The Research Proposal: Structure and justification.
- Formatting Styles: APA, MLA, or Chicago (citations and referencing)
- Dissemination: Presenting at conferences
- Writing for journals - Examples

Reference:

1. Ranjit Kumar Research Methodology: A Step-by-Step Guide for Beginners, 5th edition, Sage Publications. Chapter 13, Chapter 17
2. Wayne C. Booth, Gregory G. Colomb, and Joseph M. Williams, The Craft of research, second edition, University of Chicago Press. Chapter 10, Chapter 13, Chapter 16

Viva
Marks: 25, Credit: 1
No. of Lecture hours: 15
[For Semester-VIII]

- Mode of Viva Examination: Presentation (15 Marks) & Oral (10 Marks).
- Tutorial contact hours: 15 [for Revision, Doubt Clearing, Solving Problems]

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33 Research Methodology (II)

(For BOTH Honours With Research, and Honours Without Research)

DSCC22
Theory
Marks: 50, Credits: 2
No. of Lecture hours (Th): 30
[For Semester-VIII]

33.1 OLS Regression analysis with cross sectional Data

- MLRM – model with k variables, matrix form representation, OLS asymptotic properties, Model restrictions (No proofs, only intuition and demonstration of two-variable & three-variable cases as special cases of the k-variable model). (8 hours)

  Reference:

  Wooldridge, Jeffrey M., Introduction to Econometrics, 5 th Ed, Cengage. Chapters 2- 5, (relevant parts), Appendix (for matrix representation)

- Inclusion of irrelevant explanatory variable and Exclusion of relevant explanatory variables – Omitted variable bias (OVB) – causes, effects, and extent of bias, determining whether to include or drop an explanatory variable on the basis of OVB. Discussion about the trade-off between multicollinearity and OVB. (2 hrs)

  Reference:

  Wooldridge, Chapter – 3.3

- Components of OLS Variances – multicollinearity, micro-numerosity, sample variation in explanatory variables, heteroscedasticity, robust regression (No proofs, only intuition and demonstration of two-variable and three-variable cases as special cases of the k-variable model & interpretation of the variance formula and its components). (3 hrs)

  Reference:

  Wooldridge, Chapters – 3.4, 8.1, 8.2

- Model specifications under MLRM – Data scaling, logarithmic and quadratic forms– Using a proxy variable, conditions. (4 hrs)

  Reference:

  Wooldridge, Chapter 9

33.2 Regression with Qualitative Dependent Variables

- Linear Probability Model (LPM) and its disadvantages, Logit and Probit models as transformation from LPM. Maximum likelihood estimators (no derivation, to be done conceptually as far as practicable),

- Interpretation of the estimates, Odds Ratio (OR) model – marginal effect & overall effect – at means, at specific values (concepts and interpretation only, no proofs) (4 hrs.)

Reference:

Gujarati, Damodar N., Basic Econometrics, The McGraw-Hill companies. 4 th Edition, (relevant parts)

33.3 Time Series Analysis

- Nature of time series data – stationary and non-stationary variable (concept only), static and finite distributed lag models, Components of a time series – Trend and seasonality, Estimation of linear trend, detrending and de-seasonalization of data (4 hrs)

Reference:
Gujarati, Damodar N., Basic Econometrics, 4 th Edition, (relevant parts)

33.4 Other regression models and methods

- Multinomial, ordered, nested logit/ probit, Tobit, Heckman, Count Data models – Poisson, Hierarchical Linear Models, Simultaneous equation models (include simultaneity bias and identification problem)
- Seemingly Unrelated Regression models, (Discussion will be on concepts only focusing on the type of data and the relevant research questions when each of the models will be most suitable) (2 hrs)

Reference:
Gujarati, Damodar N., Basic Econometrics, 4 th Edition, (relevant parts)

33.5 Causal Inference

- Concept of causality – Randomized trials (3 hours)

Reference:
Angrist, Joshua D. and Pischke, Jorn-Steffen; Mastering Metrics: The Path from Cause to Effect; Princeton University Press. Chapters 1

Practical and Viva
Marks: 50, Credit: 2
No. of Lecture hours: 30
[For Semester-VIII]

- Basics of **Stata/ R/ Python** – Interface, navigating the menu, import data, data log and command
- Understanding a data set – Types of variables
- Summary statistics of continuous variables
- Proportions for binary and categorical variables
- Tab and cross tab of variables, with row and column percentages, scatter diagram
- Creating dummy variables from continuous and categorical variables
- OLS regression – prediction of dependent variable, plotting fitted line, Checking model specifications by plots – Interpretation of regression output – Exporting regression to word
- Regression diagnostics – Detection of multi-collinearity (VIF), heteroscedasticity (Lagrange-Multiplier Test/ Breusch-Pagan Test), Tests for omitted variables, robustness of regression.
- Logit and Probit models, OR model -Interpretation of regression output.

Reference:

1. Hamilton L. Statistics with Stata
2. STATA USER'S GUIDE RELEASE 13 (https://www.stata.com/manuals13/u.pdf)
3. Introduction to Econometrics with R, Christoph Hanck, Martin Arnold, Alexander Gerber, and Martin Schmelzer, 2024, (companion to Stock, J., and Watson, M. (2015) Introduction to Econometrics) [https://www.econometrics-with-r.org/ITER.pdf]
4. Christian Kleiber, Achim Zeileis, Applied Econometrics with R, Springer Nature (codes available from https://www.zeileis.org/teaching/AER)
5. Sheppard, K. (2020). Introduction to Python for econometrics, statistics and data analysis (4th ed.). University of Oxford.

34 Advanced Indian Economics

(HONOURS w/o RESEARCH)

DSCC23
Theory
Marks: 75, Credits: 3
No. of Lecture hours (Th): 45
[For Semester-VIII]

34.1 Post-Reform (1991 onwards) performance of Indian Economy

6 Lecture Hours

- **Appraisal of Indian Economic Reforms.**

Reference:
1. Uma Kapila, Chp 29
2. Basu and Maerten (24-32)

- **Redefining India's development Strategy – Changing Role of State and Market.**

Reference:
1. Uma Kapila Chp 20.

34.2 India's Growth and Sectoral Performance

25 Lecture Hours

- **India's Growth experience, Structural change and Productivity**

Reference:
1. Ahluwalia in Sachs, Varshney and Bajpei edt.

- **Agricultural growth and distribution**

Reference:
1. Basu and Maertens (59-65, 83-86)
2. Mahendra Dev, Chp 2
3. Rao and Jeromi in Uma Kapila, Chp 13
4. Vaidyanathan in Uma Kapila Chp 14.

- **Manufacturing growth and issues relating to productivity, market structure and economies of scale**

Reference:
Uma Kapila

- **Issues relating to Service-led growth**

Reference:
1. Basu and Maertens (205-215)
2. M. Rakshit, 2007.

- **Inclusive growth in 11 th and 12 th Plan.**

Reference:
1. Narendra Dev, Introduction
2. Economic Survey (2009-2010), Chp 2 (21-24).

34.3 Indian Economy : Some Current and Future Issues

14 Lecture Hours

- **Employment**

a) Definition and Measurement Issues - employment Generating Schemes by GOI

Reference:

1. Samuelson and Nordhaus, Chp 31 (572-581)
2. Mankiw, Chp 28.

b) Llivelihood security, National Urban Livelihood Mission, and VB G RAM G (Viksit Bharat – Guarantee for Rozgar and Ajeevika Mission Gramin)

Reference:

1. Nanaware and Deshmukh , 2003.
2. Recent Journals for NULM and VB G RAM G.

- **Food Insecurity in India**

a) Rural and Urban Food Insecurity

Reference:

1. Basu and Maertens, (484-489, 561-565)
2. Mahendra Dev, Chp 3 943-46, 62-66).

b) The Public Distribution System

Reference:

1. Hanumantha Rao in Uma Kaoila, Chp 15.
2. Economic Survey (2009-2010), Chp 18, 198-204.

- **Environment**

a) Environment and Development

Reference:

1. Meier and Rauch, Chp 10 (588-589).

b) Basic issues relating to Environment : Sustainable development and environmental accounting

Reference:

1. Todaro and Smith, Chp 11.

c) Policies and Environmental Regulation in India

Reference:

1. Lipsey and Chrystal, Chp 13 (286-289).

Tutorial
Marks: 25, Credit: 1
No. of Lecture hours (Tu): 15
[For Semester-VIII]

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- Tutorial contact hours: 15 [for Revision, Doubt Clearing, Solving Problems]
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35 Research Internship

DSCC(RI)
Marks: 75, Credits: 3
No. of Lecture hours (Th): 45
[For Semester-VIII]
Type: Core Course (Research Component)
(HONOURS WITH RESEARCH)

Outline:

1. Identifying Research area - Finding broad area of Research Problem
2. Literature Review, and Finding Research Gap
3. Research Problem, and Objectives of Study
4. Finding Source of Data and Specification of Methodology
5. Preparation of Questionnaire for collecting Primary Data.
6. Data Collection (Primary or Secondary Data)

Course Objective

The objective of this course is to provide students with hands-on experience in conducting academic and scientific research. It aims to bridge the gap between theoretical knowledge and practical application by guiding students through the complete research lifecycle—from identifying a problem to data collection tools. The course focuses on developing critical thinking, analytical reasoning, and methodological rigour.

Course Learning Outcomes (CLOs)

Upon successful completion of this course, students will be able to:

1. Identify and formulate a viable research problem and articulate specific research objectives.
2. Conduct a systematic literature review to identify research gaps and build a theoretical framework.
3. Select appropriate data sources and design a suitable research methodology.
4. Distinguish between primary and secondary data and execute data collection strategies.
5. Design, validate, and pilot a structured questionnaire for primary data collection.

The syllabus is divided into five modules corresponding to the stages of the research internship.

35.1 Finding Research Problem

- Concept of Research Problem: Definition, significance, and characteristics of a good research problem.
- Sources of Research Problems: Review of literature, practical field problems, consultation with experts, and current social/technological trends.
- Defining the Problem: Techniques for narrowing down broad topics into specific researchable questions.

- Formulation of Objectives: Drafting general and specific objectives; formulation of hypotheses (Null and Alternative).
- Feasibility Analysis: Assessing time, resources, and ethical constraints before finalizing the topic.

35.2 Finding Source of Data and Specification of Methodology

- Research Design: Understanding the types of research designs (Exploratory, Descriptive, Experimental, and Diagnostic).
- Selection of Research Design: Criteria for choosing the appropriate design based on the nature of the problem.
- Sources of Data:
  - Primary Data: Concept, advantages, and limitations.
  - Secondary Data: Concept, sources (government publications, journals, databases), advantages, and limitations.
- Sampling Design:
  - Universe and Sample.
  - Sampling Techniques: Probability sampling (Simple Random, Stratified, Cluster) vs. Non-probability sampling (Convenience, Judgmental, Quota).
  - Determination of Sample Size.

35.3 Literature Review

- Theoretical Framework: Understanding the role of existing theories in supporting the research problem.
- Process of Literature Review: Searching, locating, and evaluating relevant literature.
- Sources of Literature: Academic journals, books, dissertations, conference proceedings, and digital repositories.
- Writing the Review: Organizing the review thematically or chronologically; synthesis of existing knowledge.
- Identifying Research Gaps: Analyzing conflicting results or untouched areas in previous studies to justify the current research.
- Citation and Referencing: Styles of referencing (APA, MLA, Chicago, Harvard) and avoiding plagiarism (use of tools like Turnitin or free alternatives).
- **Students should review at least 6 articles**

35.4 Preparation of Questionnaire for Collecting Primary Data

- Questionnaire Design: General principles, structure, and layout of a questionnaire.
- Types of Questions:
  - Open-ended vs. Closed-ended questions.

  - Dichotomous, Multiple-choice, Likert Scale, and Ranking questions.

- Framing of Questions: Wording clarity, avoiding leading questions, sequencing, and logical flow.
- Pre-testing (Pilot Study): Validating the questionnaire on a small sample group.
- Modification and Finalization: Refining questions based on pilot study feedback to ensure reliability and validity.

35.5 Data Collection (Primary or Secondary Data)

- Primary Data Collection Methods:
  - Observation Method: Types, merits, and demerits.
  - Interview Method: Structured, unstructured, and focused interviews.
  - Survey Method: Online and offline surveys.
- Secondary Data Collection:
  - Authenticity and reliability checks for secondary sources.
  - Data extraction techniques from published reports and records.
- Data Management: Organizing collected data, coding, and creating a data dictionary.
- Ethical Considerations: Informed consent, confidentiality, anonymity, and data protection standards.

Practical / Internship Component:
The student must submit a Research Project Proposal (Dissertation Draft) containing the following:

- Title of the Study.
- Statement of the Problem and Objectives.
- Brief Literature Review.
- Proposed Research Methodology.
- Sample Questionnaire (if applicable).
- References.

Scheme of Assessment:
Component (Weightage): Description

- Internal Assessment (30%): Based on regular progress reports, attendance, and draft submissions.
- Research Proposal/ Report (40%): Evaluation of the final written document (syllabus units 1-5).
- Viva-Voce/Presentation (30%): Presentation of the research plan and defense before a panel.

Suggested Readings & References

1. Kothari, C.R. (2014). Research Methodology: Methods and Techniques. New Age International Publishers.

2. Ranjit Kumar. (2018). Research Methodology: A Step-by-Step Guide for Beginners. SAGE Publications.

3. Saunders, M., Lewis, P., and Thornhill, A. (2019). Research Methods for Business Students. Pearson.

4. Bell, J. (2018). Doing Your Research Project: A Guide for First-Time Researchers. Open University Press.

5. Panneerselvam, R. (2014). Research Methodology. PHI Learning Pvt. Ltd.

Viva
Marks: 25, Credit: 1
No. of Lecture hours: 15
[For Semester-VIII]

- Mode of Viva Examination: Presentation (15 Marks) & Oral (10 Marks).
- Contact hours: 15 [for Revision, Doubt Clearing, Solving Problems]
- Tutorial classes are introduced per course to give the students an idea of detailed understanding of the course and also to build their confidence on the subject in terms of (i) solving problems, (ii) presenting a paper in terms of board work or power point,(iii) preparation of term paper etc.
- A Tutorial class also helps a teacher to clarify any topic in detail to the students.
- A Tutorial contact hour has been meant to promote teacher-student academic interaction.

36 Development Studies

(HONOURS w/o RESEARCH)

DSCC24
Theory
Marks: 75, Credits: 3
No. of Lecture hours (Th): 45
[For Semester-VIII]

36.1 Evolution of Development Thinking and Policy Regimes

Lecture Hours (LH): 8

This module traces the historical trajectory of development doctrines, examining how the understanding of 'development' has changed over the last century and how economic thinking has shaped policy models.

1. The Evolution of the Development Doctrine (1900–2005): A historical overview of shifting paradigms—from the emphasis on growth and industrialization in the mid-20th century to the basic needs approach, structural adjustment, and the sustainable development goals.
2. The Rise and Fall of Developmentalist Models: Analyzing the historical shift from active state intervention (developmentalism) to market-oriented models.
3. Intellectual Roots of Development: The transition from classical political economy to neo-classical economics and the rise of institutional economic thinking.

Essential Readings:

- Thorbecke, Erik, 2007. "The Evolution of the Development Doctrine, 1900-2005", In: G. Mavrotos and A. Shorrocks (eds.) Advancing Development, Palgrave MacMillan.
- Ha-Joon Chang, 2003. Kicking Away the Ladder, London: Anthem Press. [Chapter 1].

36.2 Ethical Foundations: Efficiency, Justice, and Equality

LH: 9

This module explores the philosophical underpinnings of development. It compares different ethical frameworks used to evaluate social welfare and distributive justice.

1. Efficiency and Distributive Justice: The tension between economic efficiency and social equity.
2. Utilitarianism and Beyond: Critiques of the utilitarian foundations in welfare economics; consequentialist vs. deontological thinking.
3. Contractarian Justice: John Rawls' theory of justice as fairness, focusing on the difference principle and the veil of ignorance.
4. Equality of Opportunity: Roemer's approach to equality and meritocracy; distinguishing between circumstances and effort.

Essential Readings:

- Amartya Sen and Bernard Williams, 1982. Utilitarianism and Beyond, CUP. [Introduction].
- John Rawls, 1971. A Theory of Justice, Harvard: Harvard University Press. [Chapters 1 & 2].
- John Roemer, 2000. 'Equality of Opportunity', In: Kenneth Arrow, Samuel Bowles and Steven Durlauf (eds) Meritocracy and Economic Inequality, Oxford: Oxford University Press.

36.3 Redefining the Goals of Development – Wealth to Freedom

LH: 9

This module focuses on the "Human Development" turn. It critiques income-centric measures (like GNP) and establishes the argument for viewing development as a process of expanding freedoms and capabilities.

1. Goals of Development: Moving from opulence (wealth/income) to utility and finally to capability/functionings.
2. Development as Freedom: The intrinsic and instrumental roles of freedom in development.
3. Income Poverty vs. Capability Deprivation: Why low income is not the only indicator of poverty; multidimensionality of deprivation.
4. Freedoms and the Market: The complex relationship between market mechanisms and individual freedoms.

Essential Readings:

- Amartya Sen, 2000. Development as Freedom, Oxford: Oxford University Press. [Chapters 1-3 and 5].

36.4 The State, Market, and Institutional Dynamics

LH: 11

This module examines the operational aspects of development through the lens of the state and the market. It discusses when markets fail, when states fail, and the role of non-market institutions.

1. Market Failure and the Role of the State: Public goods, externalities, and information asymmetry.
2. Government Failure: Bureaucratic inefficiencies, rent-seeking, and the limits of state intervention.
3. Non-Market Institutions: The role of community networks, social norms, and informal institutions in filling the gaps left by the state and market.
4. Inequality and Economic Development (Moved from Module V): The post-war evolution of global inequality; the Kuznets hypothesis and its critiques.
5. Capital in the Twenty-First Century (Moved from Module V): Piketty's analysis of the concentration of wealth and the rate of return vs. economic growth (r>g).

Essential Readings:

- Munshi, Kaivan, 2006. "Non-market Institutions", In: Abhijit V Banerjee, Roland Benabou and Dilip Mookherjee (eds) Understanding Poverty, Oxford: Oxford University Press [Chapter 23].
- Ha-Joon Chang, 2003. Kicking Away the Ladder, London: Anthem Press. [Contextualized for Country Experiences].
- Thomas Piketty, 2014. Capital in the Twenty-First Century, Harvard University Press. [Selected sections relevant to inequality dynamics].

36.5 Applications of Development Studies: Health, Education, and Gender

LH: 8

This module applies the theoretical frameworks of capabilities, equality of opportunity, and institutional dynamics to specific social sectors. It analyzes how health, education, and gender disparities serve as both determinants and outcomes of development.

1. Education and Human Capital: Moving beyond "human capital" (instrumental value for growth) to "education as a capability" (intrinsic value) - Analyzing barriers to education in developing countries and the role of the state in ensuring equality of opportunity.

2. Health and Development: Health as a prerequisite for freedom and economic participation - The "poverty trap" of ill-health, malnutrition, and disease - The role of public health systems vs. private markets in healthcare.

3. Gender and Development: Applying Roemer's and Sen's theories to gender inequality - Women's agency, labor force participation, and the impact of social norms (non-market institutions) on development outcomes.

4. Development Interventions and Policy: Evaluating specific interventions—Conditional Cash Transfers (CCTs), Microfinance, and Randomized Control Trials (RCTs)—in addressing health and education deficits.

Essential Readings:

- Amartya Sen, 1998. "Health as Freedom", In: Lancet, or similar essays on health as a capability.
- Esther Duflo, 2012. "Women Empowerment and Economic Development", Journal of Economic Literature, 50(4), 1051-1079. [Analyzes the bidirectional relationship between development and women's rights].
- Abhijit V. Banerjee and Esther Duflo, 2011. Poor Economics: A Radical Rethinking of the Way to Fight Global Poverty, PublicAffairs. [Chapters relevant to Health and Education incentives].
- Jean Drèze and Amartya Sen, 2013. An Uncertain Glory: India and its Contradictions, Princeton University Press. [Selected chapters on Education and Health in the Indian context].

Tutorial
Marks: 25, Credit: 1
No. of Lecture hours (Tu): 15
[For Semester-VIII]

- Mode of Tutorial Examination: Presentation (15 Marks) & Viva (10 Marks).
- Tutorial contact hours: 15 [for Revision, Doubt Clearing, Solving Problems]
- Tutorial classes are introduced per course to give the students an idea of detailed understanding of the course and also to build their confidence on the subject in terms of (i) solving problems, (ii) presenting a paper in terms of board work or power point,(iii) preparation of term paper etc.
- A Tutorial class also helps a teacher to clarify any topic in detail to the students.
- A Tutorial contact hour has been meant to promote teacher-student academic interaction.

37 Project

(HONOURS w/o RESEARCH)

DSCC25
Project Report Writing
Marks: 75, Credits: 3
[For Semester-VIII]

Project Report should be within 2500-3000 words.
Outline:

Finding a topic for Project and working on it. Report writing should be based on following sections :

- Abstract
- Introduction
- Literature Survey
- Data Source and Methodology
- Analysis and Interpretation of Results
- Policy Prescription and Conclusion
- Bibliography

Course Overview

This course is intended to provide students with an opportunity to engage in academic project work without conducting primary field research. It focuses on the systematic presentation of a topic based on secondary data and established literature. The objective is to develop the student's ability to conceptualize a topic, collate information, analyze data, and present a structured academic report.

Course Objectives

1. To enable students to identify and select a relevant topic for academic inquiry.
2. To develop skills in reviewing existing literature and identifying research gaps.
3. To train students in collecting, organizing, and analyzing secondary data.
4. To foster the ability to interpret results and formulate logical conclusions and policy suggestions.
5. To instill the ethics of academic writing and proper citation practices.

Course Learning Outcomes (CLOs)

Upon completion of this course, students will be able to:

1. Select a feasible and relevant project topic.
2. Write a comprehensive introduction and review of literature.
3. Apply appropriate tools and techniques for data analysis using secondary sources.
4. Construct a coherent project report following standard academic formatting.
5. Suggest policy recommendations based on analytical findings.

The project work involves selecting a topic and writing a detailed report. The report must strictly adhere to the following structure and content requirements:

37.1 Topic Selection and Abstract

- Finding a Topic: Identification of contemporary issues, relevance, and feasibility of the study.
- Abstract: Writing a concise summary (200-250 words) covering the objectives, methodology, major findings, and conclusion.

37.2 Introduction

- Introduction to the Study: Background of the study, statement of the problem, significance of the study, specific objectives, and scope.
- Hypothesis/Research Questions: Formulation of clear research questions or hypotheses (if applicable).

37.3 Literature Survey

- Review of Literature: Critical review of existing research papers, articles, books, and reports relevant to the topic.
- Research Gap: Identification of gaps in existing studies to justify the need for the current project.

37.4 Data Source and Methodology

- Data Sources: Detailed description of secondary data sources (e.g., Government reports, RBI bulletins, Census data, World Bank reports, journals, digital repositories).
- Methodology: Explanation of the methods used for analysis (e.g., statistical tools, graphical representation, trend analysis, ratios, or theoretical frameworks).
- Limitations: Mentioning the limitations of the study (e.g., data constraints, time limits).

37.5 Analysis and Interpretation of Results

- Data Presentation: Presentation of data using tables, charts, graphs, and diagrams.
- Analysis: Systematic analysis of data using the chosen methodology.
- Interpretation: Logical interpretation of the findings, linking them back to the objectives and literature review.

37.6 Policy Prescription and Conclusion

- Summary of Findings: Summarizing the major outcomes of the study.
- Policy Prescription: Suggesting concrete policy measures, recommendations, or solutions based on the findings.
- Conclusion: Final concluding remarks summarizing the essence of the project work.

37.7 Bibliography

- References: Listing all cited works and consulted sources.
- Format: Strict adherence to a standard citation style (e.g., APA, MLA, or Chicago style).

Evaluation Scheme (Total Marks: 75)

The evaluation will be based on the quality of the written report and the viva-voce examination.

Component - Description - Marks

1. Written Project Report- Evaluation of the content, structure, analysis, and presentation of the submitted hard copy. - 50 marks
2. Viva-Voce / Presentation - Defense of the project before the internal/external examiner regarding methodology, analysis, and findings. - 15 marks
3. Internal Assessment - Evaluation of the draft progress, regularity, and synopsis submission (Supervised by the Faculty Mentor). - 10 marks

Format and Presentation Guidelines

- Length: The report should ideally be **within 2500-3000 words**.
- Paper Size: A4.
- Typing: Times New Roman (Font size 12), 1.5-spaced, Justified.
- Margins: 1 inch on all sides.
- Sequence: Title Page → Certificate → Acknowledgement → Abstract → Table of Contents → List of Tables/Figures → Main Body (Chapters) → Bibliography → Appendices.

Recommended Timeline

- Week 1-2: Topic selection and approval by the supervisor.
- Week 3-5: Collection of secondary data and literature review.
- Week 6-9: Data analysis and drafting of chapters.
- Week 10-11: Final writing and formatting.
- Week 12: Submission of the final report.

Note: Students are prohibited from copying content verbatim from sources. Plagiarism checks may be conducted, and strict action will be taken against malpractice.

Presentation & Viva
Marks: 25, Credit: 1
No. of Lecture hours (Tu): 15
[For Semester-VIII]

- Mode of Tutorial Examination: Presentation (15 Marks) & Viva (10 Marks).
- Tutorial contact hours: 15 [for Revision, Doubt Clearing, Solving Problems]

- Tutorial classes are introduced per course to give the students an idea of detailed understanding of the course and also to build their confidence on the subject in terms of (i) solving problems, (ii) presenting a paper in terms of board work or power point,(iii) preparation of term paper etc.
- A Tutorial class also helps a teacher to clarify any topic in detail to the students.
- A Tutorial contact hour has been meant to promote teacher-student academic interaction.

38 Dissertation

(HONOURS WITH RESEARCH)

DSCC(D)
Dissertation Writing
Marks: 150, Credits: 6
and
Presentation & Viva
Marks: 50, Credit: 2
[For Semester-VIII]

Project Report should be within 5000-6000 words.
Outline:
Maximum Emphasis will be given on **Analysis and Finding Results**, and **Interpretation of Results**.
Preparation of the Dissertation with the following sections :

- Abstract
- Introduction
- Literature Survey
- Data Source and Methodology
- Analysis and Interpretation of Results
- Policy Suggestion and Conclusion
- Bibliography

COURSE OBJECTIVES
The objective of this course is to enable students to:

1. Apply research methodologies to investigate a specific problem or topic within their discipline.
2. Demonstrate the ability to collect, compile, and analyze data using appropriate statistical or qualitative tools.
3. Interpret findings logically and derive meaningful conclusions.
4. Develop academic writing skills adhering to ethical standards and citation protocols.
5. Present and defend their research findings before an academic audience.

DETAILED SYLLABUS (DISSERTATION WRITING)
Marks: 150 | Credits: 6
This component focuses on the execution of the research project and the compilation of the final report. The syllabus is divided into three broad modules based on the provided structure:

38.1 Analysis and Finding Results

This module involves the practical application of analytical tools to the collected data.

- Data Processing: Editing, coding, and classification of data.
- Analytical Framework: Selection and application of appropriate statistical tools (e.g., Mean, Standard Deviation, t-test, ANOVA, Regression), or qualitative thematic analysis.
- Presentation of Findings: Systematic presentation of results using tables, charts, graphs, and figures.
- Testing of Hypothesis: Verification of the formulated hypothesis against the data obtained.

38.2 Interpretation of Results

This module focuses on the critical examination of the findings.

- Linking Data to Theory: Connecting the empirical findings back to the theoretical framework or literature reviewed.
- Logical Reasoning: Explaining why specific results were obtained and discussing anomalies or unexpected trends.
- Scope and Limitations: Discussing the boundaries of the findings and the constraints faced during the research process.

38.3 Preparation of the Dissertation

Students must prepare a dissertation manuscript following the specific structure outlined below. The dissertation must strictly adhere to the following chapterization and formatting:

a. Abstract

- A concise summary of the entire research (250–300 words).
- Must include the objective, methodology, key findings, and conclusion.

b. Introduction

- Introduction to the study topic.
- Statement of the Problem.
- Rationale and Significance of the Study.
- Objectives and Hypotheses.

c. Literature Survey

- Review of existing literature related to the topic.
- Identification of research gaps.
- Theoretical Framework (if applicable).

d. Data Source and Methodology

- Source of Data: Primary and/or Secondary sources.

- Sampling Design: Universe, sample size, and sampling technique.
- Tools and Techniques: Questionnaires, interview schedules, or software used for analysis.

e. Analysis and Interpretation of Results

- Detailed analysis of data supported by tables, figures, and charts.
- Interpretation of every aspect of the analysis to meet the research objectives.

f. Policy Suggestion and Conclusion

- Summary of Findings: Brief recapitulation of major findings.
- Policy Suggestions: Concrete recommendations based on findings (relevant for social sciences/applied sciences).
- Scope for Further Research: Suggestions for future scholars.

g. Bibliography

- Alphabetical listing of all references cited.
- Adherence to a standard citation style (e.g., APA, MLA, or Chicago) consistently throughout the document.

PRESENTATION and VIVA VOCE
Marks: 50 | Credits: 2
This component assesses the student's understanding of the research work and their ability to defend their methodology and findings.

- **Presentation (30 Marks):** The student will present the dissertation using digital presentation tools (e.g., PowerPoint). The presentation should cover the Introduction, Methodology, Key Findings, and Conclusion.
- **Viva Voce (20 Marks):** An oral examination conducted by the Internal Supervisor and External Examiner. Students will be questioned on:
  - Clarification of concepts used.
  - Justification of methodology.
  - Defense of findings and recommendations.
  - General knowledge related to the subject area.

SCHEME OF EVALUATION
A. Dissertation (Marks: 150)
The written dissertation will be evaluated based on the following parameters:
Parameter - Marks Allocation

1. Format & Structure: Adherence to the prescribed format, language, grammar, and citation style. 20 marks
2. Introduction & Literature Review: Clarity of objectives, relevance of topic, and quality of literature review. 25 marks
3. Methodology: Appropriateness of data sources, sampling, and tools used. 25 marks

4. Analysis & Interpretation: Depth of analysis, use of statistical tools, and logical interpretation. 50 marks

5. Conclusion & Suggestions: Relevance of suggestions and summarization of the study. 20 marks

6. Bibliography & Originality: Quality of references and adherence to plagiarism norms. 10 marks

Note: The dissertation will be evaluated by an External Examiner and the Internal Supervisor (depending on university norms).

B. Presentation & Viva (Marks: 50)

Parameter - Marks Allocation

1. Presentation Skills: Clarity of slides, time management, and communication skills. 15 marks

2. Content Knowledge: Understanding of the topic and ability to explain the research process. 20 marks

3. Defense/Response: Ability to answer questions and defend the research choices logically. 15 marks

GENERAL GUIDELINES FOR STUDENTS

1. Topic Selection: The topic must be approved by the Faculty Supervisor/Department Committee before commencement.

2. Plagiarism: The dissertation must be original. Plagiarism check reports (e.g., Urkund/Turnitin) may be required, with a similarity index typically below 20%.

3. Length: The dissertation should ideally be **within 5000-6000 words** (excluding appendices and bibliography), though specific word counts may vary by discipline.

4. Formatting: The dissertation should be typed in double spacing on A4 size paper with a standard font (Times New Roman , Size 12) and 1.5-inch margins on all sides.

<table>
<tr><th colspan="5">EXAM MODALITIES|Economics (Major- Minor)| CCF</th></tr>
<tr><th colspan="5">Economics Major (4 Credits)</th></tr>
<tr><th rowspan="2">Sem</th><th rowspan="2">Course</th><th rowspan="2">Name of the Paper</th><th>Theory</th><th>Tutorial/ Practical</th></tr>
<tr><th>Modalities</th><th>Modalities</th></tr>
<tr><td>1</td><td>DSCC1</td><td>Microeconomics (I)</td><td rowspan="21"><u>3 Credits</u>
<u>Group A (20 marks):</u> Attempt any 10 questions (out of 15 questions), each carrying 2 marks.
<u>Group B (25 marks)</u>: Attempt any 5 questions (out of 8 questions), each carrying 5 marks.
<u>Group C (30 marks):</u> Attempt any 3 questions (out of 5 questions), each carrying 10 marks.</td><td rowspan="21"><u>1 Credit</u>
<u>Presentation & viva</u>:
Presentation
(15 Marks)
&
Viva
(10 Marks)</td></tr>
<tr><td>2</td><td>DSCC2</td><td>Macroeconomics (I)</td></tr>
<tr><td rowspan="2">3</td><td>DSCC3</td><td>Microeconomics (II)</td></tr>
<tr><td>DSCC4</td><td>Development Economics</td></tr>
<tr><td rowspan="4">4</td><td>DSCC5</td><td>Mathematical Economics (I)</td></tr>
<tr><td>DSCC6</td><td>Macroeconomics (II)</td></tr>
<tr><td>DSCC7</td><td>Statistics for Economics</td></tr>
<tr><td>DSCC8</td><td>Indian Economics</td></tr>
<tr><td rowspan="4">5</td><td>DSCC9</td><td>Microeconomics (III)</td></tr>
<tr><td>DSCC10</td><td>Macroeconomics (III)</td></tr>
<tr><td>DSCC11</td><td>Mathematical Economics (II)</td></tr>
<tr><td>DSCC12</td><td>Econometrics</td></tr>
<tr><td rowspan="4">6</td><td>DSCC13</td><td>International Economics</td></tr>
<tr><td>DSCC14</td><td>Environmental & Resource Economics</td></tr>
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<tr><td colspan="2">Summer Internship: 3 Credits, 75 Marks</td></tr>
<tr><td rowspan="5">7</td><td>DSCC16</td><td>Advanced Microeconomics</td></tr>
<tr><td>DSCC17</td><td>Advanced Macroeconomics</td></tr>
<tr><td>DSCC18</td><td>Financial Economics</td></tr>
<tr><td>DSCC19</td><td>Economic Thought</td></tr>
<tr><td>DSCC20</td><td>Economic History of India</td></tr>
<tr><td rowspan="2">8</td><td>DSCC21</td><td>Research Methodology (I)</td><td><u>3 Credits</u>
<u>MCQs only (No negative marking)</u>
<u>Group A (45 marks):</u>
Attempt any 15 questions (out of 22 questions), each carrying 3 marks.
<u>Group B (30 marks):</u>
Attempt any 15 questions (out of 22 questions), each carrying 2 marks.</td><td><u>1 Credit</u>

Viva
(In presence of all the Departmental faculty members)</td></tr>
<tr><td>DSCC22</td><td>Research Methodology (II)</td><td><u>2 Credits</u>
<u>Group A (10 marks):</u>
Attempt any 5 questions (out of 8 questions), each carrying 2 marks.
<u>Group B (20 marks)</u>:
Attempt any 4 questions (out of 6 questions), each carrying 5 marks.
<u>Group C (20 marks):</u>
Attempt any 2 questions (out of 4 questions), each carrying 10 marks.</td><td><u>2 Credits</u>
<u>Practical & Viva</u>
using
<u>Stata/R/ Python</u>
Hands on
(40 Marks)
&
Oral
(10 Marks)</td></tr>
</table>

8	DSCC23	Advanced Indian Economics (HONOURS w/o RESEARCH)	**3 Credits** **Group A (20 marks):** Attempt any 10 questions (out of 15 questions), each carrying 2 marks. **Group B (25 marks):** Attempt any 5 questions (out of 8 questions), each carrying 5 marks. **Group C (30 marks):** Attempt any 3 questions (out of 5 questions), each carrying 10 marks.	**1 Credit** **Presentation & viva:** *(In presence of all the Departmental faculty members)* Presentation (15 Marks) & Viva (10 Marks)
	DSCC(RI)	Research Internship (HONOURS WITH RESEARCH)	**3 Credits** Report writing on work done. (75 marks)	
	DSCC24	Development Studies (HONOURS w/o RESEARCH)	**3 Credits** **Group A (20 marks):** Attempt any 10 questions (out of 15 questions), each carrying 2 marks. **Group B (25 marks):** Attempt any 5 questions (out of 8 questions), each carrying 5 marks. **Group C (30 marks):** Attempt any 3 questions (out of 5 questions), each carrying 10 marks.	
	DSCC25	Project (HONOURS w/o RESEARCH)	**3 Credits** Project Report Writing. (75 marks)	
	DSCC(D)	Dissertation Writing (HONOURS WITH RESEARCH)	**6 Credits** Writing Dissertation on the entire work done (150 Marks) *(Evaluation will be done by both the External & Internal examiners)*	**2 Credits** Presentation & viva: *(Evaluation will be done by External examiner(s) only)* (50 Marks)

Sem	**Economics Minor (4 Credits)**		
	Name of the Paper	**Modalities**	**Modalities**
1 (or 3)	Microeconomics (I)	**3 Credits** **Group A (20 marks):** Attempt any 10 questions (out of 15 questions), each carrying 2 marks. **Group B (25 marks)**: Attempt any 5 questions (out of 8 questions), each carrying 5 marks. **Group C (30 marks)**: Attempt any 3 questions (out of 5 questions), each carrying 10 marks.	**1 Credit** **Presentation & viva:** Presentation (15 Marks) & Viva (10 Marks)
2 (or 4)	Macroeconomics (I)		
Either, Both in 5th Sem; or, Both in 6th Sem	Development Economics (I)		
	Indian Economics (I)		

EXAM MODALITIES|Economics (Major- Minor - MDC)| CCF				
Sem	Economics Major (SEC) (4 Credits)			
	Course	Name of the Paper	Theory	Tutorial/ Practical
			Modalities	Modalities
1	SEC1	Introductory Statistics & Application (I)	**3 Credits =75 Marks** **Group A (20 marks):** Attempt any 10 questions (out of 15 questions), each carrying 2 marks. **Group B (25 marks):** Attempt any 5 questions (out of 8 questions), each carrying 5 marks. **Group C (30 marks):** Attempt any 3 questions (out of 5 questions), each carrying 10 marks.	**1 Credit =25 marks** **Presentation & viva:** Presentation (15 Marks) & Viva (10 Marks)
2	SEC2	Introductory Statistics & Application (II)	**1 Credit =25 marks** Attempt any 5 questions (out of 8 questions), each carrying 5 marks.	**3 Credits =75 marks** **Practical:** Computer Laboratory based **Worksheet Program** (50 marks) & **Viva** (25 marks)
3	SEC3	Data Analysis and Research Methodology	**2 Credits =50 marks** Attempt any 10 questions (out of 15 questions), each carrying 5 marks.	**2 Credits =50 marks** **Practical:** **Sample Survey** (Preparation of Questionnaire & Data Collection: 25 marks), **Report Writing** (Presentation using MS Excel Dynamic Dashboard, Interpretation & Analysis: 15 marks) & **Viva** (10 marks).

Sem	ECONOMICS [IDC] (3 Credits)			
	Course	Name of the Paper	Theory	Tutorial
			Modalities	Modalities
1/2/3	IDC	Elementary Economics	**2 Credits= 50 marks** **Group A (20 marks)**: Attempt any 10 questions (out of 15 questions), each carrying 2 marks. **Group B (30 marks):** Attempt any 6 questions (out of 9 questions), each carrying 5 marks.	**1 Credit =25 marks** **Project/ Term Paper/ Essay writing/ Viva** on any topic from the syllabus in consultation with the concerned teachers.

EXAM MODALITIES| ECONOMICS [MDC- Core Course (CC)] (4 Credits)					
Sem	**Paper**	**Course**	**Name of the Paper**	**Theory** **Modalities** **(3 Credits = 75 Marks)**	**Tutorial** **Modalities** **(1 Credit = 25 Marks)**
1	CC1/ CC2	CC 1	Microeconomics (I)	**Group A (20 marks):** Attempt any 10 questions (out of 15 questions), each carrying 2 marks. **Group B (25 marks):** Attempt any 5 questions (out of 8 questions), each carrying 5 marks. **Group C (30 marks):** Attempt any 3 questions (out of 5 questions), each carrying 10 marks.	**Presentation & viva:** Presentation (15 Marks) & Viva (10 Marks)
2	CC1/ CC2	CC 2	Macroeconomics (I)		
3	CC1/ CC2	CC 3	Development Economics		
4	CC1/ CC2	CC 4	Indian Economics		
	CC1/ CC2	CC 5	Sustainable Development		
5	CC1/ CC2	CC 6	Economic History of India (1857-1947)		
	CC1	CC 7	Public Finance		
6	CC2				
	CC1/ CC2	CC 8	Rural Development		

ECONOMICS [MDC- Minor] (4 Credits)					
Sem	**Paper**	**Course**	**Name of the Paper**	**Theory** **Modalities** **(3 Credits = 75 Marks)**	**Tutorial** **Modalities** **(1 Credit = 25 Marks)**
3	MN 1	MECO-MDC	Microeconomics (I)	**Group A (20 marks):** Attempt any 10 questions (out of 15 questions), each carrying 2 marks. **Group B (25 marks):** Attempt any 5 questions (out of 8 questions), each carrying 5 marks. **Group C (30 marks):** Attempt any 3 questions (out of 5 questions), each carrying 10 marks.	**Presentation & viva:** Presentation (15 Marks) & Viva (10 Marks)
4	MN 2	MECO-MDC	Macroeconomics (I)		
5	MN 3	MECO-MDC	Development Economics		
	MN 4	MECO-MDC	Indian Economics		
6	MN 5	MECO-MDC	Sustainable Development		
	MN 6	MECO-MDC	Economic History of India (1857-1947)		

ECONOMICS [MDC- SEC] (4 Credits)					
Sem	**Paper**	**Course**	**Name of the Paper**	**Modalities (Th.)** **(3 Credits = 75 Marks)**	**Modalities** **(1 Credit = 25 Marks)**
1/ 2/ 3	SEC1/ SEC2/ SEC3	MECO-SEC(A)	Economic Data Analysis and Report Writing	**Group A (20 marks):** Attempt any 10 questions (out of 15 questions), each carrying 2 marks. **Group B (25 marks):** Attempt any 5 questions (out of 8 questions), each carrying 5 marks. **Group C (30 marks):** Attempt any 3 questions (out of 5 questions), each carrying 10 marks.	**Presentation & viva:** Presentation (15 Marks) & Viva (10 Marks)
		MECO-SEC(B)	Entrepreneurship and Development		

		Sem	ECONOMICS [MDC- IDC] (3 Credits)		
			Name of the Paper	**Modalities (Th.)** **(3 Credits = 75 Marks)**	**Modalities** **(1 Credit = 25 Marks)**
1/ 2/ 3	IDC1/ IDC2/ IDC3	MECO-ECOD	Elementary Economics	**Group A (20 marks):** Attempt any 10 questions (out of 15 questions), each carrying 2 marks. **Group B (25 marks):** Attempt any 5 questions (out of 8 questions), each carrying 5 marks. **Group C (30 marks):** Attempt any 3 questions (out of 5 questions), each carrying 10 marks.	**Project/ Term Paper/ Essay writing/ Viva** on any topic from the syllabus in consultation with the concerned teachers.

Modality: ECOM (SEC) Practical Examination

1. **Adoption of Away-Centre System**

The SEC Practical Examinations shall be conducted through a centralized **away-centre system**, wherein students will appear for their practical examinations at designated centres other than their parent institutions.

2. **Selection of Examination Centres**

The UGBOS shall request CU to identify and notify a limited number of affiliated colleges as **Examination Centres** based on infrastructural adequacy and administrative feasibility.

3. **Allocation of Students**

Students from each college shall be assigned to an examination centre other than their own institution, as per a centrally prepared allocation plan by CU, and suggested by UGBOS.

4. **Appointment of Examiners**

- **Internal Examiners** shall be appointed by UGBOS from the host institution (Examination Centre).
- **External Examiners** shall be appointed by UGBOS from other affiliated colleges, ensuring that they are not from either the parent college of the students or the host institution.
- The number of examiners shall be determined by UGBOS depending on the number of candidates.

