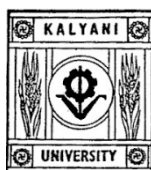


**Proposed Programme for Two-year Master Degree  
(MA/M.Sc) in Economics under CBCS**

*(As approved in the Meeting of the Post Graduate Board of Studies of  
Economics, University of Kalyani held on 23<sup>rd</sup> December 2021)*



**December 2021  
Department of Economics  
University of Kalyani  
West Bengal 741235**

## Curricula and Course Structure

1. For this two-year programme leading to Master Degree in Economics of University of Kalyani, a student shall take up course work as divided in each of the four semesters, out of which one paper in the second semester (GEC) will be chosen by the students of other departments of the University from the Inter Departmental Courses under CBCS, making a total of 21 papers which include project/dissertation in the final semester.
2. For assessment and evaluation of student's performance, each COR and DSE paper shall be assigned 50 marks (4 credit), of which 40 marks will be kept for end-semester examination, and remaining 10 marks will be on continuous internal assessment in the form of class tests and/or assignments. AECC and SEC papers shall be assigned 25 marks (2 credit) each for which 20 marks will be kept for the end-semester examination and the remaining 5 marks for the internal assessment.
3. For each 4 credit paper there shall be 40 hours of class lectures (excluding instructions for practical classes, assignments and class tests) and for each 2 credit paper there shall be 20 hours of class lectures forming direct contact teaching of 180 hours in first semester, 200 hours in second semester, 220 hours in the third semester and 160 hours in the fourth semester excluding the project/dissertation for which another 40 hours is left making a total of 360 hours of direct contact teaching divided in four semesters.
4. The estimated content of the contact teaching is designed such that for each one hour of direct contact teaching, a student, on an average, shall require further four hours of own study, including library-work, discussions with respective teachers outside the class, working on assignments/class tests, and preparations for end-semester examination. Thus, the curriculum of each paper would involve a course work of 200 hours (40 hours class plus 160 hours of study) in the case of 4 credit paper and a course work of 100 hours (20 hours class plus 80 hours study) in the case of 2 credit paper.
5. The two-year Master Degree programme in Economics entails a course work of 84 credits.
6. The course structure of the programme offers optional choice of papers by a student as DSE papers as indicated in the list of papers below:

### Semester-based Curriculum Structure under CBCS

(w.e.f. Academic Session 2021-2022)

#### SEMESTER I

Paper code	Paper	Theory/ Practical	Credit	Marks
COR 101	Microeconomics – I		4	50
COR 102	Macroeconomics – I		4	50
COR 103	Mathematics for Economics – I		4	50

COR 104	Econometrics with Computer Applications – I		4	50
AECC	Statistics for Economics		2	25
	<b>Total</b>		<b>18</b>	<b>225</b>

#### SEMESTER II

Paper code	Paper	Theory/ Practical	Credit	Marks
COR 205	Microeconomics – II		4	50
COR 206	Macroeconomics – II		4	50
COR 207	Mathematics for Economics – II		4	50
COR 208	Econometrics with Computer Applications – II		4	50
GEC(CBCS)	Issues in Indian Economic Development		4	50
	<b>Total</b>		<b>20</b>	<b>250</b>

#### SEMESTER III

Paper code	Paper	Theory/ Practical	Credit	Marks
COR 309	Indian Economic Issues		4	50
COR 310	Economics of Growth		4	50
COR 311	Development Economics		4	50
COR 312	International Economics		4	50
DSE 301	Advanced Econometrics-I/Environmental Economics – I/Financial Economics – I		4	50
SEC	Research Methodology in Economics		2	25
	<b>Total</b>		<b>22</b>	<b>275</b>

#### SEMESTER IV

Paper code	Paper	Theory/ Practical	Credit	Marks
DSE 402	History of Economic Ideas/ Economic History of India		4	50
DSE 403	Advanced Econometrics		4	50

	II/Environmental Economics – II/Financial Economics – II			
DSE 404	International Finance/ Labour Economics		4	50
DSE 405	Public Economics/ Economics of Social Sector		4	50
Project/Dissertation			8	100
	<b>Total</b>		<b>24</b>	<b>300</b>
	<b>Grand Total</b>		<b>84</b>	<b>1050</b>

COR: Core Courses, AECC: Ability Enhancement Compulsory Courses, SEC: Skill Enhancement Courses, GEC: Generic Elective Courses, DSE: Discipline Specific Elective.

7. Internal Assessment for each paper is to be taken in the form of either (a) written tests or (b) home assignment or term paper, or (c) seminar presentation by a student in the concerned paper. Note that at least one written test (which may be in the form of MCQ) has to be taken for Internal Assessment. The total number of Internal Assessment Tests in any of the three forms mentioned above along with a compulsory written test should be two. Each of these Internal Assessment Tests would be of 10 marks.
8. Kindly note that hours required to take Internal Assessment Tests are not included in the Class Lecture Hours mentioned against each unit in each paper.
9. Each COR and DSE paper in each semester will involve 40 class lecture hours. Only in AECC and SEC the class lecture hours will involve 20 class lectures.
10. A student has to give his/her rank-wise preferences for the DSE papers in the third semester and also in the fourth semester from the list of DSE papers offered in that particular semester subject to the availability of the teaching resources in the Department. A student can change his/her DSE paper within two weeks of the commencement of classes. In that case, he/she will be allotted an alternative DSE paper of his/her choice subject to the availability of vacant seat(s) in that DSE paper. In this regard, the decision of the Departmental Committee will be final.

**Detailed lecture hour-wise unitized syllabus of the papers in each semester is appended below:**

**Syllabus of Papers for Course-work  
Two-year Masters Programme in Economics under CBCS  
University of Kalyani  
December 2021**

*(As approved in the Meeting of the Post Graduate Board of Studies of Economics, University of Kalyani held on 23<sup>rd</sup> December 2021)*

**Semester I:**

**Paper COR 101 - Microeconomics – I**

**4 Credits 50 Marks**

**Course Objective:** This course will enable students to analyze how individual decision-makers, both consumers and producers, behave rationally in different market structures to optimize their decision. These are also crucial for designing microeconomic policies.

Unit 1: Basics: Sets and Mappings and Static Optimization

- (i) Elements of Set theory- basic concepts, n-dimensional Euclidean Space, Convex Sets, Relations and Functions, Metric and metric Space, Open and Closed  $\epsilon$ -Balls, Open Sets, Closed Sets, Bounded Sets, Weierstrass Theorem for Existence of Extreme Values, Real Valued Functions and related sets, Level Sets, Concave and Quasi-concave functions, Convex and Quasi-convex functions.
- (ii) Static Optimization: One variable and multiple variables- Unconstrained and Constrained Optimisation, Nonlinear Programming and Kuhn Tucker Conditions

8 Lecture hours

Unit 2: Consumer Theory

- (i) Primitive notions, Axioms and their interpretations, Preferences and Utility Function and their properties
- (ii) Marshallian and Hicksian Demand functions and their properties
- (iii) Indirect Utility function and its properties
- (iv) Expenditure Function and its properties
- (v) Measuring the effect of price change - Slutsky Equation, Compensating Variation and Equivalent Variation
- (vi) Revealed Preference - Weak, Strong and Generalized Axioms of Revealed Preference

8 Lecture Hours

Unit 3: Theory of the Firm

- (i) Production Function and its properties, Separable Production Functions, Elasticity of Substitution, Returns to Scale and Variable Proportions
- (ii) Cost Function and its properties, Conditional Input Demand Function and its properties, Short Run Cost Function

6 Lecture Hours

Unit 4: The Competitive Firm

- (i) Profit maximization, Profit Function and its properties
- (ii) Output Supply and Input Demand Functions and their properties
- (iii) Short Run profit Function and Choice of output

3 Lecture Hours

Unit 5: Partial Equilibrium: Perfect Competition

- (i) Short Run – Effective Supply function of the firm and the industry
- (ii) Conditions necessary for existence of equilibrium
- (iii) Stability of Equilibrium – Walrasian and Marshallian adjustment processes
- (iv) Expectations and Market Stability- the Cobweb Model
- (v) Long Run Equilibrium and stability of equilibrium

5 Lecture Hours

Unit 6: Partial Equilibrium: Monopoly

- (i) Pricing and output determination
- (ii) First, Second- and Third- degree price discrimination
- (iii) Welfare loss

3 Lecture Hours

Unit 7: Input Markets

- (i) Input Demand function of the Firm and the Industry
- (ii) Monopsony
- (iii) Bilateral Monopoly

3 Lecture Hours

Unit 8: Oligopoly

- (i) Quantity setting models for homogenous and differentiated products - Cournot and Stackelberg models
- (ii) Price setting models for homogenous products - Bertrand and Edgeworth models

4 Lecture Hours

**References:**

1. Jehle, Geoffrey A. and Philip J. Reny (2006): Advanced Microeconomic Theory, Pearson Education India

2. Hal Varian: Microeconomic Analysis
3. H. Gravelle and R. Rees: Microeconomics
4. A. Mascollel, M.D. Whinston and J.R. Green: Microeconomic Theory
5. R. Gibbons: Game Theory for Applied Economists

## **Paper COR 102 - Macroeconomics – I**

**4 Credits 50 Marks**

**Course Objective:** The objective of this course is to impart basic and fundamental knowledge to the students regarding macroeconomics at the post-graduate level.

Unit 1: Definition and Scope of Macroeconomics; Schools of thought in Macroeconomics	3 Lecture Hours
Unit 2: Classical Macroeconomics - Keynesian Macroeconomics – Classical School vs. The Orthodox Keynesian School	15 Lecture Hours
Unit 3: New Classical Economics	5 Lecture Hours
Unit 4: Business Cycle Theories including Real Business Cycle Theories	5 Lecture Hours
Unit 5: New Keynesian Economics	6 Lecture Hours
Unit 6: Some Basic Ideas of Post-Keynesian Economics and Some Alternative Macroeconomic Approaches	6 Lecture Hours

### **References:**

1. Keynes, J. M.: General Theory of Employment, Interest and Money
2. Snowdon, Brian and Howard R. Vane (ed.): A Modern Guide to Macroeconomics
3. Snowdon, Brian and Howard R. Vane (ed.): Modern Macroeconomics: Its origins, Development and Current State
4. Mankiw, N. G.: Macroeconomics
5. Amit Bhaduri: Macroeconomics
6. Mueller: Readings in Macroeconomics

7. David Romer: Advanced Macroeconomics
8. Mankiw and Romer: New Keynesian Economics

## **Paper COR 103 –Mathematics for Economics - I 4 Credits 50 Marks**

**Course Objective:** The objective of this course is to impart knowledge of some basic mathematical tools and techniques to the students of Economics for enhancing their ability to think logically and analytically. This will improve their perception of economic theory on one hand and their capability of analyzing any economic situation, simulated or real, in a consistent manner on the other.

