# School of Economics

## Guru Jambheshwar University of Science and Technology, Hisar

### B.Sc. Economics (Honours): Scheme and instruction for B.Sc. Economics (Honours) examination effective from the academic year 2018-19

## Bachelor of Science – Economics (Honours)

The B.Sc. Economics (Honours) is an undergraduate program and its curriculum is structured to reflect the University's belief that multi-disciplinary thinking is the key to develop comprehensive understanding.

The B.Sc. Economics (Honours) programme is divided into six semesters (two semesters in first year, two semesters in the second year and two semesters in the third year). Every semester ordinarily shall be of 21weeks of duration inclusive of teaching and examination. The B.Sc. Economics (Honours) Programme shall consist of total 150 credits and each paper shall consist of 05 (five) credits. The 05 credits shall be equivalent to 100 marks which shall be classified into the ratio of 70% external and 30% internal. The division of marks is as under:

## Internal Assessment (Internal)

**Distribution of weightage of 30 marks of Internal Assessment** will be as per university Ordinance:

| | | |
|---|---|---|
| Minor Tests: | | 20 marks |
| Attendance & Co-curricular Activities (To be announced by the teacher): | | 10 marks |
| **External Marks** | | **70** |
| **Max. Marks** | : | 100 marks |
| **Passing Marks** | : | 40 marks |

The Internal Assessment awarded to a student in any particular course will be based on performance of the students in two minor tests, Attendance and Co-curricular Activities (Assessment, Vivo-Voce, Presentation, Live assignment, Subject Quiz, Group Discussion, Case Study, etc.)

The students who fail in internal assessment as well as in aggregate will have the option to improve their score in the internal assessment giving a special chance to such students. However no student will be allowed to improve his/her score of internal assessment, if he/she has already scored 40% marks in aggregate as well in external examination. A student who could not secure 40% marks in external will have to reappear in the external examination of the respective paper as per university rules.

**Instructions to the examiners and students for the Major Test of 70 marks:** The examiner is required to set nine questions in all. The first question will be compulsory consisting of seven short questions covering the entire syllabus. In addition, eight more questions will be set comprising two questions from each unit. The students shall be required to attempt five questions in all selecting one question from each unit in addition to the compulsory Question No. 1. All questions shall carry equal marks. The maximum time allotted for the major test is 03 (three) hours.

The Bachelor of Science in Economics (Honours) is a three year full time programme. The course structure of the programme is given us under:

| **Semester -I** | | Work Load | | | Number of Credit |
|---|---|---|---|---|---|
| **Paper Code** | **Title of the Paper** | L---------P----------T | | | |
| BECO 101 | Microeconomics-I | 4 | 0 | 1 | 5 Credit |
| BECO 102 | Macroeconomics-I | 4 | 0 | 1 | 5 Credit |
| BECO 103 | Mathematics for Economics-I | 4 | 0 | 1 | 5 Credit |
| BECO 104 | Statistics-I | 4 | 0 | 1 | 5 Credit |
| BECO 105 | Functional English | 4 | 0 | 1 | 5 Credit |
| **Semester-II** | | Work Load | | | Number of Credit |
| **Paper Code** | **Title of the Paper** | **L----------P----------T** | | | |
| BECO 201 | Microeconomics-II | 4 | 0 | 1 | 5 Credit |
| BECO 202 | Macroeconomics-II | 4 | 0 | 1 | 5 Credit |
| BECO 203 | Mathematics for Economics-II | 4 | 0 | 1 | 5 Credit |
| BECO 204 | History of Economic Thoughts | 4 | 0 | 1 | 5 Credit |
| BECO 205 | Environmental Science | 4 | 0 | 1 | 5 Credit |

| **Semester –III** | | Work Load | | | Number of Credit |
|---|---|---|---|---|---|
| **Paper Code** | **Title of the Paper** | L---------P----------T | | | |
| BECO 301 | International Economics | 4 | 0 | 1 | 5 Credit |
| BECO 302 | Economics of Growth and Development | 4 | 0 | 1 | 5 Credit |
| BECO 303 | Statistics II | 4 | 0 | 1 | 5 Credit |
| BECO 304 | Financial Institutions and markets | 4 | 0 | 1 | 5 Credit |
| BECO 305 | **Optional Group A/B/C** | 4 | 0 | 1 | 5 Credit |

**Note: The students are required to choose one group of specialization out of the group A, B and C. The student shall have to continue same group of specialization in following semesters.**

| **Semester-IV** | | | | | |
|---|---|---|---|---|---|
| **Paper Code** | Title of the Paper | Work Load L----------P---------T | | | Number of Credit |
| BECO 401 | Introductory Econometrics | 4 | 0 | 1 | 5 Credit |
| BECO 402 | Public Economics | 4 | 0 | 1 | 5 Credit |
| BECO 403 | Contemporary Issues in Indian Economy | 4 | 0 | 1 | 5 Credit |
| BECO 404 | Statistical Lab I | 4 | 0 | 1 | 5 Credit |
| BECO 405 | **Optional Group A/B/C** | 4 | 0 | 1 | 5 Credit |
| **Semester -V** | | | | | |
| **Paper Code** | Title of the Paper | Work Load L---------P----------T | | | Number of Credit |
| BECO 501 | Regional Economics with Special Reference to Haryana Economy | 4 | 0 | 1 | 5 Credit |
| BECO 502 | Applied Econometrics | 4 | 0 | 1 | 5 Credit |
| BECO 503 | Statistical Lab II | 4 | 0 | 1 | 5 Credit |
| BECO 504 | Internship with the corporate world* | 4 | 0 | 1 | 5 Credit |
| BECO 505 | **Optional Group A/B/C** | 4 | 0 | 1 | 5 Credit |

*** Internship with the corporate world:** At the end of the fourth semester, all the students will have to undergo summer training of 6 weeks with an industrial, business or service organization under the overall supervision of SOE teachers. Each student will be required to submit an internship training report along with a certificate issued by the concern official under whose direct supervision he/she has undertaken the internship training to the Chairperson SOE up to 31st August without late fees, for the purpose of evaluation in the fifth semester. Each student shall give a seminar/presentation on the internship report before a committee of teachers constituted by the Chairperson SOE. The distribution of marks of Internship Report would be 50 marks for the seminar/presentation of the report and 50 marks for the content of the submitted report.

| **Semester –VI** | | | | | |
|---|---|---|---|---|---|
| **Paper Code** | **Title of the Paper** | **Work Load L---------P----------T** | | | **Number of Credit** |
| BECO 601 | Economics of Infrastructure | 4 | 0 | 1 | 5 Credit |
| BECO 602 | Economics of Social Sector | 4 | 0 | 1 | 5 Credit |
| BECO 603 | Industrial Economics | 4 | 0 | 1 | 5 Credit |
| BECO 604 | Behavioural Economics | 4 | 0 | 1 | 5 Credit |
| BECO 605 | **Optional Group A/B/C** | 4 | 0 | 1 | 5 Credit |

**Optional Papers**

| **Group A: Finance** | | | | | | |
|---|---|---|---|---|---|---|
| **Semester** | **Paper Code** | **Title of the Paper** | **Work Load L---------P----------T** | | | **Number of Credit** |
| Sem III | BECO Fin 305 | Financial Accounting | 4 | 0 | 1 | 5 Credit |
| Sem IV | BECO Fin 405 | Financial Analysis and Reporting | 4 | 0 | 1 | 5 Credit |
| Sem V | BECO Fin 505 | Financial Economics | 4 | 0 | 1 | 5 Credit |

| | | | | | | |
|---|---|---|---|---|---|---|
| Sem VI | BECO Fin 605 | Economics of Banking | 4 | 0 | 1 | 5 Credit |

| **Group B: Data Analytics** | | | | | | |
|---|---|---|---|---|---|---|
| **Semester** | **Paper Code** | **Title of the Paper** | **Work Load L---------P----------T** | | | **Number of Credit** |
| Sem III | BECO DA 305 | Fundamentals of Data Analytics | 4 | 0 | 1 | 5 Credit |
| Sem IV | BECO DA 405 | Data Base Management System | 4 | 0 | 1 | 5 Credit |
| Sem V | BECO DA 505 | Multivariate Analysis | 4 | 0 | 1 | 5 Credit |
| Sem VI | BECO DA 605 | Fundaments of Data Mining | 4 | 0 | 1 | 5 Credit |

| **Group C: Public Policy** | | | | | | |
|---|---|---|---|---|---|---|
| **Semester** | **Paper Code** | **Title of the Paper** | **Work Load L---------P---------T** | | | **Number of Credit** |
| Sem III | BECO PP 305 | Introduction to Governance | 4 | 0 | 1 | 5 Credit |
| Sem IV | BECO PP 405 | Budgetary Theory and Practice | 4 | 0 | 1 | 5 Credit |
| Sem V | BECO PP 505 | Social Cost-Benefit Analysis | 4 | 0 | 1 | 5 Credit |
| Sem VI | BECO PP 605 | Public Policy Analysis | 4 | 0 | 1 | 5 Credit |

**Detailed Syllabus follows...**

# B.Sc. Economics (Honours)

## Semester-I

## BECO-101: Microeconomics-I

Maximum Marks: 100
Internal Assessment: 30 External Assessment: 70
Time Allowed: 3 Hours

**Objective:** As a foundation course, in this paper, student is expected to understand the behaviour of an economic agent, namely, a consumer and a producer. In addition, the principles of commodity pricing as also the problems of investment has been included.

**Course Contents**

Unit 1: Introduction

Nature and scope of micro economics – importance and limitations of micro economics — concept of equilibrium – static, dynamic and neutral equilibrium – Partial Vs General equilibrium – role and limitations of price mechanisms in a free market economy – frontiers & microeconomics.

Unit 2: Consumer Behaviour

Demand and law of demand–utility analysis and derivation of demand – ordinal approach indifference curve – consumer equilibrium – price, income and substitution effect (Hicks and Slutskey) – derivation of demand curve analysis – comparison of cardinal and ordinal analysis – Giffin goods – compensated demand – elasticity of demand: price, income and cross –consumers surplus – Engel curve.

Unit 3: Theory of Production and Cost

Supply and law of supply – elasticity of supply – production decision – factors of production – production function – law of variable proportion – returns to scale – economies of scale –iso-quant approach and producer's equilibrium – factor substitution – elasticity of factor substitution.

Production and costs – various measures of cost – cost curves and their shapes – the relationship between short run and long run average total cost – elasticity of cost.

Unit 4: Theory of Revenue and Equilibrium

Revenues – average revenue and marginal revenue – relation between AR and MR Curves –AR, MR and elasticity – importance of revenue curves – interactions of cost and revenues – conditions of equilibrium of a firm.

**Readings:**

A. Koutsoyannis (1979), Modern Micro Economics, MacMillan Press, London.
H. R. Varian (1993), Intermediate Microeconomics a Modern Approach, 3rd Edition, Affiliated East West Press.
N.G. Mankiw (2009), Economics: Principles and Application Cengage Learning, Printed in India.
Mansfield, E. (1997), Microeconomics (9th Edition), W.W. Norton and Company, New York.
Ray, N.C. (1975), An Introduction to Microeconomics, Macmillan Company of India Ltd., Delhi.

**Note:** The examiner is required to set nine questions in all. The first question will be compulsory consisting of seven short questions covering the entire syllabus. In addition to that eight more questions will be set, two questions from each unit. The students shall be required to attempt five questions in all selecting one question from each unit in addition to compulsory Question No.1 All questions shall carry equal marks.

## BECO-102: Macroeconomics-1

Maximum Marks: 100
Internal Assessment: 30 External Assessment: 70
Time Allowed: 3 Hours

**Objective:** The paper is designed to make an undergraduate student aware of the basic theoretical framework underlying the field of macroeconomics. It deals with the functioning of the economy as a whole, including how the economy's total output of goods and services and employment of resources is determined and what causes these totals to fluctuate.

**Course Contents**

Unit 1: Nature and Scope of Macroeconomics
Nature and scope of macroeconomics – meaning and definition of key macroeconomic variables (output, unemployment, inflation, etc.) – concepts of national income – methods of measuring national income – circular flow of income – issues in national income accounting.

Unit 2: Employment and output: The Classical System
Full employment, Frictional unemployment and Structural unemployment, the classical view – Say's law –quantity theory of money– wages, prices, employment, and production – rigid wages and monetary policy in the classical model.