5. **Appointment and Role of Head Examiner (HE)**

- UGBOS shall appoint one or more **Head Examiners (HE)** to ensure smooth and timely completion of the examination process.
- All Internal and External Examiners shall function under the guidance and supervision of the Head Examiner and follow the instructions issued by him/her.
- After completion of evaluation, all examiners shall submit the awarded marks to the Head Examiner.
- The Head Examiner shall be responsible for **compilation, verification, and uploading of marks** through the prescribed online system and for completing the entire marks submission process within the stipulated time.

6. **Conduct of Examination**

The examination shall be conducted jointly by the internal and external examiners in accordance with the guidelines and evaluation framework prescribed by HE. The process shall include practical performance, viva voce, and assessment of records/projects, wherever applicable.

7. **Evaluation and Submission of Marks**

Evaluation shall be carried out jointly to ensure fairness and objectivity. Marks awarded shall be authenticated by the examiners and submitted to the Head Examiner for further processing and uploading.

8. **Role of Controller of Examinations, University of Calcutta (CU)**

The Controller's Department, CU shall take necessary steps to facilitate the implementation of this system, including enabling the online marks uploading process and extending required administrative support.

9. **Supervision and Monitoring**

UGBOS shall oversee the entire process, including centre allocation, examiner appointment, and adherence to guidelines, to ensure uniformity and integrity in the examination system.

University of Calcutta
Program: B.A./ B.Sc. in Economics (CCF)
Program Specification: Major – Minor – MDC –IDC
Course: Economics (1st Sem – 8th Sem)

Prepared by, UGBOS (Economics)

1 Program Outcome, Program Specific Outcome, Course Outcome

In the context of undergraduate education, Program Outcome (PO), Program Specific Outcome (PSO), and Course Outcome (CO) are key components of **Outcome-Based Education (OBE)**. They help to define what students are expected to know, understand, and be able to do by the end of a program or course.

Studying Economics builds specific competencies that align with real-world applications, ensuring graduates are versatile and competitive in economics-related careers. The program prepares students for postgraduate studies (MA/ MSc in Economics, MBA, or specialized fields like Development Studies, Environmental Economics). Complementing the degree in economics, and aquiring skills in data analytics (Excel, Power Query, Power BI, Python, R etc.), in econometrics (STATA, R, Python etc.), or in finance (CFA, FRM etc.) can enhance employability. Courses like Sustainable Development and Rural Development align with global priorities, offering opportunities in emerging fields like ESG and green finance. Most importantly, this Economics syllabus covers topics relevant for UPSC, IES, RBI Grade B, and banking exams, making it ideal for public sector aspirants.

1.1 Program Outcomes (POs)

Program Outcomes (POs) are statements that describe what students are expected to know, understand, and be able to do by the time they graduate from an academic program. These outcomes are broad, overarching goals that reflect the knowledge, skills, attitudes, and competencies students should acquire during their course of study. POs are designed to align with the mission and vision of the institution and the program, ensuring that graduates are well-prepared for their careers, further education, and societal contributions.

1.2 Program Specific Outcomes (PSOs)

Program Specific Outcomes (PSOs) are statements that describe the specific knowledge, skills, and competencies students are expected to acquire by the time they graduate from a particular academic program. Unlike Program Outcomes (POs), which are broader and more general, PSOs are tailored to the specific discipline or field of study. They reflect the unique goals and objectives of the program and are designed to ensure that graduates are well-prepared for careers, further education, or research in their chosen field.

Program Specific Outcomes (PSOs) are essential for defining the unique goals of an academic program and ensuring that students develop the discipline-specific knowledge, skills, and competencies needed for success in their field. They provide a framework for curriculum design, assessment, and continuous improvement, ensuring that the program remains relevant and effective in preparing graduates for careers, further education, and societal contributions.

1.3 Course Outcomes (COs)

Course Outcomes (COs) are specific statements that describe what students are expected to know, understand, and be able to do by the end of a particular course. These outcomes are designed to align with the broader Program Outcomes (POs) and Program Specific Outcomes (PSOs) of the academic program. COs provide a clear and measurable framework for assessing student learning and ensuring that the course contributes to the overall goals of the program.

These COs would then be mapped to the broader Program Outcomes (POs) and Program Specific Outcomes (PSOs) of the program.

Course Outcomes (COs) are essential for defining the specific learning goals of a course and ensuring that students achieve the intended knowledge, skills, and competencies. They provide a clear and measurable framework for curriculum design, assessment, and continuous improvement, ensuring that the course contributes to the overall goals of the program. By aligning COs with POs and PSOs, institutions can ensure that their programs are coherent, relevant, and effective in preparing students for their careers and further education.

1.4 Economics: PO, PSO, CO

Let's take an example Let, one student has taken admission in an undergraduate college affiliated to Calcutta University. He has taken Economics as his/ her major subject. Let, he/ she is a B.Sc.student. Here's a breakdown of these concepts and their differences:

1.4.1 Program Outcome (PO)

Program Outcomes are broad statements that describe what graduates of a specific program are expected to achieve by the time they complete their degree. These outcomes are aligned with the mission and vision of the institution and reflect the skills, knowledge, and attitudes students should possess after completing the program.

- **Example for B.A./B.Sc. in Economics:**
  - Graduates will demonstrate a deep understanding of economic theories and their applications.
  - Graduates will be able to analyze and interpret economic data using appropriate tools and techniques.
  - Graduates will develop critical thinking and problem-solving skills to address real-world economic issues.
- **Key Characteristics:**
  - Broad and holistic.
  - Applicable to the entire program.
  - Focus on long-term career and life skills.

1.4.2 Program Specific Outcome (PSO)

Program Specific Outcomes are narrower than POs and focus on the specific knowledge, skills, and abilities that graduates of a particular program should acquire. These outcomes are tailored to the unique aspects of the program and its specialization.

- **Example for B.A./B.Sc. in Economics (Major in Economics):**
  - Students will be able to apply economic theories to analyze market behavior and policy decisions.
  - Students will demonstrate proficiency in using statistical software for economic data analysis.
  - Students will be able to evaluate the impact of economic policies on society and the environment.
- **Key Characteristics:**
  - Specific to the program or specialization.
  - More focused than POs but broader than COs.
  - Reflect the unique goals of the program.

1.4.3 Course Outcome (CO)

Course Outcomes are specific, measurable statements that describe what students should know, understand, and be able to do by the end of a particular course. These outcomes are directly linked to the syllabus and assessment methods of the course.

- **Example for a Course in Economics (e.g., Microeconomics):**
  - Students will be able to explain the principles of consumer behavior and demand theory.
  - Students will be able to analyze market structures and their implications for pricing and output decisions.
  - Students will be able to apply game theory to strategic decision-making in economics.
- **Key Characteristics:**
  - Specific to a single course.
  - Measurable and assessable.
  - Aligned with the course content and teaching methods.

1.4.4 Areas of Difference Among PO, PSO, and CO

- **Aspect: Program Outcome (PO)**
  - Scope: Broad and program-wide
  - Focus: Overall skills and knowledge after graduation
  - Level of Detail: General and holistic
  - Alignment: Aligned with institutional goals
  - Example: Graduates will be critical thinkers
- **Aspect: Program Specific Outcome (PSO)**
  - Scope: Specific to the program or specialization
  - Focus: Unique skills and knowledge of the program
  - Level of Detail: More detailed than PO but less than CO
  - Alignment: Aligned with program goals
  - Example: Graduates will analyze economic data
- **Aspect: Course Outcome (CO)**
  - Scope: Specific to a single course
  - Focus: Knowledge and skills from a specific course
  - Level of Detail: Highly detailed and specific
  - Alignment: Aligned with course objectives
  - Example: Students will explain demand theory

1.4.5 Example in Context of B.A./B.Sc. in Economics

- PO: Graduates will be able to apply economic principles to solve real-world problems.
- PSO (Major in Economics): Students will be able to evaluate the impact of fiscal and monetary policies on economic growth.
- CO (Microeconomics Course): Students will be able to analyze consumer choice using utility theory.

Hence, POs are broad and apply to the entire program. PSOs are specific to the program or specialization. COs are specific to individual courses and are measurable.

In this context, it is to mention here that following Calcutta University guideline (https://www.caluniv.ac.in/ccf-ug/files/exam-regulation-CSR-44.pdf), we may have the following cases:

1. A candidate clearing all the papers of the 1st and 2nd semesters and also completing a 3 credit Internship and exiting the course at the end of the 1st year shall get a **certificate** of 45 credits.
2. A candidate clearing all the papers of the 1st, 2nd, 3rd & 4th semesters and also completing a 3 credit Internship and exiting the course at the end of the 2nd year shall get a **Diploma** of 88 credits.
3. A candidate clearing all the papers of the 1st to 6th semesters and also completing a 3 credit Internship, obtaining a CGPA less than 4.00 but obtaining a minimum CGPA of 3.0 at the end of the 3rd year shall get a **3-year B.A./B.Sc. degree**, as the case may be.
4. A candidate clearing all the papers of the 1st to 6th semesters and also completing a 3 credit Internship, obtaining a minimum CGPA of 4.00 than 4.00 and exiting the course at the end of the 3rd year shall get a **3-year B.A./B.Sc. Honours degree**, as the case may be.
5. Candidates pursuing the 4th year of study without Research & securing qualifying marks in all the papers of 7th & 8th semesters and also obtaining a minimum CGPA 4.00 after the 8th semester shall be awarded a **4-year B.A./B.Sc. Honours degree**, as the case may be.
6. Candidates pursuing the 4th year of study with Research & securing qualifying marks in all the papers of 7th & 8th semesters and also obtaining a minimum CGPA 4.00 after the 8th semester shall be awarded a **4-year B.A./B.Sc. Honours with Research degree**, as the case may be.

2 Program Outcome (B.A./ B.Sc. in Economics)

The Program Outcomes (POs) for an undergraduate B.A./B.Sc. in Economics are broad statements that describe the knowledge, skills, and competencies students are expected to acquire by the time they complete their degree. These outcomes are designed to align with the goals of the program, the institution's mission, and the expectations of employers and society.

Below is an elaboration of the Program Outcomes for a B.A./B.Sc. in Economics:

1. Understanding of Economic Theories and Concepts

- Outcome: Graduates will demonstrate a comprehensive understanding of fundamental and advanced economic theories, principles, and concepts.
- Elaboration:
  - Students will be able to explain key economic theories such as supply and demand, market structures, macroeconomic policies, and international trade.
  - They will understand the historical and contemporary context of economic thought and its evolution.
  - Graduates will be able to apply theoretical knowledge to analyze real-world economic phenomena.

2. Analytical and Quantitative Skills

- Outcome: Graduates will develop strong analytical and quantitative skills to interpret and analyze economic data.
- Elaboration:
  - Students will be proficient in using statistical and econometric tools to analyze data and test hypotheses.
  - They will be able to interpret graphs, charts, and tables to draw meaningful conclusions.
  - Graduates will demonstrate the ability to use software like Excel, R, Stata, or Python for economic analysis.

3. Critical Thinking and Problem-Solving

- Outcome: Graduates will be able to critically evaluate economic issues and propose evidence-based solutions.
- Elaboration:
  - Students will develop the ability to identify, define, and analyze complex economic problems.
  - They will be able to evaluate the strengths and weaknesses of different economic policies and their implications.
  - Graduates will demonstrate creativity and innovation in addressing economic challenges.

4. Communication of Economic Ideas

- Outcome: Graduates will be able to effectively communicate economic ideas and analysis in written and oral forms.
- Elaboration:
  - Students will be able to write clear, concise, and well-structured reports, essays, and research papers on economic topics.
  - They will be able to present economic arguments and findings to both technical and non-technical audiences.
  - Graduates will develop the ability to engage in informed debates and discussions on economic issues.

5. Awareness of Global and Local Economic Issues

- Outcome: Graduates will demonstrate an understanding of global and local economic issues and their interconnections.
- Elaboration:
  - Students will be aware of global economic trends, such as globalization, trade wars, and climate change, and their impact on local economies.
  - They will understand the role of international institutions like the IMF, World Bank, and WTO in shaping global economic policies.
  - Graduates will be able to analyze the economic challenges faced by developing and developed countries.

6. Ethical and Social Responsibility

- Outcome: Graduates will recognize the ethical and social implications of economic decisions and policies.
- Elaboration:
  - Students will understand the ethical dimensions of economic behavior, such as fairness, equity, and sustainability.
  - They will be able to evaluate the social impact of economic policies, such as income inequality, poverty, and environmental degradation.
  - Graduates will demonstrate a commitment to using their economic knowledge for the betterment of society.

7. Research and Lifelong Learning

- Outcome: Graduates will be equipped with research skills and a mindset for lifelong learning.
- Elaboration:
  - Students will be able to design and conduct independent research projects using appropriate methodologies.

  - They will develop the ability to critically review and synthesize economic literature.
  - Graduates will demonstrate a willingness to continuously update their knowledge and skills in response to changing economic environments.

8. Interdisciplinary Perspective

- Outcome: Graduates will be able to integrate knowledge from other disciplines to address economic issues.
- Elaboration:
  - Students will understand the intersection of economics with fields like political science, sociology, environmental studies, and mathematics.
  - They will be able to apply interdisciplinary approaches to solve complex economic problems.
  - Graduates will appreciate the role of economics in shaping public policy and decision-making across sectors.

9. Professional and Career Readiness

- Outcome: Graduates will be prepared for careers in economics and related fields.
- Elaboration:
  - Students will develop skills relevant to careers in academia, government, finance, consulting, and international organizations.
  - They will be able to demonstrate professionalism, teamwork, and leadership in their work.
  - Graduates will be equipped with the knowledge and skills to pursue advanced studies in economics or related disciplines.

10. Policy Analysis and Evaluation

- Outcome: Graduates will be able to analyze and evaluate the effectiveness of economic policies.
- Elaboration:
  - Students will understand the process of policy formulation, implementation, and evaluation.
  - They will be able to assess the impact of fiscal, monetary, and trade policies on economic growth, employment, and inflation.
  - Graduates will be able to recommend policy changes based on empirical evidence and theoretical insights.

Hence, the Program Outcomes for a B.A./B.Sc. in Economics are designed to ensure that graduates are well-rounded individuals with a strong foundation in economic theory, practical skills for data analysis, and the ability to apply their knowledge to real-world problems. These outcomes prepare students for diverse career paths and equip them with the tools to contribute meaningfully to society.

3 Program Specific Outcome (PSO): Economics (Major)

Program: B.A./ B.Sc. in Economics

Program Specification: Economics (Major)

The Program Specific Outcomes (PSOs) for an undergraduate Major in Economics are tailored to the specific knowledge, skills, and abilities that students are expected to acquire by the end of the program, based on the given syllabus structure. These outcomes are narrower than the Program Outcomes (POs) and focus on the unique aspects of the Economics major.

Sem1

Paper	Course	Name of the Paper	Credit
DSCC1	ECOM	Microeconomics (I)	3+1
SEC1	ECOM	Introductory Statistics & Application (I)	3+1

Sem2

Paper	Course	Name of the Paper	Credit
DSCC2	ECOM	Macroeconomics (I)	3+1
SEC2	ECOM	Introductory Statistics & Application (II)	1+3

Sem 3

Paper	Course	Name of the Paper	Credit
DSCC3	ECOM	Microeconomics (II)	3+1
DSCC4	ECOM	Development Economics	3+1
SEC3	ECOM	Data Analysis and Research Methodology	2+2

Sem 4

Paper	Course	Name of the Paper	Credit
DSCC5	ECOM	Mathematical Economics (I)	3+1
DSCC6	ECOM	Macroeconomics (II)	3+1
DSCC7	ECOM	Statistics for Economics	3+1
DSCC8	ECOM	Indian Economics	3+1

Sem 5

Paper	Course	Name of the Paper	Credit
DSCC9	ECOM	Microeconomics (III)	3+1
DSCC10	ECOM	Macroeconomics (III)	3+1
DSCC11	ECOM	Mathematical Economics (II)	3+1
DSCC12	ECOM	Econometrics	3+1

Sem 6

Paper	Course	Name of the Paper	Credit
DSCC13	ECOM	International Economics	3+1
DSCC14	ECOM	Environmental & Resource Economics	3+1
DSCC15	ECOM	Public Economics	3+1
Internship	ECOM	Summer Internship	3

Sem 7

Paper	Course	Name of the Paper	Credit
DSCC16	ECOM	Advanced Microeconomics	3+1
DSCC17	ECOM	Advanced Macroeconomics	3+1
DSCC18	ECOM	Financial Economics	3+1
DSCC19	ECOM	Economic Thought	3+1
DSCC20	ECOM	Economic History of India	3+1

Sem 8

Common Papers for both "HONOURS WITH RESEARCH" and "HONOURS w/o RESEARCH" students:

Paper	Course	Name of the Paper	Credit
DSCC21	ECOM	Research Methodology (I)	3+1
DSCC22	ECOM	Research Methodology (II)	2+2

Papers for "HONOURS WITH RESEARCH" students:

Paper	Course	Name of the Paper	Credit
DSCC(RI)	ECOM	Research Internship	3+1
DSCC(D)	ECOM	Disseration Writing	6+2

Papers for "HONOURS w/o RESEARCH" students:

Paper	Course	Name of the Paper	Credit
DSCC23	ECOM	Advanced Indian Economics	3+1
DSCC24	ECOM	Development Studies	3+1
DSCC25	ECOM	Dissertation	3+1

Below is an elaboration of the Program Specific Outcomes (PSOs) for the given syllabus structure:

1. Mastery of Core Economic Theories

- Outcome: Graduates will demonstrate a deep understanding of core economic theories in microeconomics, macroeconomics, and their applications.
- Elaboration:
  - Students will be able to analyze consumer behavior, production, market structures, and welfare economics through Microeconomics I, II, and III.
  - They will understand macroeconomic concepts such as national income, inflation, unemployment, and monetary and fiscal policies through Macroeconomics I, II, and III.
  - Graduates will apply these theories to real-world economic problems and policy analysis.

2. Proficiency in Quantitative and Analytical Tools

- Outcome: Graduates will be proficient in using statistical, mathematical, and econometric tools for economic analysis.
- Elaboration:
  - Students will develop skills in data analysis, probability, and statistical inference through Introductory Statistics & Application I and II, and Statistics for Economics.
  - They will apply mathematical techniques to economic models through Mathematical Economics I and II.
  - Graduates will be able to use econometric methods for empirical research through Econometrics I and II.

3. Understanding of Development Economics

- Outcome: Graduates will understand the theories and challenges of economic development and their relevance to developing economies.
- Elaboration:
  - Students will analyze issues such as poverty, inequality, human development, and sustainable development through Development Economics I and II.
  - They will evaluate the role of institutions, policies, and globalization in economic development.
  - Graduates will be able to propose solutions to development challenges faced by countries like India.

4. Knowledge of Indian Economy

- Outcome: Graduates will demonstrate a comprehensive understanding of the structure, functioning, and challenges of the Indian economy.
- Elaboration:
  - Students will study the historical and contemporary issues of the Indian economy through Indian Economics I and II.
  - They will analyze India's economic policies, growth trajectory, and sectoral performance.
  - Graduates will be able to critically evaluate the impact of economic reforms and globalization on India.

5. Expertise in International Economics

- Outcome: Graduates will understand the principles of international trade and finance and their implications for global and national economies.
- Elaboration:

- Students will study trade theories, balance of payments, exchange rates, and trade policies through International Economics I and II.
- They will analyze the impact of globalization, trade agreements, and international institutions on economic growth and development.
- Graduates will be able to evaluate the challenges and opportunities of international economic integration.

6. Application of Environmental and Resource Economics

- Outcome: Graduates will understand the economic dimensions of environmental issues and natural resource management.
- Elaboration:
  - Students will study the concepts of externalities, market failures, and sustainable development through Environmental & Resource Economics I and II.
  - They will analyze policies for environmental protection, climate change mitigation, and resource conservation.
  - Graduates will be able to apply economic tools to address environmental challenges.

7. Understanding of Public Economics

- Outcome: Graduates will understand the role of the government in the economy and the principles of public policy.
- Elaboration:
  - Students will study public goods, taxation, public expenditure, and fiscal federalism through Public Economics I and II.
  - They will analyze the efficiency and equity implications of government policies.
  - Graduates will be able to evaluate the effectiveness of public programs and policies.

8. Research and Data Analysis Skills

- Outcome: Graduates will be equipped with research methodology and data analysis skills for economic research.
- Elaboration:
  - Students will learn research design, data collection, and analysis techniques through Data Analysis and Research Methodology.
  - They will apply these skills in their dissertations and internships.
  - Graduates will be able to conduct independent research and present findings effectively.

9. Practical Exposure through Internships

- Outcome: Graduates will gain practical experience in applying economic concepts to real-world problems.
- Elaboration:
  - Students will undertake internships to gain hands-on experience in industries, government agencies, or research organizations.
  - They will apply theoretical knowledge to practical scenarios and develop professional skills.
  - Graduates will be better prepared for careers in economics and related fields.

10. Specialization in Advanced Topics

- Outcome: Graduates will demonstrate expertise in advanced topics such as financial economics, gender economics, and managerial economics.

- Elaboration:
  - Students will study financial markets, investment, and risk management through Financial Economics I and II.
  - They will analyze gender disparities and their economic implications through Gender Economics.
  - Graduates will apply economic principles to business decision-making through Managerial Economics.

11. Interdisciplinary Perspective

- Outcome: Graduates will integrate knowledge from related disciplines to address complex economic issues.
- Elaboration:
  - Students will study the economic history of India (1857-1947) to understand the historical context of economic development.
  - They will explore interdisciplinary topics such as environmental economics, development economics, and gender economics.
  - Graduates will be able to approach economic problems from a multidisciplinary perspective.

12. Critical Evaluation of Economic Policies

- Outcome: Graduates will be able to critically evaluate the effectiveness of economic policies and their impact on society.
- Elaboration:
  - Students will analyze the design, implementation, and outcomes of economic policies in areas such as public finance, international trade, and environmental regulation.
  - They will use empirical evidence and theoretical frameworks to assess policy effectiveness.
  - Graduates will be able to recommend evidence-based policy solutions.

The Program Specific Outcomes (PSOs) for the undergraduate Major in Economics are designed to ensure that graduates acquire specialized knowledge and skills in economics, aligned with the given syllabus structure. These outcomes focus on core economic theories, quantitative tools, development economics, Indian economy, international economics, environmental economics, public economics, and advanced topics. Graduates will be equipped with research skills, practical experience, and the ability to critically evaluate economic policies, preparing them for diverse careers and advanced studies in economics.

4 Program Specific Outcome (PSO): Economics (Minor & MDC)

Program: B.A./ B.Sc. in Economics

Program Specification: Economics (Minor & MDC)

The **Program Specific Outcomes (PSOs)** for an undergraduate Minor Course in Economics and Multi Disciplinary Course (MDC) in Economics are designed to provide students with a foundational understanding of economic principles and their applications, even if they are not majoring in Economics. These outcomes are tailored to the specific syllabus structure and focus on equipping students with essential economic knowledge and skills that complement their primary field of study.

Below is an elaboration of the Program Specific Outcomes (PSOs) for the given syllabus structure:

1. Understanding of Basic Economic Principles

- Outcome: Graduates will demonstrate a foundational understanding of microeconomic and macroeconomic principles.
- Elaboration:

  - Students will learn the basics of demand and supply, consumer behavior, production, and market structures through Microeconomics I.
  - They will understand macroeconomic concepts such as national income, inflation, unemployment, and fiscal and monetary policies through Macroeconomics I.
  - Graduates will be able to apply these principles to analyze simple economic problems.

2. Awareness of Development Economics

- Outcome: Graduates will understand the key issues and challenges in economic development.
- Elaboration:
  - Students will study the theories and strategies of economic development through Development Economics I.
  - They will analyze issues such as poverty, inequality, human development, and sustainable development.
  - Graduates will be able to evaluate the role of policies and institutions in promoting development.

3. Knowledge of the Indian Economy

- Outcome: Graduates will demonstrate an understanding of the structure, functioning, and challenges of the Indian economy.
- Elaboration:
  - Students will study the historical and contemporary issues of the Indian economy through Indian Economics I.
  - They will analyze India's economic policies, growth trajectory, and sectoral performance.
  - Graduates will be able to critically evaluate the impact of economic reforms and globalization on India.

4. Understanding of Sustainable Development

- Outcome: Graduates will understand the principles of sustainable development and their economic implications.
- Elaboration:
  - Students will study the concepts of sustainability, environmental economics, and resource management through Sustainable Development.
  - They will analyze the trade-offs between economic growth and environmental conservation.
  - Graduates will be able to propose solutions for achieving sustainable development goals.

5. Proficiency in Economic Data Analysis

- Outcome: Graduates will develop basic skills in economic data analysis and report writing.
- Elaboration:
  - Students will learn to collect, analyze, and interpret economic data through Economic Data Analysis and Report Writing.
  - They will be able to use statistical tools and software for data analysis.
  - Graduates will be able to present their findings in clear and concise reports.

6. Awareness of Entrepreneurship and Development

- Outcome: Graduates will understand the role of entrepreneurship in economic development.
- Elaboration:

  - Students will study the concepts of entrepreneurship, innovation, and their impact on economic growth through Entrepreneurship and Development.
  - They will analyze the challenges and opportunities for entrepreneurs in developing economies.
  - Graduates will be able to apply entrepreneurial thinking to solve economic problems.

7. Understanding of Public Finance

- Outcome: Graduates will understand the principles of public finance and the role of government in the economy.
- Elaboration:
  - Students will study public goods, taxation, public expenditure, and fiscal policies through Public Finance.
  - They will analyze the efficiency and equity implications of government policies.
  - Graduates will be able to evaluate the effectiveness of public programs and policies.

8. Knowledge of Rural Development

- Outcome: Graduates will understand the challenges and strategies for rural development.
- Elaboration:
  - Students will study the issues of rural poverty, agriculture, and infrastructure development through Rural Development.
  - They will analyze the role of policies and programs in promoting rural development.
  - Graduates will be able to propose solutions for addressing rural economic challenges.

9. Understanding of Economic History

- Outcome: Graduates will demonstrate an understanding of the economic history of India and its impact on current economic issues.
- Elaboration:
  - Students will study the economic history of India from 1857 to 1947 through Economic History of India (1857-1947).
  - They will analyze the historical context of India's economic development and policy-making.
  - Graduates will be able to draw lessons from history to address contemporary economic challenges.

10. Interdisciplinary Perspective

- Outcome: Graduates will be able to integrate economic knowledge with other disciplines.
- Elaboration:
  - Students will study interdisciplinary topics such as sustainable development, entrepreneurship, and rural development.
  - They will apply economic principles to analyze issues in their primary field of study.
  - Graduates will be able to approach problems from a multidisciplinary perspective.

11. Critical Thinking and Problem-Solving

- Outcome: Graduates will develop critical thinking and problem-solving skills in the context of economic issues.
- Elaboration:
  - Students will learn to analyze economic problems, evaluate evidence, and propose solutions.

- They will apply economic theories and tools to address real-world challenges.
- Graduates will be able to make informed decisions based on economic reasoning.

12. Communication and Report Writing Skills

- Outcome: Graduates will be able to effectively communicate economic ideas and analysis.
- Elaboration:
  - Students will develop skills in writing clear and concise economic reports through Economic Data Analysis and Report Writing.
  - They will be able to present economic arguments and findings to both technical and non-technical audiences.
  - Graduates will demonstrate professionalism in their communication.

The Program Specific Outcomes (PSOs) for the undergraduate Minor Course and Multi Disciplinary Course (MDC) in Economics are designed to provide students with a foundational understanding of economic principles and their applications. These outcomes focus on core economic theories, development economics, Indian economy, sustainable development, public finance, rural development, and economic history. Graduates will develop skills in data analysis, critical thinking, and communication, enabling them to apply economic knowledge to their primary field of study and address real-world challenges.

5 Program Specific Outcome (PSO): Economics (IDC)

Program: B.A./ B.Sc. in Economics

Program Specification: Economics (IDC)

The **Program Specific Outcomes (PSOs)** for an undergraduate Inter Disciplinary Course (IDC) in Economics are designed to provide students from diverse academic backgrounds with a foundational understanding of economic principles and their applications. The IDC in Economics, such as Elementary Economics, aims to equip students with basic economic knowledge and analytical skills that can complement their primary field of study.

Below is an elaboration of the Program Specific Outcomes (PSOs) for the given syllabus structure:

1. Understanding of Basic Economic Concepts

- Outcome: Graduates will demonstrate a foundational understanding of basic economic concepts and principles.
- Elaboration:
  - Students will learn the fundamental concepts of economics, such as scarcity, choice, opportunity cost, demand and supply, and market equilibrium.
  - They will understand the difference between microeconomics (individual and firm behavior) and macroeconomics (economy-wide issues).
  - Graduates will be able to apply these concepts to analyze simple economic problems in their daily lives.

2. Awareness of Economic Decision-Making

- Outcome: Graduates will understand how individuals, firms, and governments make economic decisions.
- Elaboration:
  - Students will study consumer behavior, production decisions, and market structures.
  - They will analyze how governments make decisions regarding taxation, public spending, and regulation.
  - Graduates will be able to evaluate the trade-offs involved in economic decision-making.

3. Understanding of Market Mechanisms

- Outcome: Graduates will understand how markets function and the role of prices in allocating resources.
- Elaboration:
  - Students will learn how demand and supply interact to determine prices and quantities in a market.
  - They will analyze the impact of market interventions such as price controls, taxes, and subsidies.
  - Graduates will be able to explain the efficiency and limitations of market mechanisms.

4. Knowledge of Macroeconomic Issues

- Outcome: Graduates will demonstrate an understanding of key macroeconomic issues and policies.
- Elaboration:
  - Students will study concepts such as GDP, inflation, unemployment, and economic growth.
  - They will understand the role of fiscal and monetary policies in stabilizing the economy.
  - Graduates will be able to analyze the impact of macroeconomic policies on individuals and businesses.

5. Application of Economic Principles to Real-World Issues

- Outcome: Graduates will be able to apply economic principles to analyze real-world issues.
- Elaboration:
  - Students will study case studies and examples of economic issues such as poverty, inequality, environmental degradation, and globalization.
  - They will apply economic theories to evaluate the causes and consequences of these issues.
  - Graduates will be able to propose evidence-based solutions to economic problems.

6. Development of Critical Thinking Skills

- Outcome: Graduates will develop critical thinking skills to evaluate economic arguments and policies.
- Elaboration:
  - Students will learn to analyze economic data, interpret graphs, and evaluate the validity of economic claims.
  - They will critically assess the strengths and weaknesses of different economic policies.
  - Graduates will be able to make informed decisions based on economic reasoning.

7. Interdisciplinary Perspective

- Outcome: Graduates will be able to integrate economic knowledge with their primary field of study.
- Elaboration:
  - Students will apply economic principles to analyze issues in their own discipline, such as business, politics, sociology, or environmental studies.
  - They will understand the economic dimensions of interdisciplinary problems, such as climate change, public health, and technological innovation.
  - Graduates will be able to approach problems from a multidisciplinary perspective.

8. Communication of Economic Ideas

- Outcome: Graduates will be able to effectively communicate economic ideas and analysis.

- Elaboration:
  - Students will develop skills in writing and presenting economic arguments in a clear and concise manner.
  - They will be able to explain economic concepts to both technical and non-technical audiences.
  - Graduates will demonstrate professionalism in their communication.

9. Ethical and Social Awareness

- Outcome: Graduates will recognize the ethical and social implications of economic decisions and policies.
- Elaboration:
  - Students will understand the ethical dimensions of economic behavior, such as fairness, equity, and sustainability.
  - They will analyze the social impact of economic policies, such as income inequality, poverty, and environmental degradation.
  - Graduates will demonstrate a commitment to using their economic knowledge for the betterment of society.

10. Lifelong Learning and Economic Literacy

- Outcome: Graduates will develop a foundation for lifelong learning and economic literacy.
- Elaboration:
  - Students will gain the ability to read and interpret economic news, reports, and research.
  - They will develop a curiosity and willingness to continuously update their knowledge of economic issues.
  - Graduates will be equipped to make informed decisions as consumers, workers, and citizens.

The **Program Specific Outcomes (PSOs)** for the undergraduate Inter Disciplinary Course (IDC) in Economics, such as Elementary Economics, are designed to provide students with a foundational understanding of economic principles and their applications. These outcomes focus on basic economic concepts, decision-making, market mechanisms, macroeconomic issues, and real-world applications. Graduates will develop critical thinking, interdisciplinary, and communication skills, enabling them to apply economic knowledge to their primary field of study and address real-world challenges. The course also emphasizes ethical awareness and lifelong learning, preparing students to be informed and responsible citizens.

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6 Course Outcome: Microeconomics (I)

The Course Outcomes (COs) for the undergraduate Microeconomics (I) course are specific, measurable statements that describe what students are expected to know, understand, and be able to do by the end of the course. These outcomes are aligned with the syllabus and focus on building foundational knowledge and analytical skills in microeconomics. Below is an elaboration of the Course Outcomes (COs) for the given syllabus:

1. Understanding the Scope and Method of Economics

- Outcome: Students will be able to explain the fundamental concepts and methods of economics.
- Elaboration:
  - Students will define economics and distinguish between microeconomics and macroeconomics.
  - They will understand the basic economic questions, such as what to produce, how to produce, and for whom to produce.
  - Students will explain the concepts of scarcity, choice, opportunity cost, and efficiency.
  - They will differentiate between normative and positive economics.

2. Application of Microeconomic Principles

- Outcome: Students will be able to apply the principles of microeconomics to analyze individual and market behavior.
- Elaboration:
  - Students will explain the principles of individual decision-making, such as trade-offs, marginal analysis, and cost-benefit analysis.
  - They will understand the principles of economic interactions, including trade, market economies, and property rights.
  - Students will analyze market failures, externalities, and market power.

3. Understanding Utility Theory

- Outcome: Students will be able to analyze consumer behavior using utility theory.
- Elaboration:
  - Students will differentiate between cardinal and ordinal utility approaches.
  - They will explain total utility, marginal utility, and the utility maximization principle in the cardinal approach.
  - Students will analyze consumer preferences using indifference curves, budget constraints, and the concept of marginal rate of substitution (MRS).
  - They will determine consumer equilibrium for both interior and corner solutions.

4. Analysis of Demand and Supply

- Outcome: Students will be able to explain the theory of demand and supply and their role in market price determination.
- Elaboration:
  - Students will identify the factors influencing demand and supply.
  - They will explain the demand curve, supply curve, and the concepts of movement along and shifts in these curves.
  - Students will determine equilibrium price and quantity in a competitive market.
  - They will analyze the impact of changes in demand and supply on market equilibrium.

5. Understanding Market Structures and Adjustments

- Outcome: Students will be able to explain the functioning of different market structures and their adjustments.
- Elaboration:
  - Students will describe the evolution of market economies and the role of the price system.
  - They will differentiate between households, firms, and central authorities as decision-makers.
  - Students will explain the concepts of individual markets, interlinked markets, and the differences between competitive, goods, and factor markets.
  - They will analyze the characteristics of public goods, private goods, common resources, and natural monopolies.

6. Application of Elasticity Concepts

- Outcome: Students will be able to calculate and interpret different types of elasticity and their applications.
- Elaboration:
  - Students will explain the importance of elasticity in economic decision-making.
  - They will calculate arc elasticity and point elasticity for demand and supply.
  - Students will analyze the factors affecting price elasticity of demand and supply.
  - They will interpret income elasticity and cross-price elasticity of demand.
  - Students will apply elasticity concepts to real-world case studies, such as OPEC and oil prices.

7. Critical Thinking and Problem-Solving

- Outcome: Students will develop critical thinking and problem-solving skills in the context of microeconomic issues.
- Elaboration:
  - Students will analyze real-world economic problems using microeconomic theories and tools.
  - They will evaluate the impact of economic policies and market changes on consumer and producer behavior.
  - Students will propose solutions to economic problems based on theoretical and empirical analysis.

8. Graphical and Analytical Skills

- Outcome: Students will be able to use graphs and diagrams to analyze microeconomic concepts.
- Elaboration:
  - Students will draw and interpret graphs for demand and supply, indifference curves, budget constraints, and market equilibrium.
  - They will use diagrams to explain concepts such as utility maximization, consumer equilibrium, and elasticity.
  - Students will analyze economic scenarios using graphical representations.

9. Interdisciplinary Perspective

- Outcome: Students will be able to apply microeconomic principles to interdisciplinary issues.
- Elaboration:
  - Students will analyze the economic dimensions of issues such as environmental degradation, public health, and technological innovation.

  - They will integrate microeconomic concepts with knowledge from other disciplines, such as sociology, political science, and environmental studies.
  - Students will evaluate the role of economics in shaping public policy and decision-making.

10. Communication of Economic Ideas

- Outcome: Students will be able to effectively communicate microeconomic concepts and analysis.
- Elaboration:
  - Students will write clear and concise explanations of microeconomic theories and their applications.
  - They will present economic arguments and findings using appropriate terminology and graphical tools.
  - Students will demonstrate professionalism in their communication of economic ideas.

The **Course Outcomes (COs)** for the undergraduate Microeconomics (I) course are designed to ensure that students develop a strong foundation in microeconomic theory and its applications. These outcomes focus on understanding economic principles, analyzing consumer and market behavior, and applying elasticity concepts. Students will also develop critical thinking, graphical, and communication skills, enabling them to analyze real-world economic problems and communicate their findings effectively. The course prepares students for advanced studies in economics and provides them with tools to apply microeconomic concepts in interdisciplinary contexts.

6.1 Interconnection Among PO, PSO, and CO

The interconnection among these three levels of outcomes can be established by mapping how the Course Outcomes (COs) contribute to the Program Specific Outcomes (PSOs), which in turn contribute to the Program Outcomes (POs).

Below is an example of this mapping for the Microeconomics (I) course in our undergraduate Economics major program.

6.1.1 Mapping COs to PSOs and POs

1. CO1: Students will be able to explain the principles of consumer behavior and demand theory.

   PSO1: Students will be able to apply economic theories to analyze market behavior.

   PO1: Graduates will demonstrate a deep understanding of economic theories.

2. CO2: Students will be able to analyze market structures and their implications for pricing and output.

   PSO2: Students will demonstrate proficiency in using economic tools for analysis.

   PO2: Graduates will develop strong analytical and quantitative skills.

3. CO3: Students will be able to apply elasticity concepts to real-world economic scenarios.

   PSO3: Students will be able to evaluate the impact of economic policies on society.

   PO3: Graduates will be able to critically evaluate economic policies.

4. CO4: Students will be able to use graphs and diagrams to analyze microeconomic concepts.

   PSO4: Students will develop critical thinking and problem-solving skills in economics.

   PO4: Graduates will be able to solve real-world economic problems.

5. CO5: Students will be able to communicate microeconomic concepts effectively.

   CPSO5: Students will be able to present economic arguments and findings effectively.

   PO5: Graduates will be able to communicate economic ideas effectively.

6.1.2 Explanation of the Interconnection

- **COs Contribute to PSOs:**

The Course Outcomes (COs) of the Microeconomics (I) course are designed to help students achieve the Program Specific Outcomes (PSOs). For example:

- – CO1 (understanding consumer behavior) contributes to PSO1 (applying economic theories to analyze market behavior).
  – CO3 (applying elasticity concepts) contributes to PSO3 (evaluating the impact of economic policies).
  – CO5 (communication skills) contributes to PSO5 (presenting economic arguments effectively).

- **PSOs Contribute to POs:**

The Program Specific Outcomes (PSOs) are aligned with the broader Program Outcomes (POs). For example:

- – PSO1 (applying economic theories) contributes to PO1 (demonstrating a deep understanding of economic theories).
  – PSO2 (using economic tools) contributes to PO2 (developing analytical and quantitative skills).
  – PSO3 (evaluating policy impacts) contributes to PO3 (critically evaluating economic policies).

- **COs Ultimately Contribute to POs:**

Since COs contribute to PSOs, and PSOs contribute to POs, the Course Outcomes (COs) ultimately contribute to the Program Outcomes (POs). For example:

- – CO2 (analyzing market structures) contributes to PSO2 (using economic tools), which in turn contributes to PO2 (developing analytical skills).
  – CO4 (using graphs and diagrams) contributes to PSO4 (developing critical thinking), which in turn contributes to PO4 (solving real-world problems).

6.1.3 Example of Interconnection in Practice

A student completes the Microeconomics (I) course.

- **Scenario 1:**
  - CO1: The student learns about consumer behavior and demand theory.
  - PSO1: This knowledge helps the student apply economic theories to analyze market behavior in other courses and projects.
  - PO1: By the end of the program, the student demonstrates a deep understanding of economic theories, partly due to the foundation built in the Microeconomics (I) course.

- **Scenario 2:**
  - CO3: The student learns to apply elasticity concepts to analyze the impact of oil price changes.
  - PSO3: This skill helps the student evaluate the impact of economic policies, such as fuel subsidies or taxes, in advanced courses.
  - PO3: By graduation, the student is able to critically evaluate economic policies, thanks to the skills developed in the Microeconomics (I) course.

The interconnection among PO, PSO, and CO ensures that the learning outcomes at each level are aligned and contribute to the overall goals of the program. The Course Outcomes (COs) of individual courses, such as Microeconomics (I), directly support the Program Specific Outcomes (PSOs), which in turn contribute to the broader Program Outcomes (POs). This alignment ensures that students acquire the necessary knowledge, skills, and competencies to succeed in their academic and professional careers.

7 Course Outcome: Introductory Statistics and Applications (I)

The Course Outcomes (COs) for the undergraduate Introductory Statistics and Applications (I) course are specific, measurable statements that describe what students are expected to know, understand, and be able to do by the end of the course. These outcomes are aligned with the given syllabus and focus on building foundational knowledge and skills in statistics, which are essential for economic analysis. Below is an elaboration of the Course Outcomes (COs) for the given syllabus:

1. Understanding the Subject Matter of Statistics

- Outcome: Students will be able to explain the basic concepts and methods of statistics.
- Elaboration:
  - Students will define statistics and its role in economic analysis.
  - They will understand the steps involved in statistical methods: collection, presentation, and analysis of data.
  - Students will differentiate between primary and secondary data sources and explain the methods of data collection.
  - They will identify and classify variables (discrete, continuous, and categorical) and understand the concepts of population and sample.

2. Data Collection and Presentation Skills

- Outcome: Students will be able to collect, classify, and present data effectively.
- Elaboration:
  - Students will demonstrate the ability to collect data from primary and secondary sources.
  - They will present data using textual, tabular, and diagrammatic methods.
  - Students will construct frequency distributions, ogives, column diagrams, frequency polygons, histograms, and frequency curves.
  - They will interpret and analyze univariate and bivariate data.

3. Calculation of Measures of Central Tendency

- Outcome: Students will be able to compute and interpret measures of central tendency.
- Elaboration:
  - Students will calculate the arithmetic mean, geometric mean, harmonic mean, median, and mode for both ungrouped and grouped data.
  - They will compare the different measures of central tendency and understand their applications.
  - Students will compute quartiles, deciles, and percentiles and interpret their significance.

4. Understanding Index Numbers

- Outcome: Students will be able to construct and interpret index numbers.
- Elaboration:
  - Students will explain the problems and methods of constructing price index numbers, including simple and weighted aggregative methods and price-relatives methods.
  - They will compute Laspeyres, Paasche, and Fisher's index numbers and understand their differences.
  - Students will calculate quantity index numbers and apply tests of index numbers.
  - They will interpret wholesale price index and cost of living index and understand their uses.

5. Calculation of Measures of Dispersion

- Outcome: Students will be able to compute and interpret measures of dispersion.
- Elaboration:
  - Students will calculate absolute measures of dispersion, such as range, quartile deviation, mean deviation, and standard deviation, for both ungrouped and grouped data.
  - They will compute relative measures of dispersion, such as the coefficient of variation, coefficient of mean deviation, and coefficient of quartile deviation.
  - Students will compare different measures of dispersion and understand their applications.

