SRI SATHYA SAI INSTITUTE OF HIGHER LEARNING

(Deemed to be University)

Syllabus for

M.A. (Economics) Programme

(with specialization in (a) Applied Economics and (b) Financial Economics)

Effective from the Academic year 2019 – 20

Department of Economics

Vidyagiri, PRASANTHI NILAYAM – 515 134,
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M.A.(Economics)
(with specialization in (a) Applied Economics and (b) Financial Economics)

SCHEME OF INSTRUCTION AND EVALUATION

(Effective 2019/20 batch onwards)

Paper Code	Title of the Paper	Credits	Hours	Mode of Evaluation	Theory / Practicals	Maximum Marks
Semester I						
PECO–101	Microeconomic Theory	**4**	4	IE	T	100
PECO–102	Macroeconomic Theory	**4**	4	IE	T	100
PECO–103	Quantitative Methods For Economics	**4**	4	IE	T	100
PECO–104	Agricultural and Industrial Economy of India	**3**	3	IE	T	100
PECO–105	Financial Markets and Institutions	**3**	3	IE	T	100
PECO–106	Computer Applications In Economic Analysis – I	**2**	4	I	P	50
PAWR–100	Awareness Course–1	**1**	2	I	T	50
		21 credits	**24** hours			**600** marks
Semester II						
PECO–201	Public Economics	**4**	4	IE	T	100
PECO–202	Ethics, Economy and Society	**4**	4	IE	T	100
PECO–203	Econometrics	**4**	4	IE	T	100
PECO–204	Elective Course – I	**3**	3	IE	T	100
PECO–205	Elective Course –II	**3**	3	IE	T	100
PECO–206	Computer Applications In Economic Analysis – II	**2**	4	I	P	50
PECO-207	Year End Viva-Voce	**2**		I		50
PAWR-200	Awareness Course–2	**1**	2	I	T	50
		21 credits	**24** hours			**600** marks
Semester III						
PECO–301	Monetary Theory and Policy	**4**	4	IE	T	100
PECO–302	Time Series Modelling	**4**	4	IE	T	100
PECO–303	Economics of Growth and Development	**4**	4	IE	T	100
PECO–304	Elective Course –III	**3**	3	IE	T	100
PECO–305	Elective Course –IV	**3**	3	IE	T	100
PECO–306	Computer Applications In Economic Analysis – III	**2**	4	I	P	50
PECO–405	Dissertation (Review) **	**Non-Credit**	6	I	D	50**
PAWR-300	Awareness Course–3	**1**	2	I	T	50
		21 credits	**30** hours			**650** marks
Semester IV						
PECO–401	Indian Economy: Contemporary Issues and Policies	**4**	4	IE	T	100
PECO–402	History of Modern Economic Analysis	**4**	4	IE	T	100
PECO–403	Elective Course–V	**3**	3	IE	T	100
PECO–404	Elective Course–VI	**3**	3	IE	T	100
PECO–405	Dissertation	**6** ***	6	E	D	200 ***
PECO–406	Computer Applications In Economic Analysis – IV	**2**	4	I	P	50
PAWR-400	Awareness Course–4	**1**	2	I	T	50
		23 credits	**26** hours			**700** marks
	GRAND TOTAL	**88** credits	**104** hours			**2600** marks

Modes of Evaluation

Indicator	Legend
IE1	CIE and ESE ; ESE single evaluation
IE2	CIE and ESE ; ESE double evaluation
I	Continuous Internal Evaluation **(CIE)** only Note: 'I' does not connote 'Internal Examiner'
E	End Semester Examination **(ESE)** only Note: 'E' does not connote 'External Examiner'
E1	ESE single evaluation
E2	ESE double evaluation

Types of Papers

Indicator	Legend
T	Theory
P	Practical
V	Viva voce
PW	Project Work
D	Dissertation

Continuous Internal Evaluation (CIE) & End Semester Examination (ESE)

PS: Please refer to guidelines for 'Modes of Evaluation for various types of papers', and 'Viva voce nomenclature & scope and constitution of the Viva voce Boards'.

Note: The electives offered are at the discretion of the Head of the Department.

** The Dissertation topic would be finalized by the end of the second semester, and the Dissertation work starts thereafter, continues in the 3rd semester and gets completed in the fourth semester. The Dissertation work done in the third semester is reviewed based on a preliminary report submitted by the student and is evaluated for 50 marks; which is later included as part of the total marks of 250 in the fourth semester.

