REVISED SYLLABUS
for
M. A. in Analytical and Applied Economics

Admission Batch 2023-24 onwards

Choice Based Credit System

(Passed in the BoS Meeting dated 23 February 2023)

Utkal University, Vani Vihar,
Bhubaneswar, Odisha, India

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The Department of Analytical and Applied Economics offers two programs at the post-graduate level. Those are (i) MA in A & A Economics and (ii) Ph.D in A & A Economics / Economics.

Master of Arts in Analytical and Applied Economics

Eligibility: Bachelor's degree in 10+2+3 with Economics Honours / Major or other equivalent modes
Intake Capacity: 88
Selection criteria: Career score and performance in common entrance test.

Program Description and Objectives:
The Master program in A & A Economics was initiated in 1963 as an effort to provide Economics education to students of Odisha aspiring for a career in economics and public policy. Currently, the program operates in a Choice Based Credit System (CBCS) mode of 102 credits spread out in four semesters. The course composition includes analytical courses termed as Hard-Core Economics courses such as Microeconomics, Macroeconomics, Quantitative Methods, Public Economics, Indian Economy and Basic Econometrics. These courses are designed to provide a core understanding of the subject. There are also applied courses termed as Core Electives and Allied Electives which are designed to enrich understanding on application of economics in various fields influencing economic and social life of human beings. A detailed description of these courses is given in the detailed syllabus. In order to make the course more interdisciplinary and to respect the spirit of choice based system of education, there are also courses called free electives offered to any student of the university irrespective of their discipline. These courses include International Finance, Computer Application in Economics, Environmental Impact Assessment, and Entrepreneurship and Economic Development. The courses are revised in regular intervals to incorporate new knowledge in economic sciences and their application. In order to promote research aptitude and orientation, which can help our students in their higher studies in economics, the programme also includes a five credit course that requires students to undertake a guided research work and write a dissertation reporting their findings.

The specific objectives of the course are:

1. Exposure to social realities through internship, study tours, exposure visits, project work etc.
2. Exposure to computational packages like Stata and SPSS which are widely used for data analysis in industry.
3. Better employability through skill building in quantitative research and computational packages
4. Enhancing industry readiness through add-on courses and compulsory Internship programme
5. Improving writing skills through their engagement in dissertation writing, term papers and concurrent evaluation activities
6. Broadening their horizon through regular interaction with experts in student seminars
7. Proactively participate in economic policy designing through consultancy, extension activities and intervention efforts
8. Inculcate problem solving skills and sensitiveness among students for rational decision making
9. Creation and dissemination of knowledge in economics through interdisciplinary research

Expected Outcomes of the MA Program

The students who successfully complete the program are expected to have

(1) Exposure to social realities through study tours, data collection through fieldwork and regular interaction with experts in student seminars.
(2) Exposure to computational packages like Stata, R and SPSS which are widely used for data analysis in industry.
(3) Better employability through skill building in quantitative research, computational packages, add-on courses and compulsory Internship program.
(4) Be more ready for the industry and the job market.
(5) Better writing skills through their engagement in dissertation writing, term papers and concurrent evaluation activities.
(6) Have a broad horizon of the socio-economic realities.
(7) Be able to participate in economic policy designing.
(8) Have better skills to think of solutions for economic and societal issues.
(9) Be capable of having an interdisciplinary approach to issues.

Course Structure for MA in A & A Economics

SEMESTER I

Paper Code	Nature of Paper	Paper Name	Credit
HCE101	Hard Core	Microeconomics I	05
HCE102		Macroeconomics I	05
HCE103		Quantitative Methods I	05
HCE104		Public Economics	05
HCE105		Indian Economy	05

SEMESTER II

Paper Code	Nature of Paper	Paper Name	Credit
HCE201	Hard Core	Microeconomics II	05
HCE202		Macroeconomics II	05
HCE203		Quantitative Methods II	05
HCE204		Economics of Growth and Development	05
CEE201	Core Elective	Core Elective I	05
Summer Internship: Minimum of one month duration (Compulsory)			02

SEMESTER III

Paper Code	Nature of Paper	Paper Name	Credit
HCE301	Hard Core	Basic Econometrics	05
CEE301/302	Core Elective	Core Elective II	05
AEE301	Allied Elective	Allied Elective I	05
FEE301	Free Elective	Free Elective I	05
FEE302		Free Elective II	05

SEMESTER IV

Paper Code	Nature of Paper	Paper Name	Credit
CEE401	Core Elective	Core Elective III	05
CEE402		Core Elective IV	05
AEE401	Allied Elective	Allied Elective II	05
AEE402		Allied Elective III	05
AEE403		Allied Elective IV	05
		Total Credit	**102**

Available Electives and Allied: Semester-wise

Semester II

Core Electives

1. **Economics of Education**
2. **Monetary Management in an Open Economy**
3. Labour Economics

Semester III

Core Electives,

1. **International Economics**
2. Industrial Economics

Allied Electives,

1. **Agricultural Economics**
2. **Financial Programming**
3. History of Economic Thought
4. Managerial Economics

Free Electives

1. **International Finance**
2. **Computational Economics**
3. **Health Economics**
4. Environmental Impact Assessment
5. Entrepreneurship and Economic Development

Semester IV

Core Electives

1. **Economics of Environment**
2. **Dissertation**
3. **Rural Economics**
4. Demography

Allied Electives

1. **Financial Institutions and Market**
2. **Mathematical Economics**
3. **Advanced Econometrics**
4. **Economics of Gender and Development**
5. **Financial Inclusion and Economic Development**
6. Economics of Discrimination
7. Financial Economics

Proposed Allied Department

1. Commerce
2. Management
3. PM&IR
4. Statistics
5. Sociology
6. Anthropology
7. Mathematics
8. Psychology

Semester I
Paper HCE101
Microeconomic Analysis I

Course Objectives

1. To have a theoretical understanding of consumer behaviour and decision-making.
2. To get acquainted with recent advances in microeconomic theory.
3. To acquire the skills to apply theoretical knowledge in research.
4. To learn about the theory of demand, Utility Functions - types and properties; and Consumers' choices involving risk and uncertainty.
5. To have an understanding of Production function – types and properties; Theories of Cost and an overview of the general equilibrium theory.

Course Outcomes:

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

1. have an understanding of the basic reasoning of Economics and understand the consumption; production and cost concepts in an analytical way;
2. have an idea about the recent advances in microeconomic theory;
3. apply mathematical tools and techniques to study the behaviour of individual economic agents;
4. apply the theoretical knowledge in research;
5. understand the basic principles of General equilibrium theory.

Module I

Theory of demand, Utility function Ordinary and Compensated Demand Functions, Lexicographic Ordering, Slutsky Theorem, Revealed Preference Theory

Module II

Consumers' choice involving Risk and Uncertainty: N – M Utility Function, Utility – Expenditure duality, Indirect Utility function, Inter-temporal consumption, and Consumer's surplus

Module III

The production function, Elasticity of substitution, C-D and CES Production function and their properties, Multiproduct firm and its equilibrium

Module IV

Theories of cost and pricing: various types of short-run and long-run costs; full cost**,** average cost and Marginal cost pricing theories. Limit pricing theory of Bain

Module V

Partial and General Equilibrium – Walrarian System, Excess Demand Approach, Existence, Stability and Uniqueness of equilibrium

Basic Reading List

1. Henderson, J. M. & Quandt, R.E. (1980), Micro Economic Theory – A Mathematical Approach, Mc Graw Hill Co.
2. Varian, H. R. (1992), Micro Economic Analysis, WW Norton & Co., New York.
3. Gravelle, H & Rees, R (1992) Micro Economics, Pearson Education U.K.
4. Snyder, C & Nicholson, W (2008), Fundamentals of Micro Economics, Cengage learning, New Delhi.
5. Maddala, G.S. & Miller, E (2004), Micro Economics: Theory and Application, Tata Mc Graw Hill, New Delhi.

Paper HCE102
Macroeconomic Analysis I

Course Objectives:

1. To analyze and establish the functional relationship between economy-level aggregates.
2. To have a proper understanding of macroeconomic theoretical structure.
3. To educate the students on different terms and concepts in macroeconomics like national income accounting, and Circular flows,
4. To have an understanding of the consumption function and investment function.
5. To gain knowledge about the supply and demand for money.

Course Outcomes:

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

1. Apply the subject knowledge in understanding the workings of the economy as well as the macroeconomic issues and policies;
2. Understand systemic facts and theoretical developments therein;
3. Understand the concepts of national income;
4. Have an understanding of the macro variables like consumption and investment;
5. Have an idea about the supply and demand for money in an economy.

Module I

Circular Flow of Income in two, three, and four sector economy; National Income and different forms of national income accounts –social accounting, input-output accounting, flow of funds accounting, and balance of payments accounting.

Module II

Theory of Income determination: Classical and Keynes, the consumption function, Keynes' psychological law – implications of the law; short-run and long-run consumption function; empirical evidence on consumption function; income-consumption relationship – absolute income, relative income, life cycle, and permanent income hypotheses.

Module III

Investment behavior, Marginal efficiency of capital and investment – long run and short run; the accelerator and investment behavior – impact of inflation; Influence of policy measures on investment.

Module IV

Financial intermediation – a mechanistic model of bank deposit determination; A behavioral model of money supply determination, a demand determined money supply process; RBI approach to money supply; money supply and open economy; control of money supply.