### **Unit1: Elementary Logic**

2 Lecture Hours

### **Unit 2: A brief idea about Permutation and Combination and the Binomial theorem.**

6 Lecture Hours

### **Unit 3: Real Sequence:** Concept of real sequence, limit of sequence and series.

4 Lecture Hours

### **Unit 4: Differential Calculus:** Concepts of limit, continuity, differentiability of functions, Rolle's theorem, Mean-value theorem, Taylor's theorem and expansion of functions, indeterminate forms, L' Hôpital's rule, ideas about partial and total derivatives, the implication of nature of first and second order derivatives on diagrammatic representation of functions, Euler's theorem on homogeneous functions.

12 Lecture Hours

### **Unit 5: Integral Calculus:** The indefinite integral, the Riemann Integral and its properties, fundamental theorem of integral calculus.

10 Lecture Hours

### **Unit 6: Basic Vector and Matrix operations, concept of determinants.**

6 Lecture Hours

### **References:**

1. Michael Hoy, Livernois J, McKenna C, Rees R and StengosT: Mathematics for Economics, PHI Pvt. Ltd., New Delhi
2. J.E Freund and Walpole R.E: Mathematical Statistics, Prentice Hall of India, New Delhi / J.E Freund: Mathematical Statistics, Prentice Hall



3. Alton Hutchinson Smith and Walter A. Albrecht: Fundamental Concepts of Analysis, Prentice Hall, 1966
4. S. K Mapa: Higher Algebra, Sarat Book House
5. T.S Blyth and Robertson E. F: Basic Linear Algebra, Springer
6. R. Courant and John F: Introduction to Calculus and Analysis (Vols I and II), Springer
7. Robert G. Bartle and Donald R. Sherbert: Introduction to Real Analysis, John Wiley & Sons, Inc., Fourth Edition

## **Paper COR 104 - Econometrics with Computer Application – I**

**4 Credits**

**50 Marks**

### **Course Objective:**

The course introduces students to some basic statistical methods leading up to an introduction to basic econometric methods with computer applications so that the students learn to how to analyze economic data.

#### Unit 1: Economic Questions and Data

- (i) Review of Statistical Concepts
- (ii) Hypothesis Testing
- (iii) Estimators and Inference
- (iv) Causal Effects and Forecasting

*(Introduction to EXCEL and Econometric/Statistical Packages -Data Management and Descriptive statistics –Tests of Hypotheses –Distributional plots)*

5 Lecture Hours

#### Unit 2: Simple Linear Regression Model

- (i) Economic Model and Econometric Model
- (ii) Estimation and Interpretation of Regression Parameters
- (iii) Sampling Distribution of the OLS estimators
- (iv) Interval Estimation and Hypothesis Testing
- (v) Prediction and Goodness of Fit

10 Lecture Hours

#### Unit 3: Multiple Linear Regression Model

- (i) Specification and OLS estimation
- (ii) Properties of Multiple Regression Coefficients
- (iii) Measuring Goodness of Fit -  $R^2$  and  $\bar{R}^2$
- (iv) Problems of Inference in Multiple Linear Regression Model
- (v) Individual and Overall significance of Regression Parameter(s)
- (vi) Testing Linear Equality restrictions
- (vii) Chow test

(viii) Indicator variables

*(OLS and ANOVA using Econometric/Statistical Packages - Saving regression estimates- Case Studies)*

10 Lecture Hours

Unit 4: Regression Diagnostics

(i) Heteroskedasticity

(ii) Multicollinearity and Autocorrelation Consequence

(iii) Detection and remedial measures

*(Regression diagnostics using Econometric/Statistical Packages -robust and hc3 standard error corrected estimates, clustering)*

5 Lecture Hours

Unit 5: Dummy variables

(i) Interaction Dummy

(ii) Structural Break and Dummy variable

*(Creating dummy variables and interaction terms using Econometric/ Statistical Packages - case studies - Application using Fixed Effects)*

5 Lecture Hours

Unit 6: Functional form Misspecification

(i) Missing Observations

(ii) Outliers and Measurement Errors

(iii) Internal and External validity

*(Application of tests like RESET in statistical software-graphical tools for analysing the residuals)*

5 Lecture Hours

### References:

1. Stock J, and Watson M. (2011): Introduction to Econometrics (3rd edition). Addison Wesley Longman
2. Maddala, G S (2003): Introduction to Econometrics, John-Wiley, 3<sup>rd</sup> Edition
3. Wooldridge., J. (2006): Introductory Econometrics: A Modern Approach, 3rd Edition, South-Western.
4. Hill, R. Carter, Griffiths, W. E. & Lim, Guay C. (2008): *Principles of Econometrics*. Hoboken, NJ, Wiley.
5. D Gujarati (2003), Basic Econometrics, McGraw Hill, 4<sup>th</sup> Edition.
6. Cameron, A. C., & Trivedi, P. K. (2009): *Microeconometrics using Stata* (Vol. 5). College Station, TX: Stata Press.

**Notes:**

1. This paper includes theoretical as well as practical class lectures involving students in basic computer application using some statistical and econometric software.
2. The examination of the part pertaining to computer application may be in the form of a practical examination.

**Paper AECC – Statistics for Economics      2 Credits 25 Marks**

**Course Objective:** This course will impart the ability to the students in statistical analysis of data necessary for economics.

Unit 1 Bivariate data: Definition, scatter diagram, simple correlation, Rank correlation – Spearman’s and Kendall’s measures.

2 Lecture Hours

Unit 2 Probability: Introduction, random experiments, sample space, events and algebra of events. Conditional Probability, laws of addition and multiplication, independent events, theorem of total probability, Bayes’ theorem and its applications.

3 Lecture Hours

Unit 3 Random Variables: Definition of discrete and continuous random variables, cumulative distribution function (c.d.f.), probability mass function (p.m.f.) and probability density function (p.d.f.)

2 Lecture hours

Unit 4 Expectation and Moments, Dispersion, Skewness, Kurtosis, Quantiles.

2 Lecture Hours

Unit 5 Standard discrete probability distributions: Binomial, Poisson, geometric, negative binomial, hypergeometric, uniform. Truncated distributions. Standard continuous probability distributions: uniform, normal, exponential.

3 Lecture Hours

Unit 6 Basic concepts of Statistical Inference: Population & parameter, random sample & statistic, point and interval Estimation, Degrees of freedom, Confidence level, Testing of hypothesis. Sampling distribution of a statistic and its standard error.

2 Lecture Hours

Unit 7 Exact sampling distributions:  $\chi^2$  distribution, definition, p.d.f. with n degrees of freedom (d.f.), mean, variance, additive property of  $\chi^2$  distribution. Student’s t-distributions, p.d.f., mean, variance. Snedecor's F-distribution: p.d.f., mean, variance.

3 Lecture Hours

Unit 8 Elements of hypothesis testing: Null and alternative hypotheses, critical region, type I and type II errors, level of significance, power of the test, p-value. Tests of

significance related to Binomial proportion(s), Univariate Normal mean (s) and standard deviation(s).

3 Lecture Hours

**References:**

1. Goon, A.M., Gupta, M.K. & Dasgupta, B. (1994): An Outline of Statistical Theory (Vol-1), World Press.
2. Griffen. Ross, S. (2002): A First Course in Probability, Prentice Hall
3. Mood, A.M., Graybill, F.A. and Boes, D.C. (2007): Introduction to the Theory of Statistics, 3rd Edn. (Reprint). Tata McGraw-Hill Pub. Co. Ltd
4. Rohatgi, V. K. and Saleh, A.K. Md. E. (2009): An Introduction to Probability and Statistics. 2<sup>nd</sup>Edn. (Reprint) John Wiley and Sons.
5. Casella, G. and Berger R.L (2002).: Statistical Inference, 2<sup>nd</sup>Edn. Thomson Learning
6. Hogg, R.V., Tanis, E.A. and Rao J.M. (2009): Probability and Statistical Inference, Seventh Ed, Pearson Education, New Delhi.
7. Freedman, D., Pisani, R. and Purves, R. (2014): Statistics, 4th Edition, W. W. Norton & Company

**Semester II**

**COR 205 - Microeconomics-II**

**4 Credits 50 Marks**

**Course Objective:** This course will enable students to analyze role of uncertainty and information in individual decision-making and also, will impart the basic and fundamental ideas about general equilibrium.

**Group A - Uncertainty and Asymmetric Information**

Unit 1: Choice under Uncertainty

- (i) Concept of Prospect
- (ii) Properties of Utility Function
- (iii) Measures of Risk Aversion

5 Lecture Hours

Unit 2: Production under Uncertainty

- (i) Competitive Firm under Uncertainty
- (ii) Comparison with the Certainty Case

3 Lecture Hours

Unit 3: Exchange under Uncertainty

- (i) Demand for Insurance
- (ii) Risk Spreading and Arrow-Lind Theorem
- (iii) Risk Pooling and Diversification

5 Lecture Hours

Unit 4: Asymmetric Information

- (i) Asymmetric Information in Insurance Markets
- (ii) Adverse Selection and Moral Hazard
- (iii) Asymmetric Information in Labour Markets
- (iv) Concept of 'lemons'
- (v) Market Signaling
- (vi) Separating and Pooling Equilibrium

7 Lecture Hours

**Group B - General Equilibrium Analysis and Welfare Economics**

Unit 1: Equilibrium in Exchange

- (i) Core and Walrasian Equilibrium
- (ii) Equivalence Theorem
- (iii) Existence and stability of equilibrium in Competitive Markets
- (iv) Pareto Efficiency

6 Lecture Hours

Unit 2: Equilibrium in Production

- (i) Fundamental Theorems of Welfare Economics

4 Lecture Hours

Unit 3: Market Failure and externalities

- (ii) Efficiency conditions in presence of externalities
- (iii) Public Good
- (iv) Compensation Mechanism

3 Lecture Hours

Unit 4: Social Choice and Welfare

- (i) Arrow's Theorem
- (ii) Measurability and Comparability
- (iii) Rawlsian and Utilitarian form
- (iv) Gibbard Satterthwaite Theorem.