6. Analysis of Income and Wealth Distribution

- Outcome: Students will be able to analyze the distribution of income and wealth using statistical tools.
- Elaboration:
  - Students will construct and interpret the Lorenz curve.
  - They will calculate the Gini coefficient and Theil's index to measure inequality.
  - Students will analyze the implications of income and wealth distribution for economic policy.

7. Understanding Skewness and Kurtosis

- Outcome: Students will be able to compute and interpret measures of skewness and kurtosis.
- Elaboration:
  - Students will calculate central and non-central moments and convert between them.
  - They will compute measures of skewness, such as Bowley's measure and the coefficient of quartile deviation, and interpret their significance.
  - Students will calculate measures of kurtosis based on moments and understand their applications.

8. Bivariate Data Analysis

- Outcome: Students will be able to analyze bivariate data using correlation and regression.
- Elaboration:
  - Students will construct and interpret scatter diagrams for bivariate data.
  - They will calculate the simple correlation coefficient and understand its properties and limitations.
  - Students will perform simple linear regression using the least squares technique and interpret the regression coefficients.
  - They will analyze the relationship between two variables and make predictions based on regression results.

9. Application of Statistical Tools

- Outcome: Students will be able to apply statistical tools to real-world economic problems.
- Elaboration:
  - Students will use statistical methods to analyze economic data, such as price indices, income distribution, and bivariate relationships.
  - They will interpret statistical results and draw meaningful conclusions for economic decision-making.
  - Students will apply statistical tools to evaluate economic policies and their impact.

10. Communication of Statistical Analysis

- Outcome: Students will be able to communicate statistical analysis effectively.
- Elaboration:
  - Students will present statistical findings using appropriate tables, graphs, and diagrams.
  - They will write clear and concise reports explaining statistical methods and results.
  - Students will demonstrate the ability to communicate complex statistical concepts to both technical and non-technical audiences.

The Course Outcomes (COs) for the undergraduate Introductory Statistics and Applications (I) course are designed to ensure that students develop a strong foundation in statistical methods and their applications in economics. These outcomes focus on data collection and presentation, measures of central tendency and dispersion, index numbers, income distribution analysis, skewness and kurtosis, and bivariate data analysis. Students will also develop critical thinking, analytical, and communication skills, enabling them to apply statistical tools to real-world economic problems and communicate their findings effectively. This course prepares students for advanced studies in economics and provides them with essential skills for data-driven decision-making.

7.1 Interconnection Among PO, PSO, and CO

It is essential to establish a clear interconnection among Program Outcomes (POs), Program Specific Outcomes (PSOs), and Course Outcomes (COs) for the Introductory Statistics and Applications (I) course. This alignment ensures that the course contributes meaningfully to the overall goals of the undergraduate Economics program and that students achieve the desired knowledge, skills, and competencies by the end of their degree.

The interconnection among these three levels of outcomes can be established by mapping how the Course Outcomes (COs) contribute to the Program Specific Outcomes (PSOs), which in turn contribute to the Program Outcomes (POs). Below is an example of this mapping for the Introductory Statistics and Applications (I) course in an undergraduate Economics major program:

7.1.1 Mapping COs to PSOs and POs

1. CO1: Students will be able to collect, classify, and present data effectively.
   PSO1: Students will demonstrate proficiency in data collection, analysis, and interpretation.
   PO1: Graduates will develop strong analytical and quantitative skills.
2. CO2: Students will be able to compute and interpret measures of central tendency and dispersion.
   PSO2: Students will be able to apply statistical tools for economic analysis.
   PO2: Graduates will demonstrate a deep understanding of economic theories.
3. CO3: Students will be able to construct and interpret index numbers.
   PSO3: Students will be able to evaluate the impact of economic policies using empirical data.
   PO3: Graduates will be able to critically evaluate economic policies.
4. CO4: Students will be able to analyze bivariate data using correlation and regression.
   PSO4: Students will develop critical thinking and problem-solving skills in economics.
   PO4: Graduates will be able to solve real-world economic problems.
5. CO5: Students will be able to communicate statistical analysis effectively.
   PSO5: Students will be able to present economic arguments and findings effectively.
   PO5: Graduates will be able to communicate economic ideas effectively.

7.1.2 Explanation of the Interconnection

- **COs Contribute to PSOs:**

The Course Outcomes (COs) of the Introductory Statistics and Applications (I) course are designed to help students achieve the Program Specific Outcomes (PSOs). For example:

- – CO1 (data collection and presentation) contributes to PSO1 (proficiency in data collection, analysis, and interpretation).
  – CO2 (measures of central tendency and dispersion) contributes to PSO2 (applying statistical tools for economic analysis).
  – CO3 (index numbers) contributes to PSO3 (evaluating the impact of economic policies using empirical data).

- **PSOs Contribute to POs:**

The Program Specific Outcomes (PSOs) are aligned with the broader Program Outcomes (POs). For example:

- – PSO1 (data analysis skills) contributes to PO1 (developing strong analytical and quantitative skills).
  – PSO2 (applying statistical tools) contributes to PO2 (demonstrating a deep understanding of economic theories).
  – PSO3 (evaluating policy impacts) contributes to PO3 (critically evaluating economic policies).

- **COs Ultimately Contribute to POs:**

Since COs contribute to PSOs, and PSOs contribute to POs, the Course Outcomes (COs) ultimately contribute to the Program Outcomes (POs). For example:

- – CO4 (bivariate data analysis) contributes to PSO4 (developing critical thinking and problem-solving skills), which in turn contributes to PO4 (solving real-world economic problems).
  – CO5 (communication of statistical analysis) contributes to PSO5 (presenting economic arguments effectively), which in turn contributes to PO5 (communicating economic ideas effectively).

7.1.3 Example of Interconnection in Practice

A student completes the "Introductory Statistics and Applications (I)" course.

- **Scenario 1:**
  - CO1: The student learns to collect, classify, and present data effectively.
  - PSO1: This skill helps the student analyze economic data in other courses and projects.
  - PO1: By the end of the program, the student demonstrates strong analytical and quantitative skills, partly due to the foundation built in the Introductory Statistics and Applications (I) course.

- **Scenario 2:**
  - CO3: The student learns to construct and interpret index numbers, such as the Consumer Price Index (CPI).
  - PSO3: This skill helps the student evaluate the impact of inflation and economic policies in advanced courses.
  - PO3: By graduation, the student is able to critically evaluate economic policies, thanks to the skills developed in the Introductory Statistics and Applications (I) course.

The interconnection among PO, PSO, and CO ensures that the learning outcomes at each level are aligned and contribute to the overall goals of the program. The Course Outcomes (COs) of the Introductory Statistics and Applications (I) course directly support the Program Specific Outcomes (PSOs), which in turn contribute to the broader Program Outcomes (POs). This alignment ensures that students acquire the necessary knowledge, skills, and competencies to succeed in their academic and professional careers. The course prepares students for advanced studies in economics and provides them with essential statistical tools for data-driven decision-making.

8 Course Outcome: Economic Data Analysis and Report Writing (EDARW)

The Course Outcomes (COs) for the Introductory Economic Data Analysis and Report Writing (EDARW) course are specific, measurable statements that describe what students are expected to know, understand, and be able to do by the end of the course. These outcomes are aligned with the given syllabus and focus on building foundational knowledge and skills in data analysis, descriptive statistics, and report writing, which are essential for economic research and decision-making. Below is an elaboration of the Course Outcomes (COs) for the given syllabus:

1. Tabular and Graphical Representation of Data

- Outcome: Students will be able to represent and interpret statistical data using tables and graphs.
- Elaboration:
  - Students will construct and interpret frequency distribution tables.
  - They will use graphical tools such as line diagrams, bar charts, divided bar charts, pie charts, frequency polygons, histograms, and ogives to represent data.
  - Students will analyze the implications of different types of data representation for economic analysis.

2. Calculation and Interpretation of Measures of Central Tendency

- Outcome: Students will be able to compute and interpret measures of central tendency.
- Elaboration:
  - Students will calculate the arithmetic mean, geometric mean, and harmonic mean and understand their uses in economic data analysis.
  - They will compute the median and mode and analyze their applications in economic contexts.
  - Students will compare the mean, median, and mode as measures of central tendency and understand their strengths and limitations.

3. Calculation and Interpretation of Measures of Dispersion

- Outcome: Students will be able to compute and interpret measures of dispersion.
- Elaboration:
  - Students will calculate range, mean deviation, standard deviation, and quartile deviation and understand their properties.
  - They will compare different measures of dispersion and analyze their implications.
  - Students will interpret the coefficient of variation and use it to measure income inequality.
  - They will understand the basic concepts of the Gini coefficient and Lorenz curve and their applications in analyzing income distribution.

4. Understanding Correlation and Regression Analysis

- Outcome: Students will be able to understand the basic concepts of correlation and regression analysis.
- Elaboration:
  - Students will interpret the relationship between two variables using correlation analysis.
  - They will understand the principles of simple linear regression and its applications in economic data analysis.
  - Students will analyze the significance of correlation and regression results for economic decision-making.

5. Development of Report Writing Skills

- Outcome: Students will be able to write clear and concise economic reports.
- Elaboration:
  - Students will identify the basic issues, conduct a theme-based literature survey, and define the objectives of a study.
  - They will use tables, graphs, and measures of central tendency and dispersion to analyze and present data.
  - Students will insert footnotes or end notes and prepare a bibliography following standard citation formats.
  - They will develop writing skills to communicate economic analysis effectively.

6. Application of Statistical Tools in Economic Analysis

- Outcome: Students will be able to apply statistical tools to analyze economic data.
- Elaboration:
  - Students will use descriptive statistics to summarize and interpret economic data.
  - They will apply measures of central tendency and dispersion to analyze economic issues such as income inequality and price fluctuations.
  - Students will use graphical and tabular representations to present economic findings.

7. Critical Thinking and Problem-Solving

- Outcome: Students will develop critical thinking and problem-solving skills in the context of economic data analysis.
- Elaboration:
  - Students will analyze economic data to identify trends, patterns, and anomalies.
  - They will evaluate the strengths and limitations of different statistical tools and methods.
  - Students will propose solutions to economic problems based on data-driven analysis.

8. Communication of Economic Analysis

- Outcome: Students will be able to communicate economic analysis effectively.
- Elaboration:
  - Students will present economic data and analysis using appropriate tables, graphs, and statistical measures.
  - They will write clear and concise reports that explain the methodology, findings, and implications of their analysis.
  - Students will demonstrate professionalism in their communication of economic ideas.

8.1 Interconnection Among PO, PSO, and CO

The interconnection among Program Outcomes (POs), Program Specific Outcomes (PSOs), and Course Outcomes (COs) for the Introductory Economic Data Analysis and Report Writing (EDARW) course can be established as follows:

8.1.1 Mapping COs to PSOs and POs

1. CO1: Students will be able to represent and interpret statistical data using tables and graphs.
   PSO1: Students will demonstrate proficiency in data collection, analysis, and interpretation.
   PO1: Graduates will develop strong analytical and quantitative skills.
2. CO2: Students will be able to compute and interpret measures of central tendency.
   PSO2: Students will be able to apply statistical tools for economic analysis.
   PO2: Graduates will demonstrate a deep understanding of economic theories.
3. CO3: Students will be able to compute and interpret measures of dispersion.
   PSO3: Students will be able to evaluate the impact of economic policies using empirical data.
   PO3: Graduates will be able to critically evaluate economic policies.
4. CO4: Students will be able to understand the basic concepts of correlation and regression.
   PSO4: Students will develop critical thinking and problem-solving skills in economics.
   PO4: Graduates will be able to solve real-world economic problems.
5. CO5: Students will be able to write clear and concise economic reports.
   PSO5: Students will be able to present economic arguments and findings effectively.
   PO5: Graduates will be able to communicate economic ideas effectively.

8.1.2 Explanation of the Interconnection

- **COs Contribute to PSOs:**

The Course Outcomes (COs) of the EDARW course are designed to help students achieve the Program Specific Outcomes (PSOs). For example:

- – CO1 (data representation) contributes to PSO1 (proficiency in data analysis).
  – CO2 and CO3 (measures of central tendency and dispersion) contribute to PSO2 (applying statistical tools).
  – CO5 (report writing) contributes to PSO5 (presenting economic arguments effectively).

- **PSOs Contribute to POs:**

The Program Specific Outcomes (PSOs) are aligned with the broader Program Outcomes (POs). For example:

- – PSO1 (data analysis skills) contributes to PO1 (developing strong analytical and quantitative skills).
  – PSO2 (applying statistical tools) contributes to PO2 (demonstrating a deep understanding of economic theories).
  – PSO5 (communication skills) contributes to PO5 (communicating economic ideas effectively).

- **COs Ultimately Contribute to POs:**

Since COs contribute to PSOs, and PSOs contribute to POs, the Course Outcomes (COs) ultimately contribute to the Program Outcomes (POs). For example:

- – CO4 (correlation and regression) contributes to PSO4 (developing critical thinking and problem-solving skills), which in turn contributes to PO4 (solving real-world economic problems).
  – CO5 (report writing) contributes to PSO5 (presenting economic arguments effectively), which in turn contributes to PO5 (communicating economic ideas effectively).

The interconnection among PO, PSO, and CO ensures that the learning outcomes at each level are aligned and contribute to the overall goals of the program. The Course Outcomes (COs) of the Introductory Economic Data Analysis and Report Writing (EDARW) course directly support the Program Specific Outcomes (PSOs), which in turn contribute to the broader Program Outcomes (POs). This alignment ensures that students acquire the necessary knowledge, skills, and competencies to succeed in their academic and professional careers. The course prepares students for advanced studies in economics and provides them with essential tools for data-driven decision-making and effective communication of economic analysis.

9 Course Outcome: Entrepreneurship and Development (ED)

The Course Outcomes (COs) for the Introductory Entrepreneurship and Development (ED) course are specific, measurable statements that describe what students are expected to know, understand, and be able to do by the end of the course. These outcomes are aligned with the given syllabus and focus on building foundational knowledge and skills in entrepreneurship, its role in economic development, and the challenges faced by entrepreneurs. Below is an elaboration of the Course Outcomes (COs) for the given syllabus:

1. Understanding the Basics of Entrepreneurship

- Outcome: Students will be able to explain the basic features and importance of entrepreneurship.
- Elaboration:
  - Students will define entrepreneurship and understand its role in economic development.
  - They will analyze the linkages between entrepreneurship and economic growth.
  - Students will explain the growth of entrepreneurship in India and its contribution to the economy.

2. Role of Entrepreneurship in Economic Development

- Outcome: Students will be able to analyze the role of entrepreneurship in economic development.
- Elaboration:
  - Students will evaluate the Planning Commission's guidelines for formulating a project report by an entrepreneur.
  - They will understand the challenges of rural entrepreneurship in India and propose solutions.
  - Students will analyze case studies of successful entrepreneurs and their impact on economic development.

3. Knowledge of Financial Resources for Entrepreneurs

- Outcome: Students will be able to identify and evaluate financial resources for new ventures.
- Elaboration:
  - Students will explain the sources of finance and the concept of capital structure for startups.
  - They will analyze the role of institutional support systems, such as the National Small Industries Board, State Small Industries Development Corporation, District Industries Center, and Industrial Estates.
  - Students will evaluate the Indian experience of institutional support for entrepreneurship.

4. Understanding Growth Strategies in Small Business

- Outcome: Students will be able to analyze growth strategies for small businesses.
- Elaboration:
  - Students will explain the stages of growth in small businesses.
  - They will evaluate different growth strategies, such as expansion, diversification, joint ventures, mergers, and subcontracting.
  - Students will analyze the advantages and challenges of each growth strategy.

5. Understanding Industrial Sickness in Small Business

- Outcome: Students will be able to identify and analyze the causes and consequences of industrial sickness.
- Elaboration:

  - Students will define industrial sickness and identify its symptoms in small businesses.
  - They will analyze the causes of industrial sickness, such as poor management, lack of finance, and market competition.
  - Students will evaluate the consequences of industrial sickness for the economy and propose preventive measures.

6. Development of Entrepreneurial Skills

- Outcome: Students will develop entrepreneurial skills and mindset.
- Elaboration:
  - Students will learn to identify business opportunities and formulate project reports.
  - They will develop problem-solving skills to address challenges faced by entrepreneurs.
  - Students will demonstrate creativity and innovation in proposing business ideas.

7. Application of Entrepreneurship Concepts

- Outcome: Students will be able to apply entrepreneurship concepts to real-world scenarios.
- Elaboration:
  - Students will analyze case studies of successful and failed entrepreneurial ventures.
  - They will apply their knowledge of financial resources, growth strategies, and industrial sickness to propose solutions for entrepreneurial challenges.
  - Students will evaluate the impact of entrepreneurship on economic development in different contexts.

8. Communication of Entrepreneurial Ideas

- Outcome: Students will be able to communicate entrepreneurial ideas effectively.
- Elaboration:
  - Students will present business ideas and project reports using appropriate formats.
  - They will write clear and concise reports explaining entrepreneurial concepts and strategies.
  - Students will demonstrate professionalism in their communication of entrepreneurial ideas.

9.1 Interconnection Among PO, PSO, and CO

The interconnection among Program Outcomes (POs), Program Specific Outcomes (PSOs), and Course Outcomes (COs) for the Introductory Entrepreneurship and Development (ED) course can be established as follows:

9.1.1 Mapping COs to PSOs and POs

1. CO1: Students will be able to explain the basic features and importance of entrepreneurship.
   PSO1: Students will understand the role of entrepreneurship in economic development.
   PO1: Graduates will demonstrate a deep understanding of economic theories.
2. CO2: Students will be able to analyze the role of entrepreneurship in economic development.
   PSO2: Students will be able to evaluate the impact of entrepreneurship on economic growth.
   PO2: Graduates will develop strong analytical and quantitative skills.
3. CO3: Students will be able to identify and evaluate financial resources for new ventures.
   PSO3: Students will be able to apply economic concepts to analyze entrepreneurial challenges.
   PO3: Graduates will be able to critically evaluate economic policies.

4. CO4: Students will be able to analyze growth strategies for small businesses.
   PSO4: Students will develop critical thinking and problem-solving skills in economics.
   PO4: Graduates will be able to solve real-world economic problems.
5. CO5: Students will be able to identify and analyze the causes of industrial sickness.
   PSO5: Students will be able to present economic arguments and findings effectively.
   PO5: Graduates will be able to communicate economic ideas effectively.

9.1.2 Explanation of the Interconnection

- **COs Contribute to PSOs:**

The Course Outcomes (COs) of the ED course are designed to help students achieve the Program Specific Outcomes (PSOs). For example:

- – CO1 (basics of entrepreneurship) contributes to PSO1 (understanding the role of entrepreneurship in economic development).
  – CO3 (financial resources) contributes to PSO3 (applying economic concepts to entrepreneurial challenges).
  – CO5 (industrial sickness) contributes to PSO4 (developing critical thinking and problem-solving skills).

- **PSOs Contribute to POs:**

The Program Specific Outcomes (PSOs) are aligned with the broader Program Outcomes (POs). For example:

- – PSO1 (role of entrepreneurship) contributes to PO1 (demonstrating a deep understanding of economic theories).
  – PSO2 (impact of entrepreneurship) contributes to PO2 (developing strong analytical skills).
  – PSO5 (communication skills) contributes to PO5 (communicating economic ideas effectively).

- **COs Ultimately Contribute to POs:**

Since COs contribute to PSOs, and PSOs contribute to POs, the Course Outcomes (COs) ultimately contribute to the Program Outcomes (POs). For example:

- – CO4 (growth strategies) contributes to PSO4 (developing critical thinking and problem-solving skills), which in turn contributes to PO4 (solving real-world economic problems).
  – CO5 (industrial sickness) contributes to PSO5 (presenting economic arguments effectively), which in turn contributes to PO5 (communicating economic ideas effectively).

The interconnection among PO, PSO, and CO ensures that the learning outcomes at each level are aligned and contribute to the overall goals of the program. The Course Outcomes (COs) of the Introductory Entrepreneurship and Development (ED) course directly support the Program Specific Outcomes (PSOs), which in turn contribute to the broader Program Outcomes (POs). This alignment ensures that students acquire the necessary knowledge, skills, and competencies to succeed in their academic and professional careers. The course prepares students to understand the role of entrepreneurship in economic development, analyze entrepreneurial challenges, and communicate their ideas effectively.

10 Course Outcome: Elementary Economics

The Course Outcomes (COs) for the Introductory Elementary Economics course are specific, measurable statements that describe what students are expected to know, understand, and be able to do by the end of the course. These outcomes are aligned with the given syllabus and focus on building foundational knowledge in microeconomics, macroeconomics, economic development, and Indian economics. Below is an elaboration of the Course Outcomes (COs) for the given syllabus:

1. Understanding Elementary Microeconomic Concepts

- Outcome: Students will be able to explain and analyze basic microeconomic concepts.
- Elaboration:
  - Students will understand the theory of demand and supply, including determinants, laws, and curves.
  - They will explain the concepts of price elasticity and income elasticity of demand and supply and their implications.
  - Students will analyze the theory of production and cost, including production functions (TP, AP, MP) and cost curves (short-run and long-run).
  - They will understand market structures, pricing, and output decisions under perfect competition and monopoly (using diagrams).

2. Understanding Elementary Macroeconomic Concepts

- Outcome: Students will be able to explain and analyze basic macroeconomic concepts.
- Elaboration:
  - Students will understand national income accounting, including circular flow, GNP, GDP, NNP, NDP, and national income.
  - They will explain the functions of money, measures of money supply, and the roles of central and commercial banks.
  - Students will analyze inflation, its types, and anti-inflationary policies.
  - They will understand fiscal policy, monetary policy, and their objectives and instruments.
  - Students will explain international trade concepts, including balance of payments (BOP), IMF, World Bank, WTO, and exchange rates (PPP).

3. Understanding Elementary Economic Development Concepts

- Outcome: Students will be able to explain and analyze basic concepts of economic development.
- Elaboration:
  - Students will differentiate between economic growth and development.
  - They will analyze development indicators such as HDI, GDI, MPI, and GINI indices, and understand India's rank in these indices.
  - Students will explain the concept of sustainable development and its goals.

4. Understanding Elementary Concepts of Indian Economics

- Outcome: Students will be able to explain and analyze basic concepts of Indian economics.
- Elaboration:
  - Students will understand the background and steps of economic reforms in India, including trade, industry, and financial sector reforms.
  - They will analyze the structure and objectives of NITI Aayog and its role in India's economic planning.

5. Application of Economic Concepts

- Outcome: Students will be able to apply economic concepts to real-world scenarios.
- Elaboration:
  - Students will analyze real-world economic issues using microeconomic and macroeconomic theories.

- They will evaluate the impact of economic policies, such as fiscal and monetary policies, on the economy.
- Students will apply development indicators to assess the economic progress of countries, including India.

6. Critical Thinking and Problem-Solving

- Outcome: Students will develop critical thinking and problem-solving skills in the context of economic issues.
- Elaboration:
  - Students will analyze economic problems, such as inflation, unemployment, and inequality, using theoretical frameworks.
  - They will evaluate the effectiveness of economic policies and propose solutions to economic challenges.
  - Students will critically assess the role of international institutions like the IMF, World Bank, and WTO in global economic governance.

7. Communication of Economic Ideas

- Outcome: Students will be able to communicate economic ideas effectively.
- Elaboration:
  - Students will present economic concepts and analysis using appropriate terminology and diagrams.
  - They will write clear and concise explanations of economic theories and their applications.
  - Students will demonstrate professionalism in their communication of economic ideas.

10.1 Interconnection Among PO, PSO, and CO

The interconnection among Program Outcomes (POs), Program Specific Outcomes (PSOs), and Course Outcomes (COs) for the Introductory Elementary Economics course can be established as follows:

10.1.1 Mapping COs to PSOs and POs

1. CO1: Students will be able to explain and analyze basic microeconomic concepts.
   PSO1: Students will demonstrate a foundational understanding of economic theories.
   PO1: Graduates will demonstrate a deep understanding of economic theories.
2. CO2: Students will be able to explain and analyze basic macroeconomic concepts.
   PSO2: Students will be able to apply economic concepts to analyze real-world issues.
   PO2: Graduates will develop strong analytical and quantitative skills.
3. CO3: Students will be able to explain and analyze basic concepts of economic development.
   PSO3: Students will be able to evaluate the impact of economic policies on society.
   PO3: Graduates will be able to critically evaluate economic policies.
4. CO4: Students will be able to explain and analyze basic concepts of Indian economics.
   PSO4: Students will develop critical thinking and problem-solving skills in economics.
   PO4: Graduates will be able to solve real-world economic problems.
5. CO5: Students will be able to apply economic concepts to real-world scenarios.
   PSO5: Students will be able to present economic arguments and findings effectively.
   PO5: Graduates will be able to communicate economic ideas effectively.

10.1.2 Explanation of the Interconnection

- **COs Contribute to PSOs:**

The Course Outcomes (COs) of the Elementary Economics course are designed to help students achieve the Program Specific Outcomes (PSOs). For example:

- – CO1 (microeconomic concepts) contributes to PSO1 (foundational understanding of economic theories).
  - CO2 (macroeconomic concepts) contributes to PSO2 (applying economic concepts to real-world issues).
  - CO5 (application of economic concepts) contributes to PSO5 (presenting economic arguments effectively).

- **PSOs Contribute to POs:**

The Program Specific Outcomes (PSOs) are aligned with the broader Program Outcomes (POs). For example:

- – PSO1 (understanding economic theories) contributes to PO1 (demonstrating a deep understanding of economic theories).
  - PSO2 (applying economic concepts) contributes to PO2 (developing strong analytical skills).
  - PSO5 (communication skills) contributes to PO5 (communicating economic ideas effectively).

- **COs Ultimately Contribute to POs:**

Since COs contribute to PSOs, and PSOs contribute to POs, the Course Outcomes (COs) ultimately contribute to the Program Outcomes (POs). For example:

- – CO3 (economic development concepts) contributes to PSO3 (evaluating the impact of economic policies), which in turn contributes to PO3 (critically evaluating economic policies).
  - CO4 (Indian economics concepts) contributes to PSO4 (developing critical thinking and problem-solving skills), which in turn contributes to PO4 (solving real-world economic problems).

The interconnection among PO, PSO, and CO ensures that the learning outcomes at each level are aligned and contribute to the overall goals of the program. The Course Outcomes (COs) of the Introductory Elementary Economics course directly support the Program Specific Outcomes (PSOs), which in turn contribute to the broader Program Outcomes (POs). This alignment ensures that students acquire the necessary knowledge, skills, and competencies to succeed in their academic and professional careers. The course prepares students to understand and apply basic economic concepts, analyze real-world economic issues, and communicate their ideas effectively.

11 Course Outcome: Macroeconomics (I)

The Course Outcomes (COs) for the Introductory Macroeconomics (I) course are specific, measurable statements that describe what students are expected to know, understand, and be able to do by the end of the course. These outcomes are aligned with the given syllabus and focus on building foundational knowledge in macroeconomic theory, national income accounting, income determination, investment theory, classical economics, and inflation. Below is an elaboration of the Course Outcomes (COs) for the given syllabus:

1. Understanding National Income Accounting

- Outcome: Students will be able to explain and analyze the concepts and methods of national income accounting.
- Elaboration:
  - Students will understand the circular flow of income in a three-sector economy.

- They will explain the concepts of GNP, GDP, NNP, and NDP at market price and factor cost, and differentiate between real and nominal GDP.
- Students will calculate national income and understand the problem of double counting.
- They will analyze the role of government, corporate income, personal income, and savings in national income accounting.
- Students will evaluate the relationship between saving-investment gaps, budget deficits, and trade surpluses.

2. Income Determination in the Short Run

- Outcome: Students will be able to analyze income determination using the Simple Keynesian Model (SKM).
- Elaboration:
  - Students will explain the consumption function, saving function, and the concept of effective demand.
  - They will determine equilibrium income in a closed economy using the SKM and calculate the Keynesian multiplier.
  - Students will analyze the paradox of thrift and the impact of government expenditure and taxes on equilibrium income.
  - They will understand the concept of the balanced budget multiplier.

3. Understanding the Basic Theory of Investment

- Outcome: Students will be able to explain the determinants of investment and the concepts of marginal productivity and efficiency of capital.
- Elaboration:
  - Students will analyze the investment function and its determinants.
  - They will explain the concepts of marginal productivity of capital (MPC), marginal efficiency of capital (MEC), and marginal efficiency of investment (MEI).
  - Students will evaluate the role of investment in income determination and economic growth.

4. Understanding the Classical System

- Outcome: Students will be able to explain the basic ideas of classical macroeconomics and its implications for income and employment determination.
- Elaboration:
  - Students will understand Say's Law, the quantity theory of money, and the loanable funds theory.
  - They will analyze the classical theory of income and employment determination and the concept of full employment.
  - Students will explain wage-price flexibility, the neutrality of money, and the classical dichotomy.

5. Understanding Inflation

- Outcome: Students will be able to explain the concepts, types, and policies related to inflation.
- Elaboration:
  - Students will define inflation and differentiate between demand-pull and cost-push inflation.
  - They will analyze the inflationary gap and its implications for the economy.
  - Students will evaluate anti-inflationary policies and their effectiveness.

6. Application of Macroeconomic Concepts

- Outcome: Students will be able to apply macroeconomic concepts to real-world scenarios.
- Elaboration:
  - Students will analyze real-world economic issues, such as income determination, inflation, and investment, using macroeconomic theories.
  - They will evaluate the impact of government policies, such as fiscal and monetary policies, on the economy.
  - Students will apply national income accounting methods to assess the economic performance of countries.

7. Critical Thinking and Problem-Solving

- Outcome: Students will develop critical thinking and problem-solving skills in the context of macroeconomic issues.
- Elaboration:
  - Students will analyze macroeconomic problems, such as unemployment, inflation, and income inequality, using theoretical frameworks.
  - They will evaluate the effectiveness of macroeconomic policies and propose solutions to economic challenges.
  - Students will critically assess the assumptions and implications of classical and Keynesian theories.

8. Communication of Macroeconomic Ideas

- Outcome: Students will be able to communicate macroeconomic ideas effectively.
- Elaboration:
  - Students will present macroeconomic concepts and analysis using appropriate terminology and diagrams.
  - They will write clear and concise explanations of macroeconomic theories and their applications.
  - Students will demonstrate professionalism in their communication of macroeconomic ideas.

11.1 Interconnection Among PO, PSO, and CO

The interconnection among Program Outcomes (POs), Program Specific Outcomes (PSOs), and Course Outcomes (COs) for the Introductory Macroeconomics (I) course can be established as follows:

11.1.1 Mapping COs to PSOs and POs

1. CO1: Students will be able to explain and analyze the concepts and methods of national income accounting.

   PSO1: Students will demonstrate a foundational understanding of macroeconomic theories.

   PO1: Graduates will demonstrate a deep understanding of economic theories.

2. CO2: Students will be able to analyze income determination using the Simple Keynesian Model (SKM).

   PSO2: Students will be able to apply macroeconomic concepts to analyze real-world issues.

   PO2: Graduates will develop strong analytical and quantitative skills.

3. CO3: Students will be able to explain the determinants of investment and the concepts of MEC and MEI.

   PSO3: Students will be able to evaluate the impact of economic policies on the economy.

   PO3: Graduates will be able to critically evaluate economic policies.

4. CO4: Students will be able to explain the basic ideas of classical macroeconomics.
   PSO4: Students will develop critical thinking and problem-solving skills in economics.
   PO4: Graduates will be able to solve real-world economic problems.
5. CO5: Students will be able to explain the concepts, types, and policies related to inflation.
   PSO5: Students will be able to present economic arguments and findings effectively.
   PO5: Graduates will be able to communicate economic ideas effectively.

11.1.2 Explanation of the Interconnection

- **COs Contribute to PSOs:**

The Course Outcomes (COs) of the Macroeconomics (I) course are designed to help students achieve the Program Specific Outcomes (PSOs). For example:

- – CO1 (national income accounting) contributes to PSO1 (foundational understanding of macroeconomic theories).
  – CO2 (income determination) contributes to PSO2 (applying macroeconomic concepts to real-world issues).
  – CO5 (inflation) contributes to PSO5 (presenting economic arguments effectively).

- **PSOs Contribute to POs:**

The Program Specific Outcomes (PSOs) are aligned with the broader Program Outcomes (POs). For example:

- – PSO1 (understanding macroeconomic theories) contributes to PO1 (demonstrating a deep understanding of economic theories).
  – PSO2 (applying macroeconomic concepts) contributes to PO2 (developing strong analytical skills).
  – PSO5 (communication skills) contributes to PO5 (communicating economic ideas effectively).

- **COs Ultimately Contribute to POs:**

Since COs contribute to PSOs, and PSOs contribute to POs, the Course Outcomes (COs) ultimately contribute to the Program Outcomes (POs). For example:

- – CO3 (investment theory) contributes to PSO3 (evaluating the impact of economic policies), which in turn contributes to PO3 (critically evaluating economic policies).
  – CO4 (classical macroeconomics) contributes to PSO4 (developing critical thinking and problem-solving skills), which in turn contributes to PO4 (solving real-world economic problems).

The interconnection among PO, PSO, and CO ensures that the learning outcomes at each level are aligned and contribute to the overall goals of the program. The Course Outcomes (COs) of the Introductory Macroeconomics (I) course directly support the Program Specific Outcomes (PSOs), which in turn contribute to the broader Program Outcomes (POs). This alignment ensures that students acquire the necessary knowledge, skills, and competencies to succeed in their academic and professional careers. The course prepares students to understand and apply macroeconomic concepts, analyze real-world economic issues, and communicate their ideas effectively.

12 Course Outcome: Introductory Statistics and Applications (II)

The Course Outcomes (COs) for the Introductory Statistics and Applications (II) course are specific, measurable statements that describe what students are expected to know, understand, and be able to do by the end of the course. These outcomes are aligned with the given syllabus and focus on building foundational knowledge and skills in economic data analysis, data management, and the use of Microsoft Excel for statistical applications. Below is an elaboration of the Course Outcomes (COs) for the given syllabus:

1. Understanding Economic Data Types and Field Surveys

- Outcome: Students will be able to explain the types of economic data and the importance of field surveys.
- Elaboration:
  - Students will differentiate between cross-section, time-series, pooled, and panel data.
  - They will understand the nature, advantages, and disadvantages of field survey data.
  - Students will explain the role of pilot surveys in economic data collection and analysis.

2. Proficiency in Microsoft Excel for Data Management

- Outcome: Students will be able to use Microsoft Excel for data entry, formatting, validation, and analysis.
- Elaboration:
  - Students will input data accurately into Excel and apply formatting options (e.g., number formatting, date formatting).
  - They will use data validation and conditional formatting to ensure data accuracy and highlight trends.
  - Students will sort and filter data to organize and analyze information effectively.
  - They will import and export data from external sources (e.g., CSV files) and export data to different formats (e.g., PDF).

3. Application of Basic Formulas and Functions in Excel

- Outcome: Students will be able to use basic formulas and functions in Excel for data analysis.
- Elaboration:
  - Students will create formulas using mathematical operators (+, -, *, /).
  - They will use built-in functions such as SUM, AVERAGE, MAX, MIN, IF, COUNTIF, VLOOKUP, and HLOOKUP.
  - Students will apply these functions to perform calculations and analyze data.

4. Frequency Analysis and Data Visualization

- Outcome: Students will be able to perform frequency analysis and create visual representations of data.
- Elaboration:
  - Students will convert raw data into grouped data and construct frequency tables.
  - They will create different types of tabulation (e.g., two-way, three-way, pivot tables).
  - Students will generate frequency graphs such as bar charts, column charts, frequency polygons, histograms, and pie diagrams.
  - They will customize graphs to improve readability and interpret data visually.

5. Calculation of Descriptive Statistics

- Outcome: Students will be able to calculate and interpret descriptive statistics using Excel.
- Elaboration:
  - Students will compute measures of central tendency (mean, median, mode) for both ungrouped and grouped data.
  - They will calculate measures of dispersion (e.g., range, standard deviation) and inequality (e.g., Gini coefficient, Lorenz curve).
  - Students will interpret descriptive statistics using graphical tools such as box plots and histograms.

6. Bivariate Analysis Using Excel

- Outcome: Students will be able to perform bivariate analysis using Excel.
- Elaboration:
  - Students will create scatter diagrams and calculate correlation coefficients to analyze relationships between variables.
  - They will perform simple linear regression for two variables and estimate predicted values and regression residuals.
  - Students will interpret the results of bivariate analysis for economic decision-making.

7. Random Number Generation and Data Simulation

- Outcome: Students will be able to generate random numbers and simulate data using Excel.
- Elaboration:
  - Students will use Excel to generate random numbers for simulations and statistical experiments.
  - They will apply random number generation techniques to analyze economic scenarios.

8. Communication of Statistical Analysis

- Outcome: Students will be able to communicate statistical analysis effectively.
- Elaboration:
  - Students will present data analysis results using tables, charts, and graphs.
  - They will write clear and concise reports explaining the methodology, findings, and implications of their analysis.
  - Students will demonstrate professionalism in their communication of statistical ideas.

12.1 Interconnection Among PO, PSO, and CO

The interconnection among Program Outcomes (POs), Program Specific Outcomes (PSOs), and Course Outcomes (COs) for the Introductory Statistics and Applications (II) course can be established as follows:

12.1.1 Mapping COs to PSOs and POs

1. CO1: Students will be able to explain the types of economic data and the importance of field surveys.

   PSO1: Students will demonstrate proficiency in data collection, analysis, and interpretation.

   PO1: Graduates will develop strong analytical and quantitative skills.

2. CO2: Students will be able to use Microsoft Excel for data entry, formatting, validation, and analysis.

   PSO2: Students will be able to apply statistical tools for economic analysis.

   PO2: Graduates will demonstrate a deep understanding of economic theories.

3. CO3: Students will be able to use basic formulas and functions in Excel for data analysis.

   PSO3: Students will be able to evaluate the impact of economic policies using empirical data.

   PO3: Graduates will be able to critically evaluate economic policies.

4. CO4: Students will be able to perform frequency analysis and create visual representations of data.

   PSO4: Students will develop critical thinking and problem-solving skills in economics.

   PO4: Graduates will be able to solve real-world economic problems.

5. CO5: Students will be able to calculate and interpret descriptive statistics using Excel.

   PSO5: Students will be able to present economic arguments and findings effectively.

   PO5: Graduates will be able to communicate economic ideas effectively.

12.1.2 Explanation of the Interconnection

- **COs Contribute to PSOs:**

The Course Outcomes (COs) of the Introductory Statistics and Applications (II) course are designed to help students achieve the Program Specific Outcomes (PSOs). For example:

- – CO1 (economic data types) contributes to PSO1 (proficiency in data collection and analysis).
  – CO3 (Excel formulas and functions) contributes to PSO2 (applying statistical tools for economic analysis).
  – CO5 (descriptive statistics) contributes to PSO5 (presenting economic arguments effectively).

- **PSOs Contribute to POs:**

The Program Specific Outcomes (PSOs) are aligned with the broader Program Outcomes (POs). For example:

- – PSO1 (data analysis skills) contributes to PO1 (developing strong analytical and quantitative skills).
  – PSO2 (applying statistical tools) contributes to PO2 (demonstrating a deep understanding of economic theories).
  – PSO5 (communication skills) contributes to PO5 (communicating economic ideas effectively).

- **COs Ultimately Contribute to POs:**

Since COs contribute to PSOs, and PSOs contribute to POs, the Course Outcomes (COs) ultimately contribute to the Program Outcomes (POs). For example:

- – CO4 (frequency analysis and visualization) contributes to PSO4 (developing critical thinking and problem-solving skills), which in turn contributes to PO4 (solving real-world economic problems).
  – CO5 (descriptive statistics) contributes to PSO5 (presenting economic arguments effectively), which in turn contributes to PO5 (communicating economic ideas effectively).

The interconnection among PO, PSO, and CO ensures that the learning outcomes at each level are aligned and contribute to the overall goals of the program. The Course Outcomes (COs) of the Introductory Statistics and Applications (II) course directly support the Program Specific Outcomes (PSOs), which in turn contribute to the broader Program Outcomes (POs). This alignment ensures that students acquire the necessary knowledge, skills, and competencies to succeed in their academic and professional careers. The course prepares students to understand and apply statistical tools, analyze economic data, and communicate their findings effectively.

13 Course Outcome: Microeconomics (II)

The Course Outcomes (COs) for the Introductory Microeconomics (II) course are specific, measurable statements that describe what students are expected to know, understand, and be able to do by the end of the course. These outcomes are aligned with the given syllabus and focus on building advanced knowledge and skills in consumer behavior, production and cost analysis, market structures, and input markets. Below is an elaboration of the Course Outcomes (COs) for the given syllabus:

1. Understanding Consumer Behavior and Applications

- Outcome: Students will be able to analyze consumer behavior and its applications using advanced microeconomic tools.
- Elaboration:
  - Students will derive demand curves from indifference curves and analyze the composite good convention.
  - They will explain the concepts of price consumption curve, income consumption curve, and Engel curve.
  - Students will decompose the price effect into income and substitution effects using Hicks and Slutsky methods.
  - They will analyze inferior goods, Giffen goods, and the differences between Marshallian and compensated demand curves.
  - Students will apply consumer behavior theory to labor-leisure trade-offs and inter-temporal choice (saving and borrowing).
  - They will understand revealed preference theory, including the Weak Axiom of Revealed Preference (WARP) and the Strong Axiom of Revealed Preference (SARP).
  - Students will analyze choice under uncertainty, including utility functions, expected utility, risk aversion, and risk preference.

2. Understanding Production and Cost Analysis

- Outcome: Students will be able to analyze production functions and cost structures in the short run and long run.
- Elaboration:
  - Students will explain the concept of production functions, including total, average, and marginal products, and returns to factor and scale.
  - They will analyze isoquants, the marginal rate of technical substitution (MRTS), and firm equilibrium using output maximization and cost minimization approaches.
  - Students will understand the expansion path, ridge lines, and elasticity of substitution.
  - They will analyze different types of production functions, such as Cobb-Douglas, fixed-coefficient, and CES functions.
  - Students will explain cost structures, including implicit, explicit, accounting, sunk, economic, fixed, variable, total, average, and marginal costs.
  - They will analyze short-run and long-run cost curves and economies of scale.

3. Understanding Perfect Market Structures

- Outcome: Students will be able to analyze firm behavior and market equilibrium in perfect competition.
- Elaboration:
  - Students will explain the profit maximization behavior of firms and the relationship between total revenue, average revenue, marginal revenue, and price elasticity of demand.
  - They will analyze short-run and long-run competitive equilibrium, including the firm's supply curve and industry supply curve.
  - Students will explain economic rent, profit, and long-run industry supply under constant, increasing, and decreasing costs.
  - They will analyze consumer and producer surplus, welfare, and efficiency in competitive equilibrium.
  - Students will evaluate the impact of government interventions, such as price ceilings, price floors, and taxes, on market equilibrium and deadweight loss.

4. Understanding Input Markets in Perfect Competition

- Outcome: Students will be able to analyze input markets and the marginal productivity theory of distribution.
- Elaboration:
  - Students will explain the concepts of derived demand, marginal product, value of marginal product, and marginal revenue product.
  - They will analyze the marginal productivity theory of distribution and its implications for factor pricing.
  - Students will explain labor market dynamics, including labor supply and competitive labor markets.
  - They will analyze land markets and rent, including the Ricardian theory and modern theory of rent.

5. Application of Microeconomic Concepts

- Outcome: Students will be able to apply microeconomic concepts to real-world scenarios.
- Elaboration:
  - Students will analyze real-world economic issues, such as consumer choice, production decisions, and market equilibrium, using microeconomic theories.
  - They will evaluate the impact of government policies, such as taxes and subsidies, on consumer behavior and market outcomes.
  - Students will apply production and cost analysis to assess firm behavior and industry dynamics.