Module V

Classical approach to the demand for money–Quantity theory approach, Fisher's equation, Cambridge quantity theory, Keynes's liquidity preference approach, Derivation of LM curve. Post-Keynesian approaches to demand for money–Patinkin and the Real Balance Effect. Approaches of Baumol and Tobin; Friedman and the modern quantity theory.

Basic Reading List:

1. Macro Economics - An Introduction to Keynesian-Neo-Classical Controversies: R. Levacic and A. Rebmann.
2. Macroeconomics: Dorn Busch, Fisher
3. Macroeconomics: Theory and Policies: Richard, T. Froyen
4. Macroeconomics Analysis: E. Shapiro
5. Macroeconomics: N.G. Mankiw

Paper HCE103
Quantitative Methods I

Course Objectives

1. To train the students to use the techniques of mathematical analysis, which are commonly applied to understand and analyze economic problems.
2. To emphasize the mathematical methods rather than learning mathematics itself, which are usually used for understanding economic concepts.
3. To equip the students with the knowledge of matrices and determinants which are often used in data presentation and analysis.
4. To learn about the classical techniques involving functions and calculus.
5. To gain knowledge about the elements of Game Theory as applicable to real-life economic analysis.

Course Outcome

On completion of this course, a student should be able to

1. express the relationship between economic variables mathematically;
2. analyze, optimize, and interpret the mathematical relationships;
3. use appropriate techniques to solve problems using calculus;
4. be capable of using linear algebra for expressing economic situations;
5. understand the basics of Game theory to resolve economic issues.

Module I

Functions: Types of functions, Limit, Continuity, and derivates- Rules of differentiation: Revenue, Cost demand and Supply functions; Elasticities, Multivariable functions – Production functions; Partial derivatives; Total differential; Total derivatives; Jacobian and functional dependence.

Module II

Matrix – Types of matrices, Algebra of matrices- Transposition, Inversion, Rank of a matrix; Determinants – their properties; Solution of a system of equations; Vector space and linear independence of vectors; Eigen values and eigen vectors; Introduction to Input – output Analysis.

Module III

Quadratic forms; Optimization – Hessian and constrained optimization – bordered hessian- Economic applications; Linear programming – Graphical solution to a linear programming

Module IV

Integration – Rules of integration; Application to consumer's surplus and producer's surplus; growth rates; Difference equations – Solution of first and second order difference equations; Domar's growth model and Lagged market equilibrium models; Differential equations – Solution to first order linear differential equation, Dynamics of market price; Non-linear differential equation of first order & first degree.

Module V

Game theory - Concept of Game, Types of Game, Two-persons-zero sum game, Nash Equilibrium, Prisoner's dilemma. Maximin - minimax principle; Saddle point solution, Dominant Strategy, Mixed Strategies; Graphical solution of 2 x n and m x 2 Games

Basic Reading List

1. Chiang, A. C. (1986): Fundamental Methods of Mathematical Economics, McGraw Hill.
2. Gupta, S. C. (1993): Fundamental Methods of Applied Statistics, S. Chand & Sons.
3. Speigel, M. R. (1992): Theory & Problems of Statistics, McGraw Hill Book Co
4. Yamane, Taro (1975): Mathematics for Economists, Prentice Hall of India, New Delhi.
5. Mukherji & Guha (2011): Mathematical Methods & Economic Theory, Oxford University Press

Paper HCE104
Public Economics

Course Objectives:

1. To provide the students with a thorough analytical understanding to analyze public goods, externalities, market failures
2. To apprise the students about the economics of government expenditure.
3. To understand the principles of taxation.
4. To gain an understanding of the public borrowing and the budget.
5. To critically analyze fiscal policies/finance and their ramifications in the Indian Economy.

Course Outcomes

On successful completion of this course, the students will be able to

1. have conceptual clarity on the theories of public goods and the provision thereof;
2. understand the economics of public expenditure and their historical trends;
3. grasp the optimal ways of raising public revenue;
4. get an understanding of the budget and different methods of financing it;
5. apply the principles of public economics in analyzing various government policies.

Module I: Role of Government

Role of government and fiscal functions-Allocation, Distribution and Stabilization branch; Private goods, public goods and merit goods; Externalities, Market failure and public goods, Private and public mechanism for allocating resources; Problems for allocating resources. Arrow's impossibility theorem; Theory of club goods, Tiebout model

Module II Public Revenue

Sources and classification of public revenue- tax and non-tax revenue, direct and indirect taxes, effects of tax on production, distribution and economic activities; Principles of tax equity– Benefit principle of taxation, Ability to pay principle, Efficiency of taxation- Excess burden and deadweight loss, Incidence of taxation- incidence under perfect competition- partial and general equilibrium analysis, incidence under monopoly.

Module III Public Expenditure

Growth of public expenditure, Wagner's law of increasing state activities; Wiseman–Peacock hypothesis; effects of public expenditure on production, distribution and economic activities; public sector pricing policy-average cost and marginal cost pricing, Criteria for public investment- Social cost benefit analysis

Module IV Public Debt and Budget

Sources of public borrowing, effects of public debt, burden of public debt- classical, Ricardian and others, shifting of debt burden, intergenerational shifting, methods of debt redemption; Budget: Basic concepts, balanced vs. unbalanced budget, budgetary deficits and their limitations, budget as an instrument of Economic policy

Module V: Fiscal federalism

Principles of multi-unit finance; Fiscal federalism in India- Vertical and horizontal fiscal imbalances, corrective measures; Constitutional provisions; Finance Commission, Devolution of resources and grants; Resource transfer from Union to States – Criteria for transfer of resources; Theory of Grants- matching vs non-matching grant, general vs earmarked grants

Basic Reading List

1. Cullis, J. & Jones, P. (2009): Public Finance and Public Choice. Oxford University Press.
2. Musgrave, R. A. & Musgrave, P. B. (2004): Public Finance in Theory and Practice. Fifth edition, TATA McGraw-Hill
3. Herber, B. P. (1967): Modern Public Finance. Richard D. Irwin, Homewood.
4. Stiglitz, J. E (2000) Economics of the Public Sector. W W Norton
5. Rangarajan, C. and D. K. Srivastava (2011) 'Federalism and Fiscal Transfers in India'. Oxford University Press, New Delhi.

Paper HCE105
Indian Economy

Course Objectives

1. To critically understand the economic growth trajectory and economic policies of the Indian economy.
2. To understand the institutional reforms in modern India.
3. To understand four major economic challenges of the Indian Economy, i.e. Poverty, Inequality, Unemployment, and Inflation
4. To have an in-depth analysis of the sectoral contributions of agriculture, industry and service sector to the GDP of India.
5. To examine the operation and implementation of fiscal and monetary policy in India.

Course Outcomes

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

1. have a clear picture of the economic growth trajectory and economic policies n India;
2. get an overview of the genesis of institutional reforms in India;
3. understand four major economic challenges of the Indian Economy, i.e. Poverty, Inequality, Unemployment and inflation;
4. have an in-depth analysis of the sectoral contributions of agriculture, industry and service sector in India and
5. understand the nitty-gritty of fiscal and monetary policy as adopted in India.

Module I: Growth and Economic Reforms I

Phase I (1951–65)-Takeoff under a Liberal Regime: era of liberal trade and foreign investment policies, a restrictive industrial policy regime, agriculture; Phase II (1965–81)-Socialism Strikes with a Vengeance: the political context, the crisis and failed liberalization episode, strangulation of industry, foreign trade, factor market regulation-land and labour, nationalization of banks, agriculture, insurance, savings and investment

Module II: Growth and Economic Reforms I

Phase III (1981–88) - Liberalization by Stealth: Political Context, Deregulation of Industry, Trade Liberalization, and other Reforms; Phase III (1988 onwards) - Triumph of Liberalization: Political Context, Shifting of Consensus, Growth and BOP Crisis, New Industrial Policy, Trade Liberalization

Module III: Major Economic Problems

Poverty: estimations – old and new method, phase I and II – good intentions but poor performance, phase III and IV – liberalizing reforms and significant decline in poverty, expenditure growth - the NAS and NSS, farmers suicide; Inequality: forms, inequality at national level, regional inequality, urban – rural inequality; Unemployment: measurement, trends and patterns, rural and urban, gender aspect of unemployment, jobless growth, green jobs and growth; Inflation: trend and pattern, inflation and growth debate, sources of inflationary pressure, food price inflation

Module IV: Sectoral Growth in India

Agricultural Sector: performance, food security, input market, public investment in agriculture, agriculture and environment; Secondary Sector: output and employment pattern, productivity, privatization, regional aspects; Tertiary Sector: what explains rapid service growth, is it sustainable, Education – infrastructure and outcome, Health – infrastructure and outcome

Module V: Fiscal and Monetary Policies in India

Fiscal Policy of India: fiscal consolidation in India, tax reform, FRBM Act 2003; Monetary Policy: role of financial sector in economic growth, financial sector reform, money and banking in pre- and post-1991, capital market

Basic Reading List

1. Panagariya, Arvind (2008): India: The Emerging Giant, Oxford University Press, New York
2. Acharya, S. and Mohan, R. (Eds.) (2010): India's Economy: Performance and Challenges, Oxford University Press, New Delhi.
3. Ahluwalia, I. J. and Little, I. M. D. (Eds.) (1998): India's Economic Reforms and Development: Essays for Manmohan Singh, Oxford University Press, New Delhi.
4. Rakshit, M. (2009): Macroeconomics of Post-reform India, Oxford University Press, New Delhi

Semester II
Paper HCE201
Microeconomic Analysis II

Course Objectives:

1. To impart theoretical knowledge on decision-making under market imperfections
2. To examine the dynamics of equilibrium when the market is imperfect
3. To make a critical evaluation of marginal analysis
4. To impart theoretical knowledge on distribution.
5. To gain knowledge about welfare aspects of economic activities under ideal and imperfect markets

Course Outcomes:

After completing the course, the students are expected to;

1. Have an in-depth knowledge of decision-making under different market imperfections including oligopoly;
2. Critically analyses the marginal analysis;
3. Have an in-depth knowledge of the broad paradigms of neo-classical economics;
4. Have an understanding of distributional aspects of economic activities;
5. Have an idea of the welfare implications of economic activities.