7 Lecture Hours

**References:**

1. Microeconomic Theory – Gravelle and Rees
2. Microeconomics - Pyndick and Rubenfield

3. Advanced Microeconomic Theory – G. A. Jehle and P. J. Reny - Pearson Education India, 2006.
4. Microeconomic analysis (Volume 2) – H. R. Varian. New York: Norton, 1992.
5. Walrasian and Non-Walrasian General Equilibrium Analysis – Anjan Mukherji, OUP

## **COR 206 - Macroeconomics – II**

**4 Credits 50 Marks**

**Course Objective:** The objective of this course is to impart basic and fundamental knowledge to the students regarding open macroeconomics and monetary economics at the post-graduate level.

### **Group A – Monetary Economics**

Unit 1: Evolution of Money; Structure of Banking and Money Market; the Quantity Theory of Money – the Classical Theory of Interest Rate

4 Lecture Hours

Unit 2: Keynesian Money Demand Function; Monetarism: Friedman’s Re-statement of the Quantity Theory of Money; Fiscal and Monetary Policy: Monetarists Versus Keynesians, Expectation-Augmented Phillips Curve

10 Lecture Hours

Unit 3: Rational Expectations, Neutrality of Money and Monetary Policy

3 Lecture Hours

Unit 4 Exchange Rate Overshooting

3 Lecture Hours

### **Group B – Open Economy Macroeconomics**

Unit 1: Income Determination in an Open Economy; Foreign Trade Multiplier with and without Repercussion Effect

4 Lecture Hours

Unit 2: Exchange Rate Determination in the Foreign Exchange Market – Exchange Rate Regimes

4 Lecture Hours

Unit 3: Internal and External Balance and Efficacy of Fiscal and Monetary Policy; Mundell-Fleming Model under Fixed and Flexible Exchange Rate and Different Degrees of Capital Mobility

4 Lecture Hours

Unit 4: Interest Rate, Expectations and Exchange Rate

4 Lecture Hours

Unit 5: Price Level and Exchange Rate in the Long Run – Purchasing Power Parity (PPP)

4 Lecture Hours

**References:**

1. Macroeconomics: Theories and Policies: Froyen
2. Essays in Economics (Volume I) – James Tobin
3. Macroeconomics – O. Blanchard
4. Critical Essays in Monetary Theory – J. Hicks
5. Readings in Macroeconomics – Mueller
6. International Economics – P. Krugman and M. Obstfeld
7. International Open Economy Macroeconomics – Batiz and Batiz
8. International Economics – D. Salvatore
9. International Economics – Sodersten and Reed
10. International Economics – Peter Kenen
11. World Trade and Payments – Caves, Frankel and Jones

**COR 207 - Mathematics for Economics – II**

**4 Credits 50Marks**

**Course Objective:** The objective of this course is to impart knowledge of some basic mathematical tools and techniques involving dynamic optimization and game theory to the students of Economics for enhancing their ability to think logically and analytically. This will improve their perception of economic theory on one hand and their capability of analyzing any economic situation, simulated or real, in a consistent manner on the other.

**Group A – Dynamic Optimization**

Unit 1: Basics of Differential Equations

3 Lecture Hours

Unit 2: Optimization techniques in Economics

- (i) Basic understanding of functions
- (ii) Differential equation systems
- (iii) Static optimization
- (iv) Introduction to dynamic optimization techniques

3 Lecture Hours

### Unit 3: Calculus of Variations

7 Lecture Hours

### Unit 4: Optimal Control Theory

7 Lecture Hours

### References:

1. Chiang, A. C.: Fundamental Methods of Mathematical Economics
2. Mike Rosser: Basic Mathematics for Economics, Routledge;  
<http://www.railassociation.ir/Download/Article/Books/Basic%20Mathematics%20for%20Economists.pdf>
3. Chiang, A. C.: Elements of Dynamic Optimization
4. Peter J. Hammond and Knut Sydsaeter: Mathematics for Economic Analysis
5. Eugene Silberberg and Wing Suen: The Structure of Economics: A Mathematical Analysis
6. R.G.D. Allen: Mathematical Analysis for Economics
7. R.G.D. Allen: Mathematical Economics

### Group B - Game Theory

#### Unit 1: Introduction to Basic Game Theory

- (i) Notions of Game
- (ii) Concept of Expected Utility and its Applications in Economics

2 Lecture Hours

#### Unit 2: Static Games (I)

- (i) Two Person Zero Sum Game
- (ii) Principle of Dominance
- (iii) Minimax Principle
- (iv) Mathematical Method of Solving 2X2 Games

4 Lecture Hours

#### Unit 3: Static Games (II)

- (i) Two Person Non-Constant Sum Game



- (ii) Concepts of Minimax and Dominance
  - (iii) Concept of Best Response and Rationalizable Strategy
  - (iv) Nash Equilibrium in Pure and Mixed Strategies
  - (v) Prisoners' Dilemma
  - (vi) Folk theorem
  - (vii) Repeated Games with examples of Prisoners' Dilemma and Bilateral Bargaining
- 8 Lecture Hours

Unit 4: Dynamic Games

- (i) Backward Induction and Sub-game Perfection
  - (ii) Application to Oligopoly
- 6 Lecture Hours

**References:**

1. M. Bacharach: Economics and the Theory of Games
2. Y.S. Venttsel: Elements of Game Theory
3. M.J. Osborne: An Introduction to Game Theory
4. A.M. Mascolell, M.D. Whinston and J.R. Green: Microeconomic Theory

**COR 208 - Econometrics with Computer Application – II**

**4 Credits 50 Marks**

**Course Objective:**

The course introduces students to some basic econometric methods involving simultaneous equation methods, time series analysis and panel data analysis leading up to an introduction to basic econometric methods with computer applications so that the students learn to how to analyze economic data involving time series and panel data.

Unit 1: Simultaneous Equation System

- (i) Definition - Structural Form, Reduced Form and Final Form equations - Simultaneity Bias – Some special types of Simultaneous Equations
  - (ii) Identification problem
  - (iii) Estimation Methods of Simultaneous Equation System - Indirect Least Squares - Two Stage Least Squares - Instrumental Variable (IV) regression
- 15 Lecture Hours

Unit 2: Time Series Analysis

- (i) Introduction to Stochastic and Deterministic Processes – Different Time Series Processes Difference equations and their solution
- (ii) Concepts of Stability and Stationarity

- (iii) Box-Jenkins Methodology
- (iv) Concept of Cointegration and Engle-Granger methodology

20 Lecture Hours

Unit 3: Introduction to the Panel Data Analysis

- (i) Definition of Panel Data
- (ii) Constant Coefficient Model and its disadvantages
- (iii) Fixed and Random Effect Models  
*(Econometric software exercises and case studies)*

5 Lecture Hours

**References:**

1. Gujarati, D.N., Porter, D.C. and Pal, M., Basic Econometrics, 6<sup>th</sup> edition.
2. Bhowmick, S.K., Principles of Econometrics: A Modern Approach Using EViews.
3. Enders, W., Applied Econometric Time Series, 3<sup>rd</sup> edition.

**Notes:**

1. This paper includes theoretical as well as practical class lectures involving students in basic computer application using some statistical and econometric software.
2. The examination of the part pertaining to computer application may be in the form of a practical examination.

**GEC (CBCS Paper) - Inter Departmental Course under CBCS**

*(to be chosen by the students from the other Departments of the University under CBCS)*

**Course Objective:** This course will impart the ability to the students from non-economics background in understanding the fundamental and basic issues pertaining to Indian economic development.

**Issues in Indian Economic Development**

100 Marks

*Any Five of the Following Topics*

Unit 1: National Income

- (i) National Income-concept and measurement
- (ii) Indian National Income- trend and growth
- (iii) Sectoral composition of Indian National Income

8 Lecture Hours

Unit 2: Agricultural Sector

- (i) Role of agriculture in economic development

- (ii) A brief overview of the growth of agricultural sector in India
  - (iii) Food Security- public distribution system
- 8 Lecture Hours

Unit 3: Industrial Sector

- (i) A brief overview of the industrialization process in India
  - (ii) Industrial policy changes in India since 1990-impact on public sector industries
  - (iii) Informal Sector-A brief overview
- 8 Lecture Hours

Unit 4: Service Sector

- (i) Features and growth of the service sector in India
  - (ii) Emerging significance of the service sector in Indian economic growth
- 8 Lecture Hours

Unit 5: External Sector

- (i) Concept of Exchange Rate and Devaluation
  - (ii) Trends and composition of Indian exports and imports
  - (iii) Foreign trade policies-impact of trade liberalisation since 1991
  - (iv) Concept of Balance of Payments
  - (v) Trends in Balance of Payments after 1991
- 8 Lecture Hours

Unit 6: Financial Intermediaries, Money and Capital Markets

- (i) Process of credit creation by commercial banks-money multiplier
  - (ii) Structure of banking in India
  - (iii) Monetary policies of the Reserve Bank of India-concepts of CRR, SLR, Repo and OMO
  - (iv) Debt and Equity Instruments
- 8 Lecture Hours

Unit 7: Public Economy-The Indian Scenario

- (i) Objectives of budget
  - (ii) Definition of different deficits - Revenue Deficit, Fiscal Deficit, Primary Deficit
  - (iii) Indian tax structure - (a) Direct taxes-personal income tax and corporate tax  
(b) indirect taxes- excise and sales tax, VAT, GST
  - (iv) Fiscal Federalism
- 8 Lecture Hours

Unit 8: Social Sector

- (i) Concept of Human Development Index
- (ii) Education
- (iii) Health

(iv) India vis a vis the rest of the world

8 Lecture Hours

Unit 9: Natural Resources

- (i) Land
- (ii) Water
- (iii) Forest

8 Lecture Hours

**References:**

1. Dornbush and Fischer: Macroeconomics, McGraw Hill
2. Chandana Ghosh and Ambar Ghosh: Macroeconomics, PHI
3. Samuelson and Nordhaus: Economics, McGraw Hill
4. Sampat Mukherjee and Amitabha Ghosh: Principles of Macroeconomics, New Central Book Agency
5. Ramesh Singh: Indian Economy, McGraw Hill
6. Sanjiv Verma: The Indian Economy, Unique Publisher
7. S. Natarajan & S. Chand: Indian Banking, S. Chand & Co.
8. A.N. Agarwal & Kundan Lal: Agricultural Problems of India, Bikash Publishing House
9. Sampat Mukherjee: Samakalin Arthya Vidya
10. Basak, Chakraborty: Bharater Arthaniti Parichay
11. Kapila, Uma: Indian Economy since Independence, McGraw Hill
12. Subrata Gupta: Bharater Arthaniti, S. Chand & Co.
13. A.N. Agarwal: Indian Economy, New Age
14. Swapan Roy and Joydeb Sarkhel: Bharater Arthaniti
15. Debesh Mukherjee: Samakalin Bharatiya Arthaniti
- 16.**Chittabrata Mazumder: Bharater Arthaniti Parichay
- 17.**Mishra S.K. & V.K. Puri: Indian Economy, Himalayan Publishing House

**Semester III**

**COR 309 - Indian Economic Issues**

**4 Credits 50 Marks**

**Course Objective:** The basic objective of this course is to impart knowledge to the students regarding basic and fundamental issues pertaining to contemporary Indian Economy at the post-graduate level.