*** Total marks for the Dissertation would be **250 marks**, which would include **50 marks** for the review of the preliminary report submitted by the student at the end of the third semester (please see **) + **50 marks** for the Dissertation Viva-Voce conducted at the end of the 4th semester + **150 marks** for the double evaluation of the Dissertation at the end of the fourth semester.

Elective Courses for the M.A. Programme
(with specialization in (a) Applied Economics and (b) Financial Economics)
(3 Credits each)

Electives for Applied Economics (Series – AE)

AE 1. Advanced Macroeconomics

AE 2. Agricultural Economics

AE 3. Applied Econometrics

AE 4. Behavioural Economics and Finance

AE 5. Demography

AE 6. Economic Institutions, Systems and Theories

AE 7. Economics of Education and Health

AE 8. Economics of Infrastructure

AE 9. Economics of Insurance

AE 10. Energy and Resource Economics

AE 11. Environmental Economics

AE 12. Forecasting Methods for Economics and Finance

AE 13. Industrial Economics

AE 14. International Economics and Finance

AE 15. International Trade

AE 16. Labour Economics

AE 17. Open Economy Macroeconomics

AE 18. Underwriting and Actuarial Applications

Electives for Financial Economics (Series – FE)

FE 1. Behavioural Economics and Finance

FE 2. Computational Finance *

FE 3. Corporate Finance

FE 4. Data Analytics *

FE 5. Developmental Finance

FE 6. Economics of Insurance

FE 7. Emerging Market Economies

FE 8. Financial Derivatives

FE 9. Financial Econometrics

FE 10. Financial Economics

FE 11. Financial Risk Management

FE 12. Financial Services

FE 13. Forecasting Methods for Economics and Finance

FE 14. International Economics and Finance

FE 15. International Finance

FE 16. Rural Finance

FE 17. Security Analysis and Portfolio Management

FE 18. Underwriting and Actuarial Applications

Important Note:
No elective course will be offered more than once during any one academic year
* These two courses are Lab oriented courses, hence internal evaluation only.

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M.A.(Economics)
(with specialization in (a) Applied Economics and (b) Financial Economics)

Programme Specific Outcomes:

1. To produce socially responsible students with sound knowledge in economic theory and its applications in order to equip them to serve positions of responsibility in government, international bodies, the corporate sector, universities and research institutions.
2. To gain mastery over the core economic and financial principles.
3. To enable students to undertake research to evaluate important issues in economic and finance by reviewing academic literature, collecting data, and applying econometric methods.
4. To communicate research findings effectively to academicians, policy makers and to the common public.

MICROECONOMIC THEORY

PECO 101 **4 Credits**

Course Objectives: This course provides a rigorous treatment of micro economic theory and its applications. The approach is largely mathematical and it covers various topics on consumer behaviour and demand analysis, production theory and behavior of costs, the theory of traditional markets and equilibrium of firm. The paper also deals with the micro and macro theories of distribution, welfare economics, and general equilibrium analysis of economic behavior under uncertainty.

Course Outcomes: The focus is on to give exposure of various concepts related to optimizing behavior of economic agents to students. By the end of the paper, students will have idea of how firms and consumer optimize their decision. Students will be aware of the different models of perfect and imperfect competition which will enable them to understand the subject matter properly.

Course Content:

I. Consumer Behaviour (15 Hours)
Basic Concepts: Ordinal utility function, Indifference Curves, Budget Constraint; Utility Maximization – Indirect Utility function; Demand and Expenditure functions; Demand curves, elasticities; Labor – Leisure choice; Labor supply function; Substitution and Income effects – Slutsky's Equation; Revealed Preference Theory.

II. Production (15 Hours)
Basic Concepts – production function, product curves, isoquants, elasticity of substitution; Optimizing behaviour of a firm: input demand functions; Cost functions – short run and long run; profit maximization; Production technology - Homogeneous and Homothetic production functions; Returns to scale; Euler's theorem; Cobb – Douglas, CES, and Leontief's production functions.

III. Markets under Perfect Competition (12 Hours)
Market demand (aggregate demand) function; Market supply function; Market equilibrium; Factor markets; Stability of equilibrium; Dynamic adjustments-cobweb model

IV. Models of Imperfect Competition (12 Hours)
Monopoly; Monopolistic Competition; Duopoly and Oligopoly – Quasi Competitive, Collusion, Cournot, Stackelberg, Kinked demand curve, Market share solutions.