Unit 3: The Keynesian Model
The problem of unemployment – the components of aggregate demand – equilibrium income – determination of equilibrium income – changes in equilibrium income – the role of fiscal policy and multiplier – the concept of balanced budget multiplier – exports and imports in Keynesian model.

Unit 4: Money, Interest and Income:
The money supply, money demand and interest rate – the relationship between bond prices and interest rates – the Keynesian theory of money demand and interest rate – the liquidity trap – the implications of increase in money supply.

**Readings**:
R T Froyen (2008), Macroeconomics, Theory and policies, Prentice Hall.
N. Gregory Mankiw, (2002), Principles of Economics, Thomson.
Gardner Ackley (1978), Macroeconomics, Theory and Policy, Macmillan Library.

**Note:** The examiner is required to set nine questions in all. The first question will be compulsory consisting of seven short questions covering the entire syllabus. In addition to that eight more questions will be set, two questions from each unit. The students shall be required to attempt five questions in all selecting one question from each unit in addition to compulsory Question No.1 All questions shall carry equal marks.

## BECO-103: Mathematics for Economics-I

Maximum Marks: 100
Internal Assessment: 30 External Assessment: 70
Time Allowed: 3 Hours

**Objective:** The objective of this paper is to train the students to master the techniques of mathematics that are commonly applied to understand and analyse economic problems.

**Course Contents**

Unit 1: Preliminaries: Elements of logic and proof – converse and contra positive, necessary and sufficient conditions – proof by contradiction – mathematical induction – sets and set operations – ordered pairs, Cartesian products of sets – relations functions, one to one and onto functions, composite functions, the inverse function – the real numbers, natural numbers, integers, rational and irrational numbers – absolute value and intervals –inequalities.

Unit 2: Elementary Linear Algebra: Two, three and n – dimensional row and column vectors – vector addition and scalar multiplication – length of a vector, scalar products, orthogonality – geometric representation, lines and planes in R2 and R3 – linear and convex combinations of vectors – linear independence – convex sets.

Unit 3: Matrices and Matrix Operations: Addition, scalar multiplication, matrix multiplication – the transpose – the inverse of a square matrix – rank, elementary row operations and computation of rank – invertibility and rank for square matrices, characteristic roots and eigen values, Cramer rule.

Unit 4: Determinants: Determinants – definition, properties, minors and cofactors – the Laplace expansion –expansion by alien cofactors – singularity and invertibility –the adjoint matrix and formula for the inverse.

**Readings**:

Knut Sydsaeter and Peter J. Hammond (2002), Mathematics for Economic Analysis. Pearson Educational Asia: Delhi (reprint of 1st 1995 edition).
Alpha C. Chiang (1984), Fundamental Methods of Mathematical Economics. McGraw Hill (3rd edition).
Hadley, G. (1987), Linear Algebra, Addison-Wesley.
Metha B.C. and Madnani. GMK (2004), Mathematics for Economists, Sultan chand & Sons, New Delhi.

**Note:** The examiner is required to set nine questions in all. The first question will be compulsory consisting of seven short questions covering the entire syllabus. In addition to that eight more questions will be set, two questions from each unit. The students shall be required to attempt five questions in all selecting one question from each unit in addition to compulsory Question No.1 All questions shall carry equal marks.

## BECO-104: Statistics-1

Maximum Marks: 100
Internal Assessment: 30 External Assessment: 70
Time Allowed: 3 Hours

**Objective:** The objective of this paper is to train the students to use the techniques of statistical analysis, which are commonly applied to understand and analyze economic problems. The paper also deals with simple tools and techniques, which will help a student in data collection, presentation, analysis and drawing inferences.

**Course Contents**

Unit 1: Meaning, Classification and Tabulation of Data

Primary data and secondary data: definition, sources and method of collection – quantitative data: time series data, cross section data and pooled data – qualitative data – presentation of data – Simple table, complex table (manifold table) – discrete frequency distribution – continuous or grouped frequency distribution – relative frequency distribution –cumulative frequency distribution: less than and more than – presentation of data (diagram): line diagram, bar diagram (simple and multiple), pie diagram – presentation of data (graph): graph of time series or line graph, logarithmic graph, graph of frequency distribution (histogram, frequency polygon, frequency curve, cumulative frequency curve/ogive).

Unit 2: Measures of Central Tendency and Partition Values

Meaning of average – types of average: arithmetic mean, median, mode, geometric mean, harmonic mean , – quartiles (individual series, discrete series and continuous series – deciles (for individual series, discrete series and continuous series) – percentiles (individual series, discrete series and continuous series.

Unit 3: Measures of Dispersion

Meaning of dispersion – types of dispersion: range, quartile deviation, mean deviation, standard deviation and variance (along with absolute measure, the relative measure or coefficient of each type of dispersion) – coefficient of variation – combined standard deviation – Lorenz curve (application in income distribution).

Unit 4: Skewness and Kurtosis

Skewness – meaning of skewness and symmetry in a distribution – symmetrical distribution – asymmetrical or skewed distribution – negatively skewed and positively skewed, measures of skewness: absolute measure – Karl Pearson's coefficient of skewness – Bowley's coefficient of skewness – definition, types and measures of kurtosis – Karl Pearson's coefficient of kurtosis.

**Readings:**

A.L. Nagar and R.K. Das (2006), Basic Statistics, Second Edition Oxford University Press, New Delhi.
S.P. Gupta (2000), Statistical Methods, Sultan Chand and Sons, New Delhi.

**Note:** The examiner is required to set nine questions in all. The first question will be compulsory consisting of seven short questions covering the entire syllabus. In addition to that eight more questions will be set, two questions from each unit. The students shall be required to attempt five questions in all selecting one question from each unit in addition to compulsory Question No.1 All questions shall carry equal marks.

## BECO-105: Functional English

Maximum Marks: 100
Internal Assessment: 30 External Assessment: Theory 50
Time Allowed: 3 Hours Practical 20

**Objective:** This course will prepare students to read critically a variety of texts and also to communicate more effectively through writing. The course also helps in vocabulary building.

**Course Contents**

Unit 1: Phonetics: Theory
Definition and Scope of Linguistics, Difference between Phonetics and Phonology, The Speech Mechanism, Basic Concepts: Phoneme, Allophone, Vowel, Consonant.

Unit 2: Phonetics: Theory
Consonant Cluster and Syllable, Description of the British R.P. Speech Sounds: Vowels and Consonants

Unit 3: Grammar- Articles, Parts of Speech, Nouns: Singular and Plural, Verbs: Linking Verbs, Transitive & Intransitive Verbs, Agreement of Verbs and Subject.

Unit 4: Grammar- Tenses & their Use, Tag questions, Transformation, Confusion of Adjectives and Adverbs, Adverbial use of No, Not and None.

**Readings:**


1. *An Introduction to the Pronunciation of English*: A.C. Gimson.
2. *A Textbook of English Phonetics for Indian Student* by T.Balasubramanian (MacMillan India).
3. *English Phonetics for Indian Students (A workbook)* by T. Balasubramanian (MacMillan India).
4. A Remedial English Grammar for Foreign Students by F.T. Wood (MacMillan India).


**Note: For theory-**The examiner is required to set nine questions in all. The first question will be compulsory consisting of five short questions covering the entire syllabus. In addition to that eight more questions will be set, two questions from each unit. The students shall be required to attempt five questions in all selecting one question from each unit in addition to compulsory Question No.1 All questions shall carry equal marks.

**Practical: Oral Exam/Viva:** To be conducted in Language Lab.

# Semester-II

## BECO-201: Microeconomics-II

Maximum Marks: 100
Internal Assessment: 30 External Assessment: 70
Time Allowed: 3 Hours

**Objective:** The approach of this paper is to study the behaviour of a unit and analysis is generally static and in partial equilibrium framework. In addition, pricing decisions under different market forms including factor pricing and also the issues of investment and welfare economics have been included.

**Course Contents**

Unit 1: Market Structure and Equilibrium

Market forms – perfect and imperfect forms – equilibrium of a firm under perfect competition, monopoly, monopolistic competition, duopoly and oligopoly – importance of time element in price theory – price discrimination and measure of monopoly power – control and regulation of monopoly – collusive price leadership – kinked demand curve-taxation and equilibrium of a firm-comparison of various markets.

Unit 2: Pricing Methods

Mark up pricing – break even pricing – rate of return pricing – variable cost pricing – peak load pricing – going rate pricing – controlled or administered pricing – minimum support price.

Unit 3: Factor Pricing

Market for the factors of production – marginal productivity theory of pricing of factor (distribution theory) – Euler's theorem-linkages among the factors of production – theories of wages – determination – wages and collective bargaining – wage differentials – rent –Ricardian and modern theories of rent – scarcity rent – differential rent and quasi rent –interest – classical and Keynesian theories – profit – innovation, risk and uncertainty theories– the concept of normal profit – monopoly profit.

Unit 4: Welfare Economics

Welfare economics – economic and general welfare problems in measuring welfare –classical welfare economics – Pigovian welfare condition – Pareto's criteria – value judgment – concept of a social welfare function-compensation principle –the Kaldor- Hicks criterion.

**Readings:**

A. Koutsoyannis, (1979), Microeconomics A Modern Approach, East West Press, New Delhi
H. R. Varian (1993), Intermediate Microeconomics, W.W. Norton, New York
J. L Ryan(1962), Price Theory, ,MacMillan Press, London
N. C. Ray(1998), An Introduction to Microeconomics, MacMillan Press, London
N.G. Mankiw(2009), Economics : Principles and Applications, Cengage Learning, Printed in India
Mansfield, E. (1997), Microeconomics (9th Edition), W.W. Norton and Company, New York.
Ray, N.C. (1975), An Introduction to Microeconomics, Macmillan Company of India Ltd., Delhi.

**Note:** The examiner is required to set nine questions in all. The first question will be compulsory consisting of seven short questions covering the entire syllabus. In addition to that eight more questions will be set, two questions from each unit. The students shall be required to attempt five questions in all selecting one question from each unit in addition to compulsory Question No.1 All questions shall carry equal marks.

## BECO-202: Macroeconomics-II

Maximum Marks: 100
Internal Assessment: 30 External Assessment: 70
Time Allowed: 3 Hours

**Objective:** Macroeconomics in this paper deals with the functioning of the economy as a whole, including how the economy's total output of goods and services and employment of resources is determined and what causes these totals to fluctuate.

**Course Contents**

Unit 1: Microeconomic Foundations of Macroeconomics

Consumption – absolute income hypothesis, relative income hypothesis, life cycle hypothesis, permanent income hypothesis – investment (business fixed investment, residential investment and inventory investment) – neo-classical theory of investment – accelerator theory of investment – the Tobin's q theory.

Unit 2: The Closed Economy in the Short Run

The goods market and derivation of IS curve – real influences and Shift in IS schedule – the money market and derivation of LM curve – the shift in LM curve – determination of equilibrium income and interest rates – the relative efficacy of fiscal and monetary policy.

Unit 3: The Aggregate Demand and Supply

The derivation of aggregate demand and supply curves – the Keynesian aggregate demand with vertical aggregate supply curve – sources of wage rigidity and unemployment – the flexible price with fixed money wage model – labour supply and money wage – the shift in aggregate supply – Keynes vs. Classics.

Unit 4: Output, Inflation and Unemployment

Inflation: concepts and consequences- The Phillips curve – the natural rate of unemployment – factors affecting natural rate of unemployment – the adaptive expectation and long-run Phillips curve – the concept of rational expectations – policy ineffectiveness debate. Open Economy Models: The Mundell-Fleming model – determining equilibrium output in a small open economy – the monetary and fiscal policy under flexible and fixed exchange rates regimes – the Mundell- Flemming model with changing price level.

**Readings:**

R T Froyen (2008), Macroeconomics, Theory and policies, Prentice Hall
N. Gregory Mankiw (2002) Macroeconomics, 5th or later edition, Worth Publishers.
Rudiger Dornbusch, Stanley Fischer and Richard Startz, (2007) Macroeconomics, 7th or later edition, McGraw Hill.
Jones, Charles I. (1998), Introduction to Economic Growth, W.W. Norton & Company, Chapters 1, 2, 8.

**Note:** The examiner is required to set nine questions in all. The first question will be compulsory consisting of seven short questions covering the entire syllabus. In addition to that eight more questions will be set, two questions from each unit. The students shall be required to attempt five questions in all selecting one question from each unit in addition to compulsory Question No.1 All questions shall carry equal marks.