Unit 1: Structure of Indian Economy - an overview

2 Lecture Hours

**Reference:**

1. Kapila, Uma (edited): Indian Economy since Independence
2. Mishra, S.K and V.K Puri: Indian Economy
3. Economic Survey, Government of India (various years)

Unit 2: Public Finance

- (i) Union Budget
- (ii) Definitions of Revenue Deficit, Effective Revenue Deficit, Fiscal Deficit, Primary Deficit and the policy Debates thereon
- (iii) Direct and Indirect Taxes- VAT, GST
- (iv) Major Items of Government Expenditure
- (v) Centre State Financial Relationships

6 Lecture Hours

**Reference:**

1. Union Budget Documents, Government of India (various years)
2. Das, Subrat (2007): Let's Talk About Budget, CBGA  
<https://www.cbgaindia.org/primers-manual/lets-talk-about-budget/>
3. Pant, Happy (2016): A Guide to using Budget Analysis, CBGA,  
<https://www.cbgaindia.org/primers-manual/guide-using-budget-analysis/>
4. Analysis of Union Budget, CBGA (various years),  
<https://www.cbgaindia.org/publications/analysis-of-union-budget/>
5. Bandyopadhyay, Sankhanath (2011): Primer on Goods and Services Tax, , CBGA,  
<https://www.cbgaindia.org/primers-manual/primer-on-goods-and-services-tax/>
6. Chakravarty, Malini and Aparajito Sen (2018): Unpacking GST, CBGA,  
<https://www.cbgaindia.org/primers-manual/unpacking-gst/>
7. Chakravarty Malini (2017): GST: Answers to Some Basic Questions, CBGA,  
<https://www.cbgaindia.org/primers-manual/gst-answers-basic-questions/>
8. T M Thomas Isaac, R Mohan, Lekha Chakraborty (2019): Challenges to Indian Fiscal Federalism, *Economic and Political Weekly*, Vol LIV No 9, March 2

Unit-3: Prices and Monetary Management

- (i) Inflation and Inflation Targeting by RBI
- (ii) Monetary Policy of RBI, Instruments of Monetary Policy

3 Lecture Hours

**Reference:**

1. Patnaik, Ila, Ajay Shah, Giovanni Veronese (2011): How Should Inflation Be Measured in India? Economic and Political Weekly, Vol XLIV No 6, April 16
2. Dholakia, Ravindra H (2018): Issues in Measurement of Inflation Targeting, Economic and Political Weekly, Vol LIII No 45, November 17
3. Mohan, Rakesh; Ray, Partha (2018): “Indian Monetary Policy in the Time of Inflation Targeting and Demonetisation”, Brookings India Working Paper 4, May 2018
4. Mahajan, Saakshi and Souvik Kumar Saha (2014): Inflation Targeting in India, WORKING PAPER NO: 449, Indian Institute of Management Bangalore

Unit 4: Financial Intermediation

- (i) Banking Sector in India: Structure of the Banking Sector, Prudential Norms
- (ii) Money Markets: Structure, Institutions and Instruments
- (iii) Capital Markets: Structure, Institutions and Instruments

6 Lecture Hours

**Reference:**

1. Mohan, Rakesh and Partha Ray (2017): Indian Financial Sector: Structure, Trends and Turns, IMF Working Papers, WP/17/7

Unit 5: Employment and Unemployment Situation

- (i) Measurements of employment and unemployment
- (ii) Employment and unemployment scenario since 1991
- (iii) Various Aspects of labour market
- (iv) Labour policy measures

3 Lecture Hours

**Reference:**

1. NSSO: Employment and Unemployment survey, various quinquennial rounds.
2. NSSO: Periodic Labour Force Survey (PLFS) – Annual Reports, July, 2018 – June, 2019, and July, 2017 – June, 2018
3. Labour Bureau: Quarterly Quick Employment Surveys
4. CMIE: Unemployment in India
5. Jajoria, Deepika, Manoj Jatav (2020): Is Periodic Labour Force Survey, 2017–18 Comparable with Employment – Unemployment Survey, 2011–12? Economic and Political Weekly, Vol IV 12 no 3, January 18
6. Himanshu (2011): Employment Trends in India: A Re-examination, Economic and Political Weekly, Vol XLIV no 37, September 10

#### Unit -6: Balance of Payments and International Trade

- (i) Balance of Payments and exchange rate policies recent years
- (ii) Capital inflow and the foreign exchange market in reforms period
- (iii) Balance of trade and its direction and composition of trade after liberalization

4 Lecture Hours

#### Reference:

1. Ahluwalia, Isher Judge (1991): Productivity and Growth in Indian Manufacturing, Oxford University Press, Oxford & New York
2. Bagchi, Amiya Kumar (1990.): “An Economic Policy for the New Government,” Economic and Political Weekly, Vol 25
3. Economic Advisory Council to the Prime Minister (Head Prof. Sukhamoy Chakravarty) (1989): “Report on the Current Economic Situation and Priority Areas for Action,” Govt of India, Ministry of Finance
4. Ghosh, Arun (1991): “Eighth Plan: Challenges and Possibilities-IV, Balance of Payments”, Economic and Political Weekly, Vol. 26, No. 6, February 9, 1991
5. Ghosh, Jayati (1990): “Exchange Rates and Trade Balance: Some Aspects of Recent Indian Experience”, Economic and Political Weekly, Vol. 2

#### Unit7: Agriculture and Food Management

- (i) Green Revolution and its Positive and Negative Impacts, New Green Revolution
- (ii) Land Reforms-A Brief Overview
- (iii) Agricultural Pricing and Agricultural Marketing and ongoing debate
- (iv) Food Security and Public Distribution System
- (v) Impact of economic reforms policy on Indian agriculture
- (vi) WTO and its impact on Indian Agriculture

7 Lecture Hours

#### Reference:

1. Nagaraj, R. (2003): ‘Industrial Policy and Performance since 1980: Which Way Now?’ Economic and Political Weekly 38, no. 35: 3707–15
2. Nayyar, D. (1978): ‘Industrial Development in India: Some Reflections on Growth or Stagnation’, Economic and Political Weekly 13, no. 31–3: 1265–7, 1269, 1271, 1273, 1275–8. Reprinted in Nayyar (1994), 219–43
3. Nayyar, D., ed. (1994): Industrial Growth and Stagnation: The Debate in India, Bombay: Oxford University Press for Sameeksha Trust
4. Papola, T. S. (2008): ‘Industry and Employment: Dissecting Recent Indian Experience’. In Industrial Development and Globalisation: Essays in Honour of Professor S. K. Goyal edited by S. R. Hashim, K. S. Chalapati Rao, K. V. K. Ranganathan and M. R. Murthy. New Delhi: Academic Foundation, 111–32
5. Patnaik, P. (1979): ‘Industrial Development in India since Independence’. Social Scientist

#### Unit 8: Industries

- (i) Index of Industrial Production
- (ii) Industrial Policy, Liberalization and Indian industrialization
- (iii) Macroeconomic impact of public sector enterprise and Performance of the Industrial Sector

4 Lecture Hours

#### Reference:

1. Mitra, A. (1988): 'Disproportionality and the Services Sector: A Note' Social Scientist
2. Mukherjee, Arpita (2001): 'Trade in Construction and Consultancy Services: India and the GATS', ICRIER Working Paper, No. 75, November
3. Bhagwati, Jagdish, N (1985): 'Why are Services Cheaper in the Poor Countries?', Wealth and Poverty, Essays in Development Economics Series, vol. 1 edited by Gene Grossman
4. Bhagwati, Jagdish, N (1984): 'Splintering and Disembodiment of Services and Developing Nations', World-Economy, 7(2), June, 133-43
5. Bhattacharya B. B. and Mitra A. (1990): 'Industry - Agriculture Growth Rates: Widening Disparities: An Explanation, Economic and Political Weekly, August 26.

#### Unit 9: Services

- (i) Growth performance of the Service Sector
- (ii) Employment in Services
- (iii) Liberalization and Trade in Services

2 Lecture Hours

#### Reference:

1. Sen, Abhijit and Himanshu (2004): 'Poverty and Inequality in India: II: Widening Disparities during the 1990s', Economic and Political Weekly, Vol 39
2. Deaton, Angus and Jean Dreze (2002): 'Poverty and Inequality in India: A Re-Examination', Economic and Political Weekly, vol. 37
3. Bhagwati, Jagdish (2001): 'Growth, Poverty and Reforms', Economic and Political Weekly.
4. Breman, Jan (2001a): 'An Informalised Labor System: End of Labour Market Dualism', Economic and Political Weekly

#### Unit 10: Poverty and Inequality in India

- (i) Poverty alleviation programmes in India and its outcome
- (ii) Official poverty line and its debate regarding official measurement and role of different committees
- (iii) Inequality in work force participation and gender bias

3 Lecture Hours



**Reference:**

1. Sen, Abhijit and Himanshu (2004): 'Poverty and Inequality in India: II: Widening Disparities during the 1990s', Economic and Political Weekly, Vol 39
  2. Deaton, Angus and Jean Dreze (2002): 'Poverty and Inequality in India: A Re-Examination', Economic and Political Weekly, vol. 37:
  3. Bhagwati, Jagdish (2001): 'Growth, Poverty and Reforms', Economic and Political Weekly
- Breman, Jan (2001a): 'An Informalised Labor System: End of Labour Market Dualism', Economic and Political Weekly

**COR 310 - Economics of Growth****4 Credits 50 Marks**

**Course Objective:** The basic objective of this paper is to impart knowledge to the students at the post-graduate level regarding various growth theories/models as have been evolved till the date.