V. Elements of Welfare Economics (6 Hours)
Pareto Optimality, Social Welfare Function, Arrow Approach, Theory of Second Best.

Readings:

1) J M Henderson and R E Quandt, "*Microeconomic Theory"*, International Student Edition, McGraw Hill International Book Company, 3/e, 2003.

2) Walter Nicholson, *"Microeconomic Theory – Basic Principles and Extensions"*,

3) The Dryden Press, Orland, 1998.

4) Kreps, David M, *"A Course in Microeconomic Theory"*, Princeton University Press, 1990.

5) Varian H R, *"Microeconomic Analysis"*, New York, W.W. Norton and Company, 10/e, 2010.

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MACROECONOMIC THEORY

PECO 102 **4 Credits**

Course Objectives: Macroeconomics or aggregative economics analyses and establishes the functional relationship between the large aggregates. The aggregate analysis has assumed such a great significance in recent times that a prior understanding of macroeconomic theoretical structure is considered essential for the proper comprehension of the different issues and policies. Macroeconomics now is not only a scientific method of analysis; but also a body of empirical economic knowledge.

Course Outcomes: This course equips the students at the postgraduate level to understand systemic facts and latest theoretical developments for empirical analysis. By the end of the course, the student would be in a position to understand the evolution of various economic schools of thought. By understanding the theoretical part, they would be in a position to appreciate the real world scenarios.

Course Content:

I. Simple Models of Output and Employment (10 Hours)
Smoothly functioning economy: labour, goods and money; Equilibrium: assumptions and characteristics; Policy implications Frictions and rigidities; Alternative adjustment processes; Equilibrium outcome and characteristics; Policy scenarios; Open economy: equilibrium and full employment.

II. Extended Models (11 Hours)
Combined model of demand and supply: price level and output; Budget constraints for households and government; Alternative financial assets; Wage-price flexibility and rigidity; Neutrality of money; Policy implications.

III. Theories of Consumption and Investment (12 Hours)
Keynesian formulation; Post Keynesian alternatives: RIH, PIH and LCH; Investment behaviour: accelerator, marginal efficiency of investment; User cost of capital and neoclassical model; Value of the firm and Tobin's q-theory.

IV. Macroeconomic Dynamics (12 Hours)
Inflation: demand pull and cost push; Money and the price level; Inflationary gap; Phillips curve: NAIRU; Productivity and expectations; Employment-inflation trade-off. Simple models of growth; Endogenous growth; Business cycles: Keynesian; Real business cycles.

V. Alternative Approaches (15 Hours)
Non Walrasian equilibrium; Rationing and quantity adjustments; Reinterpretation of Keynesian and Neoclassical models; Rational expectations; Simple model of New Classical Economics; Policy implications.

Readings:

1) WF Branson, *Macroeconomic Theory and Policy*, 3/e East-West Press, 2005
2) Ackley, *Macroeconomics*: *Theory and Policy*, Collier Macmillan, 1978
3) T Sargent, *Macroeconomic Theory*, 2/e, New York, Academic Press, 1999
4) David Romer, *Advanced Macroeconomics*, 5/e, McGraw Hill, 2018

QUANTITATIVE METHODS FOR ECONOMICS

PECO 103 **4 credits**

Course objectives: The main objective of this course is to provide students with the foundations of mathematical and statistical analysis. The topics covered will include function of several variables, linear programming and system of difference and differential equation. Further, these concepts are extended to explain its application on economics with special emphasis on Harrod-Domar Model and Cobweb Model. The course also focuses on the understanding of statistical inferences with major emphasis on Sampling distribution and hypothesis testing.

Course outcomes: The major outcome from this paper is that the students will able to explore the concepts of mathematics and statistics and its applications for decision-making in economics. In addition, the course is oriented towards the understanding of inferential statistics which enables the students to draw conclusions about the entire population, based on the investigation of a sample applying statistical tests, with the aim to reach a decision, on a probabilistic basis, on observed data.

Course Content:

I. Functions of several variables (15 Hours)
Functions of several variables – Partial derivative – Total differential – Chain rule – Implicit differentiation- Higher order derivatives and differentials – Homogeneous function and Euler's theorem – Concave and Convex functions -– Quadratic forms - Maxima and minima with and without constraints.