6. Critical Thinking and Problem-Solving

- Outcome: Students will develop critical thinking and problem-solving skills in the context of microeconomic issues.
- Elaboration:
  - Students will analyze microeconomic problems, such as consumer choice under uncertainty, firm profit maximization, and market efficiency, using theoretical frameworks.
  - They will evaluate the effectiveness of microeconomic policies and propose solutions to economic challenges.
  - Students will critically assess the assumptions and implications of microeconomic theories.

7. Communication of Microeconomic Ideas

- Outcome: Students will be able to communicate microeconomic ideas effectively.
- Elaboration:
  - Students will present microeconomic concepts and analysis using appropriate terminology and diagrams.
  - They will write clear and concise explanations of microeconomic theories and their applications.
  - Students will demonstrate professionalism in their communication of microeconomic ideas.

13.1 Interconnection Among PO, PSO, and CO

The interconnection among Program Outcomes (POs), Program Specific Outcomes (PSOs), and Course Outcomes (COs) for the Introductory Microeconomics (II) course can be established as follows:

13.1.1 Mapping COs to PSOs and POs

1. CO1: Students will be able to analyze consumer behavior and its applications using advanced microeconomic tools.

   PSO1: Students will demonstrate a deep understanding of microeconomic theories.

   PO1: Graduates will demonstrate a deep understanding of economic theories.

2. CO2: Students will be able to analyze production functions and cost structures in the short run and long run.

   PSO2: Students will be able to apply microeconomic concepts to analyze real-world issues.

   PO2: Graduates will develop strong analytical and quantitative skills.

3. CO3: Students will be able to analyze firm behavior and market equilibrium in perfect competition.

   PSO3: Students will be able to evaluate the impact of economic policies on market outcomes.

   PO3: Graduates will be able to critically evaluate economic policies.

4. CO4: Students will be able to analyze input markets and the marginal productivity theory of distribution.

   PSO4: Students will develop critical thinking and problem-solving skills in economics.

   PO4: Graduates will be able to solve real-world economic problems.

5. CO5: Students will be able to apply microeconomic concepts to real-world scenarios.

   PSO5: Students will be able to present economic arguments and findings effectively.

   PO5: Graduates will be able to communicate economic ideas effectively.

13.1.2 Explanation of the Interconnection

- **COs Contribute to PSOs:**

The Course Outcomes (COs) of the Microeconomics (II) course are designed to help students achieve the Program Specific Outcomes (PSOs). For example:

-
  - CO1 (consumer behavior) contributes to PSO1 (deep understanding of microeconomic theories).
  - CO3 (perfect competition) contributes to PSO3 (evaluating the impact of economic policies).
  - CO5 (application of microeconomic concepts) contributes to PSO5 (presenting economic arguments effectively).
- **PSOs Contribute to POs:**

The Program Specific Outcomes (PSOs) are aligned with the broader Program Outcomes (POs). For example:

- – PSO1 (understanding microeconomic theories) contributes to PO1 (demonstrating a deep understanding of economic theories).
  - PSO2 (applying microeconomic concepts) contributes to PO2 (developing strong analytical skills).
  - PSO5 (communication skills) contributes to PO5 (communicating economic ideas effectively).

- **COs Ultimately Contribute to POs:**

Since COs contribute to PSOs, and PSOs contribute to POs, the Course Outcomes (COs) ultimately contribute to the Program Outcomes (POs). For example:

- – CO4 (input markets) contributes to PSO4 (developing critical thinking and problem-solving skills), which in turn contributes to PO4 (solving real-world economic problems).
  - CO5 (application of microeconomic concepts) contributes to PSO5 (presenting economic arguments effectively), which in turn contributes to PO5 (communicating economic ideas effectively).

The interconnection among PO, PSO, and CO ensures that the learning outcomes at each level are aligned and contribute to the overall goals of the program. The Course Outcomes (COs) of the Introductory Microeconomics (II) course directly support the Program Specific Outcomes (PSOs), which in turn contribute to the broader Program Outcomes (POs). This alignment ensures that students acquire the necessary knowledge, skills, and competencies to succeed in their academic and professional careers. The course prepares students to understand and apply advanced microeconomic concepts, analyze real-world economic issues, and communicate their ideas effectively.

14 Course Outcome: Development Economics

The Course Outcomes (COs) for the Introductory Development Economics (I) course are specific, measurable statements that describe what students are expected to know, understand, and be able to do by the end of the course. These outcomes are aligned with the given syllabus and focus on building foundational knowledge in development economics, including theories of development, poverty and inequality, dual economies, and financial inclusion. Below is an elaboration of the Course Outcomes (COs) for the given syllabus:

1. Understanding Development Economics

- Outcome: Students will be able to explain the scope, goals, and indicators of development economics.
- Elaboration:
  - Students will define development economics and understand its historical perspective and theories.
  - They will differentiate between economic growth and development and analyze the goals of development.
  - Students will explain the Human Development Index (HDI) and other indicators of development.
  - They will compare the income approach and capability approach to development.
  - Students will analyze the challenges and opportunities faced by developing economies in international comparisons.

2. Analyzing Poverty and Inequality

- Outcome: Students will be able to analyze the causes, consequences, and measurement of poverty and inequality.
- Elaboration:
  - Students will explain the causes and consequences of poverty in developing economies.

- They will measure poverty using concepts such as the poverty line, Human Poverty Index (HPI), and Multidimensional Poverty Index (MPI).
- Students will analyze the vicious circle of poverty hypothesis and its implications for development.
- They will evaluate income inequality and wealth distribution using tools such as the Lorenz curve and Gini coefficient.
- Students will explain gender inequality and analyze the Gender Inequality Index (GII).

3. Understanding Dual Economies and Development Strategies

- Outcome: Students will be able to analyze dual economies and development strategies.
- Elaboration:
- Students will explain the concepts of surplus labor and disguised unemployment in dual economies.
  - They will analyze the Lewis model of economic development with unlimited supply of labor.
  - Students will compare balanced and unbalanced growth strategies and their implications for development.
  - They will evaluate the choice of techniques in development planning.

4. Understanding Financial Inclusion and Development

- Outcome: Students will be able to analyze the role of financial inclusion in economic development.
- Elaboration:
  - Students will explain the concept of financial inclusion and its impact on economic development.
  - They will analyze access to credit and financial services in rural areas and the role of microfinance in poverty alleviation.
  - Students will evaluate the role of banks and financial institutions in promoting development.
  - They will explain the objectives and functions of international financial institutions such as the IMF, World Bank, and WTO.

5. Application of Development Economics Concepts

- Outcome: Students will be able to apply development economics concepts to real-world scenarios.
- Elaboration:
  - Students will analyze real-world economic issues, such as poverty, inequality, and financial inclusion, using development economics theories.
  - They will evaluate the effectiveness of development strategies and policies in addressing economic challenges.
  - Students will apply development indicators to assess the economic progress of countries.

6. Critical Thinking and Problem-Solving

- Outcome: Students will develop critical thinking and problem-solving skills in the context of development economics.
- Elaboration:
  - Students will analyze development problems, such as poverty, inequality, and unemployment, using theoretical frameworks.
  - They will evaluate the effectiveness of development policies and propose solutions to economic challenges.
  - Students will critically assess the assumptions and implications of development theories.

7. Communication of Development Economics Ideas

- Outcome: Students will be able to communicate development economics ideas effectively.
- Elaboration:
  - Students will present development economics concepts and analysis using appropriate terminology and diagrams.
  - They will write clear and concise explanations of development economics theories and their applications.
  - Students will demonstrate professionalism in their communication of development economics ideas.

14.1 Interconnection Among PO, PSO, and CO

The interconnection among Program Outcomes (POs), Program Specific Outcomes (PSOs), and Course Outcomes (COs) for the Introductory Development Economics (I) course can be established as follows:

14.1.1 Mapping COs to PSOs and POs

1. CO1: Students will be able to explain the scope, goals, and indicators of development economics.
   PSO1: Students will demonstrate a foundational understanding of development economics.
   PO1: Graduates will demonstrate a deep understanding of economic theories.
2. CO2: Students will be able to analyze the causes, consequences, and measurement of poverty and inequality.
   PSO2: Students will be able to apply development economics concepts to analyze real-world issues.
   PO2: Graduates will develop strong analytical and quantitative skills.
3. CO3: Students will be able to analyze dual economies and development strategies.
   PSO3: Students will be able to evaluate the impact of development policies on economic growth.
   PO3: Graduates will be able to critically evaluate economic policies.
4. CO4: Students will be able to analyze the role of financial inclusion in economic development.
   PSO4: Students will develop critical thinking and problem-solving skills in economics.
   PO4: Graduates will be able to solve real-world economic problems.
5. CO5: Students will be able to apply development economics concepts to real-world scenarios.
   PSO5: Students will be able to present economic arguments and findings effectively.
   PO5: Graduates will be able to communicate economic ideas effectively.

14.1.2 Explanation of the Interconnection

- **COs Contribute to PSOs:**

The Course Outcomes (COs) of the Development Economics (I) course are designed to help students achieve the Program Specific Outcomes (PSOs). For example:

-
  - CO1 (scope and goals of development economics) contributes to PSO1 (foundational understanding of development economics).
  - CO2 (poverty and inequality) contributes to PSO2 (applying development economics concepts to real-world issues).
  - CO5 (application of development economics concepts) contributes to PSO5 (presenting economic arguments effectively).
- **PSOs Contribute to POs:**

The Program Specific Outcomes (PSOs) are aligned with the broader Program Outcomes (POs). For example:

- – PSO1 (understanding development economics) contributes to PO1 (demonstrating a deep understanding of economic theories).
  - PSO2 (applying development economics concepts) contributes to PO2 (developing strong analytical skills).
  - PSO5 (communication skills) contributes to PO5 (communicating economic ideas effectively).

- **COs Ultimately Contribute to POs:**

Since COs contribute to PSOs, and PSOs contribute to POs, the Course Outcomes (COs) ultimately contribute to the Program Outcomes (POs). For example:

- – CO3 (dual economies and development strategies) contributes to PSO3 (evaluating the impact of development policies), which in turn contributes to PO3 (critically evaluating economic policies).
  - CO4 (financial inclusion) contributes to PSO4 (developing critical thinking and problem-solving skills), which in turn contributes to PO4 (solving real-world economic problems).

The interconnection among PO, PSO, and CO ensures that the learning outcomes at each level are aligned and contribute to the overall goals of the program. The Course Outcomes (COs) of the Introductory Development Economics (I) course directly support the Program Specific Outcomes (PSOs), which in turn contribute to the broader Program Outcomes (POs). This alignment ensures that students acquire the necessary knowledge, skills, and competencies to succeed in their academic and professional careers. The course prepares students to understand and apply development economics concepts, analyze real-world economic issues, and communicate their ideas effectively.

15 Course Outcome: Data Analysis and Research Methodology

The Course Outcomes (COs) for the Introductory Data Analysis and Research Methodology course are specific, measurable statements that describe what students are expected to know, understand, and be able to do by the end of the course. These outcomes are aligned with the given syllabus and focus on building foundational knowledge and skills in data collection, analysis, report writing, and the use of tools like Microsoft Excel and Power BI. Below is an elaboration of the Course Outcomes (COs) for the given syllabus:

1. Understanding Data Collection Methodologies

- Outcome: Students will be able to design and implement data collection methodologies.
- Elaboration:
  - Students will differentiate between complete enumeration and sample surveys.
  - They will understand and apply sampling techniques, such as simple random sampling, stratified random sampling, and sampling proportional to size.
  - Students will use random number tables to draw random samples.
  - They will prepare blank tables and design questionnaires for field surveys.

2. Recording and Validating Data

- Outcome: Students will be able to record, validate, and represent data effectively.
- Elaboration:
  - Students will record data manually and digitally after completing surveys.
  - They will represent data in tabular form and cross-check for accuracy.
  - Students will understand the role of units of measurement in data validation.

3. Writing Research Reports

- Outcome: Students will be able to write clear and concise research reports.
- Elaboration:
  - Students will identify research issues, conduct theme-based literature surveys, and define study objectives.
  - They will use tables, graphs, and measures of central tendency and dispersion to analyze and present data.
  - Students will insert footnotes or endnotes and prepare bibliographies following standard citation formats.

4. Using Power Query in MS Excel and Power BI

- Outcome: Students will be able to use Power Query in Excel and Power BI for data analysis and visualization.
- Elaboration:
  - Students will connect, transform, combine, and load data using Power Query in Excel.
  - They will use Power BI to load Excel data, visualize data, explore data, and make informed decisions.
  - Students will create dynamic dashboards for data presentation and interpretation.

5. Conducting Sample Surveys and Data Analysis

- Outcome: Students will be able to conduct sample surveys and analyze data using Excel.
- Elaboration:
  - Students will prepare questionnaires and collect primary data for small sample surveys.
  - They will use Excel Worksheet Program software to perform statistical analysis and create dynamic interactive dashboards.
  - Students will interpret and analyze survey results and present findings in a report.

6. Communication of Research Findings

- Outcome: Students will be able to communicate research findings effectively.
- Elaboration:
  - Students will present survey results and analysis using appropriate tables, graphs, and dashboards.
  - They will write clear and concise reports explaining the methodology, findings, and implications of their research.
  - Students will demonstrate professionalism in their communication of research ideas.

15.1 Interconnection Among PO, PSO, and CO

The interconnection among Program Outcomes (POs), Program Specific Outcomes (PSOs), and Course Outcomes (COs) for the Introductory Data Analysis and Research Methodology course can be established as follows:

15.1.1 Mapping COs to PSOs and POs

1. CO1: Students will be able to design and implement data collection methodologies.
   PSO1: Students will demonstrate proficiency in data collection, analysis, and interpretation.
   PO1: Graduates will develop strong analytical and quantitative skills.
2. CO2: Students will be able to record, validate, and represent data effectively.
   PSO2: Students will be able to apply statistical tools for economic analysis.
   PO2: Graduates will demonstrate a deep understanding of economic theories.
3. CO3: Students will be able to write clear and concise research reports.
   PSO3: Students will be able to evaluate the impact of economic policies using empirical data.
   PO3: Graduates will be able to critically evaluate economic policies.
4. CO4: Students will be able to use Power Query in Excel and Power BI for data analysis and visualization.
   PSO4: Students will develop critical thinking and problem-solving skills in economics.
   PO4: Graduates will be able to solve real-world economic problems.
5. CO5: Students will be able to conduct sample surveys and analyze data using Excel.
   PSO5: Students will be able to present economic arguments and findings effectively.
   PO5: Graduates will be able to communicate economic ideas effectively.

15.1.2 Explanation of the Interconnection

- **COs Contribute to PSOs:**

The Course Outcomes (COs) of the Data Analysis and Research Methodology course are designed to help students achieve the Program Specific Outcomes (PSOs). For example:

- – CO1 (data collection methodologies) contributes to PSO1 (proficiency in data collection and analysis).
  – CO3 (report writing) contributes to PSO3 (evaluating the impact of economic policies using empirical data).
  – CO5 (sample surveys and data analysis) contributes to PSO5 (presenting economic arguments effectively).

- **PSOs Contribute to POs:**

The Program Specific Outcomes (PSOs) are aligned with the broader Program Outcomes (POs). For example:

- – PSO1 (data analysis skills) contributes to PO1 (developing strong analytical and quantitative skills).
  – PSO2 (applying statistical tools) contributes to PO2 (demonstrating a deep understanding of economic theories).
  – PSO5 (communication skills) contributes to PO5 (communicating economic ideas effectively).

- **COs Ultimately Contribute to POs:**

Since COs contribute to PSOs, and PSOs contribute to POs, the Course Outcomes (COs) ultimately contribute to the Program Outcomes (POs). For example:

- – CO4 (Power Query and Power BI) contributes to PSO4 (developing critical thinking and problem-solving skills), which in turn contributes to PO4 (solving real-world economic problems).
  – CO5 (sample surveys and data analysis) contributes to PSO5 (presenting economic arguments effectively), which in turn contributes to PO5 (communicating economic ideas effectively).

The interconnection among PO, PSO, and CO ensures that the learning outcomes at each level are aligned and contribute to the overall goals of the program. The Course Outcomes (COs) of the Introductory Data Analysis and Research Methodology course directly support the Program Specific Outcomes (PSOs), which in turn contribute to the broader Program Outcomes (POs). This alignment ensures that students acquire the necessary knowledge, skills, and competencies to succeed in their academic and professional careers. The course prepares students to understand and apply data analysis and research methodologies, analyze real-world economic issues, and communicate their findings effectively.

16 Course Outcome: Mathematical Economics (I)

The Course Outcomes (COs) for the Introductory Mathematical Economics (I) course are specific, measurable statements that describe what students are expected to know, understand, and be able to do by the end of the course. These outcomes are aligned with the given syllabus and focus on building foundational knowledge and skills in mathematical tools and techniques used in economic analysis. Below is an elaboration of the Course Outcomes (COs) for the given syllabus:

1. Understanding Mathematical Preliminaries

- Outcome: Students will be able to apply mathematical concepts such as sets, matrices, and functions to economic analysis.
- Elaboration:
  - Students will understand set operations, Cartesian products, and convex sets.
  - They will perform matrix operations, including finding determinants, inverses, and eigenvalues, and solve systems of linear equations using Cramer's rule.
  - Students will analyze functions of one real variable, including their geometric properties, limits, continuity, and differentiability.
  - They will apply concepts such as convexity, concavity, quasi-convexity, and quasi-concavity to economic functions.
  - Students will graph linear, quadratic, polynomial, power, exponential, and logarithmic functions.

2. Analyzing Functions of Several Variables

- Outcome: Students will be able to analyze functions of several variables and their applications in economics.
- Elaboration:
  - Students will compute partial and total derivatives and understand the Hessian matrix.
  - They will analyze monotonic transformations, homogeneous and homothetic functions, and apply Euler's theorem.
  - Students will use the Implicit Function Theorem and Jacobian determinants to solve systems of non-linear equations.
  - They will analyze level curves, including their slope and curvature, and apply these concepts to utility functions, demand functions, and production functions.

3. Single Variable Optimization

- Outcome: Students will be able to solve single-variable optimization problems and apply them to economic models.
- Elaboration:
  - Students will understand the concepts of local and global maxima/minima and stationary points.
  - They will apply first-order and second-order conditions for optimization.

- Students will analyze profit maximization for a competitive firm and the effects of different types of taxes (lump-sum, specific, ad valorem) under perfect competition.

4. Optimization of Functions of Several Variables

- Outcome: Students will be able to solve unconstrained and constrained optimization problems for functions of several variables.
- Elaboration:
  - Students will analyze unconstrained optimization using Hessian determinants and conditions for maxima/minima.
  - They will apply constrained optimization techniques, including the Lagrange method and bordered Hessian determinants, to economic problems.
  - Students will derive demand curves, income consumption curves, and indirect utility functions from utility maximization problems.
  - They will analyze expenditure minimization problems, including compensated demand functions and Shephard's lemma.
  - Students will apply Kuhn-Tucker conditions for optimization with inequality constraints.

5. Linear Programming and Economic Applications

- Outcome: Students will be able to formulate and solve linear programming problems and apply them to economic models.
- Elaboration:
  - Students will formulate linear programming problems (LPPs) and find graphical solutions.
  - They will understand basic feasible solutions, slack and surplus variables, and duality in linear programming.
  - Students will apply linear programming to economic problems such as the diet problem, production problem, and Leontief models.
  - They will interpret the economic implications of dual problems and Hawkins-Simon conditions.

6. Application of Mathematical Tools in Economics

- Outcome: Students will be able to apply mathematical tools to analyze economic models and problems.
- Elaboration:
  - Students will use mathematical techniques to analyze consumer behavior, firm behavior, and market equilibrium.
  - They will apply optimization techniques to solve economic problems such as profit maximization, cost minimization, and utility maximization.
  - Students will use linear programming to analyze resource allocation and production planning.

7. Critical Thinking and Problem-Solving

- Outcome: Students will develop critical thinking and problem-solving skills in the context of mathematical economics.
- Elaboration:
  - Students will analyze economic problems using mathematical models and techniques.
  - They will evaluate the effectiveness of mathematical tools in solving economic problems.
  - Students will propose solutions to economic challenges based on mathematical analysis.

8. Communication of Mathematical Economics Ideas

- Outcome: Students will be able to communicate mathematical economics ideas effectively.
- Elaboration:
  - Students will present mathematical models and analysis using appropriate terminology and diagrams.
  - They will write clear and concise explanations of mathematical economics theories and their applications.
  - Students will demonstrate professionalism in their communication of mathematical economics ideas.

16.1 Interconnection Among PO, PSO, and CO

The interconnection among Program Outcomes (POs), Program Specific Outcomes (PSOs), and Course Outcomes (COs) for the Introductory Mathematical Economics (I) course can be established as follows:

16.1.1 Mapping COs to PSOs and POs

1. CO1: Students will be able to apply mathematical concepts such as sets, matrices, and functions to economic analysis.

   PSO1: Students will demonstrate proficiency in mathematical tools for economic analysis.

   PO1: Graduates will develop strong analytical and quantitative skills.

2. CO2: Students will be able to analyze functions of several variables and their applications in economics.

   PSO2: Students will be able to apply mathematical techniques to analyze economic models.

   PO2: Graduates will demonstrate a deep understanding of economic theories.

3. CO3: Students will be able to solve single-variable optimization problems and apply them to economic models.

   PSO3: Students will be able to evaluate the impact of economic policies using mathematical tools.

   PO3: Graduates will be able to critically evaluate economic policies.

4. CO4: Students will be able to solve unconstrained and constrained optimization problems for functions of several variables.

   PSO4: Students will develop critical thinking and problem-solving skills in economics.

   PO4: Graduates will be able to solve real-world economic problems.

5. CO5: Students will be able to formulate and solve linear programming problems and apply them to economic models.

   PSO5: Students will be able to present economic arguments and findings effectively.

   PO5: Graduates will be able to communicate economic ideas effectively.

16.1.2 Explanation of the Interconnection

- **COs Contribute to PSOs:**

The Course Outcomes (COs) of the Mathematical Economics (I) course are designed to help students achieve the Program Specific Outcomes (PSOs). For example:

-
  - CO1 (mathematical concepts) contributes to PSO1 (proficiency in mathematical tools for economic analysis).
  - CO3 (single-variable optimization) contributes to PSO3 (evaluating the impact of economic policies using mathematical tools).
  - CO5 (linear programming) contributes to PSO5 (presenting economic arguments effectively).
- **PSOs Contribute to POs:**

The Program Specific Outcomes (PSOs) are aligned with the broader Program Outcomes (POs). For example:

- – PSO1 (mathematical tools) contributes to PO1 (developing strong analytical and quantitative skills).
  – PSO2 (mathematical techniques) contributes to PO2 (demonstrating a deep understanding of economic theories).
  – PSO5 (communication skills) contributes to PO5 (communicating economic ideas effectively).

- **COs Ultimately Contribute to POs:**

Since COs contribute to PSOs, and PSOs contribute to POs, the Course Outcomes (COs) ultimately contribute to the Program Outcomes (POs). For example:

- – CO4 (constrained optimization) contributes to PSO4 (developing critical thinking and problem-solving skills), which in turn contributes to PO4 (solving real-world economic problems).
  – CO5 (linear programming) contributes to PSO5 (presenting economic arguments effectively), which in turn contributes to PO5 (communicating economic ideas effectively).

The interconnection among PO, PSO, and CO ensures that the learning outcomes at each level are aligned and contribute to the overall goals of the program. The Course Outcomes (COs) of the Introductory Mathematical Economics (I) course directly support the Program Specific Outcomes (PSOs), which in turn contribute to the broader Program Outcomes (POs). This alignment ensures that students acquire the necessary knowledge, skills, and competencies to succeed in their academic and professional careers. The course prepares students to understand and apply mathematical tools, analyze economic models, and communicate their ideas effectively.

17 Course Outcome: Macroeconomics (II)

The Course Outcomes (COs) for the Introductory Macroeconomics (II) course are specific, measurable statements that describe what students are expected to know, understand, and be able to do by the end of the course. These outcomes are aligned with the given syllabus and focus on building advanced knowledge and skills in macroeconomic theory, including income determination, aggregate demand and supply, monetary policy, and inflation-unemployment trade-offs. Below is an elaboration of the Course Outcomes (COs) for the given syllabus:

1. Understanding the IS-LM Model

- Outcome: Students will be able to analyze income determination in the short run using the IS-LM model.
- Elaboration:
  – Students will explain the equilibrium, stability, and comparative statics of the IS-LM model.
  – They will analyze the effects of fiscal and monetary policies on the IS-LM model.
  – Students will understand the concept of crowding out and its implications for policy effectiveness.

2. Analyzing Aggregate Demand and Aggregate Supply

- Outcome: Students will be able to derive and analyze aggregate demand and aggregate supply curves.
- Elaboration:
  – Students will derive the aggregate demand curve and explain its components.
  – They will derive aggregate supply curves in the presence and absence of wage rigidity.
  – Students will analyze equilibrium, stability, and the effects of monetary and fiscal policies on aggregate demand and supply.

- They will understand the concept of unemployment equilibrium and possible solutions, including the real balance effect.

3. Comparing Keynesian and Classical Models

- Outcome: Students will be able to compare and contrast Keynesian and classical macroeconomic models.
- Elaboration:
  - Students will explain the differences between Keynesian and classical systems.
  - They will analyze hybrid models that combine classical and Keynesian frameworks.
  - Students will understand Friedman's restatement of classical ideas and its implications for macroeconomic policy.

4. Understanding Money Supply and Monetary Policy

- Outcome: Students will be able to analyze money supply, monetary policy, and government budgetary operations.
- Elaboration:
  - Students will explain the measures of money supply (M1, M2, M3, M4) with reference to India.
  - They will analyze the balance sheet view of money supply by the banking sector and the concept of high-powered money.
  - Students will understand the balance sheets of the Reserve Bank of India and commercial banks.
  - They will explain the money multiplier theory, including deposit, currency, reserve, credit, and money multipliers.
  - Students will analyze the interest sensitivity of money supply and its impact on the slope of the LM curve.
  - They will evaluate monetary policy tools such as open market operations, statutory liquidity ratio, bank rate, variable reserve ratio, and repo rate.
  - Students will understand the implications of government budget deficits and deficit financing on monetary policy.

5. Analyzing Inflation-Unemployment Trade-offs and Expectations

- Outcome: Students will be able to analyze the trade-off between inflation and unemployment and the role of expectations.
- Elaboration:
  - Students will explain the inflation-unemployment trade-off and derive the Phillips curve from the aggregate supply curve.
  - They will analyze four models of aggregate supply: the sticky-wage model, worker-misperception model, imperfect information model, and sticky-price model.
  - Students will differentiate between short-run and long-run Phillips curves and the role of adaptive and rational expectations.
  - They will understand the concepts of disinflation, sacrifice ratio, and policy ineffectiveness.

6. Application of Macroeconomic Concepts

- Outcome: Students will be able to apply macroeconomic concepts to real-world scenarios.
- Elaboration:

- Students will analyze real-world economic issues, such as income determination, inflation, and unemployment, using macroeconomic models.
- They will evaluate the impact of monetary and fiscal policies on economic stability and growth.
- Students will apply macroeconomic theories to analyze the effects of government budgetary operations and deficit financing.

7. Critical Thinking and Problem-Solving

- Outcome: Students will develop critical thinking and problem-solving skills in the context of macroeconomic issues.
- Elaboration:
  - Students will analyze macroeconomic problems, such as inflation, unemployment, and policy effectiveness, using theoretical frameworks.
  - They will evaluate the effectiveness of macroeconomic policies and propose solutions to economic challenges.
  - Students will critically assess the assumptions and implications of Keynesian and classical macroeconomic models.

8. Communication of Macroeconomic Ideas

- Outcome: Students will be able to communicate macroeconomic ideas effectively.
- Elaboration:
  - Students will present macroeconomic concepts and analysis using appropriate terminology and diagrams.
  - They will write clear and concise explanations of macroeconomic theories and their applications.
  - Students will demonstrate professionalism in their communication of macroeconomic ideas.

17.1 Interconnection Among PO, PSO, and CO

The interconnection among Program Outcomes (POs), Program Specific Outcomes (PSOs), and Course Outcomes (COs) for the Introductory Macroeconomics (II) course can be established as follows:

17.1.1 Mapping COs to PSOs and POs

1. CO1: Students will be able to analyze income determination in the short run using the IS-LM model.

   PSO1: Students will demonstrate a deep understanding of macroeconomic theories.

   PO1: Graduates will demonstrate a deep understanding of economic theories.

2. CO2: Students will be able to derive and analyze aggregate demand and aggregate supply curves.

   PSO2: Students will be able to apply macroeconomic concepts to analyze real-world issues.

   PO2: Graduates will develop strong analytical and quantitative skills.

3. CO3: Students will be able to compare and contrast Keynesian and classical macroeconomic models.

   PSO3: Students will be able to evaluate the impact of economic policies on the economy.

   PO3: Graduates will be able to critically evaluate economic policies.

4. CO4: Students will be able to analyze money supply, monetary policy, and government budgetary operations.

   PSO4: Students will develop critical thinking and problem-solving skills in economics.

   PO4: Graduates will be able to solve real-world economic problems.

5. CO5: Students will be able to analyze the trade-off between inflation and unemployment and the role of expectations.

   PSO5: Students will be able to present economic arguments and findings effectively.

   PO5: Graduates will be able to communicate economic ideas effectively.

17.1.2 Explanation of the Interconnection

- **1. COs Contribute to PSOs:**

The Course Outcomes (COs) of the Macroeconomics (II) course are designed to help students achieve the Program Specific Outcomes (PSOs). For example:

- – CO1 (IS-LM model) contributes to PSO1 (deep understanding of macroeconomic theories).
  – CO3 (Keynesian vs. classical models) contributes to PSO3 (evaluating the impact of economic policies).
  – CO5 (inflation-unemployment trade-off) contributes to PSO5 (presenting economic arguments effectively).

- **2. PSOs Contribute to POs:**

The Program Specific Outcomes (PSOs) are aligned with the broader Program Outcomes (POs). For example:

- – PSO1 (understanding macroeconomic theories) contributes to PO1 (demonstrating a deep understanding of economic theories).
  – PSO2 (applying macroeconomic concepts) contributes to PO2 (developing strong analytical skills).
  – PSO5 (communication skills) contributes to PO5 (communicating economic ideas effectively).

- **3. COs Ultimately Contribute to POs:**

Since COs contribute to PSOs, and PSOs contribute to POs, the Course Outcomes (COs) ultimately contribute to the Program Outcomes (POs). For example:

- – CO4 (money supply and monetary policy) contributes to PSO4 (developing critical thinking and problem-solving skills), which in turn contributes to PO4 (solving real-world economic problems).
  – CO5 (inflation-unemployment trade-off) contributes to PSO5 (presenting economic arguments effectively), which in turn contributes to PO5 (communicating economic ideas effectively).

The interconnection among PO, PSO, and CO ensures that the learning outcomes at each level are aligned and contribute to the overall goals of the program. The Course Outcomes (COs) of the Introductory Macroeconomics (II) course directly support the Program Specific Outcomes (PSOs), which in turn contribute to the broader Program Outcomes (POs). This alignment ensures that students acquire the necessary knowledge, skills, and competencies to succeed in their academic and professional careers. The course prepares students to understand and apply advanced macroeconomic concepts, analyze real-world economic issues, and communicate their ideas effectively.

18 Course Outcome: Statistics for Economics

The Course Outcomes (COs) for the Introductory Statistics for Economics course are specific, measurable statements that describe what students are expected to know, understand, and be able to do by the end of the course. These outcomes are aligned with the given syllabus and focus on building foundational knowledge and skills in probability theory, probability distributions, sampling theory, and statistical inference. Below is an elaboration of the Course Outcomes (COs) for the given syllabus:

1. Understanding Elementary Probability Theory

- Outcome: Students will be able to explain and apply basic concepts of probability theory.

- Elaboration:
  - Students will define sample spaces and events using set theory.
  - They will explain classical and axiomatic definitions of probability and compare them.
  - Students will analyze conditional probability, independence of events, and apply the theorem of total probability, compound probability, and Bayes' theorem.

2. Understanding Probability Distributions

- Outcome: Students will be able to analyze and apply probability distributions for discrete and continuous random variables.
- Elaboration:
  - Students will define random variables, probability mass functions (pmf), probability density functions (pdf), and distribution functions.
  - They will calculate expected values, including mean, variance, raw moments, central moments, and moment generating functions (mgf).
  - Students will analyze properties of commonly used distributions, such as binomial, Poisson, and normal distributions.
  - They will understand joint distributions, marginal distributions, conditional distributions, and independence of random variables.

3. Understanding Sampling Theory and Distributions

- Outcome: Students will be able to explain and apply sampling theory and sampling distributions.
- Elaboration:
  - Students will differentiate between complete enumeration and sample surveys and understand sampling and non-sampling errors.
  - They will explain concepts such as population, sample, statistic, parameter, and sampling distribution.
  - Students will apply simple random sampling (SRS) with and without replacement and calculate the mean and standard error of sample means and proportions.
  - They will understand basic concepts of stratified and multi-stage sampling.
  - Students will analyze properties of chi-square, Student's t, and F distributions.

4. Understanding Statistical Inference

- Outcome: Students will be able to perform statistical inference, including estimation and hypothesis testing.
- Elaboration:
  - Students will explain the basic ideas of estimation and testing, including point estimation and interval estimation.
  - They will evaluate criteria for good estimators, such as unbiasedness, minimum variance, consistency, and sufficiency.
  - Students will apply estimation methods, including ordinary least squares, maximum likelihood, and method of moments.
  - They will construct confidence intervals for population means, standard deviations, and proportions.
  - Students will perform hypothesis testing, including defining null and alternative hypotheses, Type I and Type II errors, and calculating p-values.
  - They will test hypotheses related to population means, standard deviations, and proportions.

5. Application of Statistical Concepts

- Outcome: Students will be able to apply statistical concepts to real-world economic problems.
- Elaboration:
  - Students will use probability theory to analyze economic events and risks.
  - They will apply probability distributions to model economic variables and outcomes.
  - Students will use sampling theory to design and analyze surveys and experiments.
  - They will apply statistical inference to estimate population parameters and test economic hypotheses.

6. Critical Thinking and Problem-Solving

- Outcome: Students will develop critical thinking and problem-solving skills in the context of statistical analysis.
- Elaboration:
  - Students will analyze statistical problems, such as estimating parameters and testing hypotheses, using theoretical frameworks.
  - They will evaluate the effectiveness of statistical methods and propose solutions to economic challenges.
  - Students will critically assess the assumptions and implications of statistical models.

7. Communication of Statistical Analysis

- Outcome: Students will be able to communicate statistical analysis effectively.
- Elaboration:
  - Students will present statistical concepts and analysis using appropriate terminology and diagrams.
  - They will write clear and concise explanations of statistical theories and their applications.
  - Students will demonstrate professionalism in their communication of statistical ideas.

18.1 Interconnection Among PO, PSO, and CO

The interconnection among Program Outcomes (POs), Program Specific Outcomes (PSOs), and Course Outcomes (COs) for the Introductory Statistics for Economics course can be established as follows:

18.1.1 Mapping COs to PSOs and POs

1. CO1: Students will be able to explain and apply basic concepts of probability theory.

   PSO1: Students will demonstrate proficiency in statistical tools for economic analysis.

   PO1: Graduates will develop strong analytical and quantitative skills.

2. CO2: Students will be able to analyze and apply probability distributions for discrete and continuous random variables.

   PSO2: Students will be able to apply statistical concepts to analyze real-world issues.

   PO2: Graduates will demonstrate a deep understanding of economic theories.

3. CO3: Students will be able to explain and apply sampling theory and sampling distributions.

   PSO3: Students will be able to evaluate the impact of economic policies using empirical data.

   PO3: Graduates will be able to critically evaluate economic policies.

4. CO4: Students will be able to perform statistical inference, including estimation and hypothesis testing.

   PSO4: Students will develop critical thinking and problem-solving skills in economics.

   PO4: Graduates will be able to solve real-world economic problems.

5. CO5: Students will be able to apply statistical concepts to real-world economic problems.

   PSO5: Students will be able to present economic arguments and findings effectively.

   PO5: Graduates will be able to communicate economic ideas effectively.

18.1.2 Explanation of the Interconnection

- **1. COs Contribute to PSOs:**

The Course Outcomes (COs) of the Statistics for Economics course are designed to help students achieve the Program Specific Outcomes (PSOs). For example:

- – CO1 (probability theory) contributes to PSO1 (proficiency in statistical tools for economic analysis).
  – CO3 (sampling theory) contributes to PSO3 (evaluating the impact of economic policies using empirical data).
  – CO5 (application of statistical concepts) contributes to PSO5 (presenting economic arguments effectively).

- **2. PSOs Contribute to POs:**

The Program Specific Outcomes (PSOs) are aligned with the broader Program Outcomes (POs). For example:

- – PSO1 (statistical tools) contributes to PO1 (developing strong analytical and quantitative skills).
  – PSO2 (applying statistical concepts) contributes to PO2 (demonstrating a deep understanding of economic theories).
  – PSO5 (communication skills) contributes to PO5 (communicating economic ideas effectively).

- **3. COs Ultimately Contribute to POs:**

Since COs contribute to PSOs, and PSOs contribute to POs, the Course Outcomes (COs) ultimately contribute to the Program Outcomes (POs). For example:

- – CO4 (statistical inference) contributes to PSO4 (developing critical thinking and problem-solving skills), which in turn contributes to PO4 (solving real-world economic problems).
  – CO5 (application of statistical concepts) contributes to PSO5 (presenting economic arguments effectively), which in turn contributes to PO5 (communicating economic ideas effectively).

The interconnection among PO, PSO, and CO ensures that the learning outcomes at each level are aligned and contribute to the overall goals of the program. The Course Outcomes (COs) of the Introductory Statistics for Economics course directly support the Program Specific Outcomes (PSOs), which in turn contribute to the broader Program Outcomes (POs). This alignment ensures that students acquire the necessary knowledge, skills, and competencies to succeed in their academic and professional careers. The course prepares students to understand and apply statistical tools, analyze real-world economic issues, and communicate their findings effectively.

19 Course Outcome: Indian Economics

The Course Outcomes (COs) for the Introductory Indian Economics (I) course are specific, measurable statements that describe what students are expected to know, understand, and be able to do by the end of the course. These outcomes are aligned with the given syllabus and focus on building foundational knowledge and skills in the economic development of India, population and human development, growth and distribution, and economic reforms. Below is an elaboration of the Course Outcomes (COs) for the given syllabus:

1. Understanding Economic Development since Independence

- Outcome: Students will be able to analyze India's economic development under different policy regimes.
- Elaboration:
  - Students will explain the objectives, achievements, and failures of economic planning in India.
  - They will analyze the economic crisis during the late 1980s and the subsequent economic reforms.
  - Students will critically evaluate the structural changes in the post-reforms period.
  - They will understand the regional variations in growth and development across India.

2. Analyzing Population and Human Development

- Outcome: Students will be able to analyze demographic trends and human development issues in India.
- Elaboration:
  - Students will explain demographic trends and their implications for economic development.
  - They will analyze basic problems in health and education and evaluate government measures to address them.
  - Students will understand the significance of the Right to Education (RTE) Act, 2009, and its impact on education in India.

3. Understanding Growth and Distribution

- Outcome: Students will be able to analyze trends in GDP, per capita GDP, poverty, inequality, and unemployment in India.
- Elaboration:
  - Students will explain trends in GDP and per capita GDP and their implications for economic growth.
  - They will analyze poverty and inequality in India and evaluate government policies to address these issues.
  - Students will understand the challenges of unemployment, particularly youth unemployment, and the transition from school to work.

4. Understanding Economic Reforms in India

- Outcome: Students will be able to analyze the economic reforms in India and their impact on various sectors.
- Elaboration:
  - Students will explain the reforms in the industrial, financial, fiscal, trade, and external sectors.
  - They will analyze labor market reforms and their implications for employment and wages.
  - Students will evaluate reforms in the public sector and their impact on economic efficiency and growth.

5. Application of Economic Concepts

- Outcome: Students will be able to apply economic concepts to analyze India's economic development and policies.
- Elaboration:
  - Students will use economic theories to analyze India's economic growth, development, and reforms.
  - They will evaluate the effectiveness of government policies in addressing issues such as poverty, inequality, and unemployment.
  - Students will apply their knowledge of economic reforms to assess their impact on different sectors of the Indian economy.

6. Critical Thinking and Problem-Solving

- Outcome: Students will develop critical thinking and problem-solving skills in the context of Indian economic issues.
- Elaboration:
  - Students will analyze economic problems, such as poverty, inequality, and unemployment, using theoretical frameworks.
  - They will evaluate the effectiveness of economic policies and propose solutions to economic challenges.
  - Students will critically assess the assumptions and implications of economic reforms in India.

7. Communication of Economic Ideas

- Outcome: Students will be able to communicate economic ideas effectively.
- Elaboration:
  - Students will present economic concepts and analysis using appropriate terminology and diagrams.
  - They will write clear and concise explanations of economic theories and their applications.
  - Students will demonstrate professionalism in their communication of economic ideas.

19.1 Interconnection Among PO, PSO, and CO

The interconnection among Program Outcomes (POs), Program Specific Outcomes (PSOs), and Course Outcomes (COs) for the Introductory Indian Economics (I) course can be established as follows:

19.1.1 Mapping COs to PSOs and POs

1. CO1: Students will be able to analyze India's economic development under different policy regimes.
   PSO1: Students will demonstrate a foundational understanding of Indian economic development.
   PO1: Graduates will demonstrate a deep understanding of economic theories.
2. CO2: Students will be able to analyze demographic trends and human development issues in India.
   PSO2: Students will be able to apply economic concepts to analyze real-world issues.
   PO2: Graduates will develop strong analytical and quantitative skills.
3. CO3: Students will be able to analyze trends in GDP, per capita GDP, poverty, inequality, and unemployment.
   PSO3: Students will be able to evaluate the impact of economic policies on society.
   PO3: Graduates will be able to critically evaluate economic policies.

4. CO4: Students will be able to analyze the economic reforms in India and their impact on various sectors.

   PSO4: Students will develop critical thinking and problem-solving skills in economics.

   PO4: Graduates will be able to solve real-world economic problems.

5. CO5: Students will be able to apply economic concepts to analyze India's economic development and policies.

   PSO5: Students will be able to present economic arguments and findings effectively.

   PO5: Graduates will be able to communicate economic ideas effectively.

19.1.2 Explanation of the Interconnection

- **COs Contribute to PSOs:**

The Course Outcomes (COs) of the Indian Economics (I) course are designed to help students achieve the Program Specific Outcomes (PSOs). For example:

- – CO1 (economic development) contributes to PSO1 (foundational understanding of Indian economic development).
  – CO3 (growth and distribution) contributes to PSO3 (evaluating the impact of economic policies on society).
  – CO5 (application of economic concepts) contributes to PSO5 (presenting economic arguments effectively).

- **PSOs Contribute to POs:**

The Program Specific Outcomes (PSOs) are aligned with the broader Program Outcomes (POs). For example:

- – PSO1 (understanding Indian economic development) contributes to PO1 (demonstrating a deep understanding of economic theories).
  – PSO2 (applying economic concepts) contributes to PO2 (developing strong analytical skills).
  – PSO5 (communication skills) contributes to PO5 (communicating economic ideas effectively).

- **COs Ultimately Contribute to POs:**

Since COs contribute to PSOs, and PSOs contribute to POs, the Course Outcomes (COs) ultimately contribute to the Program Outcomes (POs). For example:

- – CO4 (economic reforms) contributes to PSO4 (developing critical thinking and problem-solving skills), which in turn contributes to PO4 (solving real-world economic problems).
  – CO5 (application of economic concepts) contributes to PSO5 (presenting economic arguments effectively), which in turn contributes to PO5 (communicating economic ideas effectively).