Unit 1: Harrod-Domar Model of Economic Growth

3 Lecture Hours

Unit 2: Neo-Keynesian Distribution Theory and Growth Models of Kaldor, Pasinetti and Kalecki

6 Lecture Hours

Unit 3: Neoclassical Models of Economic Growth

- (i) Basic Solow Model - the Steady-State - the Golden Rule of Capital Accumulation and Dynamic Inefficiency - Transitional Dynamics and Policy Implications
- (ii) Solow Model with Technology - Steady State - Transitional Dynamics - Concepts of Absolute and Conditional Convergence - Concept of Growth Accounting
- (iii) Solow Model with Human Capital - Steady State - Transitional Dynamics

10 Lecture Hours

Unit 4: Endogenous Growth Models

- (i) AK Model - Steady State and Convergence
- (ii) Growth Models with Poverty Traps
- (iii) Economics of Ideas and Romer Model of Economic Growth

7 Lecture Hours

Unit 5: Growth Model with Intertemporal Consumer Optimization - The Ramsey Model

- (i) Equilibrium
- (ii) Steady State
- (iii) Transitional Dynamics

- (iv) Behaviour of the Savings Rate
- (v) Paths of Capital Stock and Output

7 Lecture Hours

Unit 6: Two Sector Model of Economic Growth - The Uzawa-Lucas Model

- (i) Transitional Dynamics
- (ii) Rates of Growth of Consumption, Physical and Human Capital and Output
- (iii) Behaviour of the Savings Rate

7 Lecture Hours

**References:**

1. A.K. Sen (edited): Growth Economics
2. R.J. Barrow and X. Sala-i-Martin: Economic Growth
3. C.I. Jones: Introduction to Economic Growth
4. M.C. Sawyer: The Economics of Michael Kalecki
5. E.K. Hunt and Schwartz (edited): A Critique of Economic Theory

**COR 311 - Development Economics**

**4 Credits 50 Marks**

**Course Objective:** The basic objective of this paper is to equip the post-graduate students with the basic and fundamental knowledge of economic development theories/models in contemporary period.

Unit 1: Emerging Issues in Economic Development

- (i) Concept of Economic Development-Alternative Notions
- (ii) Economic Growth and Economic Development
- (iii) Convergence Hypothesis
- (iv) Economic Development and Human Development

5 Lecture hours

**Reference:**

1. Banerjee, A K., (2020): Measuring Development An Inequality Dominance Approach, Springer Nature, Ch 1
2. Sen, A. (1988): The concept of development in *Handbook of Development Economics, I*, 9-26
3. Thorbecke, Erik. (2019): "The History and Evolution of the Development Doctrine, 1950-2017," in M. Nissanke and J. Ocampo, eds., *The Palgrave Handbook of Development Economics*, 61-108
4. Banerjee, Abhijit V. and Esther Duflo (2007): "The economic lives of the poor", *Journal of Economic Perspectives*, 21:1

5. Banerjee, Abhijit, and Esther Duflo (2012): “Poor economics: A radical rethinking of the way to fight global poverty”, Ch 1

#### Unit 2: Persistence of Underdevelopment

- (i) Vicious Cycle of Poverty and the Big Push
- (ii) Coordination Failure
- (iii) Path Dependence and Increasing Returns
- (iv) Institutions and Economic Development

10 Lecture hours

#### Reference:

1. Basu, Kaushik (1997): Analytical Development Economics, MIT Press, Chapter 2
2. Ray, Debraj (1998): Development Economics, Oxford University Press, Chapter 5
3. Bardhan, Pranab and C. Udry. (1999): Development Microeconomics. Oxford University Press, Ch.16
4. Murphy, K. M., Shleifer, A., and Vishny, R. W. (1989): Industrialization and the big push, Journal of political economy, 97(5), 1003-1026
5. Krugman, Paul. (1991): “History versus Expectations.” Quarterly Journal of Economics 106 (May): 651–67.
6. Ray, Debraj (2018): “Notes for a course in development economics” Chapter 3 available at <https://debrajray.com/wp-content/uploads/2018/01/10dnote.pdf>
7. J. Lin and J. Nugent (1995): “Institutions and Economic Development”, Ch. 38 in J. Behrman and T. N. Srinivasan (eds.) Handbook of Economic Development, North Holland Press.

#### Unit 3: Poverty and Inequality Measures

- (i) Debates about Poverty Line
- (ii) Basic Needs and Relative Poverty Lines
- (iii) Measuring the Middle class
- (iv) Inequality Measures – Desirable Properties

5 lecture hours

#### Reference:

1. Ravallian Martin (2016): The Economics of Poverty History, Measurement and Policy Oxford University Press
2. Banerjee., A K., (2020): Measuring Development An Inequality Dominance Approach, Springer Nature, Ch 1
3. Blackwood, D. L., and R. G. Lynch (1994): "The measurement of inequality and poverty: A policy maker's guide to the literature." World Development, 22.4: 567-578.
4. Ray, Debraj (1997): Development Economics. Oxford University Press. Chapters 6 and 7 (relevant pages)

Unit 4: Labour Market

- (i) Rural-Urban Interaction and Market for Agricultural Labour
- (ii) Interdependence between Industry and Agriculture
- (iii) Rural-Urban Migration
- (iv) Informal Labour Market and Social Security Measures
- (v) Participation of Women in the Labour Market
- (vi) Decision-Making Agency of the Women

10 Lecture hours

**Reference:**

1. Ray, Debraj (1997): Development Economics. Oxford University Press
2. Kabeer, N. (1999): Resources, agency, achievements: reflections on the measurement of women's empowerment. Development and Change, 30(3), 435-464
3. Kannan, K. P (2014): Interrogating Inclusive Growth, Oxon., Routledge

Unit 5. Rural Economy

- (i) Markets for Land and Credit in the Agricultural Sector
- (ii) Tenancy and Share Cropping
- (iii) Screening and Share Cropping
- (iv) Micro Finance, Social Capital and the Problem of Information Asymmetry
- (v) Micro Finance as Safety Net

10 Lecture hours

**Reference:**

1. Ray, Debraj (1997): Development Economics. Oxford University Press
  2. Ghatak, M., & Guinnane, T. W. (1999): The Economics of lending with joint liability: Theory and practice, Journal of Development Economics, 60, 195-228
- Hashemi, S. (2001): Linking Microfinance and Safety Net Programmes to Include the Poorest. Focus Note 21, Washington, D.C: CGAP

**COR 312 - International Trade Theory and Policy 4 Credits 50 Marks**

**Course Objective:** This paper aims to equip the students at the post-graduate level with the basic and fundamental knowledge pertaining to international trade theories and policies as practiced world wide.

Unit 1: Balance of Payments accounting with special reference to India

2 Lecture Hours

Unit 2: Trade Theories: Basis for Trade

- (i) A detailed analysis of two- country-two good Ricardian Model and its extensions to nontraded goods, two country many goods, many country-two goods models, and the relevant Comparative Static Analyses, Revealed Comparative Advantage

- (ii) The Heckscher–Ohlin Model, The Stolper-Samuelson, Rybczinsky and Factor Price Equalization Theorems
- (iii) Effect of Growth in a standard trade model
- (iv) The Specific Factor Model and the effects of change in price and growth in factor of production on factor payments
- (v) Trade in the presence of External Economies of Scale
- (vi) Trade in the Presence of Internal Economies of Scale - Intra Industry Trade in identical and differentiated goods
- (vii) Vertical Specialization in Trade

22 Lecture Hours

Unit 3: Gains from Trade - Gains from Specialization and Gains from Exchange

2 Lecture Hours

Unit 4: International Trade Policy

- (i) Tariff, Quota and Export Subsidy and their effects
- (ii) Optimum tariff
- (iii) Effective Rate of Protection
- (iv) Domestic Distortions and the Theory of Second Best
- (v) Effects of tariff and quota on monopoly

5 Lecture Hours

Unit 5: WTO

- (i) Need for WTO
- (ii) Objectives of WTO – with special reference to MFN and National Treatment
- (iii) Structure of WTO
- (iv) Agreements - GATT, GATS, TRIPS – A detailed discussion
- (v) Dispute Settlements

5 Lecture Hours

Unit 6: Multilateralism versus Regionalism:

- (i) Types of Regional Trade Blocks
- (ii) Causes behind the formation of Trade Blocks
- (iii) Effects of Economic Integration on welfare

4 Lecture Hours

**References:**

1. Economic Survey of India, Government of India
2. Caves, Frankel and Jones: World Trade and Payments
3. P. Krugman and M. Obstfeld: International Economics
4. Marrewijck: International Economics
5. R. Acharya: International Economics
6. World Trade Organization: [http://en.wikipedia.org/wiki/World\\_Trade\\_Organization](http://en.wikipedia.org/wiki/World_Trade_Organization)

7. International Trade Agreements of India -  
[http://commerce.nic.in/trade/international\\_ta.asp](http://commerce.nic.in/trade/international_ta.asp)
8. India's Experiences on Preferential Trade Agreements (PTAs) -  
[http://www.cutscitee.org/pdf/Indias\\_Experiences\\_On\\_Preferential\\_Trade\\_Agreements.pdf](http://www.cutscitee.org/pdf/Indias_Experiences_On_Preferential_Trade_Agreements.pdf)

## **DSE 301 –**

**4 Credits 50 Marks**

*(To be chosen by a student from the list of the following three Papers Note that a student has to take the same DSE paper in the Fourth Semester (DSE 403). He/she cannot change his/her DSE 403 paper in the Fourth Semester.)*

### **(a) Advanced Econometrics-I**

**4 Credits 50 Marks**

**Course Objective:** The basic objective of this course is to equip the students at the post-graduate level the knowledge of econometrics at the advanced level as is generally practiced today in the real life today.

Unit 1: The K-variable linear regression model using Matrix Algebra

- (i) OLS estimation
- (ii) Properties of OLS estimator
- (iii) Testing using sets of linear hypotheses

8 lecture hours

Unit 2: Generalized Least Squares

- (i) Generalized Least Squares
- (ii) Sources of Non-Spherical Disturbances
- (iii) Properties of OLS estimators under Non-Spherical Disturbances, Heteroskedasticity and Autocorrelation

12 lecture hours

Unit 3: Models with Dummy Dependent Variables

- (i) Linear Probability Model
- (ii) Logit Model
- (iii) Probit Model
- (iv) The Chow Test

6 lecture hours

Unit 4: Errors in Variables

- (i) Consequence of OLS Estimation

- (ii) Instrumental Variable (IV) estimators  
2 lecture hours

Unit 5: Distributed Lag Models:

- (i) The Koyeck Scheme  
(ii) Adaptive Expectation Model  
(iii) Partial Adjustment Model  
(iv) Almon's polynomial lag model  
6 lecture hours

Unit 6: Dynamic Panel Data Models

6 lecture hours

**References**

1. Johnston, Jack and John Dinardo: *Econometric Methods*, 4<sup>th</sup> Edition, New York, McGraw Hill
2. Greene, W. H. (2003): *Econometric analysis*, Pearson Education India
3. Verbeek, M. (2012): *A Guide to Modern Econometrics*. John Wiley & Sons, 4<sup>th</sup> Edition
4. Davidson, R., and MacKinnon, J. G. (2004): *Econometric theory and methods* New York: Oxford University Press
5. Wooldridge, J. M. (2010): *Econometric Analysis of Cross Section and Panel Data*, MIT press
6. Wooldridge, J. M. (2015): *Introductory Econometrics: A Modern Approach*, Cengage Learning

**(b) Environmental Economics-I 4 Credits 50 Marks**

**Course Objective:** This paper aims to equip the post-graduate students with the basic and fundamental knowledge regarding theories and policies pertaining to natural environment.