Module I

Price and output determination under Monopoly; Price discrimination and dumping aspects, Bilateral monopoly. Monopolistic competition – product differentiation, Selling costs and excess capacity – effects of free entry and price competition

Module II

Non-collusive oligopoly models: Cournot, Bertrand, Stackelberg, Sweezy, Chamberlin, Collusive oligopoly models: Cartels, price leadership and basing point price systems

Module III

Critical evaluation of marginal Analysis: Baumol's sales Revenue maximization, Williamson's model of managerial discretion, Marris model of managerial enterprise

Module IV

Neo-classical Approach, Product exhaustion theorem, Euler's theorem, distribution theories in imperfect product and Factor markets.

Module V

Pareto optimal conditions; B-S Social welfare function, Compensation criteria, optimum welfare under market imperfections and externality.

Basic Reading List

1. Henderson, J. M. & Quandt, R.E. (1980): Micro Economic Theory – A Mathematical Approach, McGraw Hill Co.
2. Mankiw, (2006): Principles of Micro Economics, Cengage Learning India, New Delhi
3. Landsburg, S. E. (2008), Pricing, Cengage Learning India, New Delhi
4. Baumol, W. J. (1977): Economic Theory & Operation Analysis, Prentice – Hall of India, New Delhi.
5. Bilas, R. A. (1985): Micro Economic Theory, McGraw Hill Publishers.

Paper HCE202
Macroeconomic Analysis II

Course Objectives:

1. To make the students acquainted with different terms and concepts in macroeconomics like Money market and real market and their interlinkages
2. To examine the process of inflation, especially in developing countries
3. To understand the causes of the occurrence of business cycle in a market economy and ways to control them.
4. To examine the new classical approach to macroeconomics.
5. To expose the students to open economy macroeconomics and the dynamics therein.

Course Outcomes:

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

1. Apply the subject knowledge in understanding the macroeconomic dynamics both in a closed and an open economy;
2. Understand the functioning of a market economy and the ways and means to keep such an economy functioning;
3. Apply the subject knowledge in understanding the workings of the economy as well as the macroeconomic issues and policies;
4. Understand systemic facts about the process of inflation;
5. Know regarding the new classical approach to macroeconomics.

Module I

Keynesian views on interest. The IS-LM model; Change in general Equilibrium: a change in investment, a change in the money supply, Extension of IS-LM model with government sector (government spending, taxation); Relative effectiveness of monetary and fiscal policies; Extension of IS-LM models with flexible wage and flexible prices, Wage-Price flexible with Pigou Effect and other effects.

Module II

Trade Cycle and its different phases; Theories of Trade cycles: Schumpeter, Kaldor, Samuelson, Hicks, Goodwin's model of Trade Cycle, Control of business cycle.

Module III

Classical, Keynesian and Monetarist approaches to inflation' Structuralist theory of inflation; Philips curve analysis – short run and long run Philips curve; the natural rate of unemployment hypothesis; Solow and Tobin's modified Philips curve.

Module IV

The new classical critique of micro foundations, the new classical approach; Policy implications of new classical approach – empirical evidence

Module V

The open Economy Macro Economics: International Monetary System- Exchange Rate and market for foreign exchange; Current exchange rate system; Experience with floating exchange rates. Monetary and Fiscal Policy in the Open Economy - The Mundell-Fleming Model; Monetary and Fiscal Policy under Imperfect and Perfect Capital Mobility- Under fixed and Flexible Exchange Rate.

Basic Reading List

1. Macro Economics - An Introduction to Keynesian-Neo-Classical Controversies: R. Levacic and A Rebmann.
2. Macroeconomics: Dorn Busch, Fisher
3. Macroeconomics: Theory and Policies: Richard, T. Froyen
4. Macroeconomics Analysis: E. Shapiro
5. Macroeconomics: N.G. Manikiw

Paper HCE203
Quantitative Methods II

Course Objectives

1. To train the students to use the techniques of probability theory and statistical analysis, which are commonly applied to understand and analyse economic problems.
2. To understand the theoretical probability distributions and their uses in arriving at decisions
3. To deal with simple tools and techniques, which will help in sampling theory and sampling designs, data collection, and analysis
4. To understand the basics of the theory of estimation and hypothesis testing
5. To initiate the correlation analysis - simple, multiple and partial, and regression analysis - linear and non-linear.

Course Outcomes

On completion of this course, a student should be able to

1. have a fair idea about probability theory which forms the foundation of inferential statistics;
2. understand theoretical distributions and their significance;
3. understand sampling and sampling designs;
4. understand the theory of estimation and hypothesis testing procedure and
5. fit linear and some commonly used non-linear curves.

Module I

Deterministic and non-deterministic experiments; Sample space; Addition rule and complementation rule, Conditional probability, Multiplication rule, Independence of events; Bayes theorem and problems; Random variable and its probability distribution, probability mass function and probability density function, expectation and variance of a random variable, laws of expectation and variance.

Module II

Theoretical probability distributions: Binomial, Poisson and Normal probability distributions and their properties; Normal approximation to Binomial; Joint, marginal and conditional probability distributions, independence of random variables, covariance, results on expectation and variance.

Module III

Basic concepts of sampling, random and non-random sampling; simple random sampling, stratified random sampling and p.p.s. sampling; concept of an estimator and its sampling distribution; desirable properties of an estimator.

Module IV

Interval estimation; statistical hypotheses- null and alternative; Type I and Type II errors; power of a test, confidence intervals and hypothesis testing based on z, t, x^2 (chi-square) and F-distributions.

Module V

Correlation and regression analysis; correlation coefficient and its properties, rank correlation co-efficient, concept of least squares and the lines of regression; standard error of estimates; partial and multiple correlation and regression (applications only)' methods of estimation of non-linear equations: parabolic, exponential, modified exponential, Gompertz and logistic relationships

Basic Reading List

1. Chiang, A. C. (1986): Fundamental Methods of Mathematical Economics", McGraw Hill.
2. Gupta, S. C. (1993): Fundamental Methods of Applied Statistics, S. Chand & Sons.
3. Speigel, M.R. (1992): Theory & Problems of Statistics, McGraw Hill Book Co
4. Yamane, Taro (1975): Mathematics for Economists, Prentice Hall of India, New Delhi.
5. Mukherji & Guha (2011): Mathematical Methods & Economic Theory, Oxford University Press.

Paper HCE 204
Economics of Growth and Development

Course Objectives:

1. To learn about the neoclassical growth models of Solow; Meade; Robinson; Kaldor and Pasinetti
2. To discuss Cambridge's criticism of the measurement of capital
3. To gain knowledge about the Production Function Approach to Economic Growth
4. To understand the importance of endogenous growth theories which highlight human capital as an essential component, for a country like India
5. To analyse the investment decisions through investment criteria along with their merits and demerits

Course Outcomes:

On completion of this course, a student should be able

1. to gain knowledge about recent theories of growth and development;
2. to understand the dynamic growth theories focusing, among other issues, on labour market distortions;
3. to undertake growth accounting;
4. to understand the endogenous growth theories;
5. to gain knowledge about the cost-benefit analysis of projects.

Module I

Theories of Economic Growth: Neo-Classical Growth Models of Solow and Meade; Mrs. Joan Robinson's Growth Model; Cambridge Criticism of Neo-Classical Analysis of Growth – Controversy on the Measurement of Capital.

Module II

Growth Models of Kaldor and Pasinetti; Technological Progress – Embodied and Disembodied; Hicks- Harrod Neutrality Approach.

Module III

Production Function Approach to Economic Growth; Total Factor Productivity; Growth Accounting; Transitional Dynamics; Convergence Hypothesis; Golden Rule of Capital Accumulation.

Module IV

Endogenous Growth, Intellectual Capital, Role of Learning, Education and Research, Optimal Savings and Ramsay Model, Two Sector Growth Model of Ujawa

Module V

Need for Investment Criteria in Developing Countries, Alternative Investment Criteria; Cost – Benefit Analysis, Shadow Prices, Project Evaluation and UNIDO Guidelines

Basic Reading List

1. Todaro, M. P. (1994): Economic Development, Longman Publishing, New York.
2. Acemoglu, D. (1995): Introduction to Modern Economic Growth, Princeton University Press.
3. Jones, C. I. (2001): Introduction to Economic Growth, W. W. Norton & Company, New York.
4. Thirwal, A.P. (2003): Growth and Development: With special reference to Developing Economies, Palgrave MacMillan, New York.
5. Jones, H. G. (1984): Economic Growth, V. N. Reinhold Company, Ltd. England.
6. Barro, R. J. & Sala – I – Martin, X. (2004): Economic Growth, PHI, New Delhi.
7. Vanden – Burg, H. (2001): Economic Growth and Development, Mc Graw Hill, New York.