II. Linear Programming (10 Hours)
Simple examples of linear programming - general formulation of linear programming – graphical solution – simplex method.

III. Economic Dynamics (10 Hours)
Linear difference and differential equations of first and second order with constant coefficients – Dynamic equilibrium – Cobweb Model –Harrod - Domar growth Model.

IV. Statistical Inference (15 Hours)
Introduction to Statistical Hypothesis Testing - Losses and Risks- Best critical region-The Neyman – Pearson Lemma (without proof) - Likelihood Ratio Tests- Sample tests based on normal - Means and proportion tests of one sample and two sample problems.

V. Sample Tests (10 Hours)
Sample tests based on t, χ^2 and F distributions. Single and two means tests – Paired sample test – test of correlation and regression coefficients – goodness of fit tests – tests based on contingency tables- ANOVA one way and two way classification problems.

Readings:

1) C. Chiang – *Fundamental Methods of Mathematical Economics*, Mc Graw Hill,

2) Irwin Miller and Marylees Miller, John E. Freund's *Mathematical Statistics*, Pearson Education Asia, 2002.

3) K. Sydsaeter and P.J. Hammond – *Mathematics for Economic Analysis*, Pearson Education, 2002.

4) Aczel, AD and Sounderpandian,J – Complete Business Statistics, Tata McGraw Hill , New Delhi 2008.

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AGRICULTURAL AND INDUSTRIAL ECONOMY OF INDIA

PECO 104 **3 credits**

Course Objectives
Agriculture and Industry plays a crucial role in India's economic development. The paper on Agricultural and Industrial Economy of India highlights importance of both agriculture and Industry in India. The paper is split into many modules where initially it starts with agricultural issues and latter part is dealing with industrial concepts.

Course Outcomes
The focus is to provide a basic understanding of both agricultural and industrial sector in India. Students will be familiar with agricultural issues and industrial issues in the context of Indian Economy. They will be aware of policy implications of both the sector.

Course Content:

I. Introduction (10 Hours)
Indian Agriculture: Its role, nature and cropping pattern-Production and Productivity trends.

II. Agricultural Inputs (15 Hours)
Land reforms-Agricultural labour- Irrigation-Seeds-Fertilizers- Plant protection- Technology-Organized and unorganized credit institutions, Financial Inclusion- Crop Insurance- Green Revolution

III. Policy Measures (10 Hours)
Policies introduced during the plan period- Agricultural Price Policy-need, objective, features, Policy with respect to agricultural marketing, Agricultural Subsidies-Food Security, Contract Farming

IV. Industrial Economics (10 Hours)
Concept and organization of a firm – ownership, control and objectives of the firm. Market structure: Sellers concentration – Product differentiation, Entry condition – Economies of scale – Market profitability - Market structure and innovation.

V. Market Behaviour (15 Hours)
Product pricing – Investment expenditure – Methods of evaluating investment expenditure, Market performance: growth and size of the firm, profitability of the firm - Constraints on growth: productivity and capacity utilization – concept and measurement, Indian situation.

Readings:

1) Bilgrami, S.A.R. An Introduction to Agricultural Economics, (2nd edition), Himalaya Publishing House, Mumbai, 2000.

2) Reddy S. S. et.al, Agricultural Economics (2nd edition), Oxford & IBH, New Delhi 2005

3) Barthwal, R. R. Industrial Economics, (3rd Edition) New Age International Limited, New Delhi, 2010.

4) Cherunilam, F. Industrial Economics: Indian Perspective (3rd Edition), Himalaya Publishing House, Mumbai, 1994.

FINANCIAL MARKETS AND INSTITUTIONS

PECO 105 **3 Credits**

Course Objectives: The course aims to help students to appreciate and understand how financial markets and institutions operate. It also helps students to understand commonly used financial instruments and their working. The course also gives an overview about economic influences on investment markets besides basics of portfolio analysis and risk management in banks with a special emphasis on BASEL norms.

Course Outcomes: The student will be able to understand the function of the financial system and describe the role of regulatory bodies in regulating financial institutions and financial markets. Further, students should also be in a position to calculate the price of stocks, bonds and securities along with having knowledge about appropriate measure of risk and return for these instruments.