Unit 1: Environment and Economy Interaction

- (i) Environmental Pollution as Public Bad  
(ii) Pollution and Externality  
(iii) Market failure  
5 Lecture Hours

Unit 2: Theory of Environmental Policy

- (i) Evolution of Environmental Policy and Economics  
(ii) Damage function, Abatement Costs and Efficient Allocation

- (iii) Property Rights and the Coase theorem
- (iv) Environmental Policy Instruments-Command and Control, Emission taxes, Pollution Permits and subsidies

8 Lecture Hours

#### Unit 3: The Design of Environmental Policy

- (i) Imperfect Information-Price versus Quantities
- (ii) Damage function and Abatement Cost Uncertainty
- (iii) Weitzman Theorem
- (iv) Hybrid Policies
- (v) Mechanism Design - Kwerel's Mechanism and Motero's Mechanism

8 Lecture Hours

#### Unit 4: Valuing the Environment

- (i) Theory of Applied Welfare Analysis - Price and Quantity Change Welfare Analysis - Compensating and Equivalent Variation
- (ii) WTP and WTA
- (iii) Revealed Preference Models - Weak Complementarity, Household Production Function - Discrete Choice and Random Utility Models - Recreation Demand-Hedonic Property Value Models - Statistical Value of Life
- (iv) Stated Preference Method - Contingent Valuation Method - Combining Stated Preference and Revealed Preference Data

12 Lecture Hours

#### Unit 5: Environmental Economics in Practice: Indian Context

- (i) Environmental Policy Making in India: An Overview
- (ii) Major Environmental Pollutants in India: a) Air b) Water c) Land
- (iii) Environmental Regulations in India: Case Studies
- (iv) Development and Environment in the Indian Context

7 Lecture Hours

#### **Suggested Readings**

1. Daniel J. Phaneuf and Till Requate (2016): A Course in Environmental Economics: Theory, Policy, and Practice
2. Kolstad, C. (2010): Environmental Economics 2nd Edition, Oxford University Press
3. Baumol, W. and W. Oates (1988): The Theory of Environmental Policy
4. Champ, Patricia A., Boyle, Kevin, Brown, Thomas C (2017): A Primer on Non-Market Valuation, Springer
5. Chopra, Kanchan (2017): Development and Environmental Policy in India: The Last Few Decades, Springer



6. Haque, A. K Enamul, Maddipati, Narasimha Murty, Priya Shyamsundar (eds) (2011): Environmental Valuation in South Asia, Cambridge University Press

**(c) Financial Economics – I**

**4 Credits 50 Marks**

**Course Objective:** The basic objective of this paper is to equip the post-graduate students with the basics of financial economics as are practiced today in the real life which may enhance their employability.

Unit 1: Introduction to Corporate Finance

- (i) The Balance Sheet Model of Firm
- (ii) Capital Structure – Corporate Securities as Contingent Claims on Total Value of Firm
- (iii) The Corporate Firm – Sole Proprietorship, Partnership and Corporation – Goals of Corporate Firm
- (iv) Financial Markets

3 Lecture Hours

Unit 2: Accounting Statements and Cash Flows

- (i) The Balance Sheet – The Income Statement – Net Working Capital – Financial Cash Flow – The Accounting Statement of Cash Flows
- (ii) Market Value Added and Economic Value Added
- (iii) Ratio Analysis

4 Lecture Hours

Unit 3: Time Value of Money

- (i) Future Value (of a Single Amount and Annuity)
- (ii) Present Value (of a Single Amount and Annuity)
- (iii) Perpetuity

2 Lecture Hours

Unit 4: Risk and Return

- (i) Risk and Return of a Single Asset
- (ii) Portfolio Risk and Return

3 Lecture Hours

Unit 5: Portfolio Analysis

- (i) The Efficient Set Theorem – Efficiency Frontier
- (ii) Portfolio Diversification – The Markowitz Model
- (iii) Risk Free Borrowing and Lending

3 Lecture Hours

Unit 6: Valuation of Securities

- (i) Basic Valuation Model – Bond Valuation – Equity Valuation

- (ii) Dividend Capitalisation Approach
  - (iii) Other Approaches of Equity Valuation
  - (iv) Capital Asset Pricing Model (CAPM)
  - (v) Arbitrage Pricing Theory
  - (vi) Bond Portfolio Management (Bond Market Efficiency, Bond Pricing Theorems, Convexity, Duration, Immunization, Active Management)
  - (vii) Bonds versus Stocks
- 8 Lecture Hours

Unit 7: Basics of Capital Budgeting

- (i) Capital Budgeting Process – Costs and Benefits
  - (ii) Different Investment Criteria - Net Present Value, Benefit Cost Ratio, Internal Rate of Return, Payback Period, Accounting Rate of Return
- 2 Lecture Hours

Unit 8: Cost of Capital

- (i) Basic Concepts
  - (ii) Determination of Component Costs
  - (iii) Determination of the Proportions
  - (iv) Weighted Average Cost of Capital (WACC)
  - (v) Weighted Marginal Cost of Capital Schedule
- 2 Lecture Hours

Unit 9: Risk Analysis in Capital Budgeting

- (i) Measurement of Risk – Analytical Derivation (Hillier Model)
  - (ii) Sensitivity Analysis
  - (iii) Scenario Analysis
  - (iv) Break-Even Analysis
  - (v) Selection of A Project
  - (vi) Capital Budgeting Under Constraints
  - (vii) Decision Tree Analysis
- 4 Lecture Hours

Unit 10: Capital Structure and Cost of Capital

- (i) Assumptions and Definitions - Net Income Approach - Net Operating Income Approach - Traditional Position – Modigliani and Miller Position
  - (ii) Taxation and Capital Structure
  - (iii) Other Imperfections in Capital Structure
- 5 Lecture Hours

Unit 11: Dividend Policy and Share Valuation

- (i) Traditional Position
- (ii) Walter Model
- (iii) Gordon Model

(iv) Miller and Modigliani Position

2 Lecture Hours

Unit 12: Efficient Capital Markets

(i) Market Efficiency – Different Types of Efficiency – The Evidence

(ii) The Behaviourial Challenge to Market Efficiency

(iii) Empirical Challenges to Market Efficiency

(iv) Implications for Corporate Finance

3 Lecture Hours

**References:**

1. Ross, Stephen A., Randolph W. Westerfield and Jeffrey Jaffe (2004): Corporate Finance, Tata-McGraw-Hill, Seventh Edition
2. Brealey, Richard A., Stewart C. Myers, Franklin Allen and Pitabas Mohanty (2007): Principles of Corporate Finance, Eighth Edition, Tata-McGraw Hill (Special Indian Edition)
3. Sharpe, William F., Gordon J. Alexander and Jeffery V. Bailey (1999): Investments, Prentice Hall India (Eastern Economy Edition), Fifth Edition
4. Ehrhardt, Michael C. and Eugene F. Brigham (2004): Corporate Finance – A Focused Approach, Thomson – South-Western
5. Chandra, Prasanna (2001): Fundamentals of Financial Management, Tata-McGraw-Hill

**SEC – Research Methodology in Economics**

**2 Credits 25 Marks**

**Course Objective:** The objective of this paper is to impart skill to the students for doing theoretical as well as empirical researches in Economics.

Unit 1:

Philosophical Foundations of Economic Methodology: Economic Positivism and Normativism; Evolution of Positivism in Economics; Falsification and Methodology of Economics

2 Lecture Hours

Unit 2:

Sources and Analysis of Data: The structure of Economic data; Types of data sources: Primary and Secondary, Survey and Sampling Techniques – Need for Sample Survey, Concepts, Definitions and Notations (Unit and Population, Sampling Unit, Sample Frame, Random Sample, Sampling and Non-Sampling Errors) Simple Random Sampling; Sample Selection and Sample Size; Stratified Sampling; Hypothesis Testing, Confounding Variables and Causality.

15 Lecture Hours

Unit 3:

Communication and Dissemination of Research: Overview of the writing process; The language of Economic Analysis; Preparing Oral Presentation 3 Lecture Hours

## References

- 1) Blaug, M., & Mark, B. (1992). *The methodology of economics: Or, how economists explain*. Cambridge University Press.
- 2) Greenlaw, Steven A. (2005) *Doing Economics: A Guide to Understanding and Carrying Out Economic Research*. Boston: Houghton Mifflin Company
- 3) Friedman, Milton (1953), 'The Methodology of Positive Economics', in Friedman (1953) *Essays in Positive Economics*, pp. 3-43, Chicago: University of Chicago Press.
- 4) Varian, H. R. (2016) 'How to Build an Economic Model in Your Spare Time', *The American Economist*, 61(1), pp. 81–90
- 5) Goon, A. M, Gupta, M. K, and Dasgupta, B. *Fundamentals of Statistics (Volumes One and Two)*, The World Press Private Ltd. Latest edition.
- 6) Hill, R. C., Griffiths, W. E., & Lim, G. C. (2018). *Principles of econometrics*. John Wiley & Sons.
- 7) Murthy, M.N. (1977), *Sampling – Theory and Methods*, Statistical Publishing Society: Kolkata.

## Semester IV

**DSE 402**

**4 Credits 50 Marks**

A student has to choose any one of the following papers mentioned below in DSE 402.

**(a) History of Economic Ideas**

**4 Credits 50 Marks**

**Course Objective:** The basic objective of this paper is to familiarize the post-graduate students with the evolution of economic ideas since the ancient days to the present along with acquainting them different schools of thought in Economics.

Unit 1: A brief description of evolution of economic ideas in ancient period.

2 Lecture Hours

Unit 2: Pre-classical economic ideas – William Petty, Mercantilism and Physiocracy

6 Lecture Hours

Unit 3: Advent of classical economic ideas – Adam Smith, David Ricardo and Thomas Malthus

12 Lecture Hours

Unit 4: Socialist Economic Ideas – Early socialist thinkers, Karl Marx and recent trends in socialist economic ideas.