Paper CEE201
Economics of Education

Course Objectives:

1. To study the role of economics in evaluating education and education policy
2. To familiarize with educational problems in the context of economic concepts, theories and techniques
3. To develop an understanding of planning, financing and cost of education and to establish the link between the educational system and economic development
4. To apply standard economic theories to understand how individuals make education choices
5. To explain and predict education markets and their inefficiencies

Course Outcomes:

On successful completion of the course, students will be able to:

1. understand key concepts, issues, theories and models relating to the economics of education, along with empirical evidence on and policy implications of those theories and models and a deeper understanding of recent research activities;
2. understand methods used by economists to evaluate education policies;
3. understand and Model the Education Production Function;
4. define the return to education and understand its empirical estimates;
5. research and investigative skills such as problem framing and solving and the ability to assemble and evaluate complex evidence and arguments.

Module I: Economics of Education and Demand for Education

Economics of Education: definition, methods, evidence and policy, Classical Economists and Education; The demand for education: Education as creation of minimal capabilities, Education as investment in human capital, The role of individual talent, Imperfect financial markets and the indivisibility of human capital investment

Module II: Supply of Education

The supply of education: Human capital formation, Class formation and peer effects, Integration or segregation, Class size, Resource effectiveness, Resource efficiency, Efficiency versus equity

Module III: Educational Financing

Education financing: Demand for education when agents differ in abilities and family incomes, Collective choice over public or private schooling, Growth and inequality under public and private schooling, Education financing and school stratification, School voucher as a solution, Subsidizing or lending; Financing Education in India

Module IV: Production of Education

Education Production Function: concept, estimation, role in policy analysis; Costs of Education: direct and indirect; Wastage and Stagnation; Benefits of Education: types, measurement; Returns to Education: Productivity of human capital, Effort-enhancing preferences, Education as a signal or as a screening device, On-the-job training, Measuring the return on education, Estimating the return on education

Module V: Educational Planning

Educational planning and economic growth – Cost- benefit analysis; production function models; education and economic growth: dimensions, sources, contributions. Manpower requirements approach programming and input-output models. Economics of educational planning in developing countries with reference to India.

Basic Reading List

1. Checchi, D. (2005): The Economics of Education, Cambridge University Press, New York
2. Psacharopoulos, G. (1987): Economics of Education: Research and Studies, Pergamon Books Ltd, Oxford
3. Lovenheim, M. & Turner, S. (2018): Economics of Education, Worth Publishers, New York

Paper CEE202
Monetary Management in an Open Economy

Course Objectives

1. To expose the learners to the economic concepts in an open economy.
2. To establish a link between the theory and practice of central banking.
3. To provide global best practices on modern central banking.
4. To focus on live cases regarding the implementation of monetary policy in India and abroad.
5. To explore the challenges of monetary policy in an open economy.

Course Outcomes

On successful completion of the course, students will be able to:

1. Go beyond the textbooks in studying economics;
2. Appreciate the link between the theory and practice of central banking;
3. Understand the best practices of modern central banking;
4. Analyse the challenges of monetary policy in an open economy;
5. Have enhanced skills to undertake empirical research on macroeconomics and monetary management.

Module I: Open Economy Concepts: Treatment of external sector in national accounts; Balance of payments compilation/adjustments; Foreign exchange market (bilateral, NEER, REER), exchange rate regimes - covered and uncovered interest rate parity conditions.

Module 2: Frameworks of Monetary Policy: Monetary targeting; Interest rate targeting; Inflation targeting in India and abroad.

Module 3: Operating procedure of monetary policy: Institutional arrangements; Liquidity management; Choice of instruments; Communication Policy.

Module 4: Monetary Policy Transmission/Coordination: Channels of monetary policy transmission; Case studies on the relative effectiveness of alternative channels; Central bank independence; Areas of coordination; Impact of coordination failure.

Module 5: Monetary Policy Challenges in an Open Economy: Impossible Trinity; Current/Capital account convertibility; Drivers of capital flows; Exchange market pressures; Rule-based monetary and fiscal policies; Integrated policy framework for an open economy; Financial stability.

Basic Readings:

1. *Handbook of Monetary Economics,* edited by Benjamin M. Friedman and Michael Woodford,Elsevier, North-Holland, selected topics.
2. Brian Snowdon and Howard R. Vane, (2005). *Modern Macroeconomics: Its Origin, Development and Current State,* Edward Elgar Publishing Limited.
3. *Critique of the New Consensus Macroeconomics and Implications for India*, (2018) Dr. Dillip M. Nachane, Springer (India) Pvt. Ltd.
4. *Report of the Expert Committee to Revise and Strengthen the Monetary Policy Framework* (Chairman: Urjit R. Patel) (January 2014), Reserve Bank of India, Mumbai
5. Clarida, Gali, and Gertler (1999), 'The Science of Monetary Policy: A New KeynesianPerspective', *Journal of Economic Literature*, 37, 1661-1707.
6. Hammond, G. (2012), *State-of-the-art inflation targeting,* CCBS Handbook No. 29*,* Bank ofEngland, ISSN: 1756-7270, available online.
7. Barro, Robert J., (1995). Inflation and Economic Growth, NBER Working Paper No. 5326,October.

Paper INT201
Summer Internship
Minimum of one month duration (Compulsory)

In its efforts to increase the exposure of the Master degree students of the department to social realities and to expose them to the realities of the labour market, the Department of Analytical and Applied Economics proposes an 'Academic Internship' as an integral part of the MA programme. The Internship Certificate will carry 02 (two credits) for successful completion of a mandatory one-month internship in any organization engaged in commodity production or service sector. Students are expected to complete the tenure of internship during the summer vacation after completing their 2nd Semester course. The necessary skills acquired by students before they can undertake the internship are be analytical comprehension on micro and macroeconomic problems, basic mathematical and statistical tools taught in the QT-1 and QT-2 papers, and a paper on Research Methods and Computing. The basic features of the internship are as below.

- Students with approval from their mentors may start identifying suitable organisations/institutions and initiate communication with them during their second semester in the MA Programme.
- The department shall also take adequate steps to create awareness among potential employers about the internship programme.
- Students can undertake internship in any organisation registered through Companies Act, Societies Act, government agencies, educational institutions, professional association of academic bodies, media houses, banking sector, PRIs and so on.
- At the end of the internship, students need to submit a joining report and completion certificate verified and acknowledged by the head of the institution/organization where internship is carried out.

Semester III
Paper HCE301
Basic Econometrics

Course Objectives

1. To discuss the relevance of econometric modelling and its scope
2. To understand Classical Linear Regression Models and their application in two-variable and multiple-variable models
3. To understand how the regression models can be used for prediction
4. To examine the consequences of violation of assumptions of the classical linear regression model
5. To examine the meaning and use of dummy variables in regression analysis

Course Outcomes

On successful completion of this course, students will be able to;

1. Know the significance of Econometrics as a special branch of study;
2. Understand the basic two-variable and multiple-variable linear regression model;
3. Be able to deal with regression models when the assumptions are violated;
4. Get an idea about using regression models for prediction;
5. Know the use of dummy variables in regression models.

Module I

Meaning and scope of econometrics; Two variable linear regression model – its assumptions, estimation of parameters and properties of estimators; Gauss Markov Theorem, Coefficient of determination; Analysis of Variance of two variable LRM.

Module II

K – Variable LRM: Estimation of parameters, properties of estimators, Gauss – Markov theorem; Testing of significance of single co-efficient, Subset of Coefficients: ANOVA; Adjusted coefficient of determination.

Module III

Prediction in two – variable and K – Variable LRM; Multicollinearity - Nature, detection, consequences and remedy. Specification Errors and Measurement errors.

Module IV

Heteroscedasticity - Meaning, Consequences, detection and remedy; Generalized Least square and weighted least square estimation; Auto-correlation: Meaning, Detection, Consequences and remedy.

Module V

Dummy variable models: Estimation; Testing the structural stability of regression models; Interaction effects; Seasonal analysis; Piecewise Linear regression

Basic Reading List:

1. Johnston (1991): Econometric Methods, Mc Graw Hill Book Co
2. Koutsoyiarnis, A. (1992): Introduction to Econometrics, OUP
3. Dougherty, C. (1992): Introduction to Econometrics, OUP.
4. Kmenta, J. (1997): Elements of Econometrics, University of Michigan Press
5. Gujarati, D & Sangeetha (2007): Basic Econometrics, Mc Graw Hill Book Co.

Paper CEE301
International Economics

Course Objectives:

1. To gain an understanding of various theories of international trade.
2. To examine the gains from trade and its distribution among the trading partners.
3. To understand the link between economic growth and international trade
4. To have an understanding of the effects of trade policy and regional trading blocs.
5. To examine the Balance of Payments and its adjustments.