The interconnection among PO, PSO, and CO ensures that the learning outcomes at each level are aligned and contribute to the overall goals of the program. The Course Outcomes (COs) of the Introductory Indian Economics (I) course directly support the Program Specific Outcomes (PSOs), which in turn contribute to the broader Program Outcomes (POs). This alignment ensures that students acquire the necessary knowledge, skills, and competencies to succeed in their academic and professional careers. The course prepares students to understand and apply economic concepts, analyze India's economic development and policies, and communicate their ideas effectively.

20 Course Outcome: Sustainable Development

The Course Outcomes (COs) for the Introductory Sustainable Development course are specific, measurable statements that describe what students are expected to know, understand, and be able to do by the end of the course. These outcomes are aligned with the given syllabus and focus on building foundational knowledge and skills in sustainability, environmental economics, and sustainable resource management. Below is an elaboration of the Course Outcomes (COs) for the given syllabus:

1. Understanding the Approach Towards Sustainability

- Outcome: Students will be able to explain key environmental issues and the economic approach to sustainability.
- Elaboration:
  - Students will identify key environmental issues and problems, such as pollution, resource depletion, and waste management.
  - They will analyze the circular flow of environmental pollutants and the role of waste recycling in sustainability.
  - Students will understand the laws of thermodynamics and their implications for resource use and sustainability.
  - They will differentiate between renewable and non-renewable resources and explain the challenges of achieving sustainability.

2. Understanding Sustainable Development

- Outcome: Students will be able to define and analyze sustainable development and its principles.
- Elaboration:
  - Students will explain different definitions of sustainable development and their implications.
  - They will analyze the rules and measures of sustainable development, including economic, social, and environmental dimensions.
  - Students will understand the role of property rights in the sustainable management of resources.
  - They will analyze the stakeholders involved in the sustainable management of renewable resources, such as fisheries, forestry, and water.
  - Students will explain the concept of sustainable livelihoods in the context of sustainable resource management.

3. Analyzing Transboundary Pollution and Climate Change

- Outcome: Students will be able to analyze transboundary pollution, climate change, and their impact on sustainable development.
- Elaboration:
  - Students will evaluate the implementation of environmental policies in developing countries and learn from international experiences.
  - They will analyze transboundary environmental problems and the role of international meetings, protocols, and treaties in addressing these issues.
  - Students will understand the economics of climate change, including the basic ideas of the carbon credit market, clean development mechanism (CDM), and international emission trading.

4. Application of Sustainable Development Concepts

- Outcome: Students will be able to apply sustainable development concepts to real-world scenarios.
- Elaboration:

  - Students will use economic theories to analyze environmental issues and propose sustainable solutions.
  - They will evaluate the effectiveness of environmental policies and international agreements in promoting sustainable development.
  - Students will apply their knowledge of sustainable resource management to assess the impact of resource use on livelihoods and ecosystems.

5. Critical Thinking and Problem-Solving

- Outcome: Students will develop critical thinking and problem-solving skills in the context of sustainable development.
- Elaboration:
  - Students will analyze environmental problems, such as pollution, resource depletion, and climate change, using theoretical frameworks.
  - They will evaluate the effectiveness of sustainable development policies and propose solutions to environmental challenges.
  - Students will critically assess the assumptions and implications of sustainable development strategies.

6. Communication of Sustainable Development Ideas

- Outcome: Students will be able to communicate sustainable development ideas effectively.
- Elaboration:
  - Students will present sustainable development concepts and analysis using appropriate terminology and diagrams.
  - They will write clear and concise explanations of sustainable development theories and their applications.
  - Students will demonstrate professionalism in their communication of sustainable development ideas.

20.1 Interconnection Among PO, PSO, and CO

The interconnection among Program Outcomes (POs), Program Specific Outcomes (PSOs), and Course Outcomes (COs) for the Introductory Sustainable Development course can be established as follows:

20.1.1 Mapping COs to PSOs and POs

1. CO1: Students will be able to explain key environmental issues and the economic approach to sustainability.

   PSO1: Students will demonstrate a foundational understanding of sustainable development.

   PO1: Graduates will demonstrate a deep understanding of economic theories.

2. CO2: Students will be able to define and analyze sustainable development and its principles.

   PSO2: Students will be able to apply sustainable development concepts to analyze real-world issues.

   PO2: Graduates will develop strong analytical and quantitative skills.

3. CO3: Students will be able to analyze transboundary pollution, climate change, and their impact on sustainable development.

   PSO3: Students will be able to evaluate the impact of environmental policies on sustainable development.

   PO3: Graduates will be able to critically evaluate economic policies.

4. CO4: Students will be able to apply sustainable development concepts to real-world scenarios.
   PSO4: Students will develop critical thinking and problem-solving skills in economics.
   PO4: Graduates will be able to solve real-world economic problems.
5. CO5: Students will be able to communicate sustainable development ideas effectively.
   PSO5: Students will be able to present economic arguments and findings effectively.
   PO5: Graduates will be able to communicate economic ideas effectively.

20.1.2 Explanation of the Interconnection

- **COs Contribute to PSOs:**

The Course Outcomes (COs) of the Sustainable Development course are designed to help students achieve the Program Specific Outcomes (PSOs). For example:

- – CO1 (environmental issues) contributes to PSO1 (foundational understanding of sustainable development).
  – CO3 (transboundary pollution and climate change) contributes to PSO3 (evaluating the impact of environmental policies).
  – CO5 (communication of sustainable development ideas) contributes to PSO5 (presenting economic arguments effectively).

- **PSOs Contribute to POs:**

The Program Specific Outcomes (PSOs) are aligned with the broader Program Outcomes (POs). For example:

- – PSO1 (understanding sustainable development) contributes to PO1 (demonstrating a deep understanding of economic theories).
  – PSO2 (applying sustainable development concepts) contributes to PO2 (developing strong analytical skills).
  – PSO5 (communication skills) contributes to PO5 (communicating economic ideas effectively).

- **COs Ultimately Contribute to POs:**

Since COs contribute to PSOs, and PSOs contribute to POs, the Course Outcomes (COs) ultimately contribute to the Program Outcomes (POs). For example:

- – CO4 (application of sustainable development concepts) contributes to PSO4 (developing critical thinking and problem-solving skills), which in turn contributes to PO4 (solving real-world economic problems).
  – CO5 (communication of sustainable development ideas) contributes to PSO5 (presenting economic arguments effectively), which in turn contributes to PO5 (communicating economic ideas effectively).

The interconnection among PO, PSO, and CO ensures that the learning outcomes at each level are aligned and contribute to the overall goals of the program. The Course Outcomes (COs) of the Introductory Sustainable Development course directly support the Program Specific Outcomes (PSOs), which in turn contribute to the broader Program Outcomes (POs). This alignment ensures that students acquire the necessary knowledge, skills, and competencies to succeed in their academic and professional careers. The course prepares students to understand and apply sustainable development concepts, analyze environmental issues, and communicate their ideas effectively.

21 Course Outcome: Microeconomics (III)

The Course Outcomes (COs) for the Introductory Microeconomics (III) course are specific, measurable statements that describe what students are expected to know, understand, and be able to do by the end of the course. These outcomes are aligned with the given syllabus and focus on building advanced knowledge and skills in imperfect market structures, input markets under imperfect competition, and general equilibrium and welfare analysis. Below is an elaboration of the Course Outcomes (COs) for the given syllabus:

1. Understanding Imperfect Market Structures

Outcome: Students will be able to analyze imperfect market structures, including monopoly, monopolistic competition, and oligopoly.

Elaboration:

- Students will explain the characteristics of monopoly, including barriers to entry, output determination, and pricing rules.
- They will measure monopoly power and analyze its social costs, including deadweight loss.
- Students will understand pricing strategies under market power, such as price discrimination (first, second, and third-degree), intertemporal price discrimination, peak-load pricing, and two-part tariffs.
- They will analyze monopolistic competition, including short-run and long-run equilibrium, and the concept of excess capacity.
- Students will explain oligopoly models, including Cournot, Bertrand, and Stackelberg, and use isoprofit curves and game theory to interpret oligopoly equilibrium.
- They will analyze non-collusive equilibrium using the kinked demand curve model and understand collusive behavior in cartels and price leadership.

2. Understanding Input Markets under Imperfect Competition

Outcome: Students will be able to analyze input markets under imperfect competition, including monopsony and bilateral monopoly.

Elaboration:

- Students will explain the concept of monopsony and its implications for input markets.
- They will analyze bilateral monopoly in the labor market and understand monopolistic and monopsonistic exploitation.

3. Understanding General Equilibrium and Welfare

Outcome: Students will be able to analyze general equilibrium, economic efficiency, and welfare.

Elaboration:

- Students will explain the concepts of general equilibrium and economic efficiency in exchange and production.
- They will understand Pareto optimality and use the Edgeworth box and contract curve to analyze Pareto efficiency.
- Students will analyze the reasons for market failure, including externalities, public goods, and asymmetric information.
- They will understand the role of property rights and the Coase theorem in addressing market failures.
- Students will explain concepts of asymmetric information, including adverse selection, moral hazard, and agency problems.

4. Application of Microeconomic Concepts

Outcome: Students will be able to apply microeconomic concepts to real-world scenarios.

Elaboration:

- Students will use microeconomic theories to analyze imperfect market structures and their implications for pricing and output decisions.
- They will evaluate the impact of market power on social welfare and propose solutions to mitigate its negative effects.
- Students will apply general equilibrium and welfare analysis to assess the efficiency of market outcomes and the role of government intervention.

5. Critical Thinking and Problem-Solving

Outcome: Students will develop critical thinking and problem-solving skills in the context of microeconomic issues.

Elaboration:

- Students will analyze microeconomic problems, such as market power, inefficiency, and market failure, using theoretical frameworks.
- They will evaluate the effectiveness of microeconomic policies and propose solutions to economic challenges.
- Students will critically assess the assumptions and implications of microeconomic models.

6. Communication of Microeconomic Ideas

Outcome: Students will be able to communicate microeconomic ideas effectively.

Elaboration:

- Students will present microeconomic concepts and analysis using appropriate terminology and diagrams.
- They will write clear and concise explanations of microeconomic theories and their applications.
- Students will demonstrate professionalism in their communication of microeconomic ideas.

21.1 Interconnection Among PO, PSO, and CO

The interconnection among Program Outcomes (POs), Program Specific Outcomes (PSOs), and Course Outcomes (COs) for the Introductory Microeconomics (III) course can be established as follows:

21.1.1 Mapping COs to PSOs and POs

1. Course Outcome (CO) for Microeconomics (III) Program Specific Outcome (PSO) Program Outcome (PO)
2. CO1: Students will be able to analyze imperfect market structures, including monopoly, monopolistic competition, and oligopoly. PSO1: Students will demonstrate a deep understanding of microeconomic theories. PO1: Graduates will demonstrate a deep understanding of economic theories.
3. CO2: Students will be able to analyze input markets under imperfect competition, including monopsony and bilateral monopoly. PSO2: Students will be able to apply microeconomic concepts to analyze real-world issues. PO2: Graduates will develop strong analytical and quantitative skills.
4. CO3: Students will be able to analyze general equilibrium, economic efficiency, and welfare. PSO3: Students will be able to evaluate the impact of economic policies on market outcomes. PO3: Graduates will be able to critically evaluate economic policies.
5. CO4: Students will be able to apply microeconomic concepts to real-world scenarios. PSO4: Students will develop critical thinking and problem-solving skills in economics. PO4: Graduates will be able to solve real-world economic problems.
6. CO5: Students will be able to communicate microeconomic ideas effectively. PSO5: Students will be able to present economic arguments and findings effectively. PO5: Graduates will be able to communicate economic ideas effectively.

21.1.2 Explanation of the Interconnection

- **COs Contribute to PSOs:**

The Course Outcomes (COs) of the Microeconomics (III) course are designed to help students achieve the Program Specific Outcomes (PSOs). For example:

- – CO1 (imperfect market structures) contributes to PSO1 (deep understanding of microeconomic theories).
  - CO3 (general equilibrium and welfare) contributes to PSO3 (evaluating the impact of economic policies).
  - CO5 (communication of microeconomic ideas) contributes to PSO5 (presenting economic arguments effectively).
- **PSOs Contribute to POs:**

The Program Specific Outcomes (PSOs) are aligned with the broader Program Outcomes (POs). For example:

- – PSO1 (understanding microeconomic theories) contributes to PO1 (demonstrating a deep understanding of economic theories).
  – PSO2 (applying microeconomic concepts) contributes to PO2 (developing strong analytical skills).
  – PSO5 (communication skills) contributes to PO5 (communicating economic ideas effectively).

- **COs Ultimately Contribute to POs:**

Since COs contribute to PSOs, and PSOs contribute to POs, the Course Outcomes (COs) ultimately contribute to the Program Outcomes (POs). For example:

- – CO4 (application of microeconomic concepts) contributes to PSO4 (developing critical thinking and problem-solving skills), which in turn contributes to PO4 (solving real-world economic problems).
  – CO5 (communication of microeconomic ideas) contributes to PSO5 (presenting economic arguments effectively), which in turn contributes to PO5 (communicating economic ideas effectively).

The interconnection among PO, PSO, and CO ensures that the learning outcomes at each level are aligned and contribute to the overall goals of the program. The Course Outcomes (COs) of the Introductory Microeconomics (III) course directly support the Program Specific Outcomes (PSOs), which in turn contribute to the broader Program Outcomes (POs). This alignment ensures that students acquire the necessary knowledge, skills, and competencies to succeed in their academic and professional careers. The course prepares students to understand and apply advanced microeconomic concepts, analyze real-world economic issues, and communicate their ideas effectively.

22 Course Outcome: Macroeconomics (III)

The Course Outcomes (COs) for the Introductory Macroeconomics (III) course are specific, measurable statements that describe what students are expected to know, understand, and be able to do by the end of the course. These outcomes are aligned with the given syllabus and focus on building advanced knowledge and skills in macroeconomic theories, consumption, demand for money, and economic growth. Below is an elaboration of the Course Outcomes (COs) for the given syllabus:

1. Understanding New Classical and New Keynesian Theories

Outcome: Students will be able to explain and analyze the basic tenets of New Classical and New Keynesian theories.

Elaboration:

- Students will explain the concept of rational expectations and the theory of real business cycles in the New Classical framework.
- They will analyze nominal and real rigidities, rigidities in interest rates, and credit rationing in the New Keynesian framework.
- Students will compare and contrast the New Classical and New Keynesian approaches to macroeconomic analysis.

2. Understanding Macroeconomic Foundations

Outcome: Students will be able to analyze consumption behavior and the demand for money.

Elaboration:

- Students will explain the Keynesian consumption function and its implications for aggregate demand.
- They will analyze Fisher's theory of optimal inter-temporal choice and its implications for savings and consumption.
- Students will understand the life-cycle hypothesis, permanent income hypothesis, and Dusenberry's relative income hypothesis.
- They will explain the demand for money using Tobin's portfolio choice model and Baumol's inventory theoretic model.

3. Understanding Economic Growth

Outcome: Students will be able to analyze models of economic growth and their implications.

Elaboration:

- Students will explain the Harrod and Domar models of economic growth and their assumptions.
- They will analyze the Solow one-sector growth model, including the concepts of steady state, golden rule, and dynamic efficiency.
- Students will understand the role of technological progress in economic growth.
- They will explain the basic ideas of endogenous growth theory, including the AK model.

4. Application of Macroeconomic Concepts

Outcome: Students will be able to apply macroeconomic concepts to real-world scenarios.

Elaboration:

- Students will use macroeconomic theories to analyze consumption behavior, demand for money, and economic growth.
- They will evaluate the impact of economic policies on consumption, savings, and investment.
- Students will apply growth models to assess the long-term growth prospects of economies.

5. Critical Thinking and Problem-Solving

Outcome: Students will develop critical thinking and problem-solving skills in the context of macroeconomic issues.

Elaboration:

- Students will analyze macroeconomic problems, such as consumption behavior, demand for money, and economic growth, using theoretical frameworks.
- They will evaluate the effectiveness of macroeconomic policies and propose solutions to economic challenges.
- Students will critically assess the assumptions and implications of macroeconomic models.

6. Communication of Macroeconomic Ideas

Outcome: Students will be able to communicate macroeconomic ideas effectively.

Elaboration:

- Students will present macroeconomic concepts and analysis using appropriate terminology and diagrams.
- They will write clear and concise explanations of macroeconomic theories and their applications.
- Students will demonstrate professionalism in their communication of macroeconomic ideas.

22.1 Interconnection Among PO, PSO, and CO

The interconnection among Program Outcomes (POs), Program Specific Outcomes (PSOs), and Course Outcomes (COs) for the Introductory Macroeconomics (III) course can be established as follows:

22.1.1 Mapping COs to PSOs and POs

1. CO1: Students will be able to explain and analyze the basic tenets of New Classical and New Keynesian theories.

   PSO1: Students will demonstrate a deep understanding of macroeconomic theories.

   PO1: Graduates will demonstrate a deep understanding of economic theories.

2. CO2: Students will be able to analyze consumption behavior and the demand for money.

   PSO2: Students will be able to apply macroeconomic concepts to analyze real-world issues.

   PO2: Graduates will develop strong analytical and quantitative skills.

3. CO3: Students will be able to analyze models of economic growth and their implications.

   PSO3: Students will be able to evaluate the impact of economic policies on the economy.

   PO3: Graduates will be able to critically evaluate economic policies.

4. CO4: Students will be able to apply macroeconomic concepts to real-world scenarios.

   PSO4: Students will develop critical thinking and problem-solving skills in economics.

   PO4: Graduates will be able to solve real-world economic problems.

5. CO5: Students will be able to communicate macroeconomic ideas effectively.

   PSO5: Students will be able to present economic arguments and findings effectively.

   PO5: Graduates will be able to communicate economic ideas effectively.

22.1.2 Explanation of the Interconnection

- **COs Contribute to PSOs:**

The Course Outcomes (COs) of the Macroeconomics (III) course are designed to help students achieve the Program Specific Outcomes (PSOs). For example:

- – CO1 (New Classical and New Keynesian theories) contributes to PSO1 (deep understanding of macroeconomic theories).
  – CO3 (economic growth models) contributes to PSO3 (evaluating the impact of economic policies).
  – CO5 (communication of macroeconomic ideas) contributes to PSO5 (presenting economic arguments effectively).

- **PSOs Contribute to POs:**

The Program Specific Outcomes (PSOs) are aligned with the broader Program Outcomes (POs). For example:

- – PSO1 (understanding macroeconomic theories) contributes to PO1 (demonstrating a deep understanding of economic theories).
  – PSO2 (applying macroeconomic concepts) contributes to PO2 (developing strong analytical skills).
  – PSO5 (communication skills) contributes to PO5 (communicating economic ideas effectively).

- **COs Ultimately Contribute to POs:**

Since COs contribute to PSOs, and PSOs contribute to POs, the Course Outcomes (COs) ultimately contribute to the Program Outcomes (POs). For example:

- – CO4 (application of macroeconomic concepts) contributes to PSO4 (developing critical thinking and problem-solving skills), which in turn contributes to PO4 (solving real-world economic problems).
  – CO5 (communication of macroeconomic ideas) contributes to PSO5 (presenting economic arguments effectively), which in turn contributes to PO5 (communicating economic ideas effectively).

The interconnection among PO, PSO, and CO ensures that the learning outcomes at each level are aligned and contribute to the overall goals of the program. The Course Outcomes (COs) of the Introductory Macroeconomics (III) course directly support the Program Specific Outcomes (PSOs), which in turn contribute to the broader Program Outcomes (POs). This alignment ensures that students acquire the necessary knowledge, skills, and competencies to succeed in their academic and professional careers. The course prepares students to understand and apply advanced macroeconomic concepts, analyze real-world economic issues, and communicate their ideas effectively.

23 Course Outcome: Mathematical Economics (II)

The Course Outcomes (COs) for the Introductory Mathematical Economics (II) course are specific, measurable statements that describe what students are expected to know, understand, and be able to do by the end of the course. These outcomes are aligned with the given syllabus and focus on building advanced knowledge and skills in game theory, integration, difference equations, and differential equations, with applications in economics. Below is an elaboration of the Course Outcomes (COs) for the given syllabus:

1. Understanding Game Theory

- Outcome: Students will be able to analyze strategic interactions using game theory.
- Elaboration:

  - Students will explain the concept of a game, including pure and mixed strategies, constant-sum, and non-constant-sum games.
  - They will analyze static games using solution methods such as maximin-minimax, dominant strategy equilibrium, iterated dominant strategy equilibrium, and Nash equilibrium.
  - Students will understand mixed strategy solutions and apply them to common games like the Prisoner's Dilemma, Battle of the Sexes, and Matching Pennies.
  - They will analyze dynamic games using the method of backward induction.

2. Understanding Integration of Functions

- Outcome: Students will be able to integrate functions and apply integration techniques to economic problems.
- Elaboration:
  - Students will perform integration of functions using substitution and integration by parts.
  - They will apply integration to find total functions from marginal functions and calculate present value in economic contexts.

3. Understanding Difference Equations

- Outcome: Students will be able to solve and analyze difference equations and apply them to economic models.
- Elaboration:
  - Students will solve first-order and second-order linear difference equations.
  - They will analyze non-linear difference equations using qualitative-graphic approaches.
  - Students will apply difference equations to economic models such as the Cobweb model, lagged adjustment models, and Samuelson's multiplier-accelerator model.

4. Understanding Differential Equations

- Outcome: Students will be able to solve and analyze differential equations and apply them to economic models.
- Elaboration:
  - Students will solve first-order and second-order linear differential equations.
  - They will solve systems of linear differential equations using eigenvalues and substitution methods.
  - Students will analyze fixed points and stability in differential equations.
  - They will use qualitative-graphic approaches, including one-variable and two-variable phase diagrams, to analyze differential equations.
  - Students will linearize non-linear differential equation systems and perform stability analysis.
  - They will apply differential equations to economic models such as price dynamics, multi-market equilibrium, inflation-unemployment interaction, the Solow model, and the IS-LM model.

5. Application of Mathematical Tools in Economics

- Outcome: Students will be able to apply mathematical tools to analyze economic models and problems.
- Elaboration:
  - Students will use game theory to analyze strategic interactions in economics.

- They will apply integration techniques to solve economic problems involving total and marginal functions.
- Students will use difference and differential equations to model and analyze dynamic economic systems.

6. Critical Thinking and Problem-Solving

- Outcome: Students will develop critical thinking and problem-solving skills in the context of mathematical economics.
- Elaboration:
  - Students will analyze economic problems using mathematical models and techniques.
  - They will evaluate the effectiveness of mathematical tools in solving economic problems.
  - Students will propose solutions to economic challenges based on mathematical analysis.

7. Communication of Mathematical Economics Ideas

- Outcome: Students will be able to communicate mathematical economics ideas effectively.
- Elaboration:
  - Students will present mathematical models and analysis using appropriate terminology and diagrams.
  - They will write clear and concise explanations of mathematical economics theories and their applications.
  - Students will demonstrate professionalism in their communication of mathematical economics ideas.

23.1 Interconnection Among PO, PSO, and CO

The interconnection among Program Outcomes (POs), Program Specific Outcomes (PSOs), and Course Outcomes (COs) for the Introductory Mathematical Economics (II) course can be established as follows:

23.1.1 Mapping COs to PSOs and POs

1. CO1: Students will be able to analyze strategic interactions using game theory.

   PSO1: Students will demonstrate proficiency in mathematical tools for economic analysis.

   PO1: Graduates will develop strong analytical and quantitative skills.

2. CO2: Students will be able to integrate functions and apply integration techniques to economic problems.

   PSO2: Students will be able to apply mathematical techniques to analyze economic models.

   PO2: Graduates will demonstrate a deep understanding of economic theories.

3. CO3: Students will be able to solve and analyze difference equations and apply them to economic models.

   PSO3: Students will be able to evaluate the impact of economic policies using mathematical tools.

   PO3: Graduates will be able to critically evaluate economic policies.

4. CO4: Students will be able to solve and analyze differential equations and apply them to economic models.

   PSO4: Students will develop critical thinking and problem-solving skills in economics.

   PO4: Graduates will be able to solve real-world economic problems.

5. CO5: Students will be able to communicate mathematical economics ideas effectively.

   PSO5: Students will be able to present economic arguments and findings effectively.

   PO5: Graduates will be able to communicate economic ideas effectively.

23.1.2 Explanation of the Interconnection

- **COs Contribute to PSOs:**

The Course Outcomes (COs) of the Mathematical Economics (II) course are designed to help students achieve the Program Specific Outcomes (PSOs). For example:

- – CO1 (game theory) contributes to PSO1 (proficiency in mathematical tools for economic analysis).
  - – CO3 (difference equations) contributes to PSO3 (evaluating the impact of economic policies using mathematical tools).
  - – CO5 (communication of mathematical economics ideas) contributes to PSO5 (presenting economic arguments effectively).

- **PSOs Contribute to POs:**

The Program Specific Outcomes (PSOs) are aligned with the broader Program Outcomes (POs). For example:

- – PSO1 (mathematical tools) contributes to PO1 (developing strong analytical and quantitative skills).
  - – PSO2 (mathematical techniques) contributes to PO2 (demonstrating a deep understanding of economic theories).
  - – PSO5 (communication skills) contributes to PO5 (communicating economic ideas effectively).

- **COs Ultimately Contribute to POs:**

Since COs contribute to PSOs, and PSOs contribute to POs, the Course Outcomes (COs) ultimately contribute to the Program Outcomes (POs). For example:

- – CO4 (differential equations) contributes to PSO4 (developing critical thinking and problem-solving skills), which in turn contributes to PO4 (solving real-world economic problems).
  - – CO5 (communication of mathematical economics ideas) contributes to PSO5 (presenting economic arguments effectively), which in turn contributes to PO5 (communicating economic ideas effectively).

The interconnection among PO, PSO, and CO ensures that the learning outcomes at each level are aligned and contribute to the overall goals of the program. The Course Outcomes (COs) of the Introductory Mathematical Economics (II) course directly support the Program Specific Outcomes (PSOs), which in turn contribute to the broader Program Outcomes (POs). This alignment ensures that students acquire the necessary knowledge, skills, and competencies to succeed in their academic and professional careers. The course prepares students to understand and apply advanced mathematical tools, analyze economic models, and communicate their ideas effectively.

24 Course Outcome: Econometrics

The Course Outcomes (COs) for the Introductory Econometrics (I) course are specific, measurable statements that describe what students are expected to know, understand, and be able to do by the end of the course. These outcomes are aligned with the given syllabus and focus on building foundational knowledge and skills in econometric modeling, regression analysis, and the application of econometric methods to economic data. Below is an elaboration of the Course Outcomes (COs) for the given syllabus:

1. Understanding the Nature and Scope of Econometrics

- Outcome: Students will be able to explain the nature, scope, and application of econometrics in social sciences.
- Elaboration:
  - – Students will differentiate between economic models and econometric models.

- They will understand the concept of stochastic relationships and the role of random disturbances in econometric models.
- Students will explain the application of econometrics in various branches of social science, including economics, finance, and public policy.

2. Understanding the Classical Linear Regression Model (CLRM)

- Outcome: Students will be able to estimate and interpret simple and multiple linear regression models.
- Elaboration:
  - Students will explain the classical assumptions of the linear regression model and their interpretations.
  - They will estimate simple linear regression models (SLRM) and multiple linear regression models (MLRM) with two regressors using the ordinary least squares (OLS) method.
  - Students will understand the properties of least squares estimators, including the Gauss-Markov theorem.
  - They will test hypotheses in SLRM and MLRM using single and joint tests.
  - Students will evaluate the goodness of fit using R^2, adjusted R^2, and F-statistics, and perform analysis of variance (ANOVA).
  - They will interpret regression results in terms of statistical significance and economic importance.
  - Students will explain simple, partial, and multiple correlation coefficients and their interpretations in the context of SLRM and MLRM.

3. Understanding Qualitative (Dummy) Independent Variables

- Outcome: Students will be able to incorporate and interpret dummy variables in regression models.
- Elaboration:
  - Students will use intercept and slope dummy variables in regression models and interpret their coefficients.
  - They will perform forecasting using ex-post and ex-ante forecasts and analyze forecast errors in a two-variable model.

4. Understanding Violations of Classical Assumptions

- Outcome: Students will be able to detect and address violations of classical assumptions in regression models.
- Elaboration:
  - Students will analyze multicollinearity, including its consequences, detection using variance inflation factors (VIF), and remedies.
  - They will evaluate heteroscedasticity, including its consequences, detection using Lagrange multiplier tests, and remedies.
  - Students will assess autocorrelation, including its consequences, detection using the Durbin-Watson test, and remedies.

5. Application of Econometric Methods

- Outcome: Students will be able to apply econometric methods to analyze economic data.
- Elaboration:
  - Students will use regression analysis to estimate and interpret economic relationships.

  - They will apply econometric techniques to test hypotheses and evaluate the validity of economic models.
  - Students will use econometric tools to forecast economic variables and analyze forecast errors.

6. Critical Thinking and Problem-Solving

- Outcome: Students will develop critical thinking and problem-solving skills in the context of econometric analysis.
- Elaboration:
  - Students will analyze economic data using econometric models and techniques.
  - They will evaluate the effectiveness of econometric methods in addressing economic problems.
  - Students will propose solutions to economic challenges based on econometric analysis.

7. Communication of Econometric Analysis

- Outcome: Students will be able to communicate econometric analysis effectively.
- Elaboration:
  - Students will present econometric models and analysis using appropriate terminology and diagrams.
  - They will write clear and concise explanations of econometric theories and their applications.
  - Students will demonstrate professionalism in their communication of econometric ideas.

24.1 Interconnection Among PO, PSO, and CO

The interconnection among Program Outcomes (POs), Program Specific Outcomes (PSOs), and Course Outcomes (COs) for the Introductory Econometrics (I) course can be established as follows:

24.1.1 Mapping COs to PSOs and POs

1. CO1: Students will be able to explain the nature, scope, and application of econometrics in social sciences.

   PSO1: Students will demonstrate proficiency in econometric tools for economic analysis.

   PO1: Graduates will develop strong analytical and quantitative skills.

2. CO2: Students will be able to estimate and interpret simple and multiple linear regression models.

   PSO2: Students will be able to apply econometric methods to analyze real-world issues.

   PO2: Graduates will demonstrate a deep understanding of economic theories.

3. CO3: Students will be able to incorporate and interpret dummy variables in regression models.

   PSO3: Students will be able to evaluate the impact of economic policies using econometric tools.

   PO3: Graduates will be able to critically evaluate economic policies.

4. CO4: Students will be able to detect and address violations of classical assumptions in regression models.

   PSO4: Students will develop critical thinking and problem-solving skills in economics.

   PO4: Graduates will be able to solve real-world economic problems.

5. CO5: Students will be able to communicate econometric analysis effectively.

   PSO5: Students will be able to present economic arguments and findings effectively.

   PO5: Graduates will be able to communicate economic ideas effectively.

24.1.2 Explanation of the Interconnection

- **COs Contribute to PSOs:**

The Course Outcomes (COs) of the Econometrics (I) course are designed to help students achieve the Program Specific Outcomes (PSOs). For example:

- – CO1 (nature and scope of econometrics) contributes to PSO1 (proficiency in econometric tools for economic analysis).
  – CO3 (dummy variables) contributes to PSO3 (evaluating the impact of economic policies using econometric tools).
  – CO5 (communication of econometric analysis) contributes to PSO5 (presenting economic arguments effectively).

- **PSOs Contribute to POs:**

The Program Specific Outcomes (PSOs) are aligned with the broader Program Outcomes (POs). For example:

- – PSO1 (econometric tools) contributes to PO1 (developing strong analytical and quantitative skills).
  – PSO2 (applying econometric methods) contributes to PO2 (demonstrating a deep understanding of economic theories).
  – PSO5 (communication skills) contributes to PO5 (communicating economic ideas effectively).

- **COs Ultimately Contribute to POs:**

Since COs contribute to PSOs, and PSOs contribute to POs, the Course Outcomes (COs) ultimately contribute to the Program Outcomes (POs). For example:

- – CO4 (violations of classical assumptions) contributes to PSO4 (developing critical thinking and problem-solving skills), which in turn contributes to PO4 (solving real-world economic problems).
  – CO5 (communication of econometric analysis) contributes to PSO5 (presenting economic arguments effectively), which in turn contributes to PO5 (communicating economic ideas effectively).

The interconnection among PO, PSO, and CO ensures that the learning outcomes at each level are aligned and contribute to the overall goals of the program. The Course Outcomes (COs) of the Introductory Econometrics (I) course directly support the Program Specific Outcomes (PSOs), which in turn contribute to the broader Program Outcomes (POs). This alignment ensures that students acquire the necessary knowledge, skills, and competencies to succeed in their academic and professional careers. The course prepares students to understand and apply econometric methods, analyze economic data, and communicate their findings effectively.

25 Course Outcome: Economic History of India (1857-1947)

The Course Outcomes (COs) for the Introductory Economic History of India (1857-1947) course are specific, measurable statements that describe what students are expected to know, understand, and be able to do by the end of the course. These outcomes are aligned with the given syllabus and focus on building foundational knowledge and skills in the economic history of colonial India, including agriculture, industry, railways, and the role of the state. Below is an elaboration of the Course Outcomes (COs) for the given syllabus:

1. Understanding the Colonial Economy

- Outcome: Students will be able to explain the background and macro trends of the colonial economy in India.

- Elaboration:

  - Students will understand the overview of the colonial economy and its impact on India.
  - They will analyze macro trends in national income, population, and occupational structure during the colonial period.

2. Understanding Agriculture in Colonial India

- Outcome: Students will be able to analyze the agrarian structure, land relations, and agricultural performance in colonial India.
- Elaboration:
  - Students will explain the agrarian structure and land relations under colonial rule.
  - They will analyze agricultural markets and institutions, including credit, commerce, and technology.
  - Students will evaluate trends in agricultural performance and productivity.
  - They will understand the causes and consequences of famines during the colonial period.

3. Understanding Railways and Industry in Colonial India

- Outcome: Students will be able to analyze the role of railways and the evolution of industry in colonial India.
- Elaboration:
  - Students will explain the development and impact of railways on the colonial economy.
  - They will analyze the de-industrialization debate and its implications for the Indian economy.
  - Students will understand the evolution of entrepreneurial and industrial structures during the colonial period.
  - They will evaluate the nature of industrialization in the inter-war period and the constraints to industrial breakthrough.
  - Students will analyze labor relations and their impact on industrial development.

4. Understanding the Economy and State in the Imperial Context

- Outcome: Students will be able to analyze the role of the state and the imperial priorities in shaping the colonial economy.
- Elaboration:
  - Students will explain the imperial priorities and their impact on the Indian economy.
  - They will analyze the concept of the drain of wealth and its implications for economic development.
  - Students will evaluate changes and continuities in international trade, capital flows, and the colonial economy.
  - They will understand the role of government and fiscal policy in the colonial economy.

5. Application of Economic History Concepts

- Outcome: Students will be able to apply economic history concepts to analyze the colonial economy.
- Elaboration:
  - Students will use economic history theories to analyze the impact of colonial rule on agriculture, industry, and trade.
  - They will evaluate the effectiveness of colonial policies and their impact on economic development.
  - Students will apply their knowledge of economic history to assess the long-term consequences of colonial rule on the Indian economy.

6. Critical Thinking and Problem-Solving

- Outcome: Students will develop critical thinking and problem-solving skills in the context of economic history.
- Elaboration:
  - Students will analyze economic problems, such as de-industrialization, famines, and the drain of wealth, using historical frameworks.
  - They will evaluate the effectiveness of colonial policies and propose solutions to economic challenges.
  - Students will critically assess the assumptions and implications of economic history theories.

7. Communication of Economic History Ideas

- Outcome: Students will be able to communicate economic history ideas effectively.
- Elaboration:
  - Students will present economic history concepts and analysis using appropriate terminology and diagrams.
  - They will write clear and concise explanations of economic history theories and their applications.
  - Students will demonstrate professionalism in their communication of economic history ideas.

25.1 Interconnection Among PO, PSO, and CO

The interconnection among Program Outcomes (POs), Program Specific Outcomes (PSOs), and Course Outcomes (COs) for the Introductory Economic History of India (1857-1947) course can be established as follows:

25.1.1 Mapping COs to PSOs and POs

1. CO1: Students will be able to explain the background and macro trends of the colonial economy in India.

   PSO1: Students will demonstrate a foundational understanding of economic history.

   PO1: Graduates will demonstrate a deep understanding of economic theories.

2. CO2: Students will be able to analyze the agrarian structure, land relations, and agricultural performance in colonial India.

   PSO2: Students will be able to apply economic history concepts to analyze real-world issues.

   PO2: Graduates will develop strong analytical and quantitative skills.

3. CO3: Students will be able to analyze the role of railways and the evolution of industry in colonial India.

   PSO3: Students will be able to evaluate the impact of colonial policies on economic development.

   PO3: Graduates will be able to critically evaluate economic policies.

4. CO4: Students will be able to analyze the role of the state and the imperial priorities in shaping the colonial economy.

   PSO4: Students will develop critical thinking and problem-solving skills in economics.

   PO4: Graduates will be able to solve real-world economic problems.

5. CO5: Students will be able to communicate economic history ideas effectively.

   PSO5: Students will be able to present economic arguments and findings effectively.

   PO5: Graduates will be able to communicate economic ideas effectively.

25.1.2 Explanation of the Interconnection

- **1. COs Contribute to PSOs:**

The Course Outcomes (COs) of the Economic History of India (1857-1947) course are designed to help students achieve the Program Specific Outcomes (PSOs). For example:

- – CO1 (colonial economy) contributes to PSO1 (foundational understanding of economic history).
  – CO3 (railways and industry) contributes to PSO3 (evaluating the impact of colonial policies).
  – CO5 (communication of economic history ideas) contributes to PSO5 (presenting economic arguments effectively).

- **2. PSOs Contribute to POs:**

The Program Specific Outcomes (PSOs) are aligned with the broader Program Outcomes (POs). For example:

- – PSO1 (understanding economic history) contributes to PO1 (demonstrating a deep understanding of economic theories).
  – PSO2 (applying economic history concepts) contributes to PO2 (developing strong analytical skills).
  – PSO5 (communication skills) contributes to PO5 (communicating economic ideas effectively).

- **3. COs Ultimately Contribute to POs:**

Since COs contribute to PSOs, and PSOs contribute to POs, the Course Outcomes (COs) ultimately contribute to the Program Outcomes (POs). For example:

- – CO4 (economy and state in the imperial context) contributes to PSO4 (developing critical thinking and problem-solving skills), which in turn contributes to PO4 (solving real-world economic problems).
  – CO5 (communication of economic history ideas) contributes to PSO5 (presenting economic arguments effectively), which in turn contributes to PO5 (communicating economic ideas effectively).

The interconnection among PO, PSO, and CO ensures that the learning outcomes at each level are aligned and contribute to the overall goals of the program. The Course Outcomes (COs) of the Introductory Economic History of India (1857-1947) course directly support the Program Specific Outcomes (PSOs), which in turn contribute to the broader Program Outcomes (POs). This alignment ensures that students acquire the necessary knowledge, skills, and competencies to succeed in their academic and professional careers. The course prepares students to understand and apply economic history concepts, analyze the colonial economy, and communicate their ideas effectively.

26 Course Outcome: Public Finance

The Course Outcomes (COs) for the Introductory Public Finance course are specific, measurable statements that describe what students are expected to know, understand, and be able to do by the end of the course. These outcomes are aligned with the given syllabus and focus on building foundational knowledge and skills in public finance, including public goods, externalities, taxation, public expenditure, public debt, and fiscal policies. Below is an elaboration of the Course Outcomes (COs) for the given syllabus:

1. Understanding Core Concepts of Public Finance

- Outcome: Students will be able to explain the core concepts of public finance, including public goods, externalities, public revenue, public expenditure, and public debt.
- Elaboration:
  – Students will understand the characteristics of public goods and the concept of market failures.

- They will explain the role of government in addressing externalities and providing public goods.
- Students will analyze the sources of government revenue, including taxation (direct and indirect), fees, and non-tax revenues.
- They will understand the allocation of public funds for social welfare, infrastructure, and defense.
- Students will explain the concept of public debt, its implications for the economy, and debt management strategies.
- They will differentiate between progressive, regressive, and proportional taxation systems.

2. Understanding Basic Concepts of Public Finance Theories

- Outcome: Students will be able to analyze the basic theories of public finance, including the benefit principle, ability-to-pay principle, public choice theory, and fiscal federalism.
- Elaboration:
  - Students will explain the benefit principle and its application in taxation.
  - They will analyze the ability-to-pay principle and its implications for equity in taxation.
  - Students will understand the basics of public choice theory and its relevance to government decision-making.
  - They will explain the concept of fiscal federalism and its role in the allocation of resources between different levels of government.

3. Understanding Issues in Indian Public Finance

- Outcome: Students will be able to analyze current issues in India's public finance system, including taxation, monetary and fiscal policies, and the budgetary system.
- Elaboration:
  - Students will evaluate current issues in India's tax system, including the structure and efficiency of direct and indirect taxes.
  - They will analyze the working of monetary and fiscal policies in India and their impact on economic stability and growth.
  - Students will understand the Indian budgetary system, including the process of budget formulation, execution, and accountability.

4. Application of Public Finance Concepts

- Outcome: Students will be able to apply public finance concepts to analyze government policies and their impact on the economy.
- Elaboration:
  - Students will use public finance theories to evaluate the effectiveness of government policies in addressing market failures and promoting economic welfare.
  - They will apply their knowledge of taxation, public expenditure, and public debt to assess the fiscal health of the economy.
  - Students will analyze the impact of fiscal and monetary policies on economic stability and growth.

5. Critical Thinking and Problem-Solving

- Outcome: Students will develop critical thinking and problem-solving skills in the context of public finance.
- Elaboration:

- Students will analyze public finance problems, such as tax inefficiencies, public debt, and fiscal deficits, using theoretical frameworks.
- They will evaluate the effectiveness of public finance policies and propose solutions to economic challenges.
- Students will critically assess the assumptions and implications of public finance theories.

6. Communication of Public Finance Ideas

- Outcome: Students will be able to communicate public finance ideas effectively.
- Elaboration:
  - Students will present public finance concepts and analysis using appropriate terminology and diagrams.
  - They will write clear and concise explanations of public finance theories and their applications.
  - Students will demonstrate professionalism in their communication of public finance ideas.

26.1 Interconnection Among PO, PSO, and CO

The interconnection among Program Outcomes (POs), Program Specific Outcomes (PSOs), and Course Outcomes (COs) for the Introductory Public Finance course can be established as follows:

26.1.1 Mapping COs to PSOs and POs

1. CO1: Students will be able to explain the core concepts of public finance, including public goods, externalities, public revenue, public expenditure, and public debt.

   PSO1: Students will demonstrate a foundational understanding of public finance.

   PO1: Graduates will demonstrate a deep understanding of economic theories.

2. CO2: Students will be able to analyze the basic theories of public finance, including the benefit principle, ability-to-pay principle, public choice theory, and fiscal federalism.

   PSO2: Students will be able to apply public finance concepts to analyze real-world issues.

   PO2: Graduates will develop strong analytical and quantitative skills.

3. CO3: Students will be able to analyze current issues in India's public finance system, including taxation, monetary and fiscal policies, and the budgetary system.

   PSO3: Students will be able to evaluate the impact of fiscal policies on economic development.

   PO3: Graduates will be able to critically evaluate economic policies.

4. CO4: Students will be able to apply public finance concepts to analyze government policies and their impact on the economy.

   PSO4: Students will develop critical thinking and problem-solving skills in economics.

   PO4: Graduates will be able to solve real-world economic problems.

5. CO5: Students will be able to communicate public finance ideas effectively.

   PSO5: Students will be able to present economic arguments and findings effectively.

   PO5: Graduates will be able to communicate economic ideas effectively.

26.1.2 Explanation of the Interconnection

- **COs Contribute to PSOs:**

The Course Outcomes (COs) of the Public Finance course are designed to help students achieve the Program Specific Outcomes (PSOs). For example:

- – CO1 (core concepts of public finance) contributes to PSO1 (foundational understanding of public finance).