15 Lecture Hours

Unit 5: Emergence and evolution of neoclassical economic ideas and its critiques

5 Lecture Hours

**References:**

1. Economic Theory in Retrospect – Mark Blaug
2. History of Economic Thought - Eric Roll
3. An Outline of the History of Economic Thought – Ernesto Screpanti and Stefano Zamagni
4. Development of Economic Ideas – Ingrid Hahne Rima

**(b) Economic History of India**

**4 Credits 50 Marks**

**Course Objective:** The basic objective of this paper is to familiarize the post-graduate students the role that colonial policies and practices rendered on the Indian economy during 1800-1947 which will help them to understand many problems that Indian economy faced after Independence from the colonial rule.

Unit 1:

Colonialism and Underdevelopment of the Indian Economy

6 Lecture Hours

Unit 2:

Tributes and Transfers from Colonial India

4 Lecture Hours

Unit 3:

Colonial Transfers and Finances in the Domestic Economy

4 Lecture Hours

Unit 4:

Pace of Real Transfers from India: Export Surpluses and Spoliations in the Domestic Economy

4 Lecture Hours

Unit 5:

Agriculture and the Land

5 Lecture Hours

Unit 6:

Industries and Commerce in Colonial Time

4 Lecture Hours

Unit 7:

Finance and the Economic Drain, 1793-1837

5 Lecture Hours

Unit 8:  
Railways and Irrigation 4 Lecture Hours

Unit 9:  
India in the Twentieth Century 4 Lecture Hours

**References:**

1. Sen, Sunanda (1992), *Colonies and the Empire*, Orient Longman
2. Dutt, Romesh Chunder (2006), *The Economic History of India – Volume One and Volume Two*, Publications Division, Government of India
3. Mukherjee, Radhakamal, (2009), *The Economic History of India*, Radha Publications.

**DSE 403**

**4 Credits 50 Marks**

*(Note that a student has to take the same DSE 403 paper as taken in the Third Semester as DSE 301.)*

**(a) Advanced Econometrics –II**

**4 Credits 50 Marks**

**Course Objective:** The basic objective of this paper is to impart contemporary knowledge involving advanced econometrics theories like ARCH and GARCH models, Cointegration and Long-term Panel Data analysis and like as is used today in the real world in many fields.

Unit 1: Box-Jenkins Methodology – Forecasting 4 Lecture Hours

Unit 2: Modelling of Seasonality and Structural Break – Unit root test in presence of Seasonality and Structural Break 6 Lecture Hours

Unit 3: Conditional Heteroskedasticity – ARCH and GARCH modeling 4 Lecture Hours

Unit 4: Multi-equation Time Series – Intervention Analysis and Transfer Function Analysis – Vector Autoregression Analysis 10 Lecture Hours

Unit 5: Cointegration and Error Correction Models

10 Lecture Hours

Unit 6: Long-Term Panel Data Analysis

*(Econometric software exercises and case studies)*

6 Lecture Hours

**References:**

1. Bhowmick, S.K.: Principles of Econometrics: A Modern Approach Using EViews
2. Enders, W.: Applied Econometric Time Series, 3<sup>rd</sup> edition
3. Maddala, G.S.: Introduction to Econometrics

**(b) Environmental Economics-II**

**4 Credits 50 Marks**

**Course Objective:** The basic aim of this paper is to equip the post-graduate students regarding the contemporary issues pertaining to resource economics, common property resource, sustainable development, natural environment and international trade and like.

Unit1: Natural Resources and Intertemporal Allocation

- (i) Basic Concepts of Dynamic Optimization - Optimal Control and Dynamic Programming
- (ii) Non-renewable Resources - A simple 2-period framework and the concept of Backstop, Dynamic Model of Mining, Hotelling's Rule
- (iii) Economics of Renewable Resources
  - a) Forestry: Single versus Multiple use Forest - Optimal Rotation and Faustman's Rule
  - b) Fishery: The concept of Maximum Sustainable Yield (MSY), Optimization under alternative fishery management regimes-open access solutions
- (iv) Extraction of Renewable and Non-renewable Natural Resource under alternative market structure

8 Lecture Hours

Unit 2: Common Property Resource

- (i) Poverty and Environmental Degradation
- (ii) Community Management of Common Property Resources
- (iii) Coordination Failure - Increasing Returns, Free-riding Problem (Assurance Game and Prisoner's Dilemma)

8 Lecture Hours

Unit 3: Sustainable Development and Green Accounting

- (i) Environmental Kuznets Curve
- (ii) Concept of Sustainability and constraints
- (iii) Environmental Accounting: Basic Theory
- (iv) Environmentally adjusted national product

8 Lecture Hours

Unit 4: Transboundary Pollution, Trade & Environment

- (i) Trade, Development and Environment
- (ii) The Pollution Haven Hypothesis
- (iii) International/ Interregional Cooperation
- (iv) Economics of Climate Change

8 Lecture Hours

Unit 5: Energy & Environment

- (i) Demand and Supply Basics
- (ii) Green Paradox and Energy Security
- (iii) Carbon Mitigation and Clean Energy
- (iv) Energy, Poverty and Environmental Protection

8 Lecture Hours

**Suggested Reading**

1. Chiang, Alpha C (1992): Elements of Dynamic Optimization
2. Fisher, A (1981): Resource & Environmental Economics, CUP
3. Conard and Clark (1987): Natural Resource Economics: Notes and Problems, CUP.
4. Perman, Roger, Yue Ma, James McGilvray, and Michael Common (2011): Natural Resource and Environmental Economics, 4<sup>th</sup> edition
5. Baland, Jean-Marie, and Jean-Philippe Platteau: 'Halting degradation of natural resources: Is there a Role for Rural Communities?' FAO
- 6.

**(c) Financial Economics – II 4 Credits 50 Marks**

**Course Objective:** The basic aim of this paper is to equip post-graduate students with the knowledge pertaining to contemporary derivatives markets and like which will go a long way to enhance their employability.

Unit 1: Introduction to Derivatives



- (i) Futures Contracts – History of Futures Markets
- (ii) Option Markets – History of Option Markets
- (iii) Hedgers – Speculators – Arbitrageurs
- (iv) Over the-Counter Derivatives
- (v) Derivatives Markets in India

2 Lecture Hours

#### Unit 2: Mechanics of Futures and Forward Markets

- (i) Closing Out Positions – The Specification of the Futures Contract – The Operation of Margins
- (ii) Forward Contracts
- (iii) Difference between Futures and Forward Contracts
- (iv) The Determination of Forward and Futures Prices

2 Lecture Hours

#### Unit 3: Hedging Strategies Using Futures

- (i) Basic Principles – Arguments for and against Hedging
- (ii) Minimum Variance Hedge Ratio with the proof of the Minimum Variance
- (iii) Hedge Ratio Formula – Stock Index Futures – Rolling the Hedge Forward

3 Lecture Hours

#### Unit 4: Interest-Rate Futures

- (i) Preliminary ideas
- (ii) Treasury Bond and Treasury Note Futures
- (iii) Treasury Bill and Eurodollar Futures
- (iv) Duration – Duration-based Hedging Strategies

3 Lecture Hours

#### Unit 5: Swaps

- (i) Mechanics of Interest-Rate Swaps – Valuation of Interest rate Swaps
- (ii) Currency Swaps – Valuation of Currency Swaps
- (iii) Other Swaps
- (iv) Credit Risk

4 Lecture Hours

#### Unit 6: Mechanics of Option Markets

- (i) Types of Options – Option Positions – The Underlying Assets – Specification of Stock Options – Warrants and Convertibles – OTC Markets
- (ii) Factors Affecting Option Prices – Upper and Lower Bounds of Option Prices
- (iii) (European and American Options) – Put - Call Parity – Effect of Dividends

4 Lecture Hours

#### Unit 7: Trading Strategies Involving Options

- (i) Strategies Involving a Single Option and a Stock
- (ii) Spreads
- (iii) Combinations
- (iv) Other Payoffs

4 Lecture Hours

Unit 8: Option Pricing Using Binomial Trees

- (i) A One-Step Binomial Model
- (ii) Risk-Neutral Valuation
- (iii) Two-Steps Binomial Trees - American Options - Delta
- (iv) Using Binomial Trees in Practice

4 Lecture Hours

Unit 9: Option Pricing Using Black-Scholes Formula

- (i) The Lognormal Assumption
- (ii) Assumptions Underlying Black-Scholes – The Black-Scholes Analysis
- (iii) Risk-Neutral Valuation – Implied Volatilities
- (iv) The Causes of Volatility
- (v) Dividends – The Early Exercise of American Call Options on Dividend Paying Stocks

5 Lecture Hours

Unit 10: Hedging Positions in Options and the Creation of Options Synthetically

- (i) Options offered by Financial Institutions
- (ii) Naked and Covered Positions – A Stop-Loss Strategy
- (iii) More Sophisticated Hedging Schemes – Delta Hedging – Theta – Gamma
- (iv) The Relationship between Delta, Theta and Gamma – Vega – Rho – Hedging
- (v) Option Portfolios in Practice – Portfolio Insurance – Stock Market Volatility

9 Lecture Hours

**References:**

1. John C. Hull (1995): Introduction to Futures and Options Markets, Prentice Hall India (Eastern Economy Edition), Second Edition
2. John C. Hull and Sankarshan Basu (2010): Options, Futures and Other Derivatives, Pearson, Seventh Edition
3. Keith Redhead (2003): Financial Derivatives: An Introduction to Futures, Forwards, Options and Swaps, Prentice Hall India (Eastern Economy Edition)
4. Don M. Chance and Robert Brooks (2008): Derivatives and Risk Management Basics, Cengage Learning, India Edition
5. Jayanth Rama Verma (2008): Derivatives and Risk Management, Tata McGraw Hill

6. Robert A. Jarrow and Arkadev Chatterjea (2013): *An Introduction to Derivative Securities, Financial Markets, and Risk Management*, W. W. Norton and Company
7. Rajiv Srivastava, *Derivatives and Risk Management* (2010): Oxford University Press

## **DSE 404**

**4 Credits 50 Marks**

*(To be chosen by a student from any one of the two papers mentioned below)*

### **(a) International Finance**

**4 Credits 50 Marks**

**Course Objective:** The basic objective of this paper is to introduce the theories and empirical knowledge pertaining to International Finance today which will enhance the employability of the students at the post-graduate level.