## BECO-203: Mathematics for Economics-II

Maximum Marks: 100
Internal Assessment: 30 External Assessment: 70
Time Allowed: 3 Hours

**Objective:**

The emphasis of this paper is on understanding economic concepts with the help of mathematical methods rather than learning mathematics itself. Hence in this paper a student will be initiated into various economic concepts, which are amenable to mathematical treatment.

**Course Contents**

Unit 1: Functions of One Real Variable

Examples (linear functions, polynomials, etc.) and elementary curve types – Sets of points in the plane determined by equations or inequalities

Unit 2: Limits

Infinite sequence and series – the concepts of convergence and limits – algebraic properties of limits – present discounted values and elements of investment analysis – the limit of f(x) as $x \rightarrow a$ – continuity – the intermediate – value theorem.

Unit 3: Advanced/Higher Calculus

Jensen's inequality– the second derivative criterion – points of inflexion – differentials and linear approximation – Taylor's theorem and polynomial approximation – indeterminate forms and L'Hôpital's rule – exponential and logarithmic functions – logarithmic differentiation – geometric representation, level curves – partial differentiation – plane sections and geometrical interpretation – tangent planes to a surface – higher–order partial derivatives – Young's theorem – partial derivatives in economics –linear approximation and differentials – the chain rule – the implicit function theorem (statement only) – first and higher order derivatives of functions defined implicitly – geometric interpretation.

Unit 4: Problem of Optimization

Homogeneous and homothetic functions – elasticity of substitution –concave and convex functions – Jensen's inequality and characterization in terms of the Hessian (statement only) –convex sets – quasiconcave and quasiconvex functions – maxima and minima – saddle points – unconstrained optimization – necessary and sufficient conditions for local optima –constrained optimization (equality constraints) – the method of Lagrange multipliers – interpretation of the necessary conditions and of the Lagrange multiplier – geometrical meaning – sufficient conditions – envelope results – economic examples.

**Readings**:

Knut Sydsaeter and Peter J. Hammond (2002), Mathematics for Economic Analysis. Pearson Educational Asia: Delhi (reprint of 1st 1995 edition).
Alpha C. Chiang (1984), Fundamental Methods of Mathematical Economics. McGraw Hill (3rd edition).
Weber Jean, E (1982), Mathematical Analysis HarperCollins college Div:4, Sub edition

**Note:** The examiner is required to set nine questions in all. The first question will be compulsory consisting of seven short questions covering the entire syllabus. In addition to that eight more questions will be set, two questions from each unit. The students shall be required to attempt five questions in all selecting one question from each unit in addition to compulsory Question No.1 All questions shall carry equal marks.

## BECO-204: History of Economic Thoughts

Maximum Marks: 100
Internal Assessment: 30 External Assessment: 70
Time Allowed: 3 Hours

**Objective:** The evolution of economic ideas in each instance was as much a response to immediate economic problems and policy issues as much as it was a self-conscious attempt to refine our understanding of economic phenomenon. This course would enable the student to understand how contemporary economics came to be what it is.

**Course Contents**

Unit 1: Early Period Economic thoughts: Plato and Aristotle — Doctrines of Just cost and Just price, Economic thoughts of Kautilya, Valluvar;

Modern economic ideas: Naoroji, Gandhi- Village, Swadeshi, J.K. Mehta-Wantlessness.

Unit 2: — Mercantilism: main characteristics; Thomas Mun — Physiocracy: primacy of agriculture, taxation, Locke and Hume.

Classical Period Adam Smith — division of labour, theory of value, capital accumulation, distribution, views on trade, economic progress; Thomas R. Malthus — theory of population, theory of gluts; Karl Marx - dynamics of social change, theory of value, surplus value, profit, and crisis of capitalism; Economic ideas of J.B. Say.

Unit 3: Marshall as a great synthesizer: role of time in price determination, Pigou: Welfare economics; Schumpeter: role of entrepreneur and innovations.

Unit 4: Keynesian Ideas: the aggregate economy, underemployment equilibrium, role of fiscal policy, Friedman, Hayek.

**Readings:**


Blackhouse, R. (1985), A History of Modern Economic Analysis, Basil Blackwell, Oxford.
Ganguli, B.N. (1977), Indian Economic Thought: A 19th Century Perspective, Tata McGraw Hill, New Delhi.
Gide, C. and G. Rist (1956), A History of Economic Doctrines, (2nd Edition), George Harrop & Co., London.
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Grey, A. and A.E. Thomson (1980), The Development of Economic Doctrine, (2nd Edition), Longman Group, London.
Kautilya (1992), The Arthashastra, Edited, Rearranged, Translated and Introduced by L.N. Rangaranjan, Penguin Books, New Delhi.
Roll, E. (1973), A History of Economic Thought, Faber, London.
Schumpeter, J.A. (1954), History of Economic Analysis, Oxford University Press, New York.
Seshadri, G.B. (1997), Economic Doctrines, B.R. Publishing Corporation, Delhi.


**Note:** The examiner is required to set nine questions in all. The first question will be compulsory consisting of seven short questions covering the entire syllabus. In addition to that eight more questions will be set, two questions from each unit. The students shall be required to attempt five questions in all selecting one question from each unit in addition to compulsory Question No.1 All questions shall carry equal marks.

## BECO-205: Environmental Science

Maximum Marks: 100
Internal Assessment: 30 External Assessment: 70
Time Allowed: 3 Hours

**Objective:** To aware the students regarding the significance use of environments resources.

**Course Contents**

Unit 1: Multidisciplinary nature of environmental studies: Definition, scope and importance, Natural Resources: Renewable and non-renewable resources, Natural resources and associated problems: Equitable use of resources for sustainable lifestyles

Unit 2: Ecosystems: Concept of an ecosystem, Structure and function of an ecosystem, Producers, consumers and decomposers, Energy flow in the ecosystem, Ecological succession, Biodiversity and its conservation: Definition: genetic, species and ecosystem diversity, Threats to biodiversity: habitat loss, poaching of wildlife, man-wildlife conflicts

Unit 3: Environmental Pollution Definition: Cause, effects and control measures, Role of an individual in prevention of pollution, Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust, Consumerism and waste products, Environment Protection Act

Unit 4: Human Population and the Environment: Population growth, variation among nations, Environment and human health, Human Rights, Value Education, Women and Child Welfare, Role of Information Technology in Environment and human health

**Readings**:

Agarwal, K.C. 2001 Environmental Biology, Nidi Publ. Ltd. Bikaner.
Bharucha Erach, The Biodiversity of India, Mapin Publishing Pvt. Ltd., Ahmedabad – 380 013, India, Email:mapin@icenet.net (R)
Brunner R.C., 1989, Hazardous Waste Incineration, McGraw Hill Inc. 480p
Clark R.S., Marine Pollution, Clanderson Press Oxford (TB)
Cunningham, W.P. Cooper, T.H. Gorhani, E & Hepworth, M.T. 2001, Environmental Encyclopedia, Jaico Publ. House, Mumabai, 1196p
De A.K., Environmental Chemistry, Wiley Eastern Ltd.
Down to Earth, Centre for Science and Environment (R)
Hawkins R.E., Encyclopedia of Indian Natural History, Bombay Natural History Society, Bombay (R)
Heywood, V.H & Waston, R.T. 1995. Global Biodiversity Assessment. Cambridge Univ. Press 1140p.
Jadhav, H & Bhosale, V.M. 1995. Environmental Protection and Laws. Himalaya Pub. House, Delhi 284 p.
Mhaskar A.K., Matter Hazardous, Techno-Science Publication (TB)
Miller T.G. Jr. Environmental Science, Wadsworth Publishing Co. (TB)
Odum, E.P. 1971. Fundamentals of Ecology. W.B. Saunders Co. USA, 574p
Rao M N. & Datta, A.K. 1987. Waste Water treatment. Oxford & IBH Publ. Co. Pvt. Ltd. 345p.
Sharma B.K., 2001. Environmental Chemistry. Geol Publ. House, Meerut
Survey of the Environment, The Hindu (M)
Townsend C., Harper J, and Michael Begon, Essentials of Ecology, Blackwell Science (TB) XI
Trivedi R. K. and P.K. Goel, Introduction to air pollution, Techno-Science Publication (TB)
Wanger K.D., 1998 Environmental Management. W.B. Saunders Co. Philadelphia, USA 499p (M) Magazine (R) Reference (TB) Textbook

**Note:** The examiner is required to set nine questions in all. The first question will be compulsory consisting of seven short questions covering the entire syllabus. In addition to that eight more questions will be set, two questions from each unit. The students shall be required to attempt five questions in all selecting one question from each unit in addition to compulsory Question No.1 All questions shall carry equal marks.

# Semester-III

## BECO-301: International Economics

Maximum Marks: 100
Internal Assessment: 30 External Assessment: 70
Time Allowed: 3 Hours

**Objective:** This course provides the students an about the basic principles that tend to govern the free flow of trade in goods and services at the global level. This paper has become relatively more relevant from the policy point of view under the present waves of globalization and liberalization.

**Course Contents**

Unit 1: Introduction to International Economics
Importance of international economics – international trade & economic growth – subject matter of international economics – purpose of international economic theories and policies – current international economic problems

Unit 2: Theories of International Trade
Distinguishing features of internal and international trade – the pure theory of international trade-theories of absolute advantage, comparative advantage and opportunity cost – Heckscher-Ohlin theory of trade – factor price equalization theory – empirical relevance of the H-O theory

Unit 3: Alternative Trade Theories
Vent for surplus approach – Kravis and Linders theory of trade – imitation gap and product cycle theory, role of dynamic factor in explaining the emergence of trade, trade under imperfect competition and increasing returns to scale – measurement of gains from trade and their distribution.

Unit 4: Economic Growth and International Trade
Introduction – effect of growth on trade – production and consumption effects of growth, combined effect – effects of growth on terms of trade, immiserizing growth – technical progress and international growth – import substitution and export promotion strategy. Gains from Trade-Meaning – factors determining the gains from trade – gains from trade and income distribution – measurement of gains from trade and their distribution – the gains from trade in the case of large and small country – free trade vs. no trade – restricted trade vs. no trade.

**Readings:**

Paul Krugman and Maurice Obstfeld (2002), International Economics: Theory and policy, latest edition
Salvatore D (1997), International Economics, PHI, New York
Dana, M.S (2000), International Economics, Routledge Publications, London Carbough, R.J (1999), International Economics, Ohio South-Western Cengage Learning, Mason
Bhagwati. J. (1981), International trade, Cambridge University Press. London

**Note:** The examiner is required to set nine questions in all. The first question will be compulsory consisting of seven short questions covering the entire syllabus. In addition to that eight more questions will be set, two questions from each unit. The students shall be required to attempt five questions in all selecting one question from each unit in addition to compulsory Question No.1 All questions shall carry equal marks.

## BECO-302: Economics of Growth and Development

Maximum Marks: 100
Internal Assessment: 30 External Assessment: 70
Time Allowed: 3 Hours

**Objective:** Course structure enables the students to know about theories of growth and development, sectoral aspects of development, investment criteria and the techniques of planning and its recent adaptations. Issues relating to sustainable development, environmental protection and pollution control also find their due place.

**Course Contents**

Unit 1: Modern economic growth –basic features, trends and patterns- relevance of historical experience to contemporary UD countries- limited relevance- factors for – differing initial conditions- role of international migration and international trade.

Unit 2: Growth and development- conceptual issues. Issues in measurement- national income and per capita income – International comparison of per capita incomes – measurement of purchasing power parity, GNP- a biased index of development and welfare- construction of poverty weighted index of social welfare, Alternative measures of development – human development index- gender based development index, gender empowerment measure- international poverty index, global hunger index- social sector and development- Education and health.

Unit 3: Approach to the study of economic development – linear stage theory, structural change models, Neo Marxian dependency approach, false paradigm model, dualistic approach, neoliberal free market approach, endogenous growth theory.

Unit 4: Growth models; Harrod Domar-knife edge equilibrium problem, Cambridge models- Joan Robinson, Kaldor, Neoclassical growth models- Solow swan Meade – criticism of neoclassical theory-emergence of endogenous growth models. Technological progress embodied and disembodied – Hicks and Harrod version, production function approach to growth, total factor productivity and growth accounting.