  - CO3 (issues in Indian public finance) contributes to PSO3 (evaluating the impact of fiscal policies).
  - CO5 (communication of public finance ideas) contributes to PSO5 (presenting economic arguments effectively).

- **PSOs Contribute to POs:**

The Program Specific Outcomes (PSOs) are aligned with the broader Program Outcomes (POs). For example:

- – PSO1 (understanding public finance) contributes to PO1 (demonstrating a deep understanding of economic theories).
  - PSO2 (applying public finance concepts) contributes to PO2 (developing strong analytical skills).
  - PSO5 (communication skills) contributes to PO5 (communicating economic ideas effectively).

- **COs Ultimately Contribute to POs:**

Since COs contribute to PSOs, and PSOs contribute to POs, the Course Outcomes (COs) ultimately contribute to the Program Outcomes (POs). For example:

- – CO4 (application of public finance concepts) contributes to PSO4 (developing critical thinking and problem-solving skills), which in turn contributes to PO4 (solving real-world economic problems).
  - CO5 (communication of public finance ideas) contributes to PSO5 (presenting economic arguments effectively), which in turn contributes to PO5 (communicating economic ideas effectively).

The interconnection among PO, PSO, and CO ensures that the learning outcomes at each level are aligned and contribute to the overall goals of the program. The Course Outcomes (COs) of the Introductory Public Finance course directly support the Program Specific Outcomes (PSOs), which in turn contribute to the broader Program Outcomes (POs). This alignment ensures that students acquire the necessary knowledge, skills, and competencies to succeed in their academic and professional careers. The course prepares students to understand and apply public finance concepts, analyze government policies, and communicate their ideas effectively.

27 Course Outcome: International Economics

The Course Outcomes (COs) for the Introductory International Economics (I) course are specific, measurable statements that describe what students are expected to know, understand, and be able to do by the end of the course. These outcomes are aligned with the given syllabus and focus on building foundational knowledge and skills in international trade theory, trade policy, and balance of payments. Below is an elaboration of the Course Outcomes (COs) for the given syllabus:

1. Understanding Absolute and Comparative Advantage

- Outcome: Students will be able to explain and analyze the theories of absolute and comparative advantage in international trade.

- Elaboration:

  - Students will explain Adam Smith's theory of absolute advantage and its implications for trade.
  - They will analyze David Ricardo's theory of comparative advantage and its role in determining trade patterns.
  - Students will understand the concept of arbitrage and its role in cross-country price differences and trade.
  - They will analyze the production possibility frontier, relative demand and supply, terms of trade, and gains from trade in a Ricardian model.

2. Understanding the Building Blocks of Trade Theory

- Outcome: Students will be able to analyze the fundamental concepts of trade theory, including indifference curves, offer curves, and gains from trade.
- Elaboration:
  - Students will explain the concept of community indifference curves and their properties.
  - They will derive trade indifference curves and analyze their properties.
  - Students will understand offer curves, their properties, and their role in determining international equilibrium.
  - They will analyze the terms of trade, the Marshall-Lerner condition, and the stability of trade equilibrium.
  - Students will explain the gains from trade theorem and illustrate the decomposition of gains from trade.

3. Understanding Factor Endowment and Trade (Heckscher-Ohlin-Samuelson Model)

- Outcome: Students will be able to analyze the Heckscher-Ohlin-Samuelson model and its implications for trade patterns and factor prices.
- Elaboration:
  - Students will explain the Heckscher-Ohlin theorem and the concepts of relative factor abundance.
  - They will analyze the role of homothetic tastes and factor intensity reversal in the context of the Heckscher-Ohlin model.
  - Students will understand the Stolper-Samuelson theorem and the Rybczynski theorem and their implications for trade and factor prices.
  - They will explain the factor price equalization theorem and its conditions, including complete and incomplete specialization.
  - Students will analyze empirical studies, including the Leontief paradox, and their implications for trade theory.

4. Understanding Trade Policy

- Outcome: Students will be able to analyze the effects of trade policies, including tariffs, quotas, subsidies, and voluntary export restraints.
- Elaboration:
  - Students will perform partial equilibrium analysis of tariffs, quotas, and subsidies, including their cost-benefit implications.
  - They will analyze the equivalence and non-equivalence of tariffs and quotas and the monopoly effects of quotas.
  - Students will perform general equilibrium analysis of tariffs, including the welfare effects on small and large economies.
  - They will explain the concept of optimum tariffs, tariff wars, and Metzler's paradox.

5. Understanding Balance of Payments

- Outcome: Students will be able to explain the balance of payments accounts and the concepts of fixed and flexible exchange rates.
- Elaboration:
  - Students will understand the components of the balance of payments accounts, including autonomous and accommodating transactions.

- They will explain the basic concepts of fixed and flexible exchange rates and their implications for international trade and finance.

6. Application of International Economics Concepts

- Outcome: Students will be able to apply international economics concepts to analyze trade patterns, trade policies, and balance of payments issues.
- Elaboration:
  - Students will use trade theories to analyze the determinants of trade patterns and the gains from trade.
  - They will evaluate the impact of trade policies on economic welfare and propose solutions to trade-related challenges.
  - Students will apply their knowledge of balance of payments to assess the implications of exchange rate regimes on international trade and finance.

7. Critical Thinking and Problem-Solving

- Outcome: Students will develop critical thinking and problem-solving skills in the context of international economics.
- Elaboration:
  - Students will analyze international trade problems, such as trade imbalances and protectionism, using theoretical frameworks.
  - They will evaluate the effectiveness of trade policies and propose solutions to trade-related challenges.
  - Students will critically assess the assumptions and implications of international trade theories.

8. Communication of International Economics Ideas

- Outcome: Students will be able to communicate international economics ideas effectively.
- Elaboration:
  - Students will present international economics concepts and analysis using appropriate terminology and diagrams.
  - They will write clear and concise explanations of international economics theories and their applications.
  - Students will demonstrate professionalism in their communication of international economics ideas.

27.1 Interconnection Among PO, PSO, and CO

The interconnection among Program Outcomes (POs), Program Specific Outcomes (PSOs), and Course Outcomes (COs) for the Introductory International Economics (I) course can be established as follows:

27.1.1 Mapping COs to PSOs and POs

1. CO1: Students will be able to explain and analyze the theories of absolute and comparative advantage in international trade.

   PSO1: Students will demonstrate a foundational understanding of international trade theory.

   PO1: Graduates will demonstrate a deep understanding of economic theories.

2. CO2: Students will be able to analyze the fundamental concepts of trade theory, including indifference curves, offer curves, and gains from trade.

   PSO2: Students will be able to apply international economics concepts to analyze real-world issues.

   PO2: Graduates will develop strong analytical and quantitative skills.

3. CO3: Students will be able to analyze the Heckscher-Ohlin-Samuelson model and its implications for trade patterns and factor prices.

   PSO3: Students will be able to evaluate the impact of trade policies on economic development.

   PO3: Graduates will be able to critically evaluate economic policies.

4. CO4: Students will be able to analyze the effects of trade policies, including tariffs, quotas, subsidies, and voluntary export restraints.

   PSO4: Students will develop critical thinking and problem-solving skills in economics.

   PO4: Graduates will be able to solve real-world economic problems.

5. CO5: Students will be able to communicate international economics ideas effectively.

   PSO5: Students will be able to present economic arguments and findings effectively.

   PO5: Graduates will be able to communicate economic ideas effectively.

27.1.2 Explanation of the Interconnection

- **COs Contribute to PSOs:**

The Course Outcomes (COs) of the International Economics (I) course are designed to help students achieve the Program Specific Outcomes (PSOs). For example:

- – CO1 (absolute and comparative advantage) contributes to PSO1 (foundational understanding of international trade theory).
  – CO3 (Heckscher-Ohlin-Samuelson model) contributes to PSO3 (evaluating the impact of trade policies).
  – CO5 (communication of international economics ideas) contributes to PSO5 (presenting economic arguments effectively).

- **PSOs Contribute to POs:**

The Program Specific Outcomes (PSOs) are aligned with the broader Program Outcomes (POs). For example:

- – PSO1 (understanding international trade theory) contributes to PO1 (demonstrating a deep understanding of economic theories).
  – PSO2 (applying international economics concepts) contributes to PO2 (developing strong analytical skills).
  – PSO5 (communication skills) contributes to PO5 (communicating economic ideas effectively).

- **COs Ultimately Contribute to POs:**

Since COs contribute to PSOs, and PSOs contribute to POs, the Course Outcomes (COs) ultimately contribute to the Program Outcomes (POs). For example:

- – CO4 (trade policy analysis) contributes to PSO4 (developing critical thinking and problem-solving skills), which in turn contributes to PO4 (solving real-world economic problems).
  – CO5 (communication of international economics ideas) contributes to PSO5 (presenting economic arguments effectively), which in turn contributes to PO5 (communicating economic ideas effectively).

The interconnection among PO, PSO, and CO ensures that the learning outcomes at each level are aligned and contribute to the overall goals of the program. The Course Outcomes (COs) of the Introductory International Economics (I) course directly support the Program Specific Outcomes (PSOs), which in turn contribute to the broader Program Outcomes (POs). This alignment ensures that students acquire the necessary knowledge, skills, and competencies to succeed in their academic and professional careers. The course prepares students to understand and apply international economics concepts, analyze trade patterns and policies, and communicate their ideas effectively.

28 Course Outcome: Environmental & Resource Economics

The Course Outcomes (COs) for the Introductory Environmental & Resource Economics (I) course are specific, measurable statements that describe what students are expected to know, understand, and be able to do by the end of the course. These outcomes are aligned with the given syllabus and focus on building foundational knowledge and skills in environmental economics, including the interlinkages between the economy and the environment, market failures, environmental policies, and the valuation of environmental costs and benefits. Below is an elaboration of the Course Outcomes (COs) for the given syllabus:

1. Understanding the Interlinkages between Environment, Ecology, and Economy

- Outcome: Students will be able to explain the interlinkages between the economy and the environment and the concept of environmental economics.
- Elaboration:
  - Students will define environmental economics and its scope.
  - They will analyze the interlinkages between the economy and the environment, including the concept of a circular economy.
  - Students will understand the elements of environmental degradation and their impact on economic activities.

2. Understanding Efficiency and Market Failure

- Outcome: Students will be able to analyze market failures in the context of environmental economics.
- Elaboration:
  - Students will explain externalities, public goods/bads, and their role in market failure.
  - They will understand the concept of property rights and the Coase theorem in addressing environmental externalities.

3. Understanding Environmental Regulations and Policies

- Outcome: Students will be able to evaluate environmental regulations and the economics of environmental policies.
- Elaboration:
  - Students will explain the history and design of environmental regulations.
  - They will analyze the monitoring and enforcement of environmental policies.
  - Students will understand Pigouvian fees, including their application to single and multiple polluters, and the comparison between fees and subsidies.
  - They will evaluate different approaches to regulating pollution, including command and control measures and economic incentives.
  - Students will explain the basic concepts of tradable pollution permits.

4. Measuring the Values of Environmental Costs and Benefits

- Outcome: Students will be able to measure and analyze the values of environmental costs and benefits.
- Elaboration:
  - Students will understand the concept of total economic value, including user value and non-user value.
  - They will analyze actual market-based valuation methods and future use value, bequest value, and vicarious value.

  - Students will evaluate objective standard-based valuation methods.
  - They will understand subjective preference-based valuation methods, including revealed preference methods (Travel Cost Method and Hedonic Price Theory) and stated preference methods (Contingent Valuation Method).

5. Application of Environmental Economics Concepts

- Outcome: Students will be able to apply environmental economics concepts to analyze environmental policies and their impact.
- Elaboration:
  - Students will use environmental economics theories to evaluate the effectiveness of environmental regulations and policies.
  - They will apply valuation methods to assess the costs and benefits of environmental resources and policies.
  - Students will analyze the impact of environmental policies on economic activities and sustainability.

6. Critical Thinking and Problem-Solving

- Outcome: Students will develop critical thinking and problem-solving skills in the context of environmental economics.
- Elaboration:
  - Students will analyze environmental problems, such as pollution and resource depletion, using theoretical frameworks.
  - They will evaluate the effectiveness of environmental policies and propose solutions to environmental challenges.
  - Students will critically assess the assumptions and implications of environmental economics theories.

7. Communication of Environmental Economics Ideas

- Outcome: Students will be able to communicate environmental economics ideas effectively.
- Elaboration:
  - Students will present environmental economics concepts and analysis using appropriate terminology and diagrams.
  - They will write clear and concise explanations of environmental economics theories and their applications.
  - Students will demonstrate professionalism in their communication of environmental economics ideas.

28.1 Interconnection Among PO, PSO, and CO

The interconnection among Program Outcomes (POs), Program Specific Outcomes (PSOs), and Course Outcomes (COs) for the Introductory Environmental & Resource Economics (I) course can be established as follows:

28.1.1 Mapping COs to PSOs and POs

1. CO1: Students will be able to explain the interlinkages between the economy and the environment and the concept of environmental economics.

   PSO1: Students will demonstrate a foundational understanding of environmental economics.

   PO1: Graduates will demonstrate a deep understanding of economic theories.

2. CO2: Students will be able to analyze market failures in the context of environmental economics.

   PSO2: Students will be able to apply environmental economics concepts to analyze real-world issues.

   PO2: Graduates will develop strong analytical and quantitative skills.

3. CO3: Students will be able to evaluate environmental regulations and the economics of environmental policies.

   PSO3: Students will be able to evaluate the impact of environmental policies on sustainability.

   PO3: Graduates will be able to critically evaluate economic policies.

4. CO4: Students will be able to measure and analyze the values of environmental costs and benefits.

   PSO4: Students will develop critical thinking and problem-solving skills in economics.

   PO4: Graduates will be able to solve real-world economic problems.

5. CO5: Students will be able to communicate environmental economics ideas effectively.

   PSO5: Students will be able to present economic arguments and findings effectively.

   PO5: Graduates will be able to communicate economic ideas effectively.

28.1.2 Explanation of the Interconnection

- **COs Contribute to PSOs:**

The Course Outcomes (COs) of the Environmental & Resource Economics (I) course are designed to help students achieve the Program Specific Outcomes (PSOs). For example:

- – CO1 (interlinkages between economy and environment) contributes to PSO1 (foundational understanding of environmental economics).
  – CO3 (environmental regulations and policies) contributes to PSO3 (evaluating the impact of environmental policies).
  – CO5 (communication of environmental economics ideas) contributes to PSO5 (presenting economic arguments effectively).

- **PSOs Contribute to POs:**

The Program Specific Outcomes (PSOs) are aligned with the broader Program Outcomes (POs). For example:

- – PSO1 (understanding environmental economics) contributes to PO1 (demonstrating a deep understanding of economic theories).
  – PSO2 (applying environmental economics concepts) contributes to PO2 (developing strong analytical skills).
  – PSO5 (communication skills) contributes to PO5 (communicating economic ideas effectively).

- **COs Ultimately Contribute to POs:**

Since COs contribute to PSOs, and PSOs contribute to POs, the Course Outcomes (COs) ultimately contribute to the Program Outcomes (POs). For example:

- – CO4 (valuation of environmental costs and benefits) contributes to PSO4 (developing critical thinking and problem-solving skills), which in turn contributes to PO4 (solving real-world economic problems).

- CO5 (communication of environmental economics ideas) contributes to PSO5 (presenting economic arguments effectively), which in turn contributes to PO5 (communicating economic ideas effectively).

The interconnection among PO, PSO, and CO ensures that the learning outcomes at each level are aligned and contribute to the overall goals of the program. The Course Outcomes (COs) of the Introductory Environmental & Resource Economics (I) course directly support the Program Specific Outcomes (PSOs), which in turn contribute to the broader Program Outcomes (POs). This alignment ensures that students acquire the necessary knowledge, skills, and competencies to succeed in their academic and professional careers. The course prepares students to understand and apply environmental economics concepts, analyze environmental policies, and communicate their ideas effectively.

29 Course Outcome: Public Economics

The Course Outcomes (COs) for the Introductory Public Economics (I) course are specific, measurable statements that describe what students are expected to know, understand, and be able to do by the end of the course. These outcomes are aligned with the given syllabus and focus on building foundational knowledge and skills in public economics, including market failure, public goods, taxation, public expenditure, public debt, and fiscal federalism. Below is an elaboration of the Course Outcomes (COs) for the given syllabus:

1. Understanding the Role of Government in a Market Economy

- Outcome: Students will be able to explain the role of government in addressing market failures and providing public goods.
- Elaboration:
  - Students will revisit the concept of market failure and externalities and understand the role of government in addressing these issues.
  - They will explain the characteristics of public goods, merit goods, mixed goods, club goods, and partial public goods.
  - Students will analyze the allocation, distribution, stabilization, and regulatory functions of government intervention in the economy.

2. Understanding Public Goods and Optimal Provision

- Outcome: Students will be able to analyze the characteristics of pure public goods and their optimal provision.
- Elaboration:
  - Students will differentiate between pure public goods and private goods.
  - They will explain market failure in the case of pure public goods and the need for public provision.
  - Students will analyze the Samuelson model and Lindahl equilibrium for the optimal provision of public goods.

3. Understanding Taxation and Its Effects

- Outcome: Students will be able to analyze the principles, incidence, and effects of taxation.
- Elaboration:
  - Students will classify taxes and explain the canons of taxation.
  - They will analyze the principles of taxation, including the benefit principle, ability-to-pay principle, and equal sacrifice principle.
  - Students will understand the incidence and burden of taxation and its effects on work efforts, risk-bearing, and savings.

- They will explain the Laffer curve and its implications for tax policy.
- Students will compare direct and indirect taxes and analyze their income and substitution effects.
- They will understand the concept of optimal taxation and its implications for equity and efficiency.

4. Understanding Public Expenditure and Public Debt

- Outcome: Students will be able to analyze public expenditure, public debt, and fiscal federalism.
- Elaboration:
  - Students will explain the meaning and classification of public expenditure and understand the components of the government budget, including primary deficit, fiscal deficit, revenue deficit, and budget deficit.
  - They will analyze the meaning of public debt, Domar's model of public debt, and the concept of Ricardian equivalence.
  - Students will understand the sources of public borrowing, including internal and external borrowing, and the effects of public debt on the economy.
  - They will explain the concept of fiscal federalism and the principles of tax devolution.

5. Application of Public Economics Concepts

- Outcome: Students will be able to apply public economics concepts to analyze government policies and their impact on the economy.
- Elaboration:
  - Students will use public economics theories to evaluate the effectiveness of government policies in addressing market failures and promoting economic welfare.
  - They will apply their knowledge of taxation, public expenditure, and public debt to assess the fiscal health of the economy.
  - Students will analyze the impact of fiscal policies on economic stability and growth.

6. Critical Thinking and Problem-Solving

- Outcome: Students will develop critical thinking and problem-solving skills in the context of public economics.
- Elaboration:
  - Students will analyze public economics problems, such as tax inefficiencies, public debt, and fiscal deficits, using theoretical frameworks.
  - They will evaluate the effectiveness of public economics policies and propose solutions to economic challenges.
  - Students will critically assess the assumptions and implications of public economics theories.

7. Communication of Public Economics Ideas

- Outcome: Students will be able to communicate public economics ideas effectively.
- Elaboration:
  - Students will present public economics concepts and analysis using appropriate terminology and diagrams.
  - They will write clear and concise explanations of public economics theories and their applications.
  - Students will demonstrate professionalism in their communication of public economics ideas.

29.1 Interconnection Among PO, PSO, and CO

The interconnection among Program Outcomes (POs), Program Specific Outcomes (PSOs), and Course Outcomes (COs) for the Introductory Public Economics (I) course can be established as follows:

29.1.1 Mapping COs to PSOs and POs

1. CO1: Students will be able to explain the role of government in addressing market failures and providing public goods.

   PSO1: Students will demonstrate a foundational understanding of public economics.

   PO1: Graduates will demonstrate a deep understanding of economic theories.

2. CO2: Students will be able to analyze the characteristics of pure public goods and their optimal provision.

   PSO2: Students will be able to apply public economics concepts to analyze real-world issues.

   PO2: Graduates will develop strong analytical and quantitative skills.

3. CO3: Students will be able to analyze the principles, incidence, and effects of taxation.

   PSO3: Students will be able to evaluate the impact of fiscal policies on economic development.

   PO3: Graduates will be able to critically evaluate economic policies.

4. CO4: Students will be able to analyze public expenditure, public debt, and fiscal federalism.

   PSO4: Students will develop critical thinking and problem-solving skills in economics.

   PO4: Graduates will be able to solve real-world economic problems.

5. CO5: Students will be able to communicate public economics ideas effectively.

   PSO5: Students will be able to present economic arguments and findings effectively.

   PO5: Graduates will be able to communicate economic ideas effectively.

29.1.2 Explanation of the Interconnection

- **COs Contribute to PSOs:**

The Course Outcomes (COs) of the Public Economics (I) course are designed to help students achieve the Program Specific Outcomes (PSOs). For example:

- – CO1 (role of government) contributes to PSO1 (foundational understanding of public economics).
  – CO3 (taxation) contributes to PSO3 (evaluating the impact of fiscal policies).
  – CO5 (communication of public economics ideas) contributes to PSO5 (presenting economic arguments effectively).

- **PSOs Contribute to POs:**

The Program Specific Outcomes (PSOs) are aligned with the broader Program Outcomes (POs). For example:

- – PSO1 (understanding public economics) contributes to PO1 (demonstrating a deep understanding of economic theories).
  – PSO2 (applying public economics concepts) contributes to PO2 (developing strong analytical skills).
  – PSO5 (communication skills) contributes to PO5 (communicating economic ideas effectively).

- **COs Ultimately Contribute to POs:**

Since COs contribute to PSOs, and PSOs contribute to POs, the Course Outcomes (COs) ultimately contribute to the Program Outcomes (POs). For example:

- – CO4 (public expenditure and debt) contributes to PSO4 (developing critical thinking and problem-solving skills), which in turn contributes to PO4 (solving real-world economic problems).
  – CO5 (communication of public economics ideas) contributes to PSO5 (presenting economic arguments effectively), which in turn contributes to PO5 (communicating economic ideas effectively).

The interconnection among PO, PSO, and CO ensures that the learning outcomes at each level are aligned and contribute to the overall goals of the program. The Course Outcomes (COs) of the Introductory Public Economics (I) course directly support the Program Specific Outcomes (PSOs), which in turn contribute to the broader Program Outcomes (POs). This alignment ensures that students acquire the necessary knowledge, skills, and competencies to succeed in their academic and professional careers. The course prepares students to understand and apply public economics concepts, analyze government policies, and communicate their ideas effectively.

30 Course Outcome: Summer Internship

Notifications:

1. UGC Notification (www.ugc.gov.in/pdfnews/0063650_Draft-Guidelines-for-Internship-and-Research-Internship-for-Under-Graduate-Students.pdf)
2. Notification no. CSR/48/2023 (https://www.caluniv.ac.in/ccf-ug/files/CSR-48-2023.pdf)
3. Corrigendum (https://www.caluniv.ac.in/ccf-ug/files/corri-SI-CUS-111(Cir.)-24.pdf)
4. Explanation (https://www.caluniv.ac.in/ccf-ug/files/Notice-SIP-CUS-155-24.pdf)
5. Notification no. CSR/29/2024 (https://www.caluniv.ac.in/ccf-ug/files/SIS-UGCSR-29.pdf). **Economics: Page no.7**

Upon completion of the internship program, undergraduate Economics students will be able to:

1. Field Survey and Report Writing: Conduct field surveys, select socio-economic problems, collect and compile data, and write comprehensive reports based on analysis.
2. Secondary Data Analysis: Utilize secondary data sources to prepare and present analyses or studies on socio-economic issues, supported by scholarly or institutional research.
3. Project Assistance: Assist faculty members and researchers at Colleges/Universities/Research Institutes in research projects through data analysis and report writing.
4. Employability Skills: Acquire employability skills through work experience, enhancing their acceptability as job seekers across various sectors.
5. Government Internships: Gain experience with government agencies, performing data analysis, policy implementation, and working on projects related to labor, trade, or economic development.
6. Non-Government Organizations: Engage with non-profit and non-government organizations to address issues like poverty alleviation, social welfare, environmental sustainability, and community outreach.
7. Financial Services Internships: Develop skills in investment firms, consulting firms, or insurance companies through financial analysis, market research, investment strategies, and risk assessment.
8. Corporate Internships: Apply economic principles in corporate settings, focusing on market research, business analytics, pricing strategies, supply chain management, and corporate finance forecasting.
9. International Organizations: Work with organizations like the World Bank, IMF, UN, or WTO on global economic issues, international development projects, and policy analysis.

10. Entrepreneurial Focus: Gain hands-on experience in business development, market research, financial planning, and entrepreneurship, supporting startups and growing businesses.

These outcomes will definitely vary based on factors such as location, industry trends, and individual interests and goals.

31 Course Outcome: Rural Development

The Course Outcomes (COs) for the Introductory Rural Development course are specific, measurable statements that describe what students are expected to know, understand, and be able to do by the end of the course. These outcomes are aligned with the given syllabus and focus on building foundational knowledge and skills in rural development, including the rural economy, measures of development, rural governance, and government programs. Below is an elaboration of the Course Outcomes (COs) for the given syllabus:

1. Understanding Rural India

- Outcome: Students will be able to explain the basic elements of rural development and the importance of rural development in India.
- Elaboration:
  - Students will understand the basic elements of rural development, including growth versus development.
  - They will explain the reasons for focusing on rural development and the rising expectations associated with development.
  - Students will analyze the relationship between development and change in rural areas.

2. Understanding the Rural Economy of India

- Outcome: Students will be able to analyze the size, structure, and characteristics of the rural economy in India.
- Elaboration:
  - Students will explain the size and structure of the rural economy, including population and resource distribution.
  - They will analyze the characteristics of the rural sector and the roles of the agricultural and non-agricultural subsectors.
  - Students will evaluate the challenges and opportunities in the rural economy.

3. Understanding Measures of Rural Development

- Outcome: Students will be able to use and interpret measures of rural development, including PQLI, HDI, Lorenz Curve, and Gini Coefficient.
- Elaboration:
  - Students will explain measures of the level of rural development, such as the Physical Quality of Life Index (PQLI) and Human Development Index (HDI).
  - They will analyze measures of income distribution, including the Lorenz Curve and Gini Coefficient.
  - Students will understand simplified measures of development and concepts of rural poverty, including definitions, criteria, and measures.

4. Understanding Rural Governance and Institutions

- Outcome: Students will be able to analyze the role of rural governance and institutions in rural development.
- Elaboration:

  - Students will explain the role of Panchayati Raj institutions in rural development.
  - They will analyze the role of rural credit institutions, including NABARD and Regional Rural Banks (RRBs).
  - Students will understand the role of self-help groups (SHGs) and microfinance in rural development.
  - They will evaluate the role of non-governmental organizations (NGOs) in promoting rural development.

5. Understanding Selected Government Programs for Rural Development

- Outcome: Students will be able to analyze selected government programs aimed at rural development.
- Elaboration:
  - Students will explain the objectives and impact of the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA).
  - They will analyze the Pradhan Mantri Awas Yojana-Gramin (PMAY-G) and its role in providing rural housing.
  - Students will understand the Mid-Day Meal Scheme (MDM) and its impact on education and nutrition.
  - They will evaluate the National Rural Livelihoods Mission (NRLM) and its role in poverty alleviation.
  - Students will analyze the National Rural Health Mission (NRHM) and its impact on rural healthcare.
  - They will understand the Pradhan Mantri Gram Sadak Yojana (PMGSY) and its role in improving rural connectivity.

6. Application of Rural Development Concepts

- Outcome: Students will be able to apply rural development concepts to analyze government policies and their impact on rural areas.
- Elaboration:
  - Students will use rural development theories to evaluate the effectiveness of government policies in addressing rural challenges.
  - They will apply their knowledge of rural governance and institutions to assess the impact of rural development programs.
  - Students will analyze the role of government programs in promoting rural development and improving the quality of life in rural areas.

7. Critical Thinking and Problem-Solving

- Outcome: Students will develop critical thinking and problem-solving skills in the context of rural development.
- Elaboration:
  - Students will analyze rural development problems, such as poverty, lack of infrastructure, and inadequate healthcare, using theoretical frameworks.
  - They will evaluate the effectiveness of rural development policies and propose solutions to rural challenges.
  - Students will critically assess the assumptions and implications of rural development theories.

8. Communication of Rural Development Ideas

- Outcome: Students will be able to communicate rural development ideas effectively.

- Elaboration:
  - Students will present rural development concepts and analysis using appropriate terminology and diagrams.
  - They will write clear and concise explanations of rural development theories and their applications.
  - Students will demonstrate professionalism in their communication of rural development ideas.

31.1 Interconnection Among PO, PSO, and CO

The interconnection among Program Outcomes (POs), Program Specific Outcomes (PSOs), and Course Outcomes (COs) for the Introductory Rural Development course can be established as follows:

31.1.1 Mapping COs to PSOs and POs

1. CO1: Students will be able to explain the basic elements of rural development and the importance of rural development in India.

   PSO1: Students will demonstrate a foundational understanding of rural development.

   PO1: Graduates will demonstrate a deep understanding of economic theories.

2. CO2: Students will be able to analyze the size, structure, and characteristics of the rural economy in India.

   PSO2: Students will be able to apply rural development concepts to analyze real-world issues.

   PO2: Graduates will develop strong analytical and quantitative skills.

3. CO3: Students will be able to use and interpret measures of rural development, including PQLI, HDI, Lorenz Curve, and Gini Coefficient.

   PSO3: Students will be able to evaluate the impact of rural development policies on economic development.

   PO3: Graduates will be able to critically evaluate economic policies.

4. CO4: Students will be able to analyze the role of rural governance and institutions in rural development.

   PSO4: Students will develop critical thinking and problem-solving skills in economics.

   PO4: Graduates will be able to solve real-world economic problems.

5. CO5: Students will be able to communicate rural development ideas effectively.

   PSO5: Students will be able to present economic arguments and findings effectively.

   PO5: Graduates will be able to communicate economic ideas effectively.

31.1.2 Explanation of the Interconnection

- **COs Contribute to PSOs:**

The Course Outcomes (COs) of the Rural Development course are designed to help students achieve the Program Specific Outcomes (PSOs). For example:

-
  - CO1 (basic elements of rural development) contributes to PSO1 (foundational understanding of rural development).
  - CO3 (measures of rural development) contributes to PSO3 (evaluating the impact of rural development policies).
  - CO5 (communication of rural development ideas) contributes to PSO5 (presenting economic arguments effectively).

- **PSOs Contribute to POs:**

The Program Specific Outcomes (PSOs) are aligned with the broader Program Outcomes (POs). For example:

- – PSO1 (understanding rural development) contributes to PO1 (demonstrating a deep understanding of economic theories).
  – PSO2 (applying rural development concepts) contributes to PO2 (developing strong analytical skills).
  – PSO5 (communication skills) contributes to PO5 (communicating economic ideas effectively).

- **COs Ultimately Contribute to POs:**

Since COs contribute to PSOs, and PSOs contribute to POs, the Course Outcomes (COs) ultimately contribute to the Program Outcomes (POs). For example:

- – CO4 (rural governance and institutions) contributes to PSO4 (developing critical thinking and problem-solving skills), which in turn contributes to PO4 (solving real-world economic problems).
  – CO5 (communication of rural development ideas) contributes to PSO5 (presenting economic arguments effectively), which in turn contributes to PO5 (communicating economic ideas effectively).

The interconnection among PO, PSO, and CO ensures that the learning outcomes at each level are aligned and contribute to the overall goals of the program. The Course Outcomes (COs) of the Introductory Rural Development course directly support the Program Specific Outcomes (PSOs), which in turn contribute to the broader Program Outcomes (POs). This alignment ensures that students acquire the necessary knowledge, skills, and competencies to succeed in their academic and professional careers. The course prepares students to understand and apply rural development concepts, analyze government policies, and communicate their ideas effectively.

32 Course Outcome: Advanced Microeconomics

The Course Outcomes (COs) for the undergraduate Advanced Microeconomics course are specific, measurable statements that describe what students are expected to know, understand, and be able to do by the end of the course. These outcomes are aligned with the syllabus and focus on building advanced theoretical and analytical skills in microeconomics. Below is an elaboration of the Course Outcomes (COs) for the given syllabus:

1. Advanced Consumer Analysis and Duality

- Outcome: Students will be able to analyze consumer behavior using the duality approach and derive fundamental relationships.

- Elaboration:

– Students will solve the Utility Maximization Problem (UMP) and Expenditure Minimization Problem (EMP).
– They will derive and explain the properties of the Indirect Utility Function and Expenditure Function.
– Students will apply Shephard's Lemma and Roy's Identity to derive Hicksian and Marshallian demand functions.
– They will utilize the Slutsky equation to decompose price effects into substitution and income effects.

2. Welfare Measurement and Uncertainty

- Outcome: Students will be able to measure welfare changes and model consumer behavior under uncertainty.

- Elaboration:

– Students will distinguish between Compensating Variation (CV) and Equivalent Variation (EV) and calculate them for policy changes.
– They will analyze consumer surplus using the concepts of quasilinear utility.
– Students will apply Expected Utility Theory and the Von Neumann-Morgenstern axioms to choices involving risk.
– They will calculate risk premiums using Arrow-Pratt measures of risk aversion.

3. Theory of the Firm and Envelope Theorems

- Outcome: Students will be able to apply constrained optimization techniques and duality to the theory of the firm.
- Elaboration:

– Students will solve the Profit Maximization Problem (PMP) and Cost Minimization Problem (CMP).
– They will apply the Envelope Theorem to derive Hotelling's Lemma and Shephard's Lemma for the firm.
– Students will analyze the duality between profit functions and cost functions.
– They will evaluate the impact of taxes and subsidies on competitive firm output and welfare.

4. General Equilibrium Analysis

- Outcome: Students will be able to analyze market interactions in a general equilibrium framework.
- Elaboration:

– Students will use the Edgeworth Box to determine the contract curve and Pareto efficient allocations.
– They will explain the Core of an exchange economy and the Core Equivalence Theorem.
– Students will discuss the existence of equilibrium using Brouwer's Fixed Point Theorem.
– They will analyze production economies using Jones (1965) and Jones (1971) models to understand fixed and flexible coefficient trade models.

5. Welfare Economics and Social Choice

- Outcome: Students will be able to evaluate the efficiency and equity of economic allocations and social decisions.
- Elaboration:

– Students will state and prove the First and Second Fundamental Theorems of Welfare Economics.
– They will analyze the relationship between Pareto Optimality and Social Welfare Optima.
– Students will apply Arrow's Impossibility Theorem to understand the limitations of social choice mechanisms.
– They will evaluate the equity-efficiency trade-off in policy design.

6. Application of Mathematical Rigor

- Outcome: Students will be able to apply advanced mathematical tools to economic modeling.
- Elaboration:

– Students will demonstrate proficiency in using calculus for comparative statics.
– They will apply the Kuhn-Tucker conditions to constrained optimization problems in economics.
– Students will use mathematical logic to understand integrability conditions and aggregation problems.

7. Critical Evaluation of Market Failures

- Outcome: Students will be able to identify and analyze conditions under which markets fail to achieve efficiency.
- Elaboration:

– Students will evaluate the role of externalities, public goods, and asymmetric information in violating the assumptions of the First Welfare Theorem.
– They will discuss the limitations of the competitive market model in real-world scenarios.
– Students will propose theoretical interventions to correct market failures.

8. Research and Synthesis

- Outcome: Students will be able to synthesize advanced microeconomic concepts to conduct independent research.
- Elaboration:

– Students will integrate concepts from consumer theory, production theory, and general equilibrium to build comprehensive economic models.
– They will critically assess advanced literature and theoretical proofs.
– Students will apply these theoretical frameworks to analyze complex real-world economic phenomena.

32.1 Interconnection Among PO, PSO, and CO

The interconnection among these three levels of outcomes can be established by mapping how the Course Outcomes (COs) of Advanced Microeconomics contribute to the Program Specific Outcomes (PSOs), which in turn contribute to the Program Outcomes (POs).

Below is an example of this mapping for the Advanced Microeconomics course in our undergraduate Economics major program.

32.1.1 Mapping COs to PSOs and POs

1. **CO1: Students will be able to analyze consumer behavior using the duality approach.**

   PSO1: Students will be able to apply economic theories to analyze market behavior and policy decisions.

   PO1: Graduates will demonstrate a deep understanding of economic theories and their applications.

2. **CO2: Students will be able to measure welfare changes (CV, EV) and model risk.**

   PSO12: Students will be able to critically evaluate the effectiveness of economic policies and their impact on society.

   PO10: Graduates will be able to analyze and evaluate the effectiveness of economic policies.

3. **CO3: Students will be able to apply constrained optimization techniques to the theory of the firm.**

   PSO2: Students will demonstrate proficiency in using statistical, mathematical, and econometric tools for economic analysis.

   PO2: Graduates will develop strong analytical and quantitative skills to interpret and analyze economic data.

4. **CO4: Students will be able to analyze market interactions in a general equilibrium framework.**

   PSO1: Students will be able to apply economic theories to analyze market behavior.

   PO3: Graduates will be able to critically evaluate economic issues and propose evidence-based solutions.

5. **CO5: Students will be able to evaluate the efficiency and equity of economic allocations.**

   PSO12: Students will be able to critically evaluate the effectiveness of economic policies.

   PO6: Graduates will recognize the ethical and social implications of economic decisions and policies.

6. **CO6: Students will be able to apply advanced mathematical tools to economic modeling.**

   PSO2: Students will demonstrate proficiency in using mathematical tools for economic analysis.

   PO7: Graduates will be equipped with research skills and a mindset for lifelong learning.

32.1.2 Explanation of the Interconnection

COs Contribute to PSOs: The Course Outcomes (COs) of the Advanced Microeconomics course are designed to help students achieve the Program Specific Outcomes (PSOs). For example:

– CO1 (duality in consumer theory) and CO4 (general equilibrium) contribute directly to PSO1, ensuring students master core economic theories.

– CO3 (optimization) and CO6 (mathematical rigor) contribute to PSO2, as they build the quantitative proficiency required for advanced economic analysis.

– CO5 (welfare economics) and CO2 (policy measurement) contribute to PSO12, enabling students to critically evaluate the impact of economic policies on society.

PSOs Contribute to POs: The Program Specific Outcomes (PSOs) are aligned with the broader Program Outcomes (POs). For example:

– PSO1 (mastery of core theories) contributes to PO1, ensuring graduates possess a deep understanding of the discipline.

– PSO2 (quantitative proficiency) and PSO12 (policy evaluation) contribute to PO2 and PO10, equipping graduates with the analytical skills necessary for careers in research, government, and policy analysis.

– PSO12 (ethical and social implications) feeds directly into PO6, fostering graduates who are socially responsible and ethically aware.

32.1.3 Example of Interconnection in Practice

Scenario: A graduate working as a Policy Analyst is tasked with evaluating the welfare impact of a new subsidy on essential goods.

1. **Course Outcome (CO) Application:** The graduate applies CO2 (Welfare Measurement) to calculate the Compensating Variation (CV) for consumers, determining exactly how much better off consumers are due to the subsidy. They also apply CO1 (Consumer Analysis) to understand how the subsidy alters demand patterns via income and substitution effects.
2. **Program Specific Outcome (PSO) Application:** By performing this analysis, the graduate demonstrates PSO12 (Critical Evaluation of Economic Policies), as they are assessing the specific efficiency and equity implications of the subsidy. They also utilize PSO1 (Mastery of Core Theories) by grounding their analysis in established welfare theorems.
3. **Program Outcome (PO) Application:** This comprehensive evaluation allows the graduate to fulfill PO10 (Policy Analysis and Evaluation) by providing evidence-based recommendations to the government. Furthermore, by considering who benefits most from the subsidy, they address PO6 (Ethical and Social Responsibility), ensuring the policy supports societal betterment.

33 Course Outcome: Advanced Macroeconomics

The Course Outcomes (COs) for the Advanced Macroeconomics course are specific, measurable statements that describe what students are expected to know, understand, and be able to do by the end of the course. These outcomes are aligned with the given syllabus and focus on building advanced knowledge and skills in open economy macroeconomics, rational expectations, investment and growth. Below is an elaboration of the Course Outcomes (COs) for the given syllabus:

1. Understanding Open Economy Macroeconomy

- Outcome: The students will grasp the knowledge of Balance of payments, exchange rate and effectiveness of fiscal and monetary policies in open economy
- Elaboration:
  - The students can understand the basics of Balance of payments
  - They can analyze the open economy macroeconomic equilibrium
  - They will be able to compare between the effectiveness of fiscal and monetary policies under different exchange rates.

2. Grasping the broader idea about Rational Expectations

- Outcome: The students can upgrade their existing ideas of rational expectation and it's difference with adaptive expectations along with understanding of relevant issues
- Elaboration:
  - The students can distinguish between rational and adaptive expectations
  - They can understand the relevance of Dornbusch's overshooting model
  - They will be able to comprehend Lucas critique and Hall's random walk consumption model

3. Upgrading the concept of investment

- Outcome: The students can upgrade their idea of Investment
- Elaboration:
  - The students can understand the neoclassical theory of investment

- They will be able to discuss the Shadow price theory of investment
- The students can get fair idea about market value and replacement cost of assets in Tobin's q

4. Studying Economic growth with a deeper insight

- Outcome: The students can analyse the growth models with a deeper insight
- Elaboration:
  - The Students will be able to indicate the basic essence of Ramsey-Cass- Koopman's Growth Model
  - They will be able to explain the long run economic growth through Romer's endogenous growth model.
  - The students will be able to apply dynamic optimization techniques

5. Ability to think critically and solve problems

- Outcome: Students will develop critical thinking and problem-solving skills in the context of macroeconomic issues.
- Elaboration:
  - Students will analyze macroeconomic problems, such as rational expectations, open economy macroeconomics, investment and economic growth
  - They will evaluate the effectiveness of macroeconomic policies and propose solutions to economic challenges.
  - Students will critically assess the assumptions and implications of macroeconomic models.

33.1 Interconnection Among PO, PSO, and CO

The interconnection among Programme Outcomes (POs), Programme Specific Outcomes (PSOs), and Course Outcomes (COs) for the Advanced Macroeconomics (III) course can be established as follows:

33.1.1 Mapping COs to PSOs and POs

1. CO1: Students will be able to explain and analyze the basic themes of Balance of payments and exchange rate

   PSO1: Students will be able to understand macroeconomic theories deeply.

   PO1: Students will demonstrate a deep understanding of economic theories of open market.

2. CO2: Students will be able to analyze fiscal and monetary policies in open economy.

   PSO2: Students will be able to apply macroeconomic concepts to analyze real-world issues.

   PO2: Students will develop strong analytical and quantitative skills.

3. CO3: Students will be able to analyze models of economic growth and their implications.

   PSO3: Students will be able to evaluate the impact of economic policies on the economy.

   PO3: Students will be able to critically evaluate economic policies.

4. CO4: Students will be able to apply concepts of investment to real-world scenarios.

   PSO4: Students will develop critical thinking and problem-solving skills in economics.

   PO4: Students will be able to solve real-world economic and financial problems.

5. CO5: Students will be able to communicate macroeconomic ideas effectively.

   PSO5: Students will be able to present economic arguments and findings effectively.

   PO5: Graduates will be able to communicate economic ideas effectively.

33.1.2 Explanation of the Interconnection

COs Contribute to PSOs:

The Course Outcomes (COs) of the Advanced Macroeconomics course are designed to help students achieve the Programme Specific Outcomes (PSOs). For example:

-CO1 (BOP and exchange rate) contributes to PSO1 (deep understanding of macroeconomic theories).

-CO3 (economic growth models) contributes to PSO3 (evaluating the impact of economic policies).

-CO4 (concepts of investment) contributes to PSO4 (critical thinking and problem solving effectively).