Unit 1: The World of International Finance – An Introduction

2 Lecture Hours

Unit 2: Exchange Rates

- (i) An Introduction to Exchange Rates
- (ii) Foreign Bank Note Market
- (iii) Spot Foreign Exchange Market
- (iv) Direct versus Indirect Exchange and Cross Exchange Rates

2 Lecture Hours

Unit 3: Forward Exchange

- (i) Introduction
- (ii) Forward Exchange Premiums and Discounts
- (iii) Forward Rates versus Expected Future Spot Rates
- (iv) Payoff Profiles on Forward Exchange
- (v) Outright Forward Exchange and Swaps
- (vi) Forward Quotations

2 Lecture Hours

Unit 4: Currency Futures and Options Markets

- (i) Currency Futures
- (ii) Currency Options
- (iii) Forward, Futures and Options Compared

3 Lecture Hours

Unit 5: Purchasing Power Parity Principle

4 Lecture Hours

Unit 6: Interest Parity

3 Lecture Hours

Unit 7: Foreign Exchange Exposure and Risk	4 Lecture Hours
Unit 8: Accounting Exposure versus Real Exposure	3 Lecture Hours
Unit 9: Operating Exposure	4 Lecture Hours
Unit 10: Hedging Risk and Exposure	3 Lecture Hours
Unit 11: Speculation, Market Efficiency and Forecasting	3 Lecture Hours
Unit 12: The Growth and Concerns about Multinationals	3 Lecture Hours
Unit 13: Managing the Multinational Financial System	4 Lecture Hours

**References:**

1. Maurice D. Levi: International Finance
2. Alan C. Shapiro: Multinational Financial Management
3. Ephraim Clark: International Finance

**(b) Labour Economics**

**4 Credits 50 Marks**

**Course Objective:** The objective of this paper is to introduce the post-graduate students the theories and practices regarding labour market from economic perspectives.

Unit -1: Introduction to labour economics

- (i) Basic definitions and facts
- (ii) Labour Economics and econometric methods
- (iii) Labour economics and Policies

4 Lecture Hours

Unit 2: Labour Market

- (i) Nature and Characteristics
- (ii) Demand for Labour in relation to size and pattern of investment
- (iii) Choice of technologies and labour policies
- (iv) Supply of Labour
- (v) Growth of Labour Force
- (vi) Labour Market Policies
- (vii) Mobility and Productivity

8 Lecture Hours

Unit- 3: Employment and Wage Determination

- (i) Investment in education
- (ii) Compensating wage differentials
- (iii) Efficiency wage theories
- (iv) Employment and Development relationship - poverty and unemployment
- (v) Unemployment - Types
- (vi) Discrimination: evidence on gender discrimination and theories of discrimination.
- (vii) Wage Determination - Classical, Neo-classical and Bargaining theories
- (viii) Concepts of minimum wage and efficiency wage
- (ix) Non-wage component of labour remuneration
- (x) Productivity and wage relationship

8 Lecture Hours

Unit 4: Unemployment

- (i) Structure of unemployment
- (ii) Frictional Unemployment
- (iii) Cyclical Unemployment
- (iv) Implicit Contract Theory
- (v) Efficiency Wage Theories
- (vi) Insider - Outside Theory

8 Lecture Hours

Unit-5: Agricultural Labour and Migration

- (i) Agricultural Labour Markets
- (ii) Rural labour supply
- (iii) Interlocking of factor markets
- (iv) Nature and Trends in rural employment

- (v) Agricultural wages in India
- (vi) Non-agricultural rural employment
- (vii) Migration push or pull factors
- (viii) Migration effects on the host country's labour market

8 Lecture Hours

Unit -6: Labour market discrimination and Trade Unions

- (i) Labour market discrimination and impact of cultural and demographic variables (caste, race, gender etc)
- (ii) Discriminations and its measurement - Decomposition methods (Oaxaca)
- (iii) Causes of growing inequality
- (iv) Trade union, economic impact of unions, the bargaining process, the effects of unions

4 Lecture Hours

**References:**

1. Cahuc, P, S Carcillo, A Zylberberg (2014): Labor Economics, PHI Learning Private Limited, Delhi
2. Bazen Stephen (2011): Econometric Methods for Labour Economics, Oxford, UK
3. Ehrenberg R & R. S. Smith (2012): Modern Labor Economics: Theory & Public Policy, Pearson, USA
4. Datt, G. (1996): Bargaining Power, Wages and Employment: An Analysis of Agricultural Labour Markets in India, Sage Publications, New Delhi
5. Jhabvala, R. and R.K. Subrahmanya (Eds.) (2000): The Unorganised Sector: Work Security and Social Protection, Sage Publications, New Delhi
6. Lester, R.A. (1964): Economics of Labour, (2nd Edition), Macmillan, New York
7. McConnell, C.R. and S.L. Brue (1986) "Contemporary Labour Economics, McGraw-Hill, New York
8. Papola, T.S., P.P. Ghosh and A.N. Sharma (Eds.) (1993): Labour, employment and Industrial Relations in India, B.R. Publishing Corporation, New Delhi

**(a) Public Finance 4 Credits 50 Marks**

**Course Objective:** The objective of this paper is to introduce the theories and policies as practiced in the realm of public economics including public finance to the students at the post-graduate level.

Unit 1: Individuals and Government

- (i) Circular Flow in a Mixed Economy
- (ii) Heads of Receipts and Expenditures in the Central Government Budget in India
- (iii) Implications of Aging Population on Public Finance

2 Lecture Hours

Unit 2: Efficiency, Markets and Government

- (i) Efficiency Criterion, Markets
- (ii) Prices - Efficiency
- (iii) Market Failure and the basis for Government activities
- (iv) Equity versus Efficiency

5 Lecture Hours

Unit 3: Externalities and Government Policy

- (i) Positive and Negative Externalities
- (ii) Internalizing externalities through corrective taxes and subsidies
- (iii) Property Rights to Resource Use and Internalizing Externalities
- (iv) Coase theorem and its applications
- (v) Market based approaches to Pollution Control

6 Lecture Hours

Unit 4: Public Goods

- (i) Characteristics of Public Goods
- (ii) Provision of Private and Public Goods through Market and Government
- (iii) Demand for and Efficient Output of Public Good
- (iv) Lindahl Equilibrium
- (v) Free Rider Problem

5 Lecture Hours

Unit 5: Cost Benefit Analysis and Government Investments

- (i) Cost Effectiveness Analysis
- (ii) Cost Benefit Analysis

4 Lecture Hours

Unit 6: Government Subsidies and Income Support for the Poor

- (i) Economic Analysis of Subsidies and Transfers
- (ii) Impact of Government Assistance on Work Incentives with special reference to
  - a) Earned Income Tax Credit
  - b) Negative Income Tax
  - c) Wage Rate Subsidies
  - d) Temporary Assistance to Needy Families

6 Lecture Hours

Unit 7: Government Finance

- (i) Principles of Taxation
- (ii) Types of Taxes
- (iii) Equity versus Efficiency in Taxation
- (iv) Tax compliance and Evasion
- (v) Debt Financing
- (vi) User Charges and Efficiency
- (vii) Government Enterprise and Pricing of its Output

6 Lecture Hours

Unit 8: Taxation and Income Distribution

- (i) Lump-sum Taxes versus Price - Distorting Taxes
- (ii) Impact of Unit and Ad Valorem Taxes on Market Price and Efficiency
- (iii) Excess Burden of Taxation

6 Lecture Hours

**References:**

1. Hyman, David N.: Public Finance- A Contemporary Application of Theory to Policy, 10<sup>th</sup> Edition, South Western Cengage Learning
2. Ghosh, Ambar and Chandana Ghosh: Public Finance, 3<sup>rd</sup> Edition, PHI Learning, 2018
3. Atkinson, Anthony B. and Joseph E. Stiglitz: Lectures on Public Economics, Princeton University Press
4. Srivastava, D K.: Development and Public Finance: Essays in Honour of Raja J Chelliah, Sage India

**(b) Economics of Education and Health**

**4 Credits 50 Marks**

**Course Objective:** The basic objective of this paper is to familiarize the post-graduate students with the Economics of Education and Health as they have been evolved over time in the discipline of Economics.



Module 1: Introduction	4
lecture hours	
Concept of Human Capital – Human Capital Approach to Education and Health – Concept of Private Good, Public Good, Mixed Good and Merit Good and Education and Health – Provision of Public, Mixed and Merit Good – Input-Output Approach in Education and Health	
Module 2: Economics of Education	16
lecture hours	
Measurements of Education - Education for All Development Index - The Concept of Production Function in Education - A Critique to the Human Capital Approach to Education – Education as a Public Good- Market and Market Failure in Education – Demand for Education – Economics of Education Policy– India’s Education Policy	
Module 3: Economics of Health	16
lecture hours	
Health and Economic Development – Measurement of Health – Morbidity and Mortality – Burden of Diseases – Concepts of DALY and QALY - Socio-economic Determinants of Health – Medical Care vs Health Care- Demand for Health and Health Care – Provision of Health Care – Organization and Regulation of the Health Care Market – Health Insurance – Pharmaceutical Industry – India’s Healthcare System	
Module 4: Cost Benefit Analysis and Project Appraisal	4
lecture hours	
Enumeration and Evaluation of Benefits and Costs- Social Rate of Discount- Cost Benefit Analysis in Health and Education- Government Programs of Assistance to the Poor in Healthcare and Education in India	

Ref:

1. “Human capital and rates of return” George Psacharopoulos and Harry Anthony Patrinos, in Geraint Johnes and Jill Johnes ed: International Handbook on the Economics of Education
2. “The social and external benefits of education” by Walter W. McMahon in Geraint Johnes and Jill Johnes ed: International Handbook on the Economics of Education
3. Zweifel P, Health Economics
4. World Health Organization (2010) “Socioeconomic Determinants of Health”
5. UNESCO 2016. Global Education Monitoring Report
6. Chattopadhyay, S, 2012. Education and Economics, Oxford University Press
7. Barros, P and X. Martinez-Giralt, Health Economics, 2012, Routledge.

**Project/Dissertation**

**8 Credits 100 Marks**

Each student in the Fourth Semester has to do a project/dissertation on any theoretical or empirical topic. It is preferred that the topics mostly pertain to the problems of contemporary Indian economy and/or world economy. The project may an individual project or a group

project. If it is group project then the groups will be formed at the end of the third semester by the Departmental Committee. The evaluation of the project/dissertation will be on the basis of (a) marks (50% of the total) given for the project/dissertation write-up and (b) marks (50% of the total) given for the presentation before the faculty of members of the Department.