Course Outcomes

On successful completion of this course, the students will be able to

1. Understand the classical and neo-classical theories of international trade;
2. Analyse and apply the trade theories and theories of tariff;
3. Link international trade to economic growth;
4. Apply and analyse the different policies for BOP adjustments of developing countries like India;
5. Comment critically on and participate in current debates on international economic policy.

Module I: Pure Theories of International Trade

Introduction to International Economics, Trade Based on Absolute Advantage, Comparative Advantage and Opportunity Costs, Modern Trade Theories: Heckscher-Ohlin theory of trade. Factor Price Equalization theory, Stolper-Samuelson Theory, Empirical test of the H-O model: The Leontief paradox, the gains from trade

Module II: New Theories of International Trade:

The Specific factors model, economies of scale, Imperfect Competition and international trade, Intra-Industry Trade, Effect of changes in tastes, per capita income and technology on Trade. Kravis Theory of Availability, Trade based on Dynamic Technological Changes: Technological Gap Theory and Product Life Cycle Theory

Module III: Economic Growth and International Trade

Growth of factors of production: The Rybczynski theorem, Effect of growth on trade, Economic growth and trade in small country and in large country case, Technical Progress and International trade, trade as an engine of growth, the immeserising growth.

Module IV: The Theory of Interventions

Tariffs: Partial and General Equilibrium analysis, Effective Rate of Protection and optimum tariff, Non-tariff trade barriers: Import Quotas, Voluntary Export restraints, Export subsidies; Economic Integration: the Customs Union

Module V: Balance of Payments and its adjustments

The Balance of Payments: components of balance of payments; Equilibrium and disequilibrium, deficit and surplus in the balance of payments, balance of payments adjustments: Automatic process, expenditure–reducing, expenditure-switching policies and direct controls, Elasticity estimates and the J-curve, Policies for achieving internal and external equilibrium

Basic Reading List

1. Chacholiades, M. (1990), The Pure Theory of International Trade, McGraw Hill.
2. Krugman P. R., Obstfeld Maurice and Melitz. International Economics, Pearson Education
3. Batra, R. N. (1975), The Pure Theory of International Trade under Uncertainty, The Macmillan Press.
4. Bhagwati, J. (Ed.) (1981), International Trade: Selected Readings, Cambridge University Press.
5. Dana, M.S. (2000), International Economics: Study, Guide and Work Book, Routledge Publishers.
6. Dunn, R. M. and Mutti, J. H. (2000), International Economics, Routledge Publishers, London.
7. Gandolfo Giancarlo, International Trade Theory and Policy, Springer.
8. Haberler, G. (1937), The Theory of International Trade, Macmillan & Co.
9. Heller, H. R. (1968), International Monetary Economics, Prentice-Hall of India.
10. Kenen, P. B. (1989). The International Economy, Prentice-Hall of India Pvt. Ltd.
11. Kindleberger, C.P. (1977). International Economics, D.B. Taraporevala Sons & Co.
12. Meade, J. E. (1952). A Geometry of International Trade, George Allen and Unwin.
13. Neihans, J. (1984). International Monetary Economics, John Hopkins University Press.
14. Roy, P. N. (1986). International Trade: Theory and Practice, Wiley Eastern.
15. Salvatore, D. (1997). International Economics, Prentice Hall
16. Sodersten, BO (1991). International Economics, The Macmillan Press.

Paper AEE301
Agricultural Economics

Course Objectives:

1. To impart knowledge on applications of economic theories in agricultural sector
2. To make students understand the linkage between agriculture and other sectors of the economy.
3. To delve into the factors impacting agricultural production and productivity.
4. To impart knowledge on new developments in the policy paradigms related to agricultural sector.
5. To understand some basic issues of the agriculture sector.

Course Outcomes:

After completing the course, the students shall have;

1. Deeper knowledge on different theories related to economic development and the agricultural sector;
2. An understanding of the linkage between agriculture and other sectors of the economy;
3. A clear concept of the determinants of agricultural production and productivity;
4. A knowledge about the policies relating to agriculture;
5. Increased interest to undertake research activities related to aspects of agricultural sector in India and Odisha.

Module I

General Models of agricultural development: Frontier model, Conservation model, Urban-industrial Impact model, Diffusion model, High payoff input model.

Module II

Schultz model of Agricultural Development, Mellor Theory of Agricultural development, Boserup model of Agricultural development, Lewis & Ranis- Fei Model. Types of farming & Farm organization

Module III

Agricultural production and productivity – measures of farm efficiency Production function analysis – Factor use and resource substitution, Size of farms and productivity – theoretical and empirical issues. Tenancy & share cropping – Efficiency & equity issues.

Module IV

Labour supply in agriculture & inter-locking of factor markets, Agricultural wage: Determinants & implications, marginalization of rural labour, Role of technology in agriculture – technical efficiency and labour absorption. Agriculture and environment – Sustainability issues in agriculture

Module V

Agriculture price policy – objectives, product price & factor price – issue of subsidies in agriculture, terms of trade between agricultural and industry – implications and Indian experiences. Agricultural marketing and measures to improve efficiency in agricultural marketing in India. Instability in agriculture - Price instability & cob-web model. Agricultural Credit Risk & uncertainty in farming and crop insurance – Indian experience.

Basic Reading List

1. Bhaduri, A. (1984): The Economic Structure of Backward Agriculture, Macmillan, Delhi.
2. Gulati. A. and T. Kelly (1999): Trade Liberalization and Indian Agriculture, Oxford University Press, New Delhi.
3. Rao. C. H. Hanumanatha (1975): Agricultural Growth, Rural Poverty and Environmental Degradation in India, oxford University Press, New Delhi.

Paper AEE301
Financial Programming

Course Objectives

1. Diagnosis of macroeconomic imbalances in an economy.
2. One-year projection of macroeconomic variables - a baseline scenario.
3. Identification of economic vulnerabilities;
4. Gaining the ability to prepare an intersectoral adjustment mechanism through coordinated adjustment policies.
5. Provide a medium-term policy framework beyond one year.

Course Outcomes

After completing the course, the students shall:

1. Be able to understand how macroeconomic policies interact;
2. Have improved forecasting ability, both in the short run and in the medium term;
3. Be capable of identifying vulnerabilities;
4. Have the ability of drafting intersectoral adjustment policy mechanism;
5. Gain interest to undertake empirical research on public policies.

Module 1: Introduction to Financial Programming: Interrelations among macroeconomic accounts; - Real, External, Government, Monetary and Financial sectors; Overview of quantitative analysis and forecasting methods.

Module 2: Real/Fiscal sectors and inflation: Forecasting of GDP from the supply side and forecasting inflation; Analysis and forecasting of basic fiscal accounts - revenues, expenditures, financing fiscal deficit and debt sustainability. Case studies and assignments.

Module 3: Balance of payments: Analysis and forecasting of trade, current, capital, and financial accounts; Trade flows and exchange rate; International investment position; Current account sustainability norms and exchange rate misalignment; Assessing a country's external position- Reserve adequacy and external sustainability.

Module 4: Monetary sector: Analysis and forecasting of monetary aggregates and depository institutions' balance sheets; Monetary liabilities and money demand functions; Basics of monetary instruments and policy, inflation targeting and central bank liquidity operations; Credit aggregates and their linkages with other sectors.

Module 5: Macro-financial linkages: Analytics of macro-financial linkages; Identifying financial soundness and systemic risks; Preserving financial stability using macroprudential policy; Medium-term framework for macroeconomic stability.

Basic Readings:

1. Mussa, M. and M. Savastano, 1999. "The IMF Approach to Economic Stabilization," NBER Macroeconomics Annual, (Cambridge, Mass: MIT Press).
2. IMF Institute, 2013. *Financial Programming and Policies,* Part I and II.
3. Frenkel, Jacob A. and Mohsin S. Khan, 1990. Adjustment Policies and Economic Development, American Journal of Agricultural Economics, Aug., Vol. 72, No. 3, pp. 815-820.
4. Easterly, William, 2002. Centre for Global Development, Working Paper No.9.
5. Polak, Jacques, 1998. The IMF monetary model at 40. Economic Modelling, Vol. 15, pp. 395-410.
6. Khan, Mohsin S., and Malcolm D. Knight, 1985. Fund-Supported Adjustment Programs and Economic Growth. Washington DC: IMF Occas. Pap. No. 41, Nov. 19.

Paper FEE301
International Finance

Course Objectives:

1. To educate the students on different terms and concepts in international finance like exchange rate and interest rate determination
2. To have an understanding of the forecasting of exchange rates and interest rates.
3. To understand different forms of derivatives and their uses.
4. To analyze different financial risks in the international market.
5. To enhance the skill of the student to understand the activities in the international market.

Course Outcomes:

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

1. Understand the concepts used in the arena of international finance;
2. Appreciate the functioning of the international financial markets;
3. Have a fair idea about the management of the international financial markets;
4. Understand the determination of different exchange rates;
5. Gain knowledge about the way the foreign exchange market and the derivatives markets and the capital markets function using futures, options and swaps.

Module I

The International Finance: International Business and its modes, Nature, scope and Importance of International Finance; International Financial Markets and Instruments, Exchange rate mechanism: Exchange rate quotes, Nominal, real and effective exchange rates, factors influencing exchange rates, exchange rate determination in spot and forward market.