I. Structure and working of a financial system (5 Hours)
Introduction to Financial Markets – Financial Institutions – Role and Significance of Financial System - International system, Indian system and comparison.

II. The Financial Services Industry (12 Hours)
Role & operations of Banks and Insurance companies, processes, technology - Non Banking Financial Companies (NBFCs) - Merchant Banks, Private Equity and Venture Capital companies. Regulatory and legislative bodies, Role and operations of RBI, SEBI and IRDA.

III. Markets and Financial instruments (12 Hours)
Money markets - Bond markets - Equity markets - Property markets –Options, futures and other derivatives - Collective investment schemes - Overseas markets.

IV. Investment Environment (12 Hours)
Economic influences on investment markets:- interest rates, inflation, exchange rates, demand and supply; International environment:- Role of World Bank, IMF, Asian Development Bank and other agencies. Contemporary issues and trends:- FII, FDI, Listing in international markets, GDR/IDR.

V. Risk Management (4 Hours)
Introduction to portfolio analysis - Risk versus return - Risk management requirements - Basel II – Solvency II.

Readings:

1) Bhole L.M., Financial institutions and markets Tata McGraw Hill 2004.

2) Bodie Z, Kane Alex and Marcus Alan, Investments, 2004, Tata Mc Graw Hill, New Delhi.

3) Gordon E. and Natarajan K. Dr., Financial Markets and Institutions, Himalaya Publishing House 2007.

4) Khan M.Y., Indian financial system, 2000 Tata McGraw hill.

5) Brealey, R. A.; Myers, S. C.; Allen, F. - Corporate finance. 8th ed. McGraw- Hill, 2005.

COMPUTER APPLICATIONS IN ECONOMIC ANALYSIS – I

PECO 106 **2 Credits**

Course objectives: As a basic course for computer application in economics, the primary objective is to introduce students to basic data analysis using the R programme. The emphasis is on applying the elementary statistical techniques using the R functions in analyzing the economic/financial data. This is then followed with report writing.

Course outcomes: Up on completion of the course, the students are expected to be proficient in carrying out the basic data analyzing functions in R. These may include importing, saving and retrieving data, analysis and presentation of data and results, visualization of data etc. Finally, using the basic statistical tools, the student should be in a position to bring out basic characteristic of a chosen problem and write a report on the concerned issue.

Course Content:

I. Introduction to R (10 Hours)
Basic arithmetic functions in R – Methods of data input – built in functions – saving, storing and retrieving data

II. R data structures (10 Hours)
R vectors – Matrix in R – data frame - factors

III. R as statistical software and language (20 Hours)
Data visualization - descriptive statistics – measures of central tendency – Measures of dispersion – J B tests.

IV. Report Writing (20 Hours)
Collection of an economic data – problem formulation – writing summary – understating and interpretation of data.

PUBLIC ECONOMICS

PECO 201 **4 Credits**

Course Objectives: The course is aimed at developing an understanding of the basics in Public Economics. Public economics is the study of government policy from the points of view of economic efficiency and equity. The course deals with the nature of government intervention and its implications for allocation, distribution and stabilization. The subject encompasses a host of topics including public goods, market failures, externalities, pricing in public sector, optimal taxation and principles of cost-benefit analysis.

Course Outcomes: On successful completion of this course students will be able to learn the basic tools, concepts and models necessary for competence in key topics in Public Economics. Learn to comprehend policy challenges facing governments around the world and learn about potential solutions to these challenges as well as obstacles in implementing them. Learn a set of perspectives into the economic activities of the government sector that will help them become enlightened participants - engaged citizens, voters, politicians, and/or civil servants - in society.

Course Content:

I. Introduction (5 Hours)

Basic concepts- Need for Public sector; Analyzing the Public sector; Role of government- Market failure- Externalities- Public good; Private good; Merit good.

II. Fiscal Functions and Theory of Public goods (20 hours)

Major Functions- Public Provision for social good; Social goods and market failure- Social goods considered further; Efficiency; Efficient provision of Social goods- Equity; Approaches to distributive Justice; Limits to redistribution.

III. Economics of Public Sector (10 hours)

Criteria for pricing Policy- Pricing decisions in the public sector; Average cost pricing, Marginal cost pricing; Theory of second best; Peak load Pricing

IV. Principles of Taxation and Efficiency (15 hours)

Taxation and Efficiency; Excess burden; Economic effects of income and commodity Taxes**;** Welfare Implications**;** effects of subsidy- Efficient and Equitable Taxation; Optimal income and commodity taxation and other criteria's for tax design.