PSOs Contribute to POs:

The Programme Specific Outcomes (PSOs) are aligned with the broader Programme Outcomes (POs). For example:

- PSO1(deep understanding of macroeconomic theories) contributes to PO1 (indicating a deep understanding of economic theories).

- PSO2 (applying macroeconomic concepts) contributes to PO2 (developing strong quantitative and analytical skills).

- PSO3 (evaluation of economic policies) contributes to PO3 (critical evaluation of economic policies in the real world).

COs Ultimately Contribute to POs:

Since COs contribute to PSOs, and PSOs contribute to POs, the Course Outcomes (COs) ultimately contribute to the Programme Outcomes (POs). For example:

-CO3 (analyzing the models of economic growth) contributes to PSO3 (evaluation of the impact of economic policies), which in turn contributes to PO3 (critical evaluation of the economic policies).

The interconnection among PO, PSO, and CO ensures that the learning outcomes at each level are aligned and contribute to the overall goals of the programme. The Course Outcomes (COs) of the Advanced Macroeconomics course directly support the Programme Specific Outcomes (PSOs), which in turn contribute to the broader Programme Outcomes (POs). This alignment ensures that students acquire the necessary knowledge, skills, and competencies to succeed in their academic and professional careers. The course prepares students to understand and apply advanced macroeconomic concepts,analyze real-world economic issues, and communicate their ideas effectively.

34 Course Outcome: Financial Economics

The Course Outcomes (COs) for the Financial Economics course involve a theoretical framework which equips the students with the ability to analyze, value, and manage financial instruments and risks, fostering skills in understanding corporate finance, and econometric modeling. These are extremely compatible with the roles in financial and quantitative analysis, consultancy and investment banking. These outcomes are aligned with the given syllabus and focus on financial markets, investment theory and portfolio analysis, derivative market and corporate finance. Below is an elaboration of the Course Outcomes (COs) for the given syllabus:

1. Acquiring knowledge about financial institutions and Markets

- Outcome: The students will grasp the knowledge of the role, features and classifications of the financial market and institutions.
- Elaboration:
  - The students can understand the basic features of financial market and financial institutions
  - They can analyze the types of financial markets
  - They will be able to compare between money and capital market

2. Understanding investment Theory and Portfolio Analysis

- Outcome: The students can acquire the idea of real-world investment scenario and related issues
- Elaboration:
  - The students can ruminate over the deterministic cash-flow streams
  - They can comprehend the basics of risk and risk aversion

- They can analyse the CAPM and it's applications in investment industry

3. Knowledge of Options, future and other derivative instruments

- Outcome: The students can understand the features and mechanisms of options, futures and swaps
- Elaboration:
  - The students will be able to comprehend the different option strategies
  - They can differentiate between put and call option
  - They will be able to discuss the features of future markets.
  - The students will be able to discuss swaps.

4. Basic ideas of Corporate Finance

- Outcome : This topic helps the students to learn the basic ideas of cost of capital , corporate debt and dividend policy
- Elaboration:
  - The students can represent the essence of capital structure and the cost of capital
  - They will be able to discuss corporate debt and dividend policy

34.1 Interconnection Among PO, PSO, and CO

The interconnection among Programme Outcomes (POs), Programme Specific Outcomes (PSOs), and Course Outcomes (COs) for the Financial Economics course can be established as follows:

34.1.1 Mapping COs to PSOs and POs

1. CO1: Students will be able to explain and analyze the basic themes of financial institutions and markets

   PSO1: Students will be able to understand financial theories deeply.

   PO1: Students will demonstrate a deep understanding of economic theories of financial market.

2. CO2: Students will be able to analyze portfolio and investment theories

   PSO2: Students will be able to apply knowledge of interest in financial decision making.

   PO2: Students will develop strong analytical and quantitative skills.

3. CO3: Students will be able to analyze options, futures and derivatives.

   PSO3: Students will be able to evaluate the impact of speculation and hedging.

   PO3: Students will be able to critically evaluate the changes in the derivative market.

4. CO4: Students will be able to apply concepts of investment to real-world scenarios.

   PSO4: Students will develop critical thinking and problem-solving skills in financial economics.

   PO4: Students will be able to solve real-world economic and financial problems.

5. CO5: Students will be well equipped for financial decision making.

   PSO5: Students will be able to ensure optimal financial resource allocation

   PO5: Students will be able to communicate their financial ideas effectively.

34.1.2 Explanation of the Interconnection

COs Contribute to PSOs:

The Course Outcomes (COs) of the Financial Economics course are designed to help students achieve the Programme Specific Outcomes (PSOs). For example

- CO1 (Basic features of financial institution and market) contributes to PSO1 (deep understanding of financial theories).

- CO3 (analysis of future, options) contributes to PSO3 (evaluating the impact of speculation and hedging)

- CO4 (concepts of investment) contributes to PSO4 (critical thinking and problem solving effectively in financial market).

PSOs Contribute to POs:

The Programme Specific Outcomes (PSOs) are aligned with the broader Programme Outcomes (POs). For example:

- PSO1(deep understanding of financial theories) contributes to PO1 (understanding economic theories in financial market)

- PSO2 (knowledge of interest in financial decision making) contributes to PO2 (developing strong quantitative and analytical skills).

- PSO3 (impact of speculation and hedging) contributes to (critical evaluation of changes in derivative market).

COs Ultimately Contribute to POs:

Since COs contribute to PSOs, and PSOs contribute to POs, the Course Outcomes (COs) ultimately contribute to the Programme Outcomes (POs). For example:

- CO3 (analysis of future, options) contributes to PSO3(impact of speculation and hedging), which in turn contributes to PO3 (critical evaluation of the changes in the derivative market).

The interconnection among PO, PSO, and CO ensures that the learning outcomes at each level are aligned and contribute to the overall goals of the programme. The Course Outcomes (COs) of the Financial Economics course directly support the Programme Specifc Outcomes (PSOs), which in turn contribute to the broader Programme Outcomes (POs). This alignment ensures that students acquire the necessary knowledge, skills, and competencies to succeed in their academic and professional careers specifically in financial markets. The course prepares students to understand and apply financial knowledge in real-world financial issues, and communicate their ideas effectively.

35 Course Outcome: Economic Thought

The course outcomes of Economic Thought put emphasis on understanding the historical evolution of economic ideas, comparing major schools of thought , and developing critical, contextual, and analytical perspectives to evaluate modern economic policies and theories in their institutional, social, and political contexts

1.Learning history of economic thought

- **Outcome:** The students will understand the relevance of economic history and distinguish between economic history and history of economic thought

- **Elaboration:**

  - The students can understand the basics of history of economic thought.
  - They can distinguish between economic history and history of economic thought.
  - They will be able to compare between the different approaches to the economic thought.

2. Grasping a comprehensive idea about classical theories of value and distribution

- Outcome: The students can understand the nature of physiocrats and mercantalism and also learn the theories of Adam Smith, Ricardo and Marx.

- Elaboration:

  - The students can gather knowledge about the features of physiocrats and mercantalism.
  - They can understand the relevance of Adam Smith's theory of division of labour

- They will be able to comprehend Ricardo's theory of rent, class conflicts and comparative advantage.
- The students can understand the critique of capitalism as forwarded by Marx.

3. Understanding the evolution of Neo-Classical Paradigm

- Outcome: The students will comprehend the general equilibrium theory and Keynesian economics in a different way
- Elaboration:
  - The students will be able to discuss the General equilibrium theory and Walrasian system
  - They can get a fair idea of Keynesian Economics.

4. Studying the evolution of critical theories

- Outcome: The students can analyse the Post-Keynesian and Marxian theories followed by kalecki's theory of effective demand.
- Elaboration:
  - The Students will be able to indicate the basic essence of Post-Keynesian theories
  - They will be able to explain the Kalecki's theory of effective demand
  - The students will be able to demonstrate Sraffa's critique and Robinson's critique.

5. Knowing the recent developments in Economic Theory and Methodology

- Outcome: Students will develop critical thinking in the context of game theory, institutional, feminist and ecological economics
- Elaboration:
  - Students will understand applications of game theory in economics and Nash equilibrium
  - They will evaluate the role of economic performance in institutional economics.
  - Students will critically assess essence of feminist and ecological economics

35.1 Interconnection Among PO, PSO, and CO

The interconnection among Programme Outcomes (POs), Programme Specific Outcomes (PSOs), and Course Outcomes (COs) for Economic Thought course can be established as follows:

35.1.1 Mapping COs to PSOs and POs

1. CO1: Students will be able to explain and analyze the history of economic thought

   PSO1: Students will be able to understand the basic history deeply.

   PO1: Students can apply this deep understanding of economic thought in other contemporary theories

2. CO2: Students will be able to analyze classical theory of value and distribution.

   PSO2: Students will be able to apply these concepts to analyze real-world issues.

   PO2: Students will develop strong analytical skills

3. CO3: Students will be able to analyze the evolution of Neo-classical paradigm.

   PSO3: Students will be able to relate Walrasian theory in real world scenario.

   PO3: Students will be able to critically evaluate economic theories

4. CO4: Students will be able to analyse the Post-Keynesian and Marxian theories followed by kalecki's theory of effective demand.

   PSO4: Students will develop critical thinking and analytical base.

   PO4: Students will be able to solve real-world economic and structural problems.

5. CO5: Students will be able to know the recent developments in Economic Theory and Methodology

   PSO5: Students will be able to present economic arguments and findings effectively.

   PO5: Graduates will be able to communicate economic ideas effectively.

35.1.2 Explanation of the Interconnection

COs Contribute to PSOs:

The Course Outcomes (COs) of the Economic Thought course are designed to help students achieve the Programme Specific Outcomes (PSOs). For example

-CO1 (learning history of economic thought) contributes to PSO1 (deep understanding of basic theories).

-CO3 (analysing evolution of neo-classical system) contributes to PSO3 (Applying different theories into real world scenario)

PSOs Contribute to POs:

The Programme Specific Outcomes (PSOs) are aligned with the broader Programme Outcomes (POs). For example:

- PSO1(deep understanding of basic theories) contributes to PO1 (application of deep understanding in contemporary economic theories).

- PSO2 (applying the concepts to real economic theories) contributes to PO2 (developing strong analytical skills).

COs Ultimately Contribute to POs:

Since COs contribute to PSOs, and PSOs contribute to POs, the Course Outcomes (COs) ultimately contribute to the Programme Outcomes (POs). For example:

-CO1 (learning history of economic thought) contributes to PSO1 (deep understanding of basic theories), which in turn contributes to PO1 (Application of this deep understanding of economic thought in other contemporary theories).

The interconnection among PO, PSO, and CO ensures that the learning outcomes at each level are aligned and contribute to the overall goals of the programme. The Course Outcomes (COs) of the Economic Thought course directly support the Programme Specific Outcomes (PSOs), which in turn contribute to the broader Programme Outcomes (POs). This alignment ensures that students acquire the necessary knowledge, analytical skills, and competencies to succeed in their academic and professional careers. The course prepares students to understand and apply the knowledge of economic thought in real-world economic issues, and communicate their ideas effectively.

36 Course Outcome: Economic History of India

The Course Outcomes (COs) for the undergraduate Indian Economic History course are specific, measurable statements that describe what students are expected to know, understand, and be able to do by the end of the course. These outcomes are aligned with the syllabus and focus on building a deep understanding of the structural changes in the Indian economy during the colonial period. Below is an elaboration of the Course Outcomes (COs) for the given syllabus:

1. Analysis of Deindustrialization

Outcome: Students will be able to critically analyze the process of deindustrialization in India during the 19th century.

Elaboration:

– Students will evaluate the state of Indian industry before British rule and the impact of British trade policies.

– They will examine the influx of manufactured goods from England and its effect on traditional handicrafts.

– Students will understand the theoretical debates surrounding deindustrialization and the changes in occupational structure. – They will analyze the decline of the artisanal class using historical evidence.

2. Understanding Commercialization of Agriculture and Famines

Outcome: Students will be able to assess the link between the commercialization of agriculture and the occurrence of famines.

Elaboration:

– Students will explain the transition from subsistence farming to cash crop production for export markets.

– They will analyze the vulnerability of the agrarian economy to food scarcity due to commercialization.

– Students will evaluate the role of railway transport in the distribution (or misdistribution) of food grains during famines. – They will critique the colonial famine relief policies and their demographic impact.

3. Evaluation of Economic Drain Theory

Outcome: Students will be able to examine the mechanisms and implications of the economic drain of wealth from India to Britain.

Elaboration:

– Students will define the Drain Theory and understand its various measurement methods.

– They will analyze the concept of export surplus and the "Home Charges." – Students will study foreign trade patterns and the colonial Balance of Payments.

– They will evaluate how the fiscal system was utilized as a tool for economic extraction.

4. Critique of Colonial Land Policies

Outcome: Students will be able to compare and contrast different land revenue settlement systems and their agrarian impact.

Elaboration:

– Students will analyze the Permanent Settlement, Ryotwari, and Mahalwari systems.

– They will evaluate the methods of land revenue demand and collection under each system.

– Students will understand the issues of peasant alienation and the rise of landlordism. – They will assess the long-term structural impacts of these policies on Indian agriculture.

5. Analysis of Industrial Development and Policy

Outcome: Students will be able to trace the early industrial development in India and the role of the Managing Agency System.

Elaboration:

– Students will study the rise of modern industries such as cotton, jute, and steel.

– They will analyze the structure and role of the Managing Agency System in capital mobilization and management.

– Students will evaluate the patterns of entrepreneurship during the colonial period. – They will examine the emergence and composition of the industrial labor force.

6. Understanding Trade, Tariffs, and Protectionism

Outcome: Students will be able to evaluate the shift from free trade to discriminating protection and its impact on economic nationalism.

Elaboration:

– Students will analyze the debate between Free Trade and Protection in the context of the British Empire.

– They will study the tariff policy of the Government of India between 1880 and 1935. – Students will understand the rise of economic nationalism as a response to colonial trade policies.

– They will critique the relationship between trade, tariffs, and imperial preferences.

7. Assessment of Infrastructure and Monetary Policy

Outcome: Students will be able to assess the development of railways and the evolution of currency policy in colonial India.

Elaboration:

– Students will analyze the construction and financing models of the railway network.

– They will evaluate the dual impact of railways—as a social overhead and as an instrument of exploitation.

– Students will trace the struggle between the Silver Standard and Gold Standard.

– They will understand the establishment of the Reserve Bank of India and its implications for monetary stability.

36.1 Interconnection Among PO, PSO, and CO

The interconnection among these three levels of outcomes can be established by mapping how the Course Outcomes (COs) of Indian Economic History contribute to the Program Specific Outcomes (PSOs), which in turn contribute to the Program Outcomes (POs).

Below is an example of this mapping for the Indian Economic History course in our undergraduate Economics major program.

36.1.1 Mapping COs to PSOs and POs

1. CO1: Students will be able to critically analyze the process of deindustrialization. PSO4: Students will demonstrate a comprehensive understanding of the structure, functioning, and challenges of the Indian economy. PO1: Graduates will demonstrate a deep understanding of economic theories and their applications.

2. CO2: Students will be able to assess the link between commercialization and famines. PSO4: Students will analyze India's economic policies and growth trajectory. PO6: Graduates will recognize the ethical and social implications of economic decisions and policies.

3. CO3: Students will be able to examine the mechanisms of economic drain. PSO4: Students will analyze the historical context of India's economic development. PO10: Graduates will be able to analyze and evaluate the effectiveness of economic policies.

4. CO5: Students will be able to trace early industrial development and the Managing Agency System. PSO3: Students will analyze the role of institutions and policies in economic development. PO2: Graduates will develop strong analytical skills to interpret economic data and history.

5. CO6: Students will be able to evaluate the shift from free trade to discriminating protection. PSO12: Students will be able to critically evaluate the effectiveness of economic policies. PO5: Graduates will demonstrate an understanding of global and local economic issues.

6. CO7: Students will be able to assess the development of railways and currency policy. PSO4: Students will study the historical and contemporary issues of the Indian economy. PO8: Graduates will be able to integrate knowledge from other disciplines (e.g., political science, history) to address economic issues.

36.1.2 Explanation of the Interconnection

COs Contribute to PSOs: The Course Outcomes (COs) of the Indian Economic History course are designed to help students achieve the Program Specific Outcomes (PSOs). For example:

– CO1 (Deindustrialization), CO3 (Economic Drain), and CO4 (Land Policies) contribute directly to PSO4 (Knowledge of Indian Economy), as they provide the historical foundation for understanding India's current economic structure.

– CO5 (Industrial Development) and CO6 (Trade Policy) contribute to PSO3 (Understanding of Development Economics), as they explain the historical roots of underdevelopment and industrial policy.

– CO2 (Famines) and CO6 (Protectionism) contribute to PSO12 (Critical Evaluation of Economic Policies), by teaching students to critique the welfare and trade outcomes of colonial rule.

PSOs Contribute to POs: The Program Specific Outcomes (PSOs) are aligned with the broader Program Outcomes (POs). For example:

– PSO4 (Knowledge of Indian Economy) feeds into PO1 (Understanding of Economic Theories) by providing the context for applying economic theories to the Indian scenario.

– The analysis of colonial exploitation and famines in PSO4 and PSO12 directly addresses PO6 (Ethical and Social Responsibility), fostering an awareness of the social dimensions of economic policy.

– Understanding the evolution of trade and monetary policy (PSO12) equips graduates with the skills for PO10 (Policy Analysis and Evaluation).

36.1.3 Example of Interconnection in Practice

Scenario: A graduate working as a Development Economist is tasked with formulating a new industrial policy for the manufacturing sector in India.

1. **Course Outcome (CO) Application:** The graduate applies CO1 (Analysis of Deindustrialization) to understand the historical decline of traditional industries and CO5 (Early Industrial Development) to analyze the historical role of the Managing Agency System and entrepreneurship patterns. They use CO6 (Trade Policy) to draw lessons from the historical shift from free trade to protectionism.

2. **Program Specific Outcome (PSO) Application**: By leveraging this historical context, the graduate demonstrates PSO4 (Knowledge of Indian Economy), identifying deep-rooted structural challenges and institutional legacies that persist from the colonial era. They also utilize PSO12 (Critical Evaluation of Policies) to critique past protectionist measures and propose more effective industrial strategies.

3. **Program Outcome (PO) Application:** This comprehensive historical analysis enables the graduate to fulfill PO10 (Policy Analysis and Evaluation) by designing a policy that avoids historical pitfalls. Furthermore, by considering the social impact of industrialization on labor, they address PO6 (Ethical and Social Responsibility), ensuring the new policy promotes equitable growth.

37 Course Outcome: Research Methodology (I)

The primary goal of this course is to prepare students to successfully pursue independent research with these key outcomes: -

- **Systematic Research:** Understand how to do systematic research to describe, explain and predict phenomenon of interest.
- **Practical Skills:** Gain the practical knowledge and skills necessary to carry out a full research project from start to finish.
- **Tool Mastery:** Master the basic techniques and tools required for professional level data collection and analysis.
- **Effective Reporting:** Learn to organise and present findings through structured reports as well as presentation.

The Course Outcomes (COs) for the Foundations of Research course are designed to equip students with the conceptual, methodological, and ethical foundations necessary to conduct systematic inquiry. These outcomes focus on transforming students into competent researchers capable of navigating the journey from problem identification to the professional dissemination of findings. Below is an elaboration of the Course Outcomes (COs) for the given syllabus:

1. Understanding the Foundations and Process of Research

- Outcome: Students will be able to define the scientific method and distinguish between various research paradigms and reasoning types.
- Elaboration: Students can differentiate between basic, applied, exploratory, and explanatory research.
  - They can apply inductive and deductive reasoning to theoretical frameworks.
  - They will be able to map the entire research process from inception to publication.

2. Mastering Literature Review and Data Sourcing

- Outcome: Students will demonstrate the ability to synthesize existing knowledge and identify critical research gaps using modern tools.
- Elaboration: Students can perform systematic searches across academic databases.
  - They can utilize software tools to manage citations and organize literature.
  - They will be able to evaluate the reliability and comparability of secondary data versus primary data collection.

3. Designing Robust Research Frameworks and Sampling Plans

- Outcome: Students will be able to formulate SMART research questions and select appropriate sampling techniques to ensure study validity.
- Elaboration: Students can design structured and unstructured research instruments like questionnaires and interviews.

  - They can identify and control variables including independent, dependent, and confounding factors.
  - They will be able to justify the choice between probability (stratified, cluster) and non-probability (snowball, purposive) sampling methods.

4. Implementing Qualitative and Quantitative Methodologies

- Outcome: Students will be able to apply diverse methodological lenses to social and scientific phenomena.
- Elaboration: Students can execute qualitative techniques like Ethnography, Case Studies, and Grounded Theory.
  - They can perform thematic coding (Open, Axial, and Selective) for qualitative data analysis.
  - They will understand the basics of experimental design, including randomization and control groups.

5. Upholding Research Ethics and Professional Reporting

- Outcome: Students will conduct research with high academic integrity and communicate findings through standardized academic formats.
- Elaboration: Students will adhere to the Nuremberg Code and Belmont Report principles regarding informed consent and privacy.
  - They can navigate Institutional Review Board (IRB) requirements for ethical approval.
  - They will be able to draft research proposals and format papers using APA, MLA, or Chicago styles.

37.1 Interaction among PO, PSO, and PSO

The interaction among Program Outcomes (POs), Program Specific Outcomes (PSOs), and other PSOs within the department is a tiered relationship of support.

PO (The "Why"): Represents the broad capabilities of a graduate, such as critical thinking, social responsibility, and lifelong learning.

PSO (The "What"): Represents the specialized skills specific to the discipline (e.g., Proficiency in Research Methodology).

Interaction: The PSOs act as the functional application of the POs. For example, a Program Outcome focusing on "Social Ethics" interacts with a Program Specific Outcome focusing on "Fieldwork" to ensure that data collection is conducted humanely and legally.

The interconnection follows a logical hierarchy where each level validates the one above it.

Course Outcomes (COs) are the granular, lesson-specific objectives.

Program Specific Outcomes (PSOs) are the departmental goals that group these lessons into a professional skillset.

Program Outcomes (POs) are the ultimate institutional goals for the student.

37.1.1 Mapping COs to PSOs and POs

1. Mapping of CO1: Students will be able to map the research process and apply scientific methods.

   To PSO1: Students will be able to conceptualize and execute a systematic research plan.

   To PO1: Students will demonstrate mastery of systematic inquiry and logical reasoning.

2. Mapping of CO2: Students will be able to design sampling frames and measurement tools.

   To PSO2: Students will be able to ensure technical accuracy and reliability in data collection.

   To PO2: Students will develop quantitative and analytical proficiency.

3. Mapping of CO3: Students will be able to apply qualitative methodologies like Ethnography and Grounded Theory.

   To PSO3: Students will be able to interpret complex social constructs and subjective data.

   To PO3: Students will demonstrate empathy and depth in understanding human behavior and social systems.

4. Mapping of CO4: Students will be able to adhere to IRB standards and avoid plagiarism.

   To PSO4: Students will be able to practice research within legal and ethical boundaries.

   To PO4: Students will exhibit high levels of professional and academic integrity.

5. Mapping of CO5: Students will be able to draft proposals and use APA/MLA citation styles.

   To PSO5: Students will be able to communicate complex findings to the academic community.

   To PO5: Students will demonstrate effective communication and dissemination skills.

37.1.2 Explanation of the Interconnection

COs Contribute to PSOs:

The Course Outcomes are designed to help students achieve the PSOs. For instance, CO2 (designing sampling techniques) directly builds PSO2 (technical accuracy in data collection). Without mastering the specific tools in the course, a student cannot reach the program-specific goal of being a competent data collector.

PSOs Contribute to POs:

The Program Specific Outcomes are aligned with the broader Program Outcomes. For example, PSO4 (practicing research within ethical boundaries) contributes to PO4 (exhibiting professional integrity). The specific ability to navigate an Ethics Committee (PSO) is how a student proves they have attained the broader institutional value of integrity (PO).

COs Ultimately Contribute to POs:

Since COs feed into PSOs, and PSOs feed into POs, the Course Outcomes ultimately fulfill the Program Outcomes. For example, CO5 (learning citation styles) contributes to PSO5 (academic communication), which in turn contributes to PO5 (effective dissemination skills).

This alignment ensures that every lecture in the "Foundations of Research" syllabus directly serves the goal of producing a graduate who is ethically grounded, analytically sharp, and professionally communicative.

38 Course Outcome: Research Methodology (II)

- **Model Formulation and Estimation:** Developing appropriate econometric models (MLRM, LPM, Logit, Probit etc) using cross-section data to analyse both quantitative and qualitative variables and their estimation using OLS and MLE techniques.
- **Choice of Model:** Imparting basic guideline for appropriate choice of models depending on the research question and nature of data.
- **Trend Fitting:** Providing a basic idea about time series and its components along with trend fitting, detrending and de-seasonalization of data.
- **Software Proficiency:** Utilizing statistical software such as R and STATA, for data manipulation, visualization, and estimation.
- **Interpretation and Evaluation:** Interpreting regression results and testing hypotheses to assess economic theories.
- **Regression Diagnostics:** Identifying and addressing econometric issues like multicollinearity, heteroskedasticity, micro numericity and omitted variable and their contribution towards OLS variance.
- **Causal Inference:** Initiating basic concept of causality using the technique of randomised trials
- **Research Application:** Conducting independent research, interpreting empirical literature, and presenting findings to recommend policy implications.

The Course Outcomes (COs) for this econometrics module focus on bridging mathematical theory with empirical application. Students are expected to move beyond simple correlations to understand the mechanics of multiple regression, the nuances of qualitative data, and the rigor of causal inference. Below is an elaboration of the Course Outcomes (COs) for the given syllabus:

1. Mastery of Multiple Linear Regression Models (MLRM)

- Outcome: Students will be able to interpret and apply the k-variable matrix representation of OLS and understand its asymptotic properties.
- Elaboration:
  - Students can conceptualize the two-variable and three-variable cases as subsets of the broader k-variable framework.
  - They will be able to explain the intuition behind OLS asymptotic properties without relying solely on formal proofs.
  - They can analyze model restrictions and their impact on parameter estimation.

2. Diagnosis of Model Specification and Variance Components

- Outcome: Students will demonstrate the ability to identify and correct issues like Omitted Variable Bias (OVB), multicollinearity, and heteroscedasticity.
- Elaboration:
  - Students can evaluate the trade-off between multicollinearity and OVB when deciding whether to include or drop variables.
  - They will be able to interpret the components of OLS variance, including the impact of micronumerosity and sample variation.
  - They can apply robust regression techniques and data scaling (logarithmic/quadratic forms) to improve model fit.

3. Application of Qualitative Dependent Variable Models

- Outcome: Students will be able to differentiate between Linear Probability Models (LPM) and non-linear alternatives like Logit and Probit.
- Elaboration:
  - Students can identify the inherent disadvantages of LPM, such as non-normality and heteroscedasticity.
  - They will be able to interpret Odds Ratios (OR) and calculate marginal effects at means or specific values.
  - They can explain the conceptual basis of Maximum Likelihood Estimation (MLE) in the context of binary choices.

4. Analyzing Time Series and Complex Regression Structures

- Outcome: Students will understand the nature of stationary vs. non-stationary data and be able to select appropriate models for specific research questions.
- Elaboration:
  - Students can execute de-trending and de-seasonalization techniques on time series data.
  - They can identify when to use specialized models like Tobit, Heckman, or Poisson based on the data type (censored, selection bias, or count data).
  - They will be able to recognize simultaneity bias and the identification problem in simultaneous equation models.

5. Foundations of Causal Inference and Experimental Design

- Outcome: Students will develop a critical understanding of the "Path from Cause to Effect" through randomized trials.
- Elaboration:
  - Students can distinguish between mere association and true causality.
  - They will understand the logic of randomized controlled trials (RCTs) as the gold standard for causal inference.

38.1 Interaction among PO, PSO, and PSO

In an Econometrics context, the interaction is highly technical.

PO (The "Why"): Focuses on "Analytical Thinking" and "Policy Evaluation."

PSO (The "What"): Focuses on "Econometric Modeling" and "Data Interpretation."

Interaction: A Program Specific Outcome involving "Matrix Algebra in Economics" interacts with another PSO focusing on "Statistical Software Proficiency." Together, they fulfill the Program Outcome of "Quantitative Research Readiness." You cannot have one without the other to produce a valid economic analysis.

The interconnection is structured to ensure that specific econometric tools (COs) build specialized researcher competencies (PSOs) that eventually manifest as broad professional expertise (POs).

38.1.1 Mapping COs to PSOs and POs

1. Mapping of CO1 & CO2: Mastery of OLS, OVB, and Variance Components.

   To PSO1: Students will be able to build technically sound and bias-free econometric models.

   To PO1: Students will develop advanced quantitative and analytical skills for real-world problem solving.

2. Mapping of CO3: Qualitative Dependent Variables (Logit/Probit).

   To PSO2: Students will be able to analyze discrete choice behavior and social phenomena.

   To PO2: Students will demonstrate the ability to evaluate social and economic policies using non-linear modeling.

3. Mapping of CO4: Time Series and Specialized Models (Tobit/Heckman).

   To PSO3: Students will be able to handle complex data structures (censored, longitudinal, and count data).

   To PO3: Students will be equipped to conduct high-level academic and industrial research.

4. Mapping of CO5: Causal Inference and Randomized Trials.

   To PSO4: Students will be able to design and interpret experimental research frameworks.

   To PO4: Students will exhibit critical thinking regarding policy impact and effectiveness.

38.1.2 Explanation of the Interconnection

COs Contribute to PSOs:

The specific lessons on OLS properties and OVB (CO1 & CO2) are the building blocks for the Program Specific Outcome of "Econometric Proficiency" (PSO1). Without understanding how omitted variables bias a coefficient, a student cannot fulfill the specific departmental requirement of being a competent data analyst.

PSOs Contribute to POs:

The ability to handle complex data like Time Series or Count Data (PSO3) contributes to the broader Program Outcome of "Professional Research Readiness" (PO3). A student who has mastered these specific tools is now capable of fulfilling the program's general goal of producing graduates who can contribute to the global knowledge economy.

COs Ultimately Contribute to POs:

The journey starts with understanding a Logit model (CO3), which builds the ability to analyze choice behavior (PSO2), which ultimately allows a graduate to fulfill the Program Outcome of "Effective Policy Evaluation" (PO2). This ensures that every hour of the 45-hour lecture schedule is aligned with the graduation profile of a modern economist.

39 Course Outcome: Advanced Indian Economics

The Course Outcomes (COs) for the Advanced Indian Economics course specifically emphasized the areas of Indian economy what students are expected to know, understand, assimilate and be able to apply the knowledge in economic policy making. These outcomes are very much interlinked with the given syllabus and focus on building advanced knowledge on Indian economic problems and associated remedies and policy measures.

Below is an elaboration of the Course Outcomes (COs) for the given syllabus:

1. Understanding Post – Reform performance of Indian Economy

Outcome: The students will critically evaluate the policy of economic reforms, redefine the development strategy and understand the changing role of market and state. T

Elaboration:

- The students can critically evaluate the economic reform policy
- They can redefine the development strategy
- They will be able to analyse the changing role of state and market

2. Grasping a broader idea about India's growth and sectoral performance

Outcome: The students will be able to understand the structural change along with different issues related to growth and productivity in primary, secondary and tertiary sector.

Elaboration:

- The students can distinguish between the changes occurred in primary, secondary and tertiary sectors
- They can understand the growth of the agricultural sector and the distribution mechanism
- They will be able to comprehend the productivity and growth issues in the manufacturing sector
- The students will be able to study the reasons, impact and implications of service-led growth
- They will identify the basic essence of inclusive growth in 11 th and 12 th plan

3. Studying the current and future issues related to employment and income with a deeper insight

Outcome: The students can understand the current employment scenario of India and predict the future implications

Elaboration:

- The students can critically assess the present employment strategy
- They can learn how to measure the extent of unemployment
- They can predict the future trends looking upon the present initiatives
- The students can get fair idea about livelihood security, National Urban Livelihood Mission, and VB G RAM G

4. Studying the issue of food security in India

Outcome: The students will be able to differentiate the nature of food insecurity in rural and urban India and learn the features of public distribution system.

Elaboration:

- The Students will be able to indicate the basic difference between food insecurity in rural and urban India.
- They will be able to explain the public distribution system in India

5. Assessing the relationship between environment and development an related issues

Outcome: Students will develop critical thinking about the sustainable development

Elaboration:

- Students will identify the role of environment in securing development in India.
- They will critically assess the conditions of sustainable development

39.1 Interconnection Among PO, PSO, and CO

The interconnection among Programme Outcomes (POs), Programme Specific Outcomes (PSOs), and Course Outcomes (COs) for the Advanced Macroeconomics (III) course can be established as follows:

39.1.1 Mapping COs to PSOs and POs

1. CO1: Students will be able to explain and analyze the development strategies in post economic reform period in India

   PSO1: Students will be able to understand changing role of state and market

   PO1: Students will demonstrate a deep understanding of economic theories of development

2. CO2: Students will be able to analyze growth and productivity issues of different sectors

   PSO2: Students will be able to identify sectoral contribution

   PO2: Students will develop strong analytical minds to assess the indicators of growth in different sectors

3. CO3: Students will be able to analyze the measurement and incidence of unemployment

   PSO3: Students will be able to evaluate the impact of unemployment in the economy.

   PO3: Students will be able to critically evaluate economic policies for employment generation.

4. CO4: Students will be able to justify the role of public distribution system in ensuring foodsecurity

   PSO4: Students will develop critical thinking on policy making in rural and urban areas.

   PO4: Students will be able to formulate the policies ensuring economic well-being

5. CO5: Students will be able to communicate the role of environment in sustainable economic development

   PSO5: Students will be able to present economic arguments and findings in an effective manner .

   PO5: Students will be able to apply economic ideas to combat environmental pollution

39.1.2 Explanation of the Interconnection

COs Contribute to PSOs:

The Course Outcomes (COs) of the Advanced Indian Economics course are designed to help students achieve the Programme Specific Outcomes (PSOs). For example

-CO1 (development strategies in post economic reform period) contributes to PSO1 (changing role of state and market).

-CO3 (measurement and incidence of unemployment) contributes to PSO3 (evaluate the impact of unemployment).

-CO4 (role of public distribution system in ensuring food security) contributes to PSO4 (critical thinking on policy making in rural and urban areas).

PSOs Contribute to POs:

The Programme Specific Outcomes (PSOs) are aligned with the broader Programme Outcomes (POs). For example:

- PSO1(changing role of state and market) contributes to PO1 (deep understanding of economic theories of development).

- PSO2 (identification of sectoral composition) contributes to PO2 (assessment of the indicators of growth in different sectors).

- PSO3 (evaluation of the impact of unemployment) contributes to PO3 (critical evaluation of economic policies for employment generation).

COs Ultimately Contribute to POs:

Since COs contribute to PSOs, and PSOs contribute to POs, the Course Outcomes (COs) ultimately contribute to the Programme Outcomes (POs). For example:

-CO5 (communication regarding the role of environment in sustainable economic development) contributes to PSO5 (presentation of economic arguments and findings in an effective manner), which in turn contributes to PO5 (application of economic ideas to combat environmental pollution).

The interconnection among PO, PSO, and CO ensures that the learning outcomes at each level are aligned and contribute to the overall goals of the programme. The Course Outcomes (COs) of the

Advanced Indian Economics course directly support the Programme Specific Outcomes (PSOs), which in turn contribute to the broader Programme Outcomes (POs). This alignment ensures that students acquire the necessary knowledge, skills, and competencies to succeed in policy making and planning . The course prepares students to understand and apply deep knowledge of Indian economy into real world policy prescriptions and effective analysis of economic problems.

40 Course Outcome: Research Internship

A research internship is a structured, programme where students work under a supervisor which focuses on conducting experiments, literature reviews, data collection, and analysis to explore specific problems

40.1 Course Outcomes (COs)

The COs represent the outcomes evolved in research internship

- CO1 : Ability to find research problem
- CO2 : Sincere conduction of a comprehensive literature reviews.
- CO3 : Formulation of research problem
- CO4 : Ability to collect data and choice of appropriate methodology and suitable tools

40.2 2. Program Outcomes (POs)

The POs describe the skills and knowledge acquired by a student after completion of the course.

- PO1 : Ability to understand the research problem
- PO2 : Ability to choose between primary and secondary data
- PO3 : Choice of proper tools and research techniques

40.3 3. Program Specific Outcomes (PSOs)

PSOs are designated to a specific discipline and depict the scope of the students in that particular discipline.

- PSO 1: The students will be able to apply the discipline-specific knowledge in solving real life problems.
- PSO 2: The students will be able to prepare questionnaire in order to collect data

Interaction among POs, COs and PSOs: From the above analysis we can understand the close interlinkage among the POs, COs and PSOs.

41 Course Outcome: Development Studies

The Course Outcomes (COs) for the undergraduate Development Studies course are specific, measurable statements that describe what students are expected to know, understand, and be able to do by the end of the course. These outcomes are aligned with the syllabus and focus on building a critical understanding of development theories, ethical frameworks, and applied sectoral analysis. Below is an elaboration of the Course Outcomes (COs) for the given syllabus:

1. Understanding the Evolution of Development Thought

- Outcome: Students will be able to trace the historical trajectory of development doctrines and policy regimes from 1900 to the present.
- Elaboration:

– Students will analyze the shift from growth-centric and industrialization models to basic needs approaches and structural adjustment.
– They will evaluate the rise and fall of developmentalist state models versus market-oriented approaches.
– Students will understand the intellectual roots of development, transitioning from classical political economy to neoclassical and institutional thinking.
– They will critique the historical context of developed nations using the "Kicking Away the Ladder" framework.

2. Analyzing Ethical Foundations and Justice

- Outcome: Students will be able to compare and evaluate different ethical frameworks regarding efficiency, justice, and equality.

- Elaboration:

– Students will examine the tension between economic efficiency and distributive justice.
– They will critique utilitarian foundations and explore contractarian justice (Rawls' theory of justice as fairness).
– Students will analyze Roemer's approach to equality of opportunity, distinguishing between circumstances and effort.
– They will compare Rawlsian distributive justice with Sen's capability approach.

3. Applying the Capability Approach

- Outcome: Students will be able to apply the Capability Approach to redefine the goals of development beyond income.

- Elaboration:

– Students will explain the transition from opulence (wealth) to utility and finally to capability and functionings.
– They will analyze the intrinsic and instrumental roles of freedom in development.
– Students will distinguish between income poverty and capability deprivation.
– They will evaluate the complex relationship between market mechanisms and individual freedoms.

4. Evaluating State, Market, and Institutional Roles

- Outcome: Students will be able to critically assess the dynamics between the state, market, and non-market institutions in development.

- Elaboration:

– Students will identify conditions of market failure (public goods, externalities) and government failure (bureaucracy, rent-seeking).
– They will analyze the role of non-market institutions, such as community networks and social norms.
– Students will compare country experiences (e.g., East Asia vs. Latin America) regarding state-market interactions.
– They will evaluate post-war evolution of global inequality and Piketty's analysis of capital concentration (r>g).

5. Application to Sectors: Health, Education, and Gender

- Outcome: Students will be able to apply development theories to specific sectors like health, education, and gender.

- Elaboration:

– Students will analyze education and health not just as human capital but as capabilities and freedoms.
– They will evaluate the "poverty trap" of ill-health and the role of public health systems.
– Students will apply theories of justice to gender inequality, analyzing women's agency and labor force participation.
– They will assess specific development interventions such as Conditional Cash Transfers (CCTs), Microfinance, and Randomized Control Trials (RCTs).

6. Critical Thinking and Policy Analysis

- Outcome: Students will be able to synthesize theoretical knowledge to critique and propose evidence-based development policies.

- Elaboration:

– Students will integrate concepts from ethics, history, and economics to analyze real-world development challenges.

– They will critically assess the effectiveness of international aid and policy advice given to developing nations.

– Students will demonstrate the ability to conduct interdisciplinary analysis to address complex issues like poverty and inequality.

41.1 Interconnection Among PO, PSO, and CO

The interconnection among these three levels of outcomes can be established by mapping how the Course Outcomes (COs) of Development Studies contribute to the Program Specific Outcomes (PSOs), which in turn contribute to the Program Outcomes (POs).

Below is an example of this mapping for the Development Studies course in our undergraduate Economics major program.

41.1.1 Mapping COs to PSOs and POs

1. CO1: Students will be able to trace the historical trajectory of development doctrines. PSO3: Students will analyze issues such as poverty, inequality, human development, and sustainable development. PO1: Graduates will demonstrate a deep understanding of fundamental and advanced economic theories.

2. CO2: Students will be able to compare ethical frameworks regarding justice and equality. PSO12: Students will be able to critically evaluate the effectiveness of economic policies and their impact on society. PO6: Graduates will recognize the ethical and social implications of economic decisions and policies.

3. CO3: Students will be able to apply the Capability Approach to redefine development goals. PSO3: Students will analyze the role of policies and institutions in promoting development. PO10: Graduates will be able to analyze and evaluate the effectiveness of economic policies.

4. CO4: Students will be able to assess the dynamics between the state, market, and institutions. PSO12: Students will be able to critically evaluate economic policies. PO5: Graduates will demonstrate an understanding of global and local economic issues and their interconnections.

5. CO5: Students will be able to apply theories to health, education, and gender sectors. PSO3: Students will evaluate the role of institutions, policies, and globalization in economic development. PO6: Graduates will recognize the ethical and social implications of economic decisions.

41.1.2 Explanation of the Interconnection

COs Contribute to PSOs: The Course Outcomes (COs) of the Development Studies course are designed to help students achieve the Program Specific Outcomes (PSOs). For example:

– CO1 (Evolution of Thought) and CO3 (Capability Approach) contribute directly to PSO3 (Understanding of Development Economics), by providing the theoretical and historical basis for analyzing development issues.

– CO2 (Ethical Foundations) and CO4 (State and Market) contribute to PSO12 (Critical Evaluation of Economic Policies), enabling students to judge the equity and efficiency of different development strategies.

– CO5 (Sectoral Applications) reinforces PSO3 by applying abstract theories to concrete problems like health and education disparities.

PSOs Contribute to POs: The Program Specific Outcomes (PSOs) are aligned with the broader Program Outcomes (POs). For example:

– PSO3 (Understanding of Development Economics) feeds into PO1 (Understanding of Theories) and PO10 (Policy Analysis), ensuring graduates can apply development theory to real-world policy problems.

– The focus on ethics, equity, and social justice in PSO3 and PSO12 directly addresses PO6 (Ethical and Social Responsibility), fostering graduates who are conscious of the social impact of economic policies.

– Analyzing global inequality and state-market interactions (PSO12) contributes to PO5 (Awareness of Global and Local Issues).

41.1.3 Example of Interconnection in Practice

Scenario: A graduate working as a Development Officer for an NGO is tasked with designing a program to improve female literacy in a rural region.

1. Course Outcome (CO) Application: The graduate applies CO3 (Capability Approach) to argue that improving literacy is not just about increasing human capital for economic growth, but about expanding the women's intrinsic freedoms and capabilities. They use CO5 (Application to Sectors) to analyze specific barriers like gender norms and health issues, and consider interventions like CCTs.
2. Program Specific Outcome (PSO) Application: By grounding the program in the Capability Approach, the graduate demonstrates PSO3 (Understanding of Development Economics), specifically focusing on human development and the role of institutions. They also use PSO12 to critically evaluate whether past top-down policies have failed and why a community-based approach might be better.
3. Program Outcome (PO) Application: This design allows the graduate to fulfill PO6 (Ethical and Social Responsibility) by prioritizing the agency and dignity of the women involved. Furthermore, the rigorous analysis of the program's potential impact aligns with PO10 (Policy Analysis and Evaluation), ensuring the intervention is evidence-based and effective.

42 Project

Project is one of the important parts of the syllabus in the context of Outcome-Based Education (OBE) which is closely associated to academic research. It refers to a report which provides a policy prescription for a research problem. In order to evaluate a student's research aptitude, practical application of knowledge and problem solving skills PO, CO and PSOs are the most important tools.