Module II

Market for foreign exchange and derivatives: Spot and forward market; Forward Market: Features, Arbitrage, Hedging and Speculation, Futures Market: Features, Hedging and Speculation, Options Market: Features, Hedging and Speculation, Currency swap and interest swap.

Module III

Exchange rate determination: Mint Parity theory, Purchasing Power Parity, Monetary Models of Exchange Rate Determination; the Portfolio Balance Model. International Investment decision: FDI: theories, cost and benefits of FDI and strategy, capital budgeting: Evaluation criteria and computation of the cash flow, political risk: meaning and forms, evaluation and management of political risk, international portfolio investment: benefits, problems and modes.

Module IV

Foreign Exchange Exposure and its management: Exchange rate forecasting: need and techniques, Foreign Exchange Exposure: transaction, real operating and translation, Management of Foreign Exchange Exposure: need, hedging of transaction and real operating exposure;

Module V

Management of short-term funds: working capital policy; managing cash and near cash assets, management of receivables and management of inventory. Financing foreign trade: Foreign trade documentation, modes of payment in international trade, methods of trade financing

Basic Reading List

1. Apte, P.G. (1995): International Finance Management, Tata McGraw-Hill Publishing. Co. Ltd, New Delhi.
2. Levi, M.D. (1990): International Finance, McGraw-Hill Publishing Company.
3. Levi, M.D. (1996): International Finance, McGraw-Hill, Inc, New Delhi.
4. Kevin, S. (2009): Fundamentals of International Financial Management" PHI, Learning Pvt. Ltd, New Delhi.
5. Click, R. W. & Coval, J. D. (): The Theory and Practice of International Financial Management" Pearson Education.
6. Avadhani, V.A. (): International Financial Management" Himalayan Publishing House.
7. Pibeam, K. (1998): International Financial, McMillan Press Ltd. London.
8. Shapiro, A.C. (1995): Multinational Financial Management, Prentice. Hall of India Pvt. Ltd.

Paper FEE302
Computational Economics

Course Objectives:

1. To teach different aspects and steps involved in undertaking a research work in social sciences.
2. To understand the concept of ethics in research.
3. To enable the students for using computers for data analysis and thesis writing.
4. To build capacity of the students on using two popular computational packages such as SPSS and STATA widely used in industry.
5. To gain knowledge of some commonly used open-source software.

Course Outcomes

On successful completion of this Course, students will have:

1. increased ability to observe social realities through the lens of a researcher;
2. Better ability to complete the dissertation work in Semester IV;
3. Understanding of the ethical concerns in social science research;
4. Increased employability in research organizations and the corporate sector;
5. Ability to use some open-source software for data analysis.

This paper is designed to impart the skills related to data analysis and carrying out independent research activities. The course has potential to enhance the employability of students passing out from the department of Analytical and Applied Economics, Utkal University.

The performance of students in the entire course including Module I will be evaluated through practical mode.

Module I: Fundamentals of Research and Academic Ethics

Writing a research proposal, Key elements; Review of literature: meaning, objectives, types, sources, stages and precautions. Exercise on wiring a review of literature. Academic writing, the APA style sheet Ethical Guidelines for Social Sciences Research in Health adopted by GoI; Plagiarism: Meaning and types; Why do people plagiarized? How to avoid it?

Module 2: Data Analysis through SPSS

Basics of SPSS, Descriptive Statistics in SPSS, Graphs and Charts in SPSS, Regression Analysis using SPSS

Module 3: Data Analysis through STATA

Basics of STATA, Descriptive Statistics in STATA, Graphs and Charts in STATA, Regression Analysis using STATA

Module 4: Data Analysis through EViews

Basics of Eviews, Descriptive Statistics in Eviews, Graphs and Charts in Eviews, Regression Analysis using Eviews

Module 5: Open Source Softwires for Data analysis (R-Statistics or GRETL)

Basics of R-Statistics/GRETL, Descriptive Statistics in R-Statistics/GRETL, Graphs and Charts in in R Statistics/GRETL, Regression Analysis using R Statistics/GRETL

Paper FEE303
Health Economics

Course Objectives

1. To introduce relevant theory of microeconomics and demonstrate its applicability to health care issues
2. To outline key principles of health economics
3. To be able to assess the efficiency and equity of the health sector.
4. To provides a foundation for and rationale for performing economic evaluation of health sector
5. To get an overview of Indian sector.

Course Outcomes:

On successful completion of the course, students will be able to:

1. gain knowledge of the key analytical reasoning and tools of health economics and their normative foundations and ethical implications;
2. appreciate the basic economic theories and models of regulation applied to health care providers as hospitals and long-term care organizations and the health-related behavioral determinants and an overview of some recent policies aimed at improving the populations' lifestyles
3. use economic models to understand behaviors of actors in the health care sector, do analyses of needs for health care services, make analyses of efficiency and quality of health care organizations, find and utilize relevant data sources describing and use relevant econometric models for the analysis of the economic agents' behaviour
4. attain competence to apply economic concepts and models to the fields of demand for health, demand for health services, demand for health insurance, provision of health insurance and provision of health care;
5. gain competence to describe, analyse and critically address economic aspects of health care organizations

Module I: Introduction to Health Economics

Health Economics: Definition and Relevance; Health and healthcare; Healthcare as an economic good; Wants, demands and needs; Economic Methods and Health Economics; Does Economics apply to health and healthcare; Why health economics?

Module II: The Demand for and Supply of Health and Healthcare

Demand for Health and healthcare: concept, a theoretical and empirical investigation, determinants; Socioeconomic Disparities in Health; Demand for Insurance and Moral Hazards; Supply of health and health care: concept, determinants

Module III: Health Production and Development

Health Production: concept and estimation; Health and Development: theory and evidences

Module IV: Measurement of Health and Health Status

Introduction; Patient Reported; Patient Centeredness; Health Outcomes; Health Summary Measures; Health Technology Assessment

Module V: Overview of India's Health Sector

Features of Indian Health Sector; Health Care System in India: history, structure, programs, infrastructure, health information system; Public Health in India; Financing Healthcare in India; Health Sector Reform in India

Basic Reading List:

1. Jay Bhattacharya, J., Hyde, T., Tu, P. (2014): *Health Economics*, Palgrave Macmillan, UK
2. Krabbe, P. F. M. (2017): *The Measurement of Health and Health Status*, Elsevier Inc, London

SEMESTER IV
Paper CEE401
Economics of Environment

Course Objectives:

1. To be able to apply economic theories for understanding environmental issues.
2. To understand global environmental externalities and climatic change.
3. To be able to value environmental goods.
4. To examine the economics of natural resources.
5. To delve into the regulatory framework with regard to environment in India.

Course Outcomes

On successful completion of the course, students will be able to:

1. Apply economic principles for environmental issues;
2. Select and apply appropriate economic techniques to solve environmental problems;
3. Measure the value of environmental goods;
4. Appreciate the economics of natural resources;
5. Get an overview of the policies with regard to environment in India.

Module 1: The Theory of Externalities

Pareto optimality and competitive equilibrium; public goods and externalities, public goods and bads, efficient provision of public goods and bads, pricing of public goods and bads; Environmental externalities-Pigouvian taxes and subsidies, property rights and externalities, Coase's bargaining solution and collective action.

Module 2: The Economics Pollution

Pollution charges and abatement costs, Marketable pollution permits, The theory of marketable permits, The advantages of marketable permits, Types of permit system, Permit trading in practice. Tradable pollution permits vs international carbon tax. Informal regulation and the new model of pollution control. Environmental institutions and grass root movements; Cooperative Solution to Common Property resources.

Module 3: Measurement of Environmental Values

The concept of total economic value: Use values; Option values and non-use values; Monetary Valuation techniques – use of market prices, The Hedonic pricing approach, The contingent valuation method, the travel cost methods; the non-monetary valuation techniques;

Module 4: Natural Resource Economics

A resource taxonomy, theories of optimal use of exhaustible and renewable resources; Environmental Kuznet Curve and its critique. Environment and development, The concept of sustainable development; strong and weak sustainability; the concept of green GDP

Module 5: Environment Regulation and Policies

Mechanism for environment regulation in India; environmental laws and their implementation; Policy instruments for controlling water and air pollution and forestry policy; People's participation in the management of common and forest lands. The institutions of joint forest management and the joint protected area management; social forestry-rationale and benefits

Basic Reading List

1. Kolstad, C. D. (2010): Environmental Economics. OUP.
2. Bhatacharya, R. (2001): Environmental Economics: An Indian Perspective. OUP
3. Samuelson, P. A. (1995): Diagrammatic Exposition of a Theory of Public Expenditure. *The Review of Economics and Statistics*, 37(4): 350-356.
4. Bator, F. M. (1958): The Anatomy of Market Failure, *The Quarterly Journal of Economics*, 72(3): 351-379.