**Readings:**

Debraj Ray, (1998), Development Economics Oxford University Press.
Simon Kuznets, (1966), Economic Growth, Rate structure and Spread, Yale University Press.
Michael P. Tadaro, (1998), Economic Development Longman,
Adam Szirmai, (2005), Dynamics of socio economic development-An introduction, Cambridge University Press.
Amartya Kumar Sen (1970), Growth Economics, Penguin Harmondsworth, Penguin Books.
Gerald Meir, (2003), Leading Issues in Economic Development, Oxford University Press.
A.P. Thirwall, (1994), Growth and Development ELBS.

**Note:** The examiner is required to set nine questions in all. The first question will be compulsory consisting of seven short questions covering the entire syllabus. In addition to that eight more questions will be set, two questions from each unit. The students shall be required to attempt five questions in all selecting one question from each unit in addition to compulsory Question No.1 All questions shall carry equal marks.

## BECO-303: Statistics-II

Maximum Marks: 100
Internal Assessment: 30 External Assessment: 70
Time Allowed: 3 Hours

**Objective:** The emphasis of this paper is on understanding economic concepts with the help of statistical methods rather than learning statistics itself. Hence in this paper a student will be initiated into various economic concepts, which are amenable to statistical treatment. The paper also deals with simple tools and techniques and drawing inferences about various statistical hypotheses.

**Course Contents**

Unit 1: Correlation

Concept of correlation – types of correlation – bivariate distribution and covariance –simple correlation – Karl Pearson's product moment coefficient of correlation measure – partial correlation: definition and measure – multiple correlation: definition and measure (long run production function) – Spearman's rank correlation coefficient – properties and uses of correlation.

Unit 2: Analysis of Time Series

Definition and components of a time series – mathematical models – additive model and multiplicative model of a time series – seasonal variations – measuring through -a) simple average method- and ratio to trend method – cyclical variations – measuring through residual method – trend and its measurement through a) method of moving averages and method of least squares ( annual production, sales, profit. etc.,) – fitting a second degree trend (population growth) – growth curves, logistic curve and Gompertz curve – interpolation and extrapolation.

Unit 3: Regression Analysis

Meaning of regression – types of regression – simple and multiple linear and non-linear regressions – concept and method of least squares – line of best fit – regression coefficients –line of regression of x on y (aggregate consumption function) –line of regression on y on x (accelerator) – properties of regression coefficients – utility regression analysis in economic studies – coefficient of determination.

Unit 4: Index Numbers

Definition of index number – types of index number – price index – quantity index –value index – simple index number – weighted index number – construction of index number – problems in construction – methods in construction – simple and weighted – Laspeyre's price index (CPI in India) – Paasche's price index – Fisher's ideal index – splicing of index number – deflating ( real wages).

**Readings:**

A.L. Nagar and R.K. Das (2006), Basic Statistics, Second Edition Oxford University Press, New Delhi.
S.P. Gupta (2000), Statistical Methods, Sultan Chand and Sons, New Delhi.

**Note:** The examiner is required to set nine questions in all. The first question will be compulsory consisting of seven short questions covering the entire syllabus. In addition to that eight more questions will be set, two questions from each unit. The students shall be required to attempt five questions in all selecting one question from each unit in addition to compulsory Question No.1 All questions shall carry equal marks.

## BECO-304: Financial Institutions and Markets

Maximum Marks: 100
Internal Assessment: 30 External Assessment: 70
Time Allowed: 3 Hours

**Objective:** The student of economics should be well conversant with the theory and practice of different financial institutions and markets to understand and analyse the interconnection between the monetary forces and real forces, their developmental role and limitations in shaping and influencing the monetary and related policies both at the national and international levels.

**Course Contents**

Unit 1: Nature and Role of Financial System Money and finance — Money and near-money — Financial intermediation and financial intermediaries — the structure of the financial system — Functions of the financial sector — Indicators of financial development — Equilibrium in Financial Markets — Financial System and Economic Development

Unit 2: Criteria to evaluate assets: Risk and financial assets, types of risk, return on assets, Risk — Return trade off — Valuation of Securities. Structure of Interest Rates Theories of interest rate determination — Level of interest rates — Long period and Short period rates — Term Structure of Interest rates — Spread between lending and deposit rates — Administered interest rates — Appropriate interest rate policy.

Unit 3: The Central Bank, Commercial Banks, Non-bank Financial Intermediaries and Monetary Policy Functions of Central Bank — The aims and objectives of the monetary policy in developed and developing countries — Instruments of monetary policy — Proliferation of banking and non-bank financial intermediaries — Effectiveness of monetary policy — Credit creation and its control; Profitability and efficiency of banks; Development banks — role and functions; Investment banking and merchant banking; Financial sector reforms in India.

Unit 4: International Financial Markets Nature, organization and participants, Reforms in International monetary system for developing countries — Lending operation of World Bank and its affiliates — Working of IDA and IFC, Theory of optimum currency areas; Growth of Regional financial institutions, Development bank and its lending activities; Asian Development Bank and India. Euro-dollar and Euro-Currency markets: their developmental role and regulation at the International level.

**Readings:**

Bhole, L.M. (1999), Financial Institutions and Markets, Tata McGraw Hill Company Ltd., New Delhi. Bhole, L.M. (2000), Indian Financial System, Chugh Publications, Allahabad.
Edminster, R.O. (1986), Financial Institutions, Markets and Management, McGraw Hill, New York. Goldsmith, R.W. (1969), Financial Structure and Development, Yale, London.
Hanson, J.A. and S. Kathuria (Eds.) (1999), India : A Financial Sector for the Twenty-first Century, Oxford University Press, New Delhi.
Harker, P.T. and S.A. Zenios (2000) (Ed.), Performance of Financial Institutions, Cambridge University Press, Cambridge.
Machiraju, M.R. (1999), Indian Financial Systems, Vikas Publishing House, New Delhi.
Amsterdam. Prasad, K.N. (2001), Development of India's Financial System, Sarup & Sons, New Delhi.
Robinson, R.I. and D. Wrightman (1981), Financial Markets, McGraw Hill, London.
Smith, P.F. (1978), Money and Financial Intermediation: The Theory and Structure of Financial System, Prentice Hall, Englewood-Cliffs, New Jersey.

**Note:** The examiner is required to set nine questions in all. The first question will be compulsory consisting of seven short questions covering the entire syllabus. In addition to that eight more questions will be set, two questions from each unit. The students shall be required to attempt five questions in all selecting one question from each unit in addition to compulsory Question No.1 All questions shall carry equal marks.

# Semester-IV

## BECO-401: Introductory Econometrics

Maximum Marks: 100
Internal Assessment: 30 External Assessment: 70
Time Allowed: 3 Hours

**Objective:** Econometric methods have proved particularly useful for understanding the interrelationships in the economic variables. Use of econometrics has given greater precision in establishing such relationships. Students graduating in economics are expected to know the basic concepts and understanding of economic problems.

**Course Contents**

Unit 1: Nature and Scope of Econometrics

Meaning of econometrics – relationship between statistics, mathematics and economics – economic and econometric models – the aims and methodology of econometrics – historical origin of the term regression and its modern interpretation – statistical vs deterministic relationship – regression vs causation – regression vs correlation – terminology and notation – the nature and sources of data for econometric analysis

Unit 2: Two Variables and Multiple Regression Analysis

The basic two variable regression models: estimation – statistical inference and prediction – extensions of two variable regression model – regression through origin – scaling and units of measurement – functional forms of regression model – Multiple Regression Analysis: The problem of estimation – notation and assumptions – meaning of partial regression coefficients, the multiple coefficient of determination – $R^2$ and the multiple coefficient of correlation R –$R^2$ and adjusted $R^2$ – partial correlation coefficients – interpretation of multiple regression equation.

Unit 3: The Problem of Inference

The normality assumption – hypothesis testing about individual partial regression coefficients – testing the overall significance of the sample regression – testing the equality of two regression coefficients – restricted least squares – testing for structural stability of regression models – testing the functional form of regression.

Unit 4: Relaxing the Assumptions of the Classical Regression Model

Multicollinearity – heteroscedasticity and autocorrelation: nature, consequences, detection and remedial measures. Regression on Dummy Independent Variables: The nature of dummy variables – regression on one quantitative variable and one qualitative variable – regression on one quantitative variable and one qualitative variable with more than two classes – regression on one quantitative variable and two qualitative variables – testing for structural stability regression models – interaction effects, piece wise linear regression, the use of dummy variables – time series analysis: some basic concepts – exposure to econometric packages.

**Readings**:

Gujarati, D (2003) Basic Econometrics, 4th Edition, New York: McGraw Hill
Maddala, G (1992) Introduction to Econometrics, 2nd ed., New York: MacMillan.
Koutsoyiannis, A. (1977), Theory of Econometrics (2nd ed.), The Macmillan Press Ltd., London.

**Note:** The examiner is required to set nine questions in all. The first question will be compulsory consisting of seven short questions covering the entire syllabus. In addition to that eight more questions will be set, two questions from each unit. The students shall be required to attempt five questions in all selecting one question from each unit in addition to compulsory Question No.1 All questions shall carry equal marks.

## BECO-402: Public Economics

Maximum Marks: 100
Internal Assessment: 30 External Assessment: 70
Time Allowed: 3 Hours

**Objective:** Public finance is the study of government policy from the points of view of economic efficiency and equity. The paper deals with the nature of government intervention and its implications for allocation, distribution and stabilization. Inherently, this study involves a formal analysis of government taxation and expenditures. The subject encompasses a host of topics including public goods, market failures and externalities.

**Course Contents**

Unit 1: Public Economics Theory-Fiscal functions: an overview. Public Goods: definition, models of efficient allocation, pure and impure public goods, free riding. Externalities: the problem and its solutions, taxes versus regulation, property rights, the Coase theorem.

Unit 2: Taxation: its economic effects; dead weight loss and distortion, efficiency and equity considerations, tax incidence, optimal taxation, Public Expenditure: Theory, and practice.

Unit 3: Indian Public Finances, Tax System: structure and reforms, Expenditures, Budget, deficits and public debt

Unit 4: Fiscal federalism in India-NITI Ayog, Finance Commissions, Centrally Sponsored Schemes (CSS).

**Readings**:

J. Hindriks, G. Myles (2006): Intermediate Public Economics, MIT Press
H. Rosen, T. Gayer (2009): Public Finance, 9th ed., McGraw-Hill/Irwin
Joseph E. Stiglitz (2000): Economics of the Public Sector, W.W. Norton & Company, 3rd edition
R.A. Musgrave and P.B. Musgrave (1989): Public Finance in Theory & Practice, McGraw Hill Publications, 5th edition
John Cullis and Philip Jones (1998): Public Finance and Public Choice, Oxford University Press, 1st edition,
Harvey Rosen (2005): Public Finance, McGraw Hill Publications, 7th edition
Mahesh Purohit (2007): Value Added Tax: Experiences of India and Other Countries
Kaushik Basu and A. Maertens (ed.) (2013): The New Oxford Companion to Economics in India, Oxford University Press.
M.M. Sury (1990), Government Budgeting in India, -34
M. Govinda Rao (2005), Changing Contours of Federal Fiscal Arrangements in India, Amaresh Bagchi (ed.), Readings in Public Finance, Oxford University Press
Paul Samuelson, (1955), ―Diagrammatic Exposition of a theory of Public Expenditure, Review of Economics and Statistics, Volume 37.
Shankar Acharya, (2005), ―Thirty Years of Tax Reform in India, Economic and Political Weekly, May 14-20.
Rangarajan and D.K. Srivastava, (2005), ―Fiscal Deficit and Government Debt: Implications for Growth and Stabilization", Economic and Political Weekly, July2-8.
M. Govinda Rao, (2011), ―Goods and Services Tax: A Gorilla, Chimpanzee or a Genius like Primates?, Economic and Political Weekly, February 12-18.
Report of the 13th Finance Commission, 2010-15.
Economic Survey, Government of India (Latest).
State Finances: A Study of Budgets, Reserve Bank of India (Latest).

**Note:** The examiner is required to set nine questions in all. The first question will be compulsory consisting of seven short questions covering the entire syllabus. In addition to that eight more questions will be set, two questions from each unit. The students shall be required to attempt five questions in all selecting one question from each unit in addition to compulsory Question No.1 All questions shall carry equal marks.

## BECO-403: Contemporary Issues in Indian Economy

Maximum Marks: 100
Internal Assessment: 30 External Assessment: 70
Time Allowed: 3 Hours

**Objective:** The purpose of this course on Indian economy is to enable students to develop an understanding of the various issues/components of the Indian economy so that they are able to comprehend and critically appraise current Indian economic issues.