42.1 Course Outcomes (COs)

The COs represent the outcomes evolved after completion of the project.

- CO1 : Ability to identify research topic for the project
- CO2 : Sincere conduction of a comprehensive literature reviews.
- CO3 : Formulation of research problem
- CO4 : Ability to collect data and choice of appropriate methodology and suitable tools
- CO5 : Data analysis and and interpretation of results
- CO6 : Policy prescriptions
- CO7 : Learning of preparing bibliography
- CO8 : Preparation of a technical report and presentation

42.2 Program Outcomes (POs)

The POs describe the skills and knowledge acquired by a student after completion of the course.

- PO1 : Ability to solve the basic research problems
- PO2 : Acquiring the skills for problem solving
- PO3 : Determining the solutions to the problems
- PO4 : Application of research-based knowledge for data interpretation.
- PO5 : Choice of proper tools and research techniques
- PO6 : Adoption of proper communication skills to explain the whole project

42.3 Program Specific Outcomes (PSOs)

PSOs are designated to a specific discipline and depict the scope of the students in that particular discipline.

- PSO 1: The students will be able to apply the discipline-specific knowledge in solving real life problems.
- PSO 2: The students can handle relevant problem solving software and other tools.

Interaction among POs, COs and PSOs: From the above analysis we can understand the close interlinkage among the POs, COs and PSOs.

43 Dissertation

Dissertation is one of the integral parts of the syllabus in the context of Outcome-Based Education (OBE) which promotes academic research. It refers to a project or thesis course with high credit points. In order to evaluate a student's research aptitude, practical application of knowledge and problem solving skills PO, CO and PSOs are the most important tools.

43.1 Course Outcomes (COs)

The COs depict the outcomes evolved after completion of the dissertation.

1. CO1 : Identification of research area and planning for future progress
2. CO2 : Conduction of a comprehensive literature reviews.
3. CO3 : Identification of research gap and formulation of research problem
4. CO4 : Choice of appropriate methodology and suitable tools
5. CO5 : Data analysis and and interpretation of results
6. CO6 : Policy prescriptions
7. CO7 : Preparation of a technical report and presentation

43.2 Program Outcomes (POs)

The POs describe the skills and knowledge acquired by a student after completion of the course.

1. PO1 : Ability to solve the complex research problems
2. PO2 : Acquiring the skills for problem solving
3. PO3 : Determining the solutions to the problems
4. PO4 : Application of research-based knowledge for data interpretation.
5. PO5 : Choice of proper tools and research techniques
6. PO6 : Adoption of proper communication skills to explain the whole dissertation

43.3 Program Specific Outcomes (PSOs)

PSOs are designated to a specific discipline and depict the scope of the students in that particular discipline.

- PSO 1: The students will be able to apply the discipline-specific knowledge in solving real life problems.
- PSO 2: The students can handle relevant problem solving software and other tools.

Interaction among POs, COs and PSOs: From the above analysis we can understand the close interlinkage among the POs, COs and PSOs.

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44 Future Prospects with Economics

The future for an undergraduate Economics student in India is promising, given the country's rapid growth as a global economic powerhouse. With India's focus on digital transformation, sustainability, and global trade, economists are in demand across diverse sectors. Career paths include private roles like financial analysts, consultants, or data scientists in firms like Deloitte or Amazon; public sector jobs with RBI, IES, or NITI Aayog; and research opportunities in think tanks like ICRIER or international bodies like the World Bank. Emerging fields such as environmental economics, behavioral economics, and fintech further broaden prospects, especially for those with interdisciplinary skills.

To thrive, students should hone quantitative skills, pursue internships, and consider master's degrees from institutes like CU, JU, ISI, IIT, DSE or JNU for specialization. While competition for prestigious roles and urban-centric opportunities pose challenges, upskilling in data analysis and policy expertise can ensure success. By aligning with India's economic priorities—digitalization, green growth, and job creation—graduates can build impactful careers in a dynamic job market, and can contribute to Indian economy.The undergraduate Economics syllabus from the University of Calcutta offers a comprehensive foundation in economic theory, quantitative methods, and applied economics.

Students of Economics equip themself with a blend of theoretical rigor, quantitative skills, and applied knowledge, opening diverse career avenues:

1. **Public Sector:**
   (a) Civil Services (IAS, IFS, IRS via UPSC)
   (b) Economic Services (Indian Economic Service, RBI Grade B)
   (c) Statistical Services (ISSO, NSSO)
2. **Private Sector:**
   (a) Consulting (McKinsey, BCG, Deloitte)
   (b) Banking and Finance (HDFC, ICICI, Goldman Sachs)
   (c) Data Analytics and Tech (Amazon, Google, TCS)
   (d) Market Research (Nielsen, Ipsos)
3. **International Organizations:**
   (a) Economist or Analyst roles (World Bank, IMF, UN)
   (b) Development Specialist (UNDP, ADB, IFC)
4. **Academia and Research:**
   (a) PhD and Professorship (IITs, IIMs, Foreign Universities)
   (b) Research Fellow (NIPFP, ICRIER, IGIDR)
5. **Development and NGO Sector:**
   (a) Program Managers (Oxfam, CARE India)
   (b) Policy Advisors (NITI Aayog, State Governments)
6. **Entrepreneurship:**
   (a) Startups in EdTech, FinTech, or Social Enterprises
   (b) Consulting for SMEs and rural businesses

Below, we outline the future prospects and career options for each paper (course), detailing how each subject equips students with skills applicable to various professional fields.

44.1 Microeconomics (I)

1. **Content Overview: Introduces the scope of economics, utility theory, demand and supply, market adjustments, and elasticity, emphasizing individual decision-making and market interactions without calculus.**
2. **Skills Gained:**
   - Analytical thinking for understanding consumer behavior and market dynamics.
   - Ability to interpret demand and supply shifts and elasticities.
   - Problem-solving through diagrammatic and intuitive analysis.
3. **Future Prospects:**
   - Economics and Policy Analysis: Understanding microeconomic principles is foundational for roles in policy analysis, where professionals assess how policies affect markets (e.g., tax policies, subsidies).
   - Market Research: Skills in demand analysis are valuable for market research analysts who study consumer preferences and market trends.
   - Consulting: Microeconomic insights aid in consulting roles, advising firms on pricing strategies or market entry.
4. **Career Options:**
   - Policy Analyst (Government, Think Tanks like Centre for Policy Research)
   - Market Research Analyst (Firms like Nielsen, Kantar)
   - Economic Consultant (McKinsey, BCG, PwC)
   - Corporate Strategist (FMCG, Retail sectors)
   - Preparation for competitive exams (IAS, IES, RBI Grade B)

44.2 Introductory Statistics & Application (I)

1. **Content Overview: Covers basics of statistics, data collection, presentation, and descriptive statistics (central tendency, dispersion, skewness, kurtosis, correlation, regression).**
2. **Skills Gained:**
   - Data collection and presentation skills (tabular, graphical).
   - Statistical analysis for summarizing data (mean, median, variance).
   - Basic bivariate analysis for understanding relationships between variables.
3. **Future Prospects:**
   - Data Analysis: Foundational statistics skills are crucial for data analyst roles across industries, interpreting economic and social data.
   - Research: Prepares students for research assistant roles in academia or think tanks, analyzing economic data.
   - Business Intelligence: Understanding data trends supports roles in business analytics, aiding corporate decision-making.
4. **Career Options:**
   - Data Analyst (Banking, E-commerce like Amazon, Flipkart)
   - Research Assistant (Universities, NITI Aayog)
   - Business Analyst (TCS, Infosys, Accenture)
   - Statistical Analyst (Government agencies like NSSO)
   - Actuarial Analyst (Insurance firms like LIC, ICICI Prudential)

44.3 Economic Data Analysis and Report Writing

1. **Content Overview: Focuses on tabular/graphical data representation, descriptive statistics, and report writing, emphasizing practical data analysis and communication.**
2. **Skills Gained:**
   - Proficiency in visualizing data (charts, histograms, Lorenz curves).
   - Report writing for clear communication of findings.
   - Application of statistical measures to economic problems like inequality.
3. **Future Prospects:**
   - Economic Journalism: Report writing skills are valuable for communicating economic insights to a broader audience.
   - Policy Research: Data visualization and interpretation skills support roles in policy evaluation.
   - Corporate Reporting: Companies value professionals who can analyze and present data clearly for strategic planning.
4. **Career Options:**
   - Economic Journalist (The Economic Times, Business Standard)
   - Policy Researcher (Institute for Economic Growth, ICRIER)
   - Data Visualization Specialist (Consulting firms, NGOs)
   - Corporate Analyst (Reliance, Aditya Birla Group)
   - Content Developer for Economic Reports (UNDP, World Bank)

44.4 Entrepreneurship and Development

1. **Content Overview: Explores entrepreneurship, its role in economic development, financial resources, growth strategies, and issues like industrial sickness.**
2. **Skills Gained:**
   - Understanding of entrepreneurial ecosystems and economic development linkages.
   - Knowledge of financing and growth strategies for small businesses.
   - Problem-solving for rural and small-scale entrepreneurship challenges.
3. **Future Prospects:**
   - Entrepreneurship: Equips students to start their own ventures, particularly in rural or social entrepreneurship.
   - Development Sector: Prepares for roles in NGOs or government programs promoting entrepreneurship.
   - Business Development: Skills in growth strategies are applicable in corporate business development roles.
4. **Career Options:**
   - Entrepreneur (Startups, Social Enterprises)
   - Development Consultant (NGOs like PRADAN, SEWA)
   - Business Development Manager (SMEs, Corporates)
   - Project Coordinator (SIDBI, NABARD)
   - Policy Advisor for MSMEs (Ministry of MSME)

44.5 Elementary Economics

1. **Content Overview: Introduces basic microeconomic and macroeconomic concepts, economic development indicators, and Indian economic reforms.**
2. **Skills Gained:**
   - Broad understanding of economic principles (demand, supply, GDP, inflation).
   - Awareness of development metrics (HDI, Gini) and Indian policy reforms.
   - Ability to connect economic theory to real-world issues.
3. **Future Prospects:**
   - Generalist Roles: Provides a foundation for roles requiring economic literacy, such as in administration or journalism.
   - Public Sector: Prepares for competitive exams needing economic knowledge.
   - Corporate Training: Useful for entry-level roles requiring economic awareness.
4. **Career Options:**
   - Civil Servant (IAS, IPS via UPSC)
   - Economic Content Writer (Online platforms, EdTech like Unacademy)
   - Junior Analyst (Banks, Financial Institutions)
   - NGO Worker (Focus on development projects)
   - CSR Coordinator (Corporates like Tata, Infosys)

44.6 Macroeconomics (I)

1. **Content Overview: Covers national income accounting, simple Keynesian model, classical system, investment theory, and inflation basics.**
2. **Skills Gained:**
   - Understanding of macroeconomic aggregates (GDP, NNP) and their measurement.
   - Analysis of income determination and multiplier effects.
   - Insight into inflation and classical economic theories.
3. **Future Prospects:**
   - Economic Policy: Knowledge of macroeconomic models aids in designing fiscal and monetary policies.
   - Financial Analysis: Understanding national income supports roles in banking and finance.
   - Research: Prepares for macroeconomic research in government or academia.
4. **Career Options:**
   - Economic Policy Analyst (RBI, Finance Ministry)
   - Financial Analyst (Banks like SBI, HDFC)
   - Research Associate (EPW, NIPFP)
   - Budget Analyst (Government, Corporates)
   - Economist (International organizations like IMF)

44.7 Introductory Statistics & Application (II)

1. **Content Overview: Focuses on economic data types (cross-section, time series), field survey methods, and practical applications using Microsoft Excel.**
2. **Skills Gained:**
   - Proficiency in handling different data types and survey methods.
   - Excel-based data analysis (sorting, filtering, descriptive statistics).
   - Visualization skills (charts, histograms, scatter diagrams).
3. **Future Prospects:**
   - Data Science: Excel proficiency is a stepping stone to advanced data analytics roles.
   - Survey Research: Skills in field surveys are valuable for market and social research.
   - Business Analytics: Data visualization supports strategic decision-making in firms.
4. **Career Options:**
   - Data Scientist (Entry-level, Tech firms like Wipro, Cognizant)
   - Survey Researcher (ORF, CSDS)
   - Business Intelligence Analyst (E-commerce, Retail)
   - Statistical Consultant (Government projects, NSSO)
   - Excel Trainer (EdTech, Corporate training)

44.8 Microeconomics (II)

1. **Content Overview: Advances consumer behavior (demand curves, income/substitution effects), production, costs, perfect competition, and input markets.**
2. **Skills Gained:**
   - Deeper analysis of consumer preferences and firm behavior.
   - Understanding production functions and cost structures.
   - Application of competitive market dynamics to real-world scenarios.
3. **Future Prospects:**
   - Industry Analysis: Production and cost knowledge aids in analyzing firm efficiency.
   - Labor Economics: Input market insights support HR and labor policy roles.
   - Advanced Studies: Prepares for postgraduate studies in microeconomics or industrial organization.
4. **Career Options:**
   - Industry Analyst (FICCI, CII)
   - Labor Economist (ILO, Ministry of Labor)
   - Strategy Consultant (Deloitte, EY)
   - Academic Researcher (IITs, IIMs)
   - Pricing Analyst (Telecom, Airlines)

44.9 Development Economics (I)

1. **Content Overview: Introduces development economics, poverty, inequality, dual economy models, and financial inclusion.**
2. **Skills Gained:**
   - Analysis of poverty and inequality metrics (Gini, HDI, MPI).
   - Understanding development strategies (Lewis model, balanced growth).
   - Knowledge of financial inclusion and its economic impact.
3. **Future Prospects:**
   - Development Sector: Core for roles in poverty alleviation and development projects.
   - International Organizations: Knowledge of global development metrics aids in UN/World Bank roles.
   - Microfinance: Financial inclusion focus supports careers in microfinance institutions.
4. **Career Options:**
   - Development Economist (UNDP, Oxfam)
   - Program Manager (NGOs, World Vision)
   - Microfinance Specialist (Bandhan Bank, SKS Microfinance)
   - Policy Advisor (NITI Aayog, State Governments)
   - Researcher (IDS, Sussex, or local institutes)

44.10 Data Analysis and Research Methodology

1. **Content Overview: Covers sampling techniques, data recording/validation, report writing, and Power Query/Power BI basics.**
2. **Skills Gained:**
   - Sampling and survey design for robust data collection.
   - Advanced data analysis using Excel and Power BI.
   - Research methodology for structured report writing.
3. **Future Prospects:**
   - Research and Analytics: Sampling and Power BI skills are in demand for advanced research roles.
   - Data Visualization: Power BI proficiency supports business intelligence roles.
   - Academic Research: Prepares for rigorous research in economics or social sciences.
4. **Career Options:**
   - Research Analyst (IGIDR, TERI)
   - BI Developer (Microsoft, Tableau-focused firms)
   - Survey Methodologist (Government, Private research firms)
   - Academic Researcher (PhD preparation)
   - Data Consultant (KPMG, Grant Thornton)

44.11 Mathematical Economics (I)

1. **Content Overview: Introduces sets, matrices, functions, derivatives, and optimization, with applications to utility, demand, and production.**
2. **Skills Gained:**
   - Mathematical modeling of economic problems.
   - Optimization techniques for economic decision-making.
   - Analytical rigor for complex economic analysis.
3. **Future Prospects:**
   - Quantitative Economics: Essential for roles requiring mathematical modeling (e.g., econometrics).
   - Finance and Risk Analysis: Optimization skills are valuable in financial modeling.
   - Academia: Prepares for advanced studies in economic theory.
4. **Career Options:**
   - Quantitative Analyst (Goldman Sachs, JP Morgan)
   - Econometrician (RBI, World Bank)
   - Risk Analyst (Insurance, Banking)
   - Academic (Teacher, Professor, Researcher in Economics)
   - Operations Research Analyst (Logistics, Manufacturing)

44.12 Macroeconomics (II)

1. **Content Overview: Explores IS-LM model, aggregate demand/supply, Keynes vs. Classics, money supply, and inflation-unemployment trade-offs.**
2. **Skills Gained:**
   - Analysis of macroeconomic policy interactions (fiscal, monetary).
   - Understanding money supply and banking operations.
   - Insight into Phillips curve and policy effectiveness.
3. **Future Prospects:**
   - Central Banking: Knowledge of monetary policy is key for RBI or other central bank roles.
   - Economic Forecasting: AD-AS models aid in GDP and inflation forecasting.
   - Policy Analysis: Prepares for evaluating government budgets and policies.
4. **Career Options:**
   - Monetary Policy Analyst (RBI, Federal Reserve)
   - Economic Forecaster (IMF, OECD)
   - Budget Analyst (Finance Ministry, State Governments)
   - Financial Economist (Banks, Rating Agencies)
   - Researcher (NCAER, Brookings India)

44.13 Statistics for Economics

1. **Content Overview: Covers probability theory, probability distributions, sampling, and statistical inference.**
2. **Skills Gained:**
   - Probability-based decision-making under uncertainty.
   - Sampling techniques for reliable data analysis.
   - Hypothesis testing and estimation for economic research.
3. **Future Prospects:**
   - Econometrics: Statistical inference is foundational for econometric modeling.
   - Data Science: Probability and sampling skills are transferable to data science.
   - Risk Management: Probability distributions aid in assessing economic risks.
4. **Career Options:**
   - Econometrician (Consulting, Academia)
   - Data Scientist (Tech, Finance sectors)
   - Risk Manager (Banks, Insurance)
   - Statistical Officer (Government, CSO)
   - Market Researcher (Ipsos, Gallup)

44.14 Indian Economics (I)

1. **Content Overview: Examines India's economic development, population, human development, growth, inequality, and reforms.**
2. **Skills Gained:**
   - Contextual understanding of Indian economic policies and challenges.
   - Analysis of demographic trends and human development metrics.
   - Evaluation of economic reforms and their impacts.
3. **Future Prospects:**
   - Policy Making: Deep knowledge of Indian economy aids in policy design and evaluation.
   - Development Consulting: Focus on poverty and inequality supports development roles.
   - Public Sector: Prepares for administrative roles requiring economic expertise.
4. **Career Options:**
   - Policy Analyst (NITI Aayog, PMO)
   - Development Consultant (UNICEF, ADB)
   - Economic Advisor (State Governments, Ministries)
   - Researcher (CPR, RIS)
   - Civil Servant (UPSC, State PSC)

44.15 Sustainable Development

1. **Content Overview: Covers environmental issues, sustainable development principles, resource management, and climate change economics.**
2. **Skills Gained:**
   - Understanding of sustainability and environmental economics.
   - Analysis of resource management and property rights.
   - Insight into global environmental policies and carbon markets.
3. **Future Prospects:**
   - Environmental Economics: Prepares for roles in green policy and sustainability.
   - Corporate Sustainability: Skills are valuable for CSR and ESG roles.
   - International Development: Knowledge of climate change policies aids in global roles.
4. **Career Options:**
   - Environmental Economist (TERI, WWF)
   - Sustainability Consultant (EY, PwC)
   - CSR Manager (Tata, Reliance)
   - Climate Policy Analyst (UNFCC, IPCC)
   - Green Finance Specialist (Green Bonds, IFC)

44.16 Microeconomics (III)

1. **Content Overview: Focuses on imperfect markets (monopoly, oligopoly), input markets, general equilibrium, and market failures.**
2. **Skills Gained:**
   - Analysis of market structures and pricing strategies.
   - Understanding of general equilibrium and welfare economics.
   - Insight into market failures like externalities and asymmetric information.
3. **Future Prospects:**
   - Industrial Organization: Monopoly and oligopoly knowledge aids in analyzing firm behavior.
   - Regulatory Economics: Market failure insights support roles in regulation.
   - Advanced Research: Prepares for PhD-level work in microeconomic theory.
4. **Career Options:**
   - Competition Analyst (CCI, Antitrust bodies)
   - Regulatory Economist (TRAI, CERC)
   - Strategy Consultant (Bain, BCG)
   - Academic Researcher (JNU, DSE)
   - Pricing Strategist (Tech, Retail)

44.17 Macroeconomics (III)

1. **Content Overview: Covers new classical/Keynesian theories, consumption, money demand, and economic growth models (Harrod-Domar, Solow).**
2. **Skills Gained:**
   - Understanding of modern macroeconomic theories and growth dynamics.
   - Analysis of consumption and money demand behaviors.
   - Modeling economic growth and technological progress.
3. **Future Prospects:**
   - Growth Economics: Growth models are key for long-term policy planning.
   - Financial Economics: Money demand knowledge aids in monetary policy analysis.
   - Research: Prepares for advanced macroeconomic research.
4. **Career Options:**
   - Growth Economist (World Bank, ADB)
   - Financial Economist (RBI, SEBI)
   - Policy Researcher (IGIDR, NIPFP)
   - Investment Analyst (Mutual Funds, Hedge Funds)
   - Academic (IIMs, Foreign Universities)

44.18 Mathematical Economics (II)

1. **Content Overview: Introduces game theory, integration, difference/differential equations, with applications to economic models (Cobweb, Solow).**
2. **Skills Gained:**
   - Strategic thinking through game theory (Nash equilibrium).
   - Dynamic modeling using difference and differential equations.
   - Application of mathematical tools to economic problems.
3. **Future Prospects:**
   - Game Theory Applications: Useful in negotiation, auctions, and strategy roles.
   - Economic Modeling: Dynamic equations support advanced econometric work.
   - Tech and AI: Game theory is applicable in AI strategy and tech policy.
4. **Career Options:**
   - Game Theorist (Consulting, Tech firms)
   - Economic Modeler (RBI, IMF)
   - Strategy Analyst (Google, Amazon)
   - Quantitative Researcher (Academia, Think Tanks)
   - Operations Research Specialist (Supply Chain, Logistics)

44.19 Econometrics (I)

1. **Content Overview: Covers econometric models, simple/multiple regression, dummy variables, and violations like multicollinearity.**
2. **Skills Gained:**
   - Estimation and testing of economic relationships.
   - Interpretation of regression results for policy and business.
   - Handling data issues like heteroscedasticity and autocorrelation.
3. **Future Prospects:**
   - Econometrics: Core for data-driven economic analysis and forecasting.
   - Data Science: Regression skills are transferable to machine learning.
   - Policy Evaluation: Enables rigorous impact assessment of policies.
4. **Career Options:**
   - Econometrician (World Bank, RBI)
   - Data Scientist (Finance, Tech sectors)
   - Policy Evaluator (Government, NGOs)
   - Risk Analyst (Credit Rating Agencies)
   - Research Consultant (McKinsey, EIU)

44.20 Economic History of India (1857-1947)

1. **Content Overview: Examines colonial economy, agriculture, industry, railways, and imperial policies.**
2. **Skills Gained:**
   - Historical perspective on economic development.
   - Analysis of structural changes in agriculture and industry.
   - Understanding of colonial economic policies and their impacts.
3. **Future Prospects:**
   - Economic History: Prepares for specialized research in historical economics.
   - Policy Analysis: Historical context aids in understanding current policy challenges.
   - Education: Useful for teaching and curriculum development.
4. **Career Options:**
   - Economic Historian (Academia, Archives)
   - Policy Analyst (Focus on historical context)
   - Museum Curator (Economic Exhibits)
   - Educator (Schools, Colleges)
   - Researcher (IHC, ASI)

44.21 Public Finance

1. **Content Overview: Covers public goods, externalities, revenue, expenditure, debt, taxation principles, and Indian fiscal issues.**
2. **Skills Gained:**
   - Analysis of government budgeting and taxation.
   - Understanding of public goods and fiscal policy.
   - Insight into Indian tax systems and fiscal federalism.
3. **Future Prospects:**
   - Fiscal Policy: Key for roles in budget analysis and tax policy.
   - Public Administration: Prepares for administrative roles managing public funds.
   - Consulting: Taxation knowledge supports financial advisory roles.
4. **Career Options:**
   - Fiscal Policy Analyst (Finance Ministry, RBI)
   - Tax Consultant (PwC, Deloitte)
   - Budget Analyst (State Governments, PSUs)
   - Public Finance Specialist (IMF, World Bank)
   - Civil Servant (IRS, IAS)

44.22 International Economics (I)

1. **Content Overview: Covers trade theories (Ricardo, Heckscher-Ohlin), trade policy, and balance of payments.**
2. **Skills Gained:**
   - Analysis of comparative advantage and trade gains.
   - Evaluation of trade policies (tariffs, quotas).
   - Understanding of balance of payments and exchange rat**es.**
3. **Future Prospects:**
   - Trade Policy: Essential for roles in international trade negotiations.
   - Global Finance: Balance of payments knowledge aids in forex analysis.
   - Export-Import: Trade theory supports strategic roles in global commerce.
4. **Career Options:**
   - Trade Policy Analyst (WTO, Ministry of Commerce)
   - Forex Analyst (Banks, Financial Institutions)
   - Export-Import Manager (Trade Firms, Logistics)
   - International Economist (UNCTAD, ITC)
   - Consultant (Global Trade Advisory, EY)

44.23 Environmental & Resource Economics (I)

1. **Content Overview: Explores environmental economics, externalities, regulations, and valuation methods (CVM, TCM).**
2. **Skills Gained:**
   - Analysis of environmental costs and benefits.
   - Understanding of pollution control policies and market failures.
   - Valuation techniques for environmental resources.
3. **Future Prospects:**
   - Environmental Policy: Core for designing green regulations.
   - Sustainability Consulting: Valuation skills support ESG strategies.
   - Research: Prepares for environmental economics research.
4. **Career Options:**
   - Environmental Economist (MoEF, UNEP)
   - Sustainability Consultant (KPMG, Accenture)
   - Policy Advisor (Climate Change, Green Energy)
   - Researcher (CSE, TERI)
   - Green Finance Analyst (IFC, ADB)

44.24 Public Economics (I)

1. **Content Overview: Covers market failures, public goods, taxation principles, public expenditure, and fiscal federalism.**
2. **Skills Gained:**
   - Analysis of government intervention and public goods provision.
   - Understanding of tax incidence and public debt dynamics.
   - Insight into fiscal federalism and budget management.
3. **Future Prospects:**
   - Public Policy: Key for roles in government finance and policy design.
   - Economic Consulting: Taxation and expenditure knowledge aids advisory roles.
   - Academia: Prepares for advanced public economics research.
4. **Career Options:**
   - Public Policy Analyst (NITI Aayog, Finance Commission)
   - Economic Consultant (World Bank, ADB)
   - Tax Policy Advisor (CBDT, CBIC)
   - Budget Analyst (Municipal Corporations, PSUs)
   - Academic Researcher (IITs, IIMs)

44.25 Internship

1. **Content Overview: Practical exposure through a summer internship, applying economic concepts in real-world settings.**
2. **Skills Gained:**
   - Practical application of economic theory and data analysis.
   - Professional skills like teamwork, communication, and problem-solving.
   - Industry-specific knowledge based on internship focus.
3. **Future Prospects:**
   - Career Launchpad: Internships provide networking and job placement opportunities.
   - Skill Enhancement: Real-world experience strengthens resumes for competitive roles.
   - Sector Specialization: Exposure to specific industries (finance, policy, NGOs) guides career paths.
4. **Career Options:**
   - Entry-level roles in internship organizations (Banks, NGOs, Government)
   - Analyst Positions (Post-internship placements in consulting, research)
   - Project Coordinator (Development projects, CSR initiatives)
   - Research Assistant (Think Tanks, Universities)
   - Freelance Consultant (Based on internship expertise)

44.26 Rural Development

1. **Content Overview: Examines rural economy, development measures (PQLI, HDI), governance, and government programs (MGNREGA, NRLM).**
2. **Skills Gained:**
   - Understanding of rural economic structures and challenges.
   - Analysis of development indicators and poverty metrics.
   - Knowledge of rural governance and program implementation.
3. **Future Prospects:**
   - Rural Development: Core for roles in rural policy and program management.
   - Microfinance and SHGs: Supports careers in rural finance and empowerment.
   - NGOs and CSR: Prepares for grassroots development work.
4. **Career Options:**
   - Rural Development Officer (State Governments, DRDA)
   - Program Manager (NGOs like BAIF, PRADAN)
   - Microfinance Specialist (NABARD, RRBs)
   - CSR Specialist (Corporates with rural focus)
   - Policy Analyst (Ministry of Rural Development)

44.27 Advanced Microeconomics

1. **Content Overview:** This course provides a rigorous mathematical treatment of microeconomic theory. It begins with the duality approach to consumer behavior, covering the Indirect Utility Function, Expenditure Function, and Shephard's Lemma. It advances into topics of uncertainty, risk aversion (Arrow-Pratt measures), and the integrability problem. The course transitions into the theory of the firm, utilizing the Envelope Theorem and Hotelling's Lemma. A significant portion is dedicated to General Equilibrium theory, utilizing Brouwer's Fixed Point Theorem to prove existence, and covering the Core and the two Fundamental Theorems of Welfare Economics. It concludes with specific trade models (Jones) and Social Choice theory (Arrow's Impossibility Theorem).
2. **Skills Gained:**
   (a) Mathematical Modeling: Proficiency in using constrained optimization, differential calculus, and set theory to model economic behavior.
   (b) Duality Analysis: Ability to switch between primal (utility maximization) and dual (expenditure minimization) problems to derive demand functions.
   (c) Comparative Statics: Skills in analyzing how endogenous variables (demand, supply) change with exogenous parameters (prices, income) using the Slutsky equation and Envelope theorem.
   (d) Proof Construction: Ability to follow and construct mathematical proofs regarding the existence and stability of equilibrium.
3. **Future Prospects:**
   (a) Serves as the foundational prerequisite for postgraduate studies in Economics, Finance, and Public Policy.
   (b) Essential for conducting theoretical research or high-level quantitative analysis in think tanks.
   (c) Provides the necessary mathematical maturity for advanced Econometrics.
4. **Career Options:**
   (a) Economic Consultant
   (b) Data Scientist (Economic focus)
   (c) Market Research Analyst
   (d) Civil Services (Indian Economic Service)
   (e) Academic Researcher

44.28 Advanced Macroeconomics

1. **Content Overview:** This course explores open-economy macroeconomics and dynamic modeling. It covers the Mundell-Fleming model and Dornbusch's overshooting model to understand exchange rate dynamics. It contrasts Adaptive and Rational Expectations, discussing the Lucas Critique and policy irrelevance. The course introduces dynamic optimization techniques, specifically the Hamiltonian method, to analyze the Ramsey-Cass-Koopmans growth model and Romer's Endogenous Growth model. It also covers neoclassical investment theory and Tobin's q.
2. **Skills Gained:**
   (a) Dynamic Optimization: Mastery of the Maximum Principle and Hamiltonian methods for solving intertemporal optimization problems.
   (b) Policy Analysis: Ability to evaluate the impact of fiscal and monetary policies under different exchange rate regimes and expectation assumptions.
   (c) Macroeconomic Modeling: constructing and solving differential equations related to growth and investment.
   (d) Critical Thinking: Understanding the limitations of traditional macro-models through the lens of Rational Expectations and the Lucas Critique.

3. **Future Prospects:**
   (a) Prepares students for specialized roles in central banks and financial institutions.
   (b) Forms the theoretical basis for understanding international finance and development economics.
   (c) Ideal for students aiming for PhDs in Macroeconomics or Finance.
4. **Career Options:**
   (a) Macro Analyst
   (b) Investment Banker
   (c) Policy Advisor
   (d) Treasury Manager
   (e) Financial Risk Analyst

44.29 Financial Economics

1. **Content Overview:** This course bridges economic theory and financial markets. It starts with the time value of money, bond pricing, and the term structure of interest rates. It rigorously covers Portfolio Theory (Markowitz), the Capital Asset Pricing Model (CAPM), and risk management strategies. A major section is dedicated to derivative instruments, including the pricing of options (Binomial models), futures, and swaps. The course concludes with corporate finance aspects regarding capital structure and dividend policy.
2. **Skills Gained:**
   (a) Valuation: Techniques for discounting cash flows, valuing bonds (duration/immunization), and pricing derivatives.
   (b) Risk Management: Ability to calculate risk metrics (beta, standard deviation) and construct optimal portfolios.
   (c) Financial Modeling: Using mathematical tools to price options and futures.
   (d) Strategic Decision Making: Analyzing capital structure and investment decisions.
3. **Future Prospects:**
   (a) Direct pathway into the financial services industry and investment banking.
   (b) Preparation for professional certifications like CFA (Chartered Financial Analyst) or FRM (Financial Risk Manager).
   (c) Strong foundation for Masters in Finance (MiF) or MBA (Finance).
4. **Career Options:**
   (a) Financial Analyst
   (b) Stock Broker/Trader
   (c) Risk Manager
   (d) Wealth Manager
   (e) Corporate Finance Executive

44.30 Economic Thought

1. **Content Overview:** This course surveys the historical evolution of economic ideas. It moves from pre-classical schools (Mercantilism, Physiocracy) to Classical Political Economy (Smith, Ricardo, Marx). It examines the Marginalist Revolution and the evolution of Neoclassical General Equilibrium theory. The course covers the Keynesian revolution and concludes with critical perspectives, including Post-Keynesian, Marxian, Institutional, Feminist, and Ecological economics.
2. **Skills Gained:**
   (a) Historical Contextualization: Understanding how economic theories arise from specific historical and social conditions.
   (b) Critical Analysis: Ability to compare and contrast competing theoretical frameworks (e.g., Classical vs. Keynesian).
   (c) Interdisciplinary Synthesis: Integrating philosophy, history, and sociology with economic analysis.
   (d) Academic Writing: Developing strong skills in essay writing and literature synthesis.
3. **Future Prospects:**
   (a) Essential for students pursuing academic research or doctoral studies in Economics or Political Economy.
   (b) Provides a strong theoretical base for journalism and policy commentary.
   (c) Useful for competitive examinations requiring general studies and essay writing.
4. **Career Options:**
   (a) Academician/Professor
   (b) Policy Writer/Journalist
   (c) Economic Historian
   (d) Civil Servant
   (e) Social Researcher

44.31 Economic History of India

1. **Content Overview:** This course analyzes the structural changes in the Indian economy under British rule (1757–1947). Key themes include the debate on "Deindustrialization," the commercialization of agriculture and its link to famines, and the "Drain of Wealth" theory. It examines colonial policies including land revenue settlements (Permanent Settlement, Ryotwari), the tariff debate, the development of infrastructure (Railways), and the evolution of currency and banking.
2. **Skills Gained:**
   (a) Historical Data Analysis: Interpreting historical statistics regarding trade, mortality, and occupational structure.
   (b) Institutional Analysis: Understanding the long-term impact of legal and fiscal institutions (land rights, revenue systems) on economic development.
   (c) Debate Synthesis: Evaluating competing historiographical arguments (e.g., Nationalist vs. Imperialist views on deindustrialization).
   (d) Contextual Understanding: Linking past economic policies to present-day developmental challenges in India.
3. **Future Prospects:**
   (a) Foundation for careers in development sectors and policy think tanks focused on India.
   (b) Preparation for the Indian Administrative Services (IAS) or Indian Economic Services (IES).
   (c) Pathway for research in South Asian Studies or Development Economics.

4. **Career Options:**
   (a) Development Sector Consultant
   (b) Civil Servant (IES)
   (c) Policy Researcher
   (d) Economic Archivist/Museum Curator
   (e) Journalist (Economy beat)

44.32 Research Methodology (I)

1. **Content Overview:** This foundational course introduces the scientific method in social sciences. It covers the research process from problem formulation to literature review and data sourcing. It details various sampling techniques (probability vs. non-probability), research designs, and the distinction between qualitative and quantitative methods. A strong emphasis is placed on research ethics (plagiarism, consent) and academic writing styles (APA, MLA).
2. **Skills Gained:**
   (a) Research Design: Ability to formulate testable hypotheses and design valid surveys or experiments.
   (b) Literature Review: Skills in searching academic databases and synthesizing existing knowledge.
   (c) Ethical Compliance: Understanding ethical standards like informed consent and avoiding academic misconduct.
   (d) Communication: Structuring research proposals and writing academic reports.
3. **Future Prospects:**
   (a) Mandatory foundation for any academic dissertation or thesis.
   (b) Increases employability in research-oriented organizations and NGOs.
4. **Career Options:**
   (a) Research Assistant
   (b) Market Research Executive
   (c) Social Worker
   (d) Project Coordinator (NGOs)

44.33 Research Methodology (II)

1. **Content Overview:** This is a quantitative-focused course emphasizing econometric analysis. It covers OLS regression properties (multicollinearity, heteroscedasticity), model specification issues, and variable transformation. It introduces models for qualitative dependent variables (Logit, Probit) and time series analysis (stationarity, trends). A practical component involves using statistical software (Stata/R) for data cleaning, regression analysis, and diagnostic testing. It also touches upon causal inference concepts.
2. **Skills Gained:**
   (a) Econometric Analysis: Running and interpreting regression models (OLS, Logit, Probit).
   (b) Statistical Software Proficiency: Hands-on experience with Stata or R for data management and analysis.
   (c) Diagnostic Testing: Ability to detect and correct for econometric issues like omitted variable bias and heteroscedasticity.
   (d) Causal Reasoning: Distinguishing between correlation and causation in observational data.

3. **Future Prospects:**
   (a) Direct entry into data analytics and business intelligence roles.
   (b) Essential prerequisite for M.Phil or PhD programs.
   (c) Enables students to conduct independent empirical research.
4. **Career Options:**
   (a) Data Analyst
   (b) Business Analyst
   (c) Econometrician
   (d) Survey Researcher
   (e) Statistician

44.34 Advanced Indian Economics

1. **Content Overview:** This course assesses the post-1991 economic reforms in India. It analyzes sectoral performance: agricultural growth and distribution, manufacturing productivity, and the services sector boom. It delves into critical current issues like employment measurement, food insecurity and the PDS, and environmental sustainability. The course connects macroeconomic policy with micro-level outcomes like livelihood security (NULM, MGNREGA).
2. **Skills Gained:**
   (a) Policy Evaluation: Critically appraising government schemes (e.g., PDS, NULM) and economic reforms.
   (b) Sectoral Analysis: Understanding the structural bottlenecks in Indian agriculture and industry.
   (c) Data Interpretation: Analyzing economic indicators from sources like the Economic Survey.
   (d) Interdisciplinary Insight: Linking economic growth with environmental and social indicators.
3. **Future Prospects:**
   (a) Ideal for careers in government advisory roles and policy think tanks.
   (b) Prepares students for the Indian Economic Service examination.
   (c) Useful for journalism and development consulting.
4. **Career Options:**
   (a) Policy Analyst
   (b) Development Consultant
   (c) Economist (Public Sector)
   (d) Banking Professional
   (e) Social Entrepreneur

44.35 Research Internship

1. **Content Overview:** This is a practical component where students engage in the initial stages of a research project. It involves identifying a research problem, reviewing literature, locating data sources, and designing questionnaires. It acts as a precursor to the final dissertation.
2. **Skills Gained:**
   (a) Project Management: Managing a research timeline from ideation to data collection.
   (b) Fieldwork: Primary data collection techniques and interaction with respondents.
   (c) Methodological Application: Applying theoretical knowledge to real-world data problems.

(d) Self-Directed Learning: Working independently under minimal supervision.

3. **Future Prospects:**

   (a) Provides a taste of academic life, helping students decide on pursuing a PhD.

   (b) Builds a portfolio of work for applications to foreign universities.

4. **Career Options:**

   (a) Research Associate

   (b) Field Investigator

   (c) Project Assistant

44.36 Development Studies

1. **Content Overview:** This course shifts focus from economic growth to broader development goals. It traces the evolution of development thought (from growth to sustainable development) and explores ethical foundations (Utilitarianism, Rawlsian Justice). It focuses heavily on Amartya Sen's Capability Approach, inequality (Piketty), and the role of institutions. It applies these theories to sectors like health, education, and gender.

2. **Skills Gained:**

   (a) Theoretical Critique: Analyzing development through multiple lenses (Institutional, Neoclassical, Marxist).

   (b) Social Analysis: Understanding the interplay of gender, health, and education in economic outcomes.

   (c) Ethical Reasoning: Applying theories of justice to evaluate policy outcomes.

   (d) Qualitative Assessment: Evaluating the effectiveness of interventions like Conditional Cash Transfers (CCTs).

3. **Future Prospects:**

   (a) Gateway to the development sector (NGOs, International Agencies).

   (b) Preparation for interdisciplinary Master's programs in Development Studies or Public Policy.

4. **Career Options:**

   (a) Program Officer (NGOs)

   (b) International Aid Worker

   (c) Social Policy Researcher

   (d) Corporate Social Responsibility (CSR) Manager

   (e) Gender Specialist

44.37 Project

1. **Content Overview:** Students are required to undertake an independent project report. This involves applying economic theory and statistical tools to a chosen topic. The output is a structured report including an abstract, literature review, data analysis, and policy conclusions, followed by a viva voce.

2. **Skills Gained:**

   (a) Report Writing: Structuring a comprehensive academic/professional report.

   (b) Synthesis: Integrating theory, data, and literature into a coherent argument.

   (c) Presentation Skills: Defending one's work during the viva presentation.

   (d) Time Management: Completing a long-term academic project within deadlines.

3. **Future Prospects:**
   (a) Demonstrates ability to handle independent work to potential employers.
   (b) Can serve as a writing sample for admission to postgraduate courses.
4. **Career Options:**
   (a) Various entry-level roles in corporates, banks, and research firms where report generation is key.

44.38 Dissertation

1. **Content Overview:** This is a capstone course for students opting for the research track. It involves conducting original research, including rigorous data analysis and interpretation. The dissertation is a substantial document requiring the application of advanced econometric or theoretical tools, culminating in policy suggestions and a defense of the thesis.
2. **Skills Gained:**
   (a) Original Research: Ability to generate new knowledge or insights rather than summarizing existing work.
   (b) Advanced Data Analysis: Application of complex statistical tools (often beyond basic OLS).
   (c) Academic Rigor: High-level structuring, referencing, and argumentation.
   (d) Communication: Articulating complex findings to an academic audience.
3. **Future Prospects:**
   (a) Direct admission into PhD programs, potentially with advanced standing.
   (b) Strong foundation for careers in high-end research organizations or economic consulting.
4. **Career Options:**
   (a) Doctoral Candidate (PhD Scholar)
   (b) Senior Research Analyst
   (c) Economic Consultant
   (d) Academic Writer

The study of Economics equips graduates with a rigorous analytical framework and a versatile toolkit essential for navigating complex global markets. By blending theoretical foundations with empirical application, the curriculum prepares students for high-level professional trajectories and advanced academic research.

A. Core Competencies and Career Pathways

1. **Quantitative Proficiency**: Mastery of econometrics and data science tools—including STATA, R, Python, and Power BI—enables graduates to transform raw data into actionable strategic insights.
2. **Sector-Specific Expertise**: Specialized coursework in Sustainable Development and Rural Economics positions candidates for leadership roles in ESG (Environmental, Social, and Governance) consulting, green finance, and international policy.
3. **Strategic Decision-Making:** Students develop a deep understanding of market dynamics, resource allocation, and behavioral incentives, which are critical for corporate strategy and management consulting.

4. **Financial Market Acumen**: Integrating professional certifications such as the CFA (Chartered Financial Analyst) or FRM (Financial Risk Manager) with an economic degree optimizes employability in investment banking and risk management.

B. Public Sector and Academic Excellence

1. **Competitive Examination Synergy**: The syllabus is strategically aligned with the rigorous requirements of elite public service roles, including the Indian Economic Service (IES), RBI Grade B, and Union Public Service Commission (UPSC) frameworks.

2. **Global Policy Impact**: Graduates are uniquely qualified for roles within multilateral organizations (IMF, World Bank) and think tanks, focusing on macroeconomic stability and developmental equity.

3. **Advanced Academic Readiness**: The program provides a robust foundation for pursuing specialized Master's and Doctoral programs in niche fields like Game Theory, Behavioral Economics, or Public Policy.