V. Cost – Benefit Analysis (10 hours)

Present Value- Private Sector Project Evaluation; Choice of Discount rate; Public Sector discount rate- Valuing Public benefits and costs- Inferences from Economic Behavior; Some Pitfalls-Distributional Considerations.

Readings:

1) Public Finance in Theory and Practice, R Musgrave and P Musgrave, TataMcGraw Hill, Fifth edition, 2017.

2) Public Finance, Harvey S. Rosen and Ted Gayler, McGraw-Hill Publication Tenth edition, 2013.

3) Industrial Economics, R.R Barthwal, New Age International Publisher, 3rd edition, 2015.

4) Public Finance: A Contemporary Application of Theory to Policy, David N Hyman, South Western Cengage Learning, 10th edition, 2011.

5) Economics of Public Sector, Joseph E Stiglitz, W.W. Norton and Company, 1986.

ETHICS, ECONOMY AND SOCIETY

PECO 202 **4 Credits**

Course objectives: This course examines the relationship between economics and ethics. We examine how major economic principles can be analyzed from an ethical viewpoint and how ethics and moral concerns can allow us to conduct more fruitful economic analysis. The topics cover a wide range of issues relating to welfare economics, rationality, happiness, religion, state, market etc.

Course outcomes: Primarily, the student should be in a position to understand how economics as a subject is linked with ethics and moral values. Moreover, the expectation is that students will be in a position to think beyond the limitations of economic theories while they look at an economic issue or a policy.

Course Content:

I. The Basics (6 Hours)
Ethics and economics - problems of the contemporary society - Fundamental issues

II. Economic Behaviour (13 Hours)
Aspects of rationality: Beliefs, desires and decisions; Bounded rationality; Neo-classical rationality; A Critique of welfare economics; Altruism;

III. Approaches to Ethics: (10 Hours)
Alternative theories: Utilitarianism, Pareteanism, Libertarianism, Contracterianism, Marxism; Aspects of Justice; State and the market.

IV. Economic Prosperity (8 Hours)
Issue in human development; Happiness and prosperity; Fulfillment; Participation and wellbeing; Ethical aspects of science and technology; Moral Hazards.

V. Beyond Ethics (8 Hours)
Ethics, morality and Dharma- Human values: From Kautilya to Gandhi and to Sri Sathya Sai Baba- Individual, Society and Divinity-Social contract beyond economic calculations.

Readings:

1) V Pandit, *Ethics Economics and Institutions,* Springer, *2016.*
2) A K Sen, *Ethics and Economics*, 5/e, Oxford University Press, 2001
3) A P Hamlin, *Ethics, Economics and Sate,* St. Martins, 1986.
4) A Buchanen, Ethics Efficiency and the Market, Rowman and Litttlefield, 1988
5) A Ben–Ner and Louis Puterman, Economics, Values and Organisation, Cambridge University Press, 1998
6) B S Frey and A Stutzer, What Can Economists Learn from Happiness Research? Journal of Economic Literature, Vol. XL, June 2002, 402-435.
7) R A Easterlin, Income and Happiness: Towards A Unified Theory, Economic Journal, 2001, 465-84.
8) V K R V Rao, The Gandhian Alternative to Western Socialism, Bharatiya Vidya Bhavan, Mumbai, 1970

ECONOMETRICS

PECO 203 **4 Credits**

Course objectives: This is taken up as a basic course econometrics in the Post Graduate classes. The course aims at an in-depth coverage on estimation and issues related to estimation of multiple regression models using both the continuous and discrete variables.

Course outcomes: The successful completion of the course should reflect in good understanding of matrix functions and it's applications in estimation of ordinary linear regression models. Further, students are expected to have good grip on regression diagnostics, interpretation of results and also checking for structural breaks. The course should also enable students to estimate and interpret regression using discrete/qualitative variables.

Course Content:

I. Linear Models and Matrix Algebra (10)
Matrices and determinant- Simultaneous linear equation — Cramer's rule –Characteristics Roots and Vectors –Linear dependence, Rank of a matrix – Quadratic forms –Definiteness – Quadratic forms with linear constraints

II. Multiple Regression Model (Matrix Approach) (15 Hours)
Estimation of multiple regression models under OLS assumptions - Gauss-Markov Theorem – Interpretation of multiple regression model – Partial regression and regression coefficient – R^2 and Adj. R^2 - Testing of Hypothesis under multiple regression model – t, F test and goodness of fit – Prediction.