**Course Contents**

Unit 1: Issues in Indian Planning

Objective and critical evaluation (Growth, self – reliance, Employment generation, inequality reduction, poverty removal modernization and competitiveness, economic reforms), saving and investment; Mobilization of Internal and External finances, Centre State financial relation

Unit 2: Policy Regimes

The evolution of planning and import substituting industrialization, Economic reform and liberalization.

Unit 3: Growth, Development and Structural Change

The experience of Growth, Development and Structural Change in different phases of growth and policy regimes across sectors and regions, the Institutional Framework: Patterns of assets ownership in agriculture and industry; Policies for restructuring agrarian relations and for regulating concentration of economic power; Changes in policy perspectives on the role of institutional framework after 1991.

Unit 4: Sector-wise Trends and Issues

Industry: Industries Policy: pre and post 1991, Relative roles of large and small scale, Public vs. Private sector, the role and forms of foreign capital (Foreign Institutional Capital, Foreign Direct Investment.) Foreign Trade: Role and importance of foreign trade in India, the balance of trade and balance of payments situation. Price: Monetary and Fiscal policies.

**Readings**:

Uma Kapila, (2016) "Indian Economics since Independence". 27th edition, Academic Foundation.
Deepashree (2012), Indian Economy, Performance and Policies, Ane Books Pvt. Ltd., New Delhi.
Arvind Virmani (2014), Accelerating Growth and Poverty Reduction: A Policy Framework for India's Development.
Government of India. Economics Survey.
Government of India. Five Year Plan.
Government of India. Finance Commission.
Romesh chander Dutt (2000), The Economic History of India under Early British Rule, Routledge (reprinted), London.
Kirit S Parikh and R.Radhakrishnan (ed) (2002), India Development Report.
Ruddar Datt and K.P.M Sundaram (2008), Indian Economy S.chand and co, New Delhi.
Note: Latest edition of text books may be used.

**Note:** The examiner is required to set nine questions in all. The first question will be compulsory consisting of seven short questions covering the entire syllabus. In addition to that eight more questions will be set, two questions from each unit. The students shall be required to attempt five questions in all selecting one question from each unit in addition to compulsory Question No.1 All questions shall carry equal marks.

## BECO-404: Statistics Lab I

Maximum Marks: 100
Internal Assessment: 30 External Assessment: 70
Time Allowed: 3 Hours

**Objective:**

It is to produce computer literate and well-educated graduates who can get not only employment but also create work and produce value added output in the society, for which present syllabus is being designed. It will include the application of statistical tools and techniques studied in Semester-I and Semester-III on real world data by using computer spreadsheet package like MS Excel, SPSS etc.

**Course Contents**

**List of Practical**

(i) Diagram and graphical presentation of data.
(ii) Outlier detection, shape of the distribution and data transformation.
(iii) Calculation of central tendency, spreaders and moments from the data.
(iv) Testing of the population mean, difference in the means, proportion and variance.
(v) Analysis of variance-one way and two way, Chi-square test.
(vi) Correlation and regression analysis.
(vii) Plotting the time series data and computation of growth using Indian economy data.
(viii) Write and present statistical results.

**Readings**

Ramanathan, Ramu (2001), 'Introductory Econometrics with Applications' 5th Edition, South-Western College Publisher.

Miller, James D. (2017), 'Statistics for Data Science',1st Edition, Packt Publishing.

Dretzke, Beverly J. (2011), 'Statistics with Microsoft Excel', 5th Edition, Pearson.

George,Darren & Paul Mallery (2016), IBM SPSS Statistics 23 Step by Step : A simple guide and reference, Taylor and Francis.

Albright, S. Christian; Wayne L. Winston & Christopher J. Zappe (2010), 'Data Analysis for Managers with Microsoft Excel', 2nd Edition, Duxbury Press.

**Note:** The examiner is required to set nine questions in all. The first question will be compulsory consisting of seven short questions covering the entire syllabus. In addition to that eight more questions will be set, two questions from each unit. The students shall be required to attempt five questions in all selecting one question from each unit in addition to compulsory Question No.1 All questions shall carry equal marks.

## Semester-V

## BECO-501: Regional Economics with Special Reference to Haryana Economy

Maximum Marks: 100
Internal Assessment: 30 External Assessment: 70
Time Allowed: 3 Hours

**Objective:** To understand the dynamics of regional development. The issues are discussed with reference to local economy of Haryana to develop a local context of economic issues.

**Course Contents**

Unit 1: Regional Economics- Concept, Scope and framework; Regional economic problems; Location factors; Different Approaches to study Regional Economics ; Location of places & their problems ; Nature of Regions and relation of activities within a region ; Regional policy & objectives.

Unit 2: Structural Changes in Haryana Economy- Agricultural in Haryana, Growth & productivity Green Revolution; role, performance & implications; Agricultural diversification, rationale, constraints and prospectus; agriculture credit & marketing, Soil degradation, Irrigation and water management.

Unit 3: Industry in Haryana: Industrial development – Pattern, performance, constraints & challenges; Small–scale industry role, problems & future prospects; State & industrial development, HSIIDC, Development of transport and banking in Haryana, Regional inequality.

Unit 4: Public Finances of Haryana, Sources of revenue and heads of expenditure; Problems of resource mobilization in Haryana, State Public sector Enterprises, off budget liabilities.

**Readings**:

Hoover, F.M. (1984) An Introduction to Regional Economics, UCEB.
Richardson, H.W. (1972) Regional Economics, Weidenfeld and Nicolson, London.
Statistical Abstract and Economics Survey of Haryana various years.

**Note:** The examiner is required to set nine questions in all. The first question will be compulsory consisting of seven short questions covering the entire syllabus. In addition to that eight more questions will be set, two questions from each unit. The students shall be required to attempt five questions in all selecting one question from each unit in addition to compulsory Question No.1 All questions shall carry equal marks.

## BECO-502: Applied Econometrics

Maximum Marks: 100
Internal Assessment: 30 External Assessment: 70
Time Allowed: 3 Hours

**Objective:** Applications of economic theory need a reasonable understanding of economic relationships and relevant statistical methods. The econometric theory thus becomes a very powerful tool for understanding of applied economic relationships and for meaningful research in economics.

**Course Contents**

Unit1: Regressions with Qualitative Independent Variables Dummy variable technique —use of dummy variables, regression with dummy dependent variables; The LPM, Logit and Probit models — Applications.

Unit 2: Dynamic Econometric Model Autoregressive and distributed lag models — Koyak model, Partial adjustment model, adaptive expectations; Instrumental variables; Problem of auto-correlation — Application; Almon approach to distributed-lag models.

Unit 3: Time Series Analysis Stationarity, unit roots, co-integration-spurious regression, Dickey-Fuller test, Random walk model, Forecasting with ARIMA modelling; Vector autoregression; Problems with VAR modelling — Applications

Unit 4: Panel Data Techniques Panel data techniques — Random coefficients model; Fix effects model; Random effect model.

**Readings:**

Amemiya, T. (1985), Advanced Econometrics, Harvard University Press, Cambridge, Mass.
Baltagi, B.H. (1998), Econometrics, Springer, New York.
Goldberger, A.S. (1998), Introductory Econometrics, Harvard University Press, Cambridge, Mass.
Gujarati, D.N. (1995), Basic Econometrics (2nd Edition), McGraw Hill, New Delhi.
Hill R. C., E.G. William and G.G. Judge (1997), Undergraduate Econometrics, Wiley, New York.
Krishna, K.L. (Ed.) (1997), Econometric Applications in India, Oxford University Press, New Delhi.
Maddala, G.S. (Ed.) (1993), Econometrics Methods and Application (2 Vols.), Aldershot U.K.

**Note:** The examiner is required to set nine questions in all. The first question will be compulsory consisting of seven short questions covering the entire syllabus. In addition to that eight more questions will be set, two questions from each unit. The students shall be required to attempt five questions in all selecting one question from each unit in addition to compulsory Question No.1 All questions shall carry equal marks.

## BECO-503: Statistics Lab II

Maximum Marks: 100
Internal Assessment: 30 External Assessment: 70
Time Allowed: 3 Hours

**Objective:**

The growth and spread of computer and its invasive presence in every sphere of intelligent human activity is forcing every educational system and discipline to adopt and integrate its fundamentals into course structure. It will include the application of statistical and econometric techniques studied in Semester-I to V on real world data by using computer spreadsheet package like MS Excel, SPSS and R-package.

**Course Contents**

**List of Practical**

(i) Modeling average: working with real world dataset (usefulness and shortcomings of modeling mean, relative efficiency of mean and median, confidence interval and its interpretation, etc.)

(ii) Outlier detection, shape of the distribution and data transformation

(iii) Regression with graphics – checking the model assumption, exploratory band regression, checking of high leverage & influential points, transformation of data towards linearity, double-log transformation vs. semi-log transformation, etc.

(iv) Parameter stability using macroeconomic database, use of dummy variables, etc.

(v) Detecting multicollinearity, different test statistics, and transforming the data and model to avoid multicollinearity.

(vi) Detecting autocorrelation, different test statistics, and transforming the data and model to avoid autocorrelation.

(vii) Detecting heteroscedasticity, different test statistics, and transformation towards homoscedasticity.

(viii) Handling different data sets where dependent variable is categorical.

(ix) Write and present econometric results.

(x) A practical assignment to measure the growth of macroeconomic variables of Indian economy/Haryana Economy.

**Readings**

Ramanathan, Ramu (2001), 'Introductory Econometrics with Applications' 5th Edition, South-Western College Publisher.

Miller, James D. (2017), 'Statistics for Data Science',1st Edition, Packt Publishing.

Dretzke, Beverly J. (2011), 'Statistics with Microsoft Excel', 5th Edition, Pearson.

George,Darren & Paul Mallery (2016), IBM SPSS Statistics 23 Step by Step : A simple guide and reference, Latest Edition, Taylor and Francis.

Kleiber, Christian & Achim Zeileis(2008) 'Applied Econometrics with R', 1st Edition, Springer.

Marques de sa; Joaquim P. (2007) 'Applied Statistics Using SPSS, Statistica, Matlab and R', 2nd Edition, Springer.

Heij, Christiaan; Paul de Boer; Philip Hans Franses; Teun Kloek ; and Herman K. van Dijk (2003), 'Econometrics Methods with Applications in Business and Economics',(Latest Edition), Oxford University Press.

Charbaji, Abdulrazzak,(2011) 'Econometrics Using Eviews, SPSS and Excel with Applications in Arab Countires', Charbaji Counsultants.

**Note:** The examiner is required to set nine questions in all. The first question will be compulsory consisting of seven short questions covering the entire syllabus. In addition to that eight more questions will be set, two questions from each unit. The students shall be required to attempt five questions in all selecting one question from each unit in addition to compulsory Question No.1 All questions shall carry equal marks.

## BECO-504: Internship with the corporate world

Maximum Marks: 100

Report writing: 50 Presentation of report: 50

**Objective:** To expose student to the functioning of corporate world and also develop first hand understanding about the application of conceptual framework in corporate decision making.

Students shall have to undergo six week internship with business firms of repute and submit a report in a prescribed format.

Each student shall give a seminar/presentation on the internship report before a committee of teachers constituted by the Chairperson of school of economics (SOE).

The distribution of marks of Internship: 50 marks for the seminar/presentation of the report and 50 marks for the content of the submitted report.

# Semester-VI

## BECO-601: Economics of Infrastructure

Maximum Marks: 100
Internal Assessment: 30 External Assessment: 70
Time Allowed: 3 Hours

**Objective:** The contents of the paper Economics of Infrastructure exposes the student wholly to issues involved in development of infrastructure in developing countries like India.

**Course Contents**

Unit 1: Introduction Infrastructure and economic development — Infrastructure as a public good; Social and physical infrastructure; Economies of scale of Joint supply; Marginal Cost Pricing vs. other methods of pricing in public utilities; Cross-subsidization — free prices, equity and efficiency.

Unit 2: Transport Infrastructure- demand for transport infrastructure, Models of Freight and Passenger Demand. Principle of Pricing. Special Problems of Individuals Modes of Transport; Inter-modal condition in the Indian Situation.

Unit 3: Communications Rate-making in telephone utilities. principles of decreasing costs in telephone industry.

Unit 4: Primacy of Energy in the process of economic development, Electricity, Gas and Water Supply, Bulk Supply and Pricing of Electricity. Factors Determining Demand for Energy. Financing Water Utilities. Urban and Rural Water Supply.