5. Buchanan, J. M. & Stubblebine, C. W. (1962): Externality, Economics. New Series, 29(116), November, 371-384.
6. Mishan, J. E. (1971): The Postwar Literature on Externalities: An Interpretative Essay, *Journal of Economic Literature*, 9(1): 1-28.
7. Baumol, W. J. & Oates, W. E. (1988). The Theory of Environmental Policy, Second Edition, Cambridge University Press, Cambridge.
8. Coase, R. H. (1960): The Problem of Social Cost, *Journal of Law and Economics*, 3: 1-44.
9. Markandya, A. & Richardson, J. (ed.) (2005): Environmental Economics, Earthscan Publications, London.
10. Ostrom, E. (1997): Governing the Commons: The Evolution of Institutions for Collective Action, Cambridge University, Cambridge.
11. Shiva, V. et. Al. (1997): The Enclosure and Recovery of the Commons. Research Foundation for Science, Technology and Ecology, New Delhi.
12. Grossman, G. M. & Krueger, A. B. (1994): Economic Growth and the Environment, NBER Working paper 4634.
13. Baland, J. & Platteau, J. (1996): Halting Degradation of Natural Resources: *Is there a Role for Rural Communities?* Published by Food and Agriculture Organization of the United Nations
14. Dasgupta, P. & Maler, K. (1997): The Environment and Emerging Development Issues. Clarendon Press

Paper CEE402
Dissertation

Course objectives:

1. To facilitate a student to carry out independent research on a topic of his/her choice.
2. To be able to identify a problem and the research gap in the area of interest.
3. To be able to choose the appropriate methodology for problem solving.
4. To be capable of collect data, primary or secondary for the purpose, analyze it and interpret the findings.
5. To develop the ability to present the results in the context of national and international research and write the dissertation.

Presentation: 50 Marks and Hardcopy of Dissertation: 50 Marks

Paper CEE 403
Rural Economics

Course Objectives:

1. To introduce the concept of rural economics as a distinct branch of study with specific characteristics.
2. To understand the basic concepts, elements, determinants and theories of rural development.
3. To expose students to the policies and strategies for rural development.
4. To gain ideas about the rural development programmes adopted in India.
5. To explore the role of planning and different institutions in achieving development of rural areas of India.

Course Outcomes

On successful completion of the course, students will be able to:

1. explain and analyse the concepts of rural development;
2. critically comment on and participate in current debates on rural development issues in India;
3. get an idea regarding the rural development programmes adopted in India;
4. understand the role of planning in rural development;
5. explore the role of different institutions in rural development.

Module I: Concepts and Rural Economy of India

Concepts of rural development; Basic elements of rural development; Need for rural development; Dilemmas in rural development; Size and structure of rural economy of India; Characteristics of rural sector of India; Role of agricultural and non-agricultural sub-sectors in rural economy of India; Challenges and opportunities.

Module II: Paradigms and Determinants of Rural Development

Paradigms of rural development-Theory of Modernization, Theory of Dependency, Theory of World-Systems, Theory of Globalization, Myrdal's thesis of 'spread and backwash' effects, Gandhian model of rural development; Determinants of rural development- output, natural resources, human resources, capital, technology.

Module III: Policies and Strategies for Rural Development

Freedom, control and public policy; Need for and goals of rural development policy; Hierarchy of policy goals; Globalization and rural development; Sustainable development strategy for rural development; Policy instruments of rural development.

Module IV: Rural Development Programs in India

Equity-oriented programs; Growth-oriented Programs; Poverty and unemployment eradication Programs; Social welfare-oriented programs, Infrastructure Development Programs

Module V: Planning and Organizing for Rural Development

Planning for rural development- functions of planning, decentralization of planning, micro-level planning, block- and district-level planning; Organizing for rural development- government organizations, Panchayati Raj Institutions, cooperatives, voluntary organizations/NGOs, corporations; World Bank and rural development; Financing rural development- sources, issues, challenges.

Basic Reading List

1. Katar Singh (2009): Rural Development Principles, Policies and Management, Sage Publication India, New Delhi.
2. Vasant Desai (2015): Rural Development in India, HPH, Bombay.
3. Hunter, G., Bunting, A. H. and Bottrall, A. (1978): Policy and Practice in Rural Development, English Language Book Society, London.
4. Vasant Desai (1986): Rural Development Programs and Strategies, HPH, Bombay.
5. Vasant Desai (1988): Rural Development Experiments in Rural Development, HPH, Bombay.
6. Vasant Desai (1988): Rural Development Rural Development through the Plans, HPH, Bombay.
7. Chambers, R. (1985): Rural Development: Putting the Last First, Longman, London.

Paper AEE401
Financial Institutions and Market

Course Objectives:

1. To educate the students on different concepts in financial institutions and markets.
2. To introduce students to the world of financial services.
3. To explore the roles of commercial and central bank, and that of the money and capital market.
4. To enhance the understanding of the students about organisation, operation and growth of financial systems.
5. To get an overview of Indian Financial System, Investment Banking in India and the recent developments and challenges ahead

Course Outcomes:

On successful completion of this Course, students will be able to:

1. understand the financial system;
2. get to know about the structure and functions and equilibrium of financial systems;
3. understand the way the different rates of interests are determined;
4. appreciate the functioning and importance of different banking and non-banking financial institutions and their role in a developing economy;
5. explain the role and structure of money and capital markets.

Module I

The structure of the financial system- Functions of the financial sector-Indicators of financial development-Equilibrium in Financial Markets, Financial System and Economic Development. The Concept of Risk and Return - its type, Risk and financial assets, Risk and return on assets, Risk-Return trade off-Valuation of Securities.

Module II

Theories of interest rate determination-Level of interest rates-Long period and short period rates- Term Structure of Interest rates: Administered interest rates- Appropriate interest rate policy. Development banks- role and functions, Merchant banking; financial sector reforms in India.

Module III

Functions of Central Bank- the aims and objectives of the monetary policy in developing countries-Instruments and effectiveness of monetary policy. Proliferation of banking - Credit creation and its control; Balance Sheet Analysis, Profitability and efficiency of banks. Role of commercial banks in money market.

Module IV

Role and structure of money market and capital market, Primary and secondary market for securities. SEBI; its impact on the working of capital market in India; Non-banking financial institutions- Their growth and impact on India's economic development.

Module V

Non-Banking Financial Companies: concept and role in financial market-Regulation and functions of leasing, Hire purchase and Housing Finance Companies-Venture Capital Companies. Insurance Sector: Objectives, functions, changing role, IRDA and its role and functions in financial markets.

Basic Reading List

1. Khan, M. Y. (): Indian Financial System, Tata McGraw Hill, New Delhi.
2. Bhole, L. M. (): Financial institutions and Market, Tata McGraw hill, New Delhi.
3. Gorden & Natrajan (): Financial Market and institutions, Himalaya Publishing house.
4. Gupta, S. B. (): Monetary Economics.
5. Mishkin, F. S. & Eakins S. G (): Financial Market and institutions, PE, New Delhi.

Paper AEE 402
Mathematical Economics

Course Objectives:

1. To impart skills in using mathematics as a language of communication and expression for economic analysis.
2. To use mathematical tools for analysing consumption and production behaviour.
3. To build capacity of students for applying mathematical tools such as game theory.
4. To expose students to the techniques of linear/non-linear programming.
5. To have an understanding of the general equilibrium models in economics research.

Course Outcomes:

On successful completion of this Course, students will be able to:

1. Use mathematics as a tool for economic analysis;
2. increasingly use quantitative and mathematical tools in research activities;
3. apply game theoretic tools for analysing economic issues;
4. capable of using programming as an optimisation technique;
5. have increased employability in organisations engaged in economic research.

Module I

Utility Function – Direct and Indirect, Roy's Identity, N-M Utility Function. Concept of elasticities, separable and additive utility function, homogeneous and homothetic utility function, Linear Expenditure system, Index Number.

Module II

CES and VES Production Function, Shephard's Lemma, Input demand function, Adding up theorem, Technical progress through Production function, Empirical uses of production function analysis.

Module III

Single market equilibrium – Marshallian and Walrasian equilibrium condition, lagged market equilibrium, multimarket equilibrium General equilibrium system of walras and Debreu, Stability of the conditions of equilibrium.

Module IV

Linear Programming – Primal and dual problems, Duality Theorems, Simplex method and Revised simplex method; parametric linear programming; Linear Fractional programming; Non Liner Programming & Khun – Tucker Condition (KTC)

Module V

Dominance property; Arithmetic method for nxn Games; General solution of mxn rectangular games, co-operative & non-cooperative games

Basic Reading List

1. Silberberg, E & Suen, W (2001): The Structure of Economics: A Mathematical Approach, Mc Graw Hill Co., New York.
2. Chiang, A. C. & Wainwright, K (2005): Fundamental Methods of Mathematical Economics, Mc Graw Hilll Co., New York.
3. Sydsaeter, K & Hammond, P. J (1995): Mathematics for Economic Analysis, Pearson Education.
4. Kundu K. B. (1971): Welfare Economics; An Introductory Analysis, Nababharat Publishers, Kolkata.

Paper AEE 403
Advanced Econometrics

Course Objectives

1. To provide a basic understanding of qualitative dependent variable models.
2. To be able to deal with lags in econometric modelling.
3. To be able to deal with situations when the when phenomena are assumed to be reciprocally causal.
4. To explore the relationships among multiple variables in a data set.
5. Identifying the nature of the phenomenon represented by the sequence of observations.

Course Outcomes

On successful completion of this Course, students will be able to:

1. Deal with qualitative dependent variables in regression models;
2. Deal with lags in econometric modelling;
3. Examine causality in economic relationships;
4. Handle simultaneous equation models;
5. Have a basic understanding of time series econometrics.

Module I

Dummy dependent variable models: Estimation using LPM, Logit, Probit and Tobit models; Multivariate normal Probability distribution – its properties; Hotelling T distribution.