III. Violations of Classical Assumptions (15 Hours)
Nature, Causes, Consequences and remedies for Multicollinearity, Auto Correlation and Hetroscedasticity.

IV. Dummy Variables (10 Hours)
Illustration and use of dummy variable - Dummy Variable trap – Structural changes – Chow Test – Using Dummy Variable as alternative for Chow test - Relation between Chow test and F statistics.

V. Discrete Choice Models (10 Hours)
The nature of discreet choice models – Binary choice models – Linear Probability model – Maximun likelihood estimation- Logit and Probit models-Estimation and inference in binary choice models.

Readings:

1) Dawn C. Porter, Sangeetha Gunasekar, Damodar N. Gujarati, , Basic Econometrics, Tata McGraw - Hill Education, 5th Edition, 2011.

2) Christopher Dougherty, Introduction to Econometrics, Oxford University Press, 4th Edition, 2011.

3) W.H. Greene, Econometric Analysis; Prentice Hall, 7th edition, 2011.

PECO 204: ELECTIVE COURSE - I 3 Credits

PECO 205: ELECTIVE COURSE - II 3 Credits

COMPUTER APPLICATIONS IN ECONOMIC ANALYSIS – II

PECO 206 2 Credits

Course Objectives: With a basic introduction to data analysis covered in the part 1, computer application in economics II focuses on estimation of regression models using R. The objective is to provide an in-depth understanding on estimation of regression models using the OLS methodology starting with choice the data, model selection, estimation, diagnosis and finally interpretation of the results.

Course Outcomes: Up on completion of this course, student should be well versed with the functions in R module for regression. This should in turn result in enabling the student to prepare time series data for estimation, identify the theoretical model and estimate the model using the OLS methodology. Major emphasis however is on model diagnosis and interpretation, wherein, the students are expected to write estimate and interpret models on various problems in economics and finance.

I. Introduction to R libraries for regression (10 Hours)

II. Introduction to Linear Regression Model (10 Hours)

Estimating regression model – Testing of hypothesis for the regression coefficients – Measures of goodness of fit of the model- Model selection – stepwise regression.

III. Violations of the classical Linear Regression Model (20 Hours)

Identification problem – Autocorrelation – Heteroscedasticity – Multicollinearity – Problem of estimation with remedial measures.

IV. Report writing (20 Hours)

Selection of economic variables for fitting a regression model – Data collection – Finding a suitable model – Drawing inferences from the model – Discussion of model validity.

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PECO 207: YEAR END VIVA-VOCE 2 Credits

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MONETARY THEORY AND POLICY

PECO 301 **4 Credits**

Course Objectives: The main objective of this course is to understand various theories relating to the monetary system and understand the monetary policy. In the course we understand monetary equilibrium, analytical models of the monetary policy. Monetary policy, its goals, instruments, targets and its indicators are learnt. The evolution of India's monetary policy is discussed in detail.

Course Outcomes: By the end of this course, a students should have able to understand various aspects relating to the monetary theory and policy. The analytical models of the monetary policy would make a student to appreciate the functioning of the monetary system in the real world scenario. The student would be in a better position to critically evaluate and understand the functioning of the India's monetary policy.

Course Content:

I. Monetary Equilibrium (15 Hours)
Supply and Demand for Money – H theory of Money – Money Multiplier Process

II Analytical Models of Monetary Policy (15 Hours)
Theory and Policy Implications - Neo-Keynesian Perspectives; Monetarist perspective; Money in a General Equilibrium Model - Money and Economic Growth – Optimal Choice of Monetary Instruments - Monetary Policy under Rational Expectations.

III. Modalities and Objectives of Monetary Policy (10 Hours)
Goals, Targets, Indicators and Instruments – Monetary Policy of developing countries; Rules versus Discretion; Transmission Mechanism - Credit rationing

IV. India's Monetary Policy (10 Hours)
Phases of central banking; Major episodes of India's Monetary Policy - New stances and initiatives; Monetary Policy during the global financial crisis – Recent Demonetisation

V. Appraisal of Indian Monetary System (10 Hours)
Empirical foundations of monetary policy; Elements of