**Readings:**

Crew, M.A. and P.R. Kleindorfer (1979), Public Utility Economics, Macmillan, London.
Indian Council of Social Sciences Research (ICSSR) (1976), Economics of Infrastructure, Vol. VI, New Delhi.
National Council of Applied Economic Research (NCAER) (1996), India Infrastructure Report-: Policy Implications for Growth and Welfare, NCAER, New Delhi.
Parikh, K.S. (Ed.) (1997), India Development Report 1997, Oxford, New Delhi.
Parikh, K.S. (Ed.) (1999), India Development Report — 1999-2000, Oxford, New Delhi.
Turvey, R. (Ed.) (1968), Public Enterprises, Penguin, Harmondsworth, London.

**Note:** The examiner is required to set nine questions in all. The first question will be compulsory consisting of seven short questions covering the entire syllabus. In addition to that eight more questions will be set, two questions from each unit. The students shall be required to attempt five questions in all selecting one question from each unit in addition to compulsory Question No.1 All questions shall carry equal marks.

## BECO-602: Economics of Social Sector

Maximum Marks: 100
Internal Assessment: 30 External Assessment: 70
Time Allowed: 3 Hours

**Objective:** This paper provides necessary training to the students of economics and equips them to deal with the public policy issues in the social sectors.

**Course Contents**

Unit 1: Educational Economics: Human capital vs. physical capital, components of human capital; Determinants of demand for education; Costs and benefits of education; Education and economic growth.

Unit 2: Educational financing; Education and labour market,; Economics of education planning in developing countries with special emphasis on India.

Unit 3: Health Economics Determinants of health; Economic dimensions of health care; Appraisal of health care financing; The concept of human life value; Benefit-cost and cost effectiveness approaches; Inequalities in health and class and gender perspectives; Institutional issues in health care delivery.

Unit 4: Social Infrastructure Organization and Financing of Supply of Social Services, Private vs. Public Sector Financing; Recent debate about the fixation of prices of social services, Development of social services in the successive Indian Plans.

**Readings:**


Baru, R. V. (1998), Private Health Care in India: Social Characteristics and Trends, Sage Publications, New Delhi.
Bhattacharya, R.N. (Ed.) (2001), Environmental Economics: An Indian Perspective, Oxford University Press, New Delhi.
Blaug, M. (1970), An Introduction to Economics of Education, Cambridge University Press, Cambridge.
Cohn, E. and T. Gaske (1989), Economics of Education, Pergamon Press, London.
Klarman, H.E. (1965), The Economics of Health, Columbia University Press, New York.
Kolstad, C.D. (2000), Environmental Economics, Oxford University Press, Oxford.
Markandya, A. and J. Richardson (Eds.), The Earth Scan Reader in Environmental Economics, Earth Scan, London.
Panchmukhi, P.R. (1980), Economics of Health: A Trend Report in ICSSR, A Survey of Research in Economics, Vol. VI, Infrastructure, Allied Publishers, Delhi.
Pearce, D.W. and R.K. Turner (1991), Economics of Natural Resource Use and Environment, Johns Hopkins University Press, Baltimore.
Schultz, T.W. (1963), Economic Value of Education, Columbia University Press, New York.


**Note:** The examiner is required to set nine questions in all. The first question will be compulsory consisting of seven short questions covering the entire syllabus. In addition to that eight more questions will be set, two questions from each unit. The students shall be required to attempt five questions in all selecting one question from each unit in addition to compulsory Question No.1 All questions shall carry equal marks.

## BECO-603: Industrial Economics

Maximum Marks: 100
Internal Assessment: 30 External Assessment: 70
Time Allowed: 3 Hours

**Objective**: This course provides knowledge to the students on the basic issues such as productivity, efficiency, capacity utilization.

**Course Contents**

Unit 1
Definition: Nature and scope of Industrial Economics. History and development of Industrial Economics. Basic Concepts: Firm, industry, Market, Market structure, Market power, passive and active behaviour of the firm.

Unit 2
Conceptual framework: Industrial Economics. Organizational forms and alternative motives of the firm, Growth of the firm: Acquisition, diversification, merger constraints on Growth: demand, managerial and financial.

Unit 3
Market Structure: Seller's concentration; product differentiation; entry conditions and economies of scale.

Unit 4
Theories of Industrial Location: Factors affecting location; contributions of weber and Sargent Florance. Location policy in India since Independence. Industrial concentration and dispersal in India. Industrial growth under planning in India. Industrial policy.

**Readings:**

Ahluwalia, I.J. (1985), Industrial Growth in India, Oxford University Press, New Delhi.
Barthwal, R.R. (1985), Industrial Economics, Wiley Eastern Ltd., New Delhi.
Cherunilam, F. (1994), Industrial Economics: Indian Perspective (3rd Edition), Himalaya Publishing House, Mumbai.
Desai, B. (1999), Industrial Economy in India (3rd Edition), Himalaya Publishing House, Mumbai. Divine, P.J. and R.M. Jones et. al. (1976), An Introduction to Industrial Economics, George Allen and Unwin Ltd., London.
Government of India, Economic Survey (Annual).
Hay, D. and D.J. Morris (1979), Industrial Economics: Theory and Evidence, Oxford University Press, New Delhi.
Kuchhal, S.C. (1980), Industrial Economy of India (5th Edition), Chaitanya Publishing House, Allahabad.
Reserve Bank of India, Report on Currency and Finance (Annual).
Singh, A. and A.N. Sadhu (1988), Industrial Economics, Himalaya Publishing House, Bombay.

**Note:** The examiner is required to set nine questions in all. The first question will be compulsory consisting of seven short questions covering the entire syllabus. In addition to that eight more questions will be set, two questions from each unit. The students shall be required to attempt five questions in all selecting one question from each unit in addition to compulsory Question No.1 All questions shall carry equal marks.

## BECO-604: Behavioural Economics

Maximum Marks: 100
Internal Assessment: 30 External Assessment: 70
Time Allowed: 3 Hours

**Objective:** This course provides necessary understanding with the behavioural aspects of economic activities.

**Course Contents**

Unit 1: Introduction of Behavioural economics and the standard model; History and evolution of behavioural economics, relationship of behavioural economics with other disciplines; Objectives, scope and structure of behavioural economics; The methodology regarding theories and evidence.

Unit 2: Values, Preference, Choices, Beliefs, Heuristics and Biases: The standard model; Axioms, assumptions and definitions; Evolutionary biology of utility; broadening rationality & types of utility.

Unit 3: Consumer behaviour regarding decision –making under risk and uncertainty: Conventional approach; prospect theory; shape of utility function, decision-weighting; loss-aversion. Measurement of endowment effect: Theory of nudge.

Unit 4: Mental accounting: Framing and editing; budgeting and fungibility; choice bracketing and dynamics, Discounted Utility Model, Alternative inter-temporal choice models: Time preference, time inconsistent preference; modifying the instantaneous utility function.

**Readings:**

Wilkinson, Nick and Matthias Klaes, An Introduction to Behavioural Economics (Latest Edition), Palgrave Macmillan.
Richard H.Thaler, Misbehaving (2016): The Making of Behavioural Economics, WW Norton.
Samson, Alain & Cass Sunstein, The Behavioural Economics Guide, www.behaviouraleconomics.com

**Note:** The examiner is required to set nine questions in all. The first question will be compulsory consisting of seven short questions covering the entire syllabus. In addition to that eight more questions will be set, two questions from each unit. The students shall be required to attempt five questions in all selecting one question from each unit in addition to compulsory Question No.1 All questions shall carry equal marks.

# Group A: Finance

## BECO Fin 305: Financial Accounting

Maximum Marks: 100
Internal Assessment: 30 External Assessment: 70
Time Allowed: 3 Hours

**Objective:** To acquire conceptual knowledge of the financial accounting and to provide knowledge about the techniques for preparing accounts in different business organizations

**Course Contents**

Unit 1: Theoretical Framework

Accounting as an information system- Functions, advantages and limitations of accounting, Bases of accounting; cash basis and accrual basis.

The nature of financial accounting principles – Basic concepts and conventions: entity, money measurement, going concern, cost, realization, accruals, periodicity, consistency, prudence (conservatism), materiality and full disclosures.

Financial accounting standards: Concept, benefits, procedure for issuing accounting standards in India. International Financial Reporting Standards (IFRS): - Need and procedures, Convergence to IFRS, Distinction between Indian Accounting Standards (Ind ASs) and Accounting Standards (ASs).

Unit 2: Accounting Process

From recording of a business transaction to preparation of trial balance including adjustments: Capital and Revenue expenditure & receipts, Preparation trial balance, Profit and Loss Account and Balance Sheet (Sole Proprietorship only).

Unit 3: Business Income

Measurement of business income-Net income: the accounting period, the continuity doctrine and matching concept, objectives of measurement.

Revenue: concept, revenue recognition principles, recognition of expenses.

Unit 4: The nature of depreciation. The accounting concept of depreciation, Factors in the measurement of depreciation. Methods of computing depreciation: straight line method and diminishing balance method; Disposal of depreciable assets-change of method.

Note: Any revision of relevant accounting standard issued by ICAI would become applicable immediately.

**Readings**:

Lal, Jawahar and Seema Srivastava (Latest Edition): Financial Accounting, Himalaya Publishing House.

Monga, J.R.(2002), Financial Accounting: Concepts and Applications, Mayoor Paper Backs, New Delhi.

Shukla, M.C., T.S. Grewal and S.C.Gupta(1997), Advanced Accounts (13th Edition), S. Chand & Co., New Delhi.

P.C. Tulsian(2007), Financial Accounting, Tata McGraw Hill, New Delhi.

Bhushan Kumar Goyal and H N Tiwari (2018), Financial Accounting, Vikas publishing House, New Delhi.

Jain, S.P. and K.L. Narang (2006), Financial Accounting. Kalyani Publishers, New Delhi.

Compendium of Statements and Standards of Accounting.(2004),The Institute of Chartered Accountants of India, New Delhi

Goldwin, Alderman and Sanyal (2016), Financial Accounting, Cengage Learning

Horn Green (2008), Introduction to Financial Accounting, Pearson Accounting

**Note:** The examiner is required to set nine questions in all. The first question will be compulsory consisting of seven short questions covering the entire syllabus. In addition to that eight more questions will be set, two questions from each unit. The students shall be required to attempt five questions in all selecting one question from each unit in addition to compulsory Question No.1 All questions shall carry equal marks.

## BECO Fin 405: Financial Analysis and Reporting

Maximum Marks: 100
Internal Assessment: 30 External Assessment: 70
Time Allowed: 3 Hours

**Objective:** To develop ability to read from a set of financial statements and to draw decision oriented meaningful information

**Course Contents**

Unit 1: Purpose of financial reporting, users of financial reports, conceptual framework for financial statements. Accounting Standards in India & IFRS

Unit 2: Understanding Financial Statements
Structure of Financial Statements: Introduction, Statement of Financial Position (Balance Sheet), Statement of Earnings (Income Statement), and Statement of Cash Flows (Cash Flow Statement). Additional disclosure statements: Need for Additional Statements, Auditor's Report, Director's Report, Funds Flow Statement, Electronic Dissemination, Corporate Governance.

Unit 3: Components of Financial Statements
Inventories, Receivables, Assets (Fixed Tangible, Intangible), Leases, Revenue, Income-Tax, Retained Earnings.

Unit 4: Analysis & Interpretation of Financial Statements
Ratio Analysis – Liquidity, Solvency, Activity & Profitability Analysis, Comparative & Common Size Analysis (Vertical & Horizontal Analysis), Financial Statement Variation by Type of Industry, Expanded Analysis: Financial Ratios used in Annual Reports, Management's use of Analysis, Graphing Financial Information.

**Readings**:

Lal, Jawahar (2005), Corporate Financial Reporting: Theory & Practice, Taxmann Applied Services, New Delhi.
Raiyani, J. R. and Lodha, G. (2012), International Financial Reporting Standard (IFRS) and Indian Accounting Practices, New Century Publications.
Singh, N. T. and Agarwal, P. (2005), Corporate Financial Reporting in India, Raj Publishing, Jaipur.
Hennie, V. G. (2005), International Financial Reporting Standards: A practical guide, Washington: World Bank.
Alexander, D., Britton, A. and A. Jorissen (2011), Global Financial Reporting and Analysis, Cengage Learning, Indian edition.
Grewal, T.S. (2016), Introduction to Accounting, S. Chand and Co., New Delhi.
Note: Latest edition of text book may be used.