Module II

Autoregressive and distributed lag models – Koyek's model, Partial Adjustment model, Adaptive expectation model; Instrumental Variables; Almon's approach to distributed lag models; Causality test – Granger test, Sim test.

Module III

Simultaneous equations models – Introduction and examples; the simultaneous equation bias and inconsistency of OLS estimators; The Identification problem – Rules of identification – Order and rank conditions; Methods of estimation of Simultaneous equation model – Recursive method, ILS,2SLS. System method of estimation of Simultaneous equation models – 3SLS.

Module IV

Multivariate Analysis: Discriminant Analysis, Principal Component Analysis, Factor Analysis, Cluster analysis. Panel data techniques – Fixed effect model, Random effect model, Random Coefficient model.

Module V

Time Series Econometrics – Stationarity, Tests of Stationarity, Unit root, Spurious regression and co-integration, Dickey Fuller test, Engle – Granger test, Random walk model; Forecasting with ARIMA model, Box- Jenkins methodology, Vector auto regression, Problems with VAR modeling – Applications.

Basic Reading List:

1. Johnston (1991): Econometric Methods, Mc Graw Hill Book Co
2. Koutsoyiannis, A, (1992): Introduction to Econometrics, OUP
3. Dougherty, C. (1992): Introduction to Econometrics, OUP.
4. Kmenta, J (1997): Elements of Econometrics, University of Michigan Press
5. Gujarati, D & Sangeetha (2007): Basic Econometrics, McGraw Hill Book Co.

Paper AEE 404
Economics of Gender and Development

Course Objectives

1. To provide a critical overview of economic theories, methods and economic policy-debates from a gender perspective.
2. To cover major debates in gender economics relevant to developed and developing countries.
3. To analyse orthodox economic theory and provides students with a gender-critique.
4. To explore alternative feminist economic theory and apply these different theoretical understandings to concrete examples in the real world.
5. To gain an insight of gender budgeting with special reference to India

Course Outcomes

On successful completion of the course, a student should be able to demonstrate the ability to:

1. demonstrate a general understanding of the theoretical debates surrounding the construction of gender and gender relations in the discipline of economics;
2. critically examine and assess mainstream and heterodox economic theories and policies from a gender perspective;
3. evaluate the ways in which current economic realities in developed and developing countries have different effects on men and women;
4. identify the connections between feminist economic theory and feminist economic reality in developed and developing countries;
5. have an understanding of gender budgeting with special reference to India.

Module I

Gender and Development-Concepts, Patriarchy, Caste, Kinship and implications on gender, Gender in mainstream Economics- WID, WAD and GAD approach in development- Basic Needs and Capability Approach. HDI, GDI and GEM, Empowerment of women: concept and implications.

Module II

Demography and female population- Age structure and sex ratio, Mortality and fertility rates and declining sex ratio with special reference to India. Gender in ownership and access to resources, intra household distribution and decision making; Property rights and land rights for women and implications, Historical trends, land reforms and current provisions; Women and environment: WED and Eco feminism, Climate change, women and sustainable development

Module III

Women and work **-** concepts and valuation: visible and invisible, productive and unproductive, paid and unpaid work; Economic participation of women in pre-industrial and industrial societies. Women in labour market-supply and demand for female labour, female work participation developing countries with special reference to India, agricultural and non-agricultural activities. Women in formal and informal sector; Gender wage differential- Theories of wage discrimination and differentials and use of time- use survey

Module IV

Gender Issues in Poverty - Women and poverty, feminization of poverty, Inclusive growth and development, Gender inequalities: Access to education, health and other public services; Social security and Insurance, entitlements and social justice; Women and access to finance: Micro finance and self-help groups; Women empowerment – concept and indicators; Development, Migration and women, Technology and women: ownership, access and implications on gender inequality

Module V

Globalization and Gender in Neo Liberal economics, Smart Economics and Women in Development Institution framework - engendering development, Women and macroeconomic policies, Decentralization of governance and empowerment of women in India; Gender budgeting with special reference to India

Basic Reading List

1. Boserup, E (1970): Women's Role in Economic Development, George Allen and Unwin, London
2. Seth, M. (2000): Women and Development: the Indian Experience, Sage Publications, New Delhi.
3. Venkateswaran, S. (1995): Environment, Development and Gender Gap, Sage Publications, New Delhi.
4. Kabeer, N. (1994): Reversed Realities: Gender Hierarchies in Development Thought, Kali for Women, New Delhi.
5. Nussbaum, M. (2000): Capability Approach and Human Development, Cambridge University Press.
6. Mies, M. (1998): Patriarchy and Accumulation on a World Scale: Women in the International Division of labour, Zed Book, London.
7. Agnihotri, S. B. (2000): Sex ratio in Indian Population: A Fresh Exploration, Sage Publications, New Delhi.
8. Agarwal, B. (1994): A Field of One's Own: Gender and Land Rights in South Asia, Cambridge University Press
9. Sen, A. K. (1990): Gender and Cooperative Conflicts, in Tinker (Ed) 'Persistent Inequalities: Women and World Development', Oxford University Press, New York.
10. Amsden, A. H. (Ed.) (1980): The Economics of Women and Work, Penguin Publications.
11. ILO (1998): Women's Participation in the Economic Activity of Asian Countries, Geneva.
12. Papola, T. S. and A. N. Sharma (Eds.) (1999): Gender and Employment in India, Vikas Publishing House, New Delhi.
13. Schultz, T. P. (1988): Education Investments and Returns, in Chenry, H. B. and T. N. Srinivasan, Handbook of Development Economies North Hollnad, New York.
14. Ahmed. I. (Ed.) (1985): Technology and Rural Women: Conceptual and Empirical Issues, George Allen and Unwin, London.
15. Jhabwala, R. and R. K. Subramanya (Eds) (2000): The Unorganized Sector: Work Security and Social protection, Sage Publications, New Delhi.
16. Narasimhan, S. (1999): Empowering Women: An Alternative Strategy from Rural India, Sage Publications, New Delhi.
17. Purushothaman, S. (1998): The Empowerment of Women in India: Grassroots Women's Network and the State, Sage Publications, New Delhi.
18. Jacobs, Jerry, A. (1995): Gender Inequality at Work, Sage Publications

Paper AEE 405
Financial Inclusion and Economic Development

Course Objectives:

1. To have a thorough understanding of the concepts of financial inclusion and exclusion.
2. To explore the relation between financial inclusion and economic development.
3. To be able to evolve the strategy for attainment of financial inclusion.
4. To develop an index for measuring financial inclusion
5. To understand the role of financial institutions, micro finance and micro insurance in financial inclusion.

Course Outcomes

On successful completion of this course, the students will be able to

1. Have conceptual clarity regarding financial inclusion and exclusion;
2. Relate financial inclusion to economic development;
3. Learn and analyse the dimensions of financial inclusion and the progress of financial inclusion in India;
4. Understand how to develop an index for measuring financial inclusion;
5. Analyse the complexities associated with financial inclusion in India and the role of different institutions therein.

Module I: Financial Inclusion and Inclusive Growth

Inclusive Growth: Concept, Relevance and Salient Features. A Theoretical Model for Inclusive Economic Growth in India, Challenges and prospects of inclusive growth in India. Financial Inclusion: Concepts, Rationale; Financial exclusion, financial inclusion in India

Module II: Strategy for financial Inclusion

Strategies to extend financial services to vulnerable groups, Measurement of the progress of financial inclusion, Financial inclusion Index, Determinants of financial inclusion, Economics of financial inclusion.

Module III: Institutions and Financial Inclusion

Role of Banking System in Financial Inclusion, Financial Inclusion and Social Banking, Regional Rural Banks, Cooperative Credit Institutions, Reserve bank of India, Government in financial inclusion, Technology Applications in Banking Sector.

Module IV: Rural Credit and Micro Finance

Rural Credit, Demand and Supply Side Analysis, Institutional Mechanism in India, Government Policies for Promoting Rural Credit, Micro Finance: Institutions and Mechanisms, Credit to SHGs, Growth, Prospectus and Challenges, Policy Measures; Farm and Non-farm credit

Module V: Insurance

Moral Hazard and Adverse Selection Problem in Insurance Market; Benefits and Costs of Insurance, Micro insurance, The Moral Foundations of Universal Health Insurance, Evolution of Insurance Market in India. Reforms in Indian Insurance Market

Basic Reading List

1. Karmarkar, K. G., Banerjee, G. D. & Mohapatra, N. P. (2011): Towards Financial Inclusion in India, Sage Publication
2. Desai, V. (2005): Rural Development in India, Himalaya Publishing House
3. Rohtagi (2010) Rural Banking & Overdues Management, Cyber Tech Publications
4. Patnaik, U. C. & Mishra, R. N. (1999): Rural Banking in India, Anmol Publications
5. Bhatnagar, A. (2008): Rural Micro finance & Microenterprise, Concept Publishing Co.
6. Sohani, A. K. (2009): Financial Inclusion: Perspectives and Country Experiences, ICFAI
7. Sujatha, B. (2007): Financial Inclusion: Concepts and Strategies, ICFAI
8. Kocchar, S., Chakrabarty, K. C. & Rangarajan, C. (): Speeding Financial Inclusion, Academic Foundation
9. Sundaram, I. S. (2015): Rural Development, Himalaya Publishing House

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