**Note:** The examiner is required to set nine questions in all. The first question will be compulsory consisting of seven short questions covering the entire syllabus. In addition to that eight more questions will be set, two questions from each unit. The students shall be required to attempt five questions in all selecting one question from each unit in addition to compulsory Question No.1 All questions shall carry equal marks.

## BECO Fin 505: Financial Economics

Maximum Marks: 100
Internal Assessment: 30 External Assessment: 70
Time Allowed: 3 Hours

**Objective:** This course introduces students to the economics of finance. Some of the basic models used to benchmark valuation of assets and derivatives are studied in detail; these include Markowitch and the CAPM.

**Course Content**

Unit 1: 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.

Unit 2: Portfolio Analysis (Single-period random cash flows): Random asset returns; portfolios of assets; portfolio mean and variance; feasible combinations of mean and variance; mean-variance portfolio analysis: the Markowitz model and the two-fund theorem; risk-free assets and the one-fund theorem.

Unit 3: CAPM: The capital market line; the capital asset pricing model; the beta of an asset and of a portfolio; security market line; use of the CAPM model in investment analysis and as a pricing formula.

Unit 4: Options and Derivatives: Introduction to derivatives and options; forward and futures contracts; options; forward and future prices; stock index futures; interest rate futures; the use of futures for Hedging.

**Readings:**

David G. Luenberger (1997), *Investment Science*, Oxford University Press, USA.
Hull, John C. (2005), *Options, Futures and Other Derivatives*, Pearson Education, 6th edition.
Thomas E. Copeland, J. Fred Weston and Kuldeep Shastri**,** (2003), *Financial Theory and Corporate Policy*, Prentice Hall, 4th edition.
Richard A. Brealey and Stewart C. Myers, (2002), *Principles of Corporate Finance*, McGraw- Hill, 7th edition.
Stephen A. Ross, Randolph W. Westerfield and Bradford D. Jordan (2005), *Fundamentals of Corporate Finance.* McGraw-Hill, 7th edition.
Burton G. Malkiel (2003), *A Random Walk Down Wall Street*, W.W. Norton & Company.
William Sharpe (2003), Gordon Alexander and Jeffery Bailey, *Investments*, Prentice Hall of India, 6th edition.

**Note:** The examiner is required to set nine questions in all. The first question will be compulsory consisting of seven short questions covering the entire syllabus. In addition to that eight more questions will be set, two questions from each unit. The students shall be required to attempt five questions in all selecting one question from each unit in addition to compulsory Question No.1 All questions shall carry equal marks.

## BECO Fin 605: Economics of Banking

Maximum Marks: 100
Internal Assessment: 30 External Assessment: 70
Time Allowed: 3 Hours

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

**Course Contents**

Unit 1

Money: Concept, functions, measurement; theories of money supply determination.

Unit 2

Financial Institutions, Markets, Instruments and Financial Innovations: Role of financial markets and institutions; problem of asymmetric information – adverse selection and moral hazard; financial crises. Money and capital markets: organization, structure and reforms in India; role of financial derivatives and other innovations.

Unit 3

Interest Rates: Determination; sources of interest rate differentials; theories of term structure of interest rates; interest rates in India.

Unit 4

Banking System: Balance sheet and portfolio management, Indian banking system: Changing role and structure; banking sector reforms. Central Banking and Monetary Policy: Functions, balance sheet; goals, targets, indicators and instruments of monetary control; monetary management in an open economy; current monetary policy of India.

**Readings**

F. S. Mishkin and S. G. Eakins (2009), *Financial Markets and Institutions*, Pearson Education, 6th edition.
F. J. Fabozzi, F. Modigliani, F. J. Jones, M. G. Ferri (2009), *Foundations of Financial Markets and Institutions*, Pearson Education, 3rd edition.
M. R. Baye and D. W. Jansen (1996), *Money, Banking and Financial Markets*, AITBS.
Rakesh Mohan (2011), *Growth with Financial Stability- Central Banking in an Emerging Market*, Oxford University Press.
L. M. Bhole and J. Mahukud (2011), *Financial Institutions and Markets*, Tata McGraw Hill, 5th edition.

**Note:** The examiner is required to set nine questions in all. The first question will be compulsory consisting of seven short questions covering the entire syllabus. In addition to that eight more questions will be set, two questions from each unit. The students shall be required to attempt five questions in all selecting one question from each unit in addition to compulsory Question No.1 All questions shall carry equal marks.

# Group B: Data Analytics

## BECO DA 305: Fundamentals of Data Analytics

Maximum Marks: 100
Internal Assessment: 30 External Assessment: 70
Time Allowed: 3 Hours

**Objective**: Analytics is the scientific process of deriving business insights from raw data to support decision making. This course aims to provide a basic introduction to the relevance of analytical techniques to solve business problems, and how a business organization can create a competitive advantage by leveraging on data derived from its multiple business processes.

**Course Contents**

Unit 1: Data analytics: introduction, types of analytics, characteristics of analytics, business analytics, and business intelligence; business analytics process and its relationship with decision making process; Advantage of business analytics: informed decisions, developing distinct capability, creating competitive advantage, key attributes of analytical competitors.

Unit 2: Analytical methods and models: Descriptive analytics-overview of its tools and techniques, role in business analytics process and its importance in business decision making;

Unit 3: Predictive analytics-nature and type of modeling, basics of data mining and machine learning environment, role in business analytics process and its importance in strategic decision making; Prescriptive analytics: basics of its tools and modeling, role in business analytics process.

Unit 4 :Business analytics in action: applicability and importance of business analytics in different areas- financial analytics, human resource analytics, marketing analytics, health care analytics, supply chain analytics, sport analytics and analytics for Government and non-profit organization.

**Readings:**

Davenport,H., Harris J.G. (2007), Competing on Analytics: The New Science of Winning, Harvard Business Review Press.

Davenport H., Harris J.G. and Morison R. (2010). Analytics at Work: Smarter Decisions, Better Results, Harvard Business Review Press.

Schniederjans M.J., Schniederjans D.G. and Starkey C.M. (2014). Business Analytics Principles, Concepts, and Applications with SAS: What, Why, and How, FT Press Analytics.

Provost F., Fawcett T. (2013). Data Science for Business: What you need to know about data mining and data-analytic thinking, O'Reilly Media.

Siegel E. (2013). Predictive Analytics: The Power to Predict Who Will Click, Buy, Lie, or Die, Wiley.

Fitz-enz J. and Mattox J. (2014). Predictive Analytics for Human Resources, Wiley and SAS Business Series.

Maisel L. and Gokins G. (2014). Predictive Business Analytics: Forward Looking Capabilities to Improve Business Performance, Wiley.

**Note:** The examiner is required to set nine questions in all. The first question will be compulsory consisting of seven short questions covering the entire syllabus. In addition to that eight more questions will be set, two questions from each unit. The students shall be required to attempt five questions in all selecting one question from each unit in addition to compulsory Question No.1 All questions shall carry equal marks.

## BECO DA 405: Data Base Management System

Maximum Marks: 100
Internal Assessment: 30 External Assessment: 70 (Theory 45+ Practical 25)
Time Allowed: 3 Hours

**Objective:** To develop understanding of database management system and abilities to use DBMS packages. This paper has two parts. The first part includes the theoretical part of DBMS, and second part includes the computer practical comprising how to handle DBMS using MS access.

**Part-I (Theory)** **External Assessment: 45**

**Course Contents**

Unit-1: Introduction to Database Systems: File System versus a DBMS, Advantages of a DBMS, Describing and storing data in a DBMS, Queries in a DBMS, Structure of a DBMS, People who deal with database, introduction to Data Models, Architecture of DBMS.

Unit-2: Entity Relationship Model: Overview of Database Design, Entities, attributes, and Entity sets, Relationships and Relationship sets, additional features of the ER Model, Conceptual database design with the ER model – Entity versus attribute, entity versus relationship.

Unit-3: Relational model: Introduction to Relational model, foreign key constraints, enforcing integrity constraints, Querying relational data, logical database design: ER to relation, introduction to views, destroying/altering tables and views, Codd rules.

Unit-4: Schema Refinement & Normal Forms: Introduction to schema refinement, functional dependencies, examples motivation schema refinement, reasoning about functional dependencies, normal forms, decompositions, normalization (Up to 3rd Normal Form)

Understanding Access Objects: Objects, tables, queries, forms, reports, modules.

**Part-II (Computer Practical)** **External Assessment: 45**

Understanding Access Objects: Objects, tables, queries, forms, reports, modules.

Creating Database: getting started, Wizards, Reviewing the database wizard, documenting the database.

Creating Tables: Designing tables, working with tables in design view, field properties, naming fields, data types, assigning table names, making tables efficient objects within database, setting primary keys, indexes, using table wizard.

Creating Queries: Reviewing queries, working with query design grid-adding tables, adding fields, sorting records, planning for null values, using simple query wizard-summarizing your records.

Working with forms: understanding forms, working in design view – components, sections, form properties, modifying form properties, standardizing forms – using form templates, form using wizard – auto forms, form wizard.

Creating Reports: Introducing Reports, Using Report Wizards, Standardizing Reports, Inserting a Chart into a Report with the Chart Wizard, Printing Report.

**Readings:**

Ramakrishnan, R. and J. Gehrke (2000); *Database Management Systems*, McGrawHill, Company, Higher Education

Harkins, Susan Sales, Ken Hansen and Tom Gerhart (2000); *Using Microsoft Access*, Prentice Hall of India

Elmasri, R. and S B Navathe (2000); *Fundamentals of Database Systems*, Addison Wesley

Date, C. J. (2000); *An Introduction to Database System*, Vol. I & Vol. II, Addison Wesley Publishing Company

**Note:** The examiner is required to set nine questions in all. The first question will be compulsory consisting of seven short questions covering the entire syllabus. In addition to that eight more questions will be set, two questions from each unit. The students shall be required to attempt five questions in all selecting one question from each unit in addition to compulsory Question No.1 All questions shall carry equal marks.

## BECO DA 505: Multivariate Analysis

Maximum Marks: 100
Internal Assessment: 30 External Assessment: 70
Time Allowed: 3 Hours

**Objective**: This paper includes some of the advance tools and techniques of statistical analysis that are considered important tools for empirical research.

**Course Contents**

Unit 1: Multivariate Analysis: Concept, the variate, Measurement scales. Multivariate Analysis of Variance: One independent variable at two levels and one dependent variable, two-group MANOVA.

Unit 2: Principal Components Analysis: Geometry of principal components analysis, analytical approach, issues relating to the use of principal components analysis, use of principal components scores. Factor Analysis: Basic concepts and terminology of factor, objectives of factor analysis, geometric view of factor analysis, factor analysis techniques-principal components factoring (PCF. factor analysis versus principal components analysis, factor rotation, factor scores.

Unit 3: Discriminant Analysis: Geometric view, analytical approach, classification methods, Fisher's linear discriminant, Mahalanobis distance.

Unit 4: Cluster Analysis: Hierarchical clustering, Nonhierarchical Clustering.

**Suggested Readings:**

Tinsley, Harward E and Brown Stered D. (Latest edition), Handbook of Applied Multivariate Statistical and Mathematical Modeling, Academic Press.
Morrison D F. (1990), Multivariate Statistical Method, McGraw Hill.
Overall J E and Klett C. (1972), Applied Multivariate Analysis, McGraw Hill.
Hair, Anderson, Tatham and Black(2009), Multivariate Data Analysis, Pearson.
Nargundlar, R.(2003), Marketing Research, Tata McGraw Hill.
Johnson Richard A and Wichern Dean W.(2012), Applied Multivariate Statistical Analysis, PHI.

**Note:** The examiner is required to set nine questions in all. The first question will be compulsory consisting of seven short questions covering the entire syllabus. In addition to that eight more questions will be set, two questions from each unit. The students shall be required to attempt five questions in all selecting one question from each unit in addition to compulsory Question No.1 All questions shall carry equal marks.

## BECO DA 605: Fundaments of Data Mining

Maximum Marks: 100
Internal Assessment: 30 External Assessment: 70
Time Allowed: 3 Hours

**Objective**: The introduction of IT at different level in business organizations led to compile up huge amount of data. Such data stored in data warehouses and data marts is providing decision support for taking informed decision. Data mining is concerned with set of techniques to assist managers to make intelligent use of data repositories.

**Course Contents**

Unit 1: Introduction to Data Mining: basic concepts in data mining, machine learning, scientific methods, theoretical basis of data mining process, data measurement, exploratory data analysis, data visualization, measurement of data similarity and dissimilarity.

Unit 2: Data Preprocessing: overview, data cleaning, data integration, data reduction, data transformation and data discretization; Data Warehouse and Online Analytics Processing: data warehouse, data cube and OLAP, data warehouse design and usage.

Unit 3: Principles of Data Mining: predictive modeling- classification and regression, model fitting as optimization, evaluation of predictive performance, over fitting, regularization; clustering and pattern detection.

Unit 4 : Text Mining: information retrieval and search, text classification, unsupervised learning; Web Data Analysis: Web data- collection and interpretation, analyzing user browsing behavior, learning from click through data, predictive modeling and online advertising, link analysis and the PageRank algorithm.

**Suggested Readings:**

Han J., Kamber M., Pei J.(2011), Data Mining: Concepts and Techniques, The Morgan Kaufmann Series in Data Management Systems.

Provost F.(2013), Data Science for Business: What you need to know about data mining and data-analytic thinking. O'Reilly Media.

Miner G. and Nisbet R.(2015), Handbook of Statistical Analysis and Data Mining Applications. Academic Press.

Ledolter J.(2013), Data Mining and Business Analytics with R .Wiley.

Witten I.H. and Frank E. (2004), Data Mining: Practical Machine Learning Tools and Techniques,The Morgan Kaufmann Series in Data Management Systems.

Dean J.(2004), Big Data, Data Mining, and Machine Learning: Value Creation for Business Leaders and Practitioners .Wiley and SAS Business Series.

Abu-Mostafa Y.S. and Magdon-Ismail M. (2012), Learning From Data, AMLBook.com

**Note:** The examiner is required to set nine questions in all. The first question will be compulsory consisting of seven short questions covering the entire syllabus. In addition to that eight more questions will be set, two questions from each unit. The students shall be required to attempt five questions in all selecting one question from each unit in addition to compulsory Question No.1 All questions shall carry equal marks.

# Group C: Public Policy

## BECO PP 305: Introduction to Governance

Maximum Marks: 100
Internal Assessment: 30 External Assessment: 70
Time Allowed: 3 Hours

**Objective:** At general level, governance refers to theories and issues of social coordination and the nature of all patterns of rule. The theories of governance have changed the understanding of various concepts of state and its institutions.

**Course Contents**

Unit 1: Introduction- Definitions, Issues and Controversies, Reinventing Government.

Unit 2: Reforming Institutions: The State, Market and Public domain.

Unit 3: Citizen and Governance- Accountability, Participation, Representation, Techniques of Governance a) Openness and Transparency b) Citizen Charter

Unit 4: Emerging Trends- Public and Private Governance: An Overview, Market, Civil Society, Information and Communication Technology.

**Readings:**

Bell, S., and Hindmoor, A. (2009) Rethinking Governance: The Centrality of the State in Modern Society, Cambridge: Cambridge University Bell,
Bevir, Mark (2009), Key Concepts in Governance, Sage, London.
Bevir, Mark, ed. (2010) The Sage Handbook of Governance. Thousand Oaks, CA: Sage Publications.
Bovaird, Tony and Elke Löffler, eds. (2009) Public Management and Governance Second Edition. London: Routledge.
Farazmand, Ali and Jack Pinkowski, eds. (2006) Handbook of Globalization, Governance, and Public Administration. London: CRC/Taylor & Francis.
Hajer, Maarten, and Hendrik Wagenaar (2003) "Introduction." In Deliberative Policy Analysis: Understanding Governance in the Network Society, ed. Maarten A. Hajer and Hendrik Wagenaar. Cambridge, UK: Cambridge University Press.
Osborne, Stephen P., ed. The New Public Governance? Emerging Perspectives on the Theory and Practice of Public Governance. London: Routledge. Peters,
B. Guy (1996) The Future of Governance: Four Emerging Models, pp. 1-20. Peters, B. Guy, and Jon
Pierre (1998) "Governance without Government?: Rethinking Public Administration." Journal of Public Administration Research and Theory 8 (2): 223-43.

**Note:** The examiner is required to set nine questions in all. The first question will be compulsory consisting of seven short questions covering the entire syllabus. In addition to that eight more questions will be set, two questions from each unit. The students shall be required to attempt five questions in all selecting one question from each unit in addition to compulsory Question No.1 All questions shall carry equal marks.

## BECO PP 405: Budgetary Theory and Practice

Maximum Marks: 100
Internal Assessment: 30 External Assessment: 70
Time Allowed: 3 Hours

**Objective:**

The role of government in an economy is very large and powerful. With increasing complexities, there is a need to open the black box called government and look deeper into its functioning, procedure and performance. This paper intends to fulfil this crucial requirement.

**Course Contents**

Unit 1: Government and the Market Government in a Market System- Government and the Market, Production, Provision and Privatization, Efficiency and inefficiency in the Public Sector;
The Structure of the Governments: Organizing Public service delivery, Multiple levels of Government, Designing a Federal Structure, Communications between Governments, The State-Local Relationship and Evolution of Fiscal Federalism in India;

Unit 2: Measuring the Size and Scope of Government: The Challenge of Comparison, Federal Government Revenue and Spending, State and Local Revenue and Expenditures, How big should Government Be? What makes Government Grow?

Unit 3: Government Spending- Budgeting Process, Revenue Forecasting, Off-Budget and On Budget Funds; Budgeting Expenditures; Program, performance and Zero-based Budgeting; Budgeting and Public Choice: Balanced budgets, Deficits and Debts

Unit 4: Intergovernmental Grants in theory and Practice-- Growth and Decline of Federal Grants: Purposes of Grants, Correcting Spatial Externalities, Redirecting Priorities; Efficiency and Equity Effects of Grants.

**Readings**:

Buiter, W.H. (1990): Principles of Budget and Fiscal Policy, MIT Press.
David N. Hyman (2007): Public Finance: A Contemporary Application of Theory to Policy, Thomson Asia Pvt. Ltd., Singapore.
Davie, B.F. and Duncombe, B.F. (1970): Public Finance, Holt. Rineha and Winstreet, NY.
Hyman, David N. (1983): Public Finance: A Contemporary Application of Theory to Policy, The Dryden Press, NY.. Syllabus for M.A. Programme in Economics Central University of Orissa, Koraput 55
Jha, Raghbendra (1987): Modern Theory of Public Finance, Wiley Eastern, Delhi.
Mishra, B. (2006): Economics of Taxation: Theory and Application, Akansha Publishing House, ND.
Musgrave, R.A. (1959): The Theory of Public Finance, Tata McGraw Hill, ND. Additional Reading List
Bhargava, P.K. (1982): Centre State Resource Transfers in India, Academic Press, Gurgaon.
Borkar, V.V. (1971): Income Tax Reform in India, Popular Prakashan, Bombay.
Chelliah, R.J. (ed.) (1997): Towards Sustainable Growth, OUP, ND.

**Note:** The examiner is required to set nine questions in all. The first question will be compulsory consisting of seven short questions covering the entire syllabus. In addition to that eight more questions will be set, two questions from each unit. The students shall be required to attempt five questions in all selecting one question from each unit in addition to compulsory Question No.1 All questions shall carry equal marks.

## BECO PP 505: Social Cost Benefit Analysis

Maximum Marks: 100
Internal Assessment: 30 External Assessment: 70
Time Allowed: 3 Hours

**Objective:** The purpose of this course is to provide a systematic and rigorous way of thinking about the measurement of benefits and costs when evaluating public projects, programs or regulations. Cost-benefit analysis has wide application in public expenditure management. This course will develop the critical appraisal skills needed to evaluate public projects.

**Course Contents**

Unit 1: Concepts of Social Benefits and Costs – Direct and Indirect: Tangible and Intangible-Problems in the evaluation of Benefits and Costs.
Accounting prices- Meaning of Accounting prices, Accounting prices and Pareto Optimality, Marginal Cost and Willingness to pay, Limitations of Market Prices.
The "Second Best" problem, Accounting prices in the Absence of markets.
Nature of Cost Benefit Analysis, Need for Cost Benefit Analysis; with, particular reference to the developing economies.

Unit 2: Externalities, Pecuniary and Technological externalities, the source or external effects externalities, alternative technologies and cost benefit analysis, Collective goods.
The Social Rate of Discount, Social Time Preference Rate, The opportunity Cost, rate of Discount, Equilibrium, Social Time preference Rate and Social Opportunity Cost.

Unit 3: Decision formulae for project choice: Net present value and input constraints, Optimal time phasing, Internal Rate of Return, Present value versus Internal rate of return, other criteria.
Risk and Uncertainty -Relevance of risk and Uncertainty, Uncertainty and Decision Criteria-Some rules of Thumb.

Unit 4: Plans, Projects, choice and Project design, the selection of projects and the investment programme, Project design and decentralized evaluation.
Private sector projects-The need for public evaluation of private projects, the method of evaluation of private projects: Some applications.

**Readings:**

A.K. Dasgupta and, D.W. Pearce (1972), Coast Benefit Analysis, Theory and Practice, Wiley
I.M.D, Little and J. A. Mirrless (1974), Project Appraisal and Planning for Developing countries, Econpaper.
J. Mishra (1978), Cost Benefit Analysis: A case study of Rantangiri Fishiri project, Hindustan Publishing Corp
I.M.D.Little and J.Mirlees (1973), Manual of Industrial Project Analysis, Social Cost Benefit Analysis.
B.Sarveswara Rao: Report on Bogie-Economic; Survey of Nagarjuna Sagar project (online).

**Note:** The examiner is required to set nine questions in all. The first question will be compulsory consisting of seven short questions covering the entire syllabus. In addition to that eight more questions will be set, two questions from each unit. The students shall be required to attempt five questions in all selecting one question from each unit in addition to compulsory Question No.1 All questions shall carry equal marks.

## BECO PP 605: Public Policy Analysis

Maximum Marks: 100
Internal Assessment: 30 External Assessment: 70
Time Allowed: 3 Hours

**Objectives:** On successful completion of the course, the student will be able to understand the scope, process and significance of public policy. They will also learn the role of various stakeholders in policy formation and issues in effective implementation.

**Course Content**

Unit 1: Introduction Concepts of Public and Policy - Nature, Scope and Significance of Public Policy – Definition and Types of Public Policy: Regulatory, Welfare, Distributive and Re-distributive – Evolution of Public Policy Studies – Public Policy Cycle, Models of Public Policy: Systems Model,

Unit 2: Policy Making in India Constitutional framework for Policy Making – Institutional Factors: Legislature, Executive, Judiciary, NITI Ayog – Other Forces in policy making: Public Opinion, Political parties, Pressure groups, Media and Professional Bodies - External Influencing Agencies

Unit 3: Policy Implementation- Public Policy Delivery Agencies and Implementers: Aspects of Policy Design for Implementation, Modes of Policy Delivery and Implementers, Enforcement Modes. Problems in Public Policy Implementation: Conceptual, Political and Administrative Problems, Conditions for Successful Implementation

Unit 4: Policy Monitoring and Evaluation Policy Monitoring: Approaches and Techniques, Constraints in Policy Monitoring, Measures for Effective Policy Monitoring - Policy Evaluation: Role, Process and Criteria, Types of Evaluation, Evaluating Agencies – Problems in Policy Evaluation Unit

**Readings**:

Prabir Kumar De (2012), Public Policy and Systems, Pearson Education India, New Delhi.
RK Sapru (2010), Public Policy – Formulation, Implementation and Evaluation, Sterling Publishers Pvt. Limited., New Delhi.
RV Vaidyanatha Ayyar (2009), Public Policy Making in India, Pearson Education India, New Delhi.
William N Dunn (1994), Public Policy Analysis – An Introduction, Prentice Hall, New Jersey.
Thomas Dye (1995), Understanding Public Policy, Prentice Hall, New Jersey.
James Anderson (2003), Public Policy Making: An Introduction, Houghton Mifflin.
Michael Hill and Peter Hupe (2002), Implementing Public Policy, Sage.

**Note:** The examiner is required to set nine questions in all. The first question will be compulsory consisting of seven short questions covering the entire syllabus. In addition to that eight more questions will be set, two questions from each unit. The students shall be required to attempt five questions in all selecting one question from each unit in addition to compulsory Question No.1 All questions shall carry equal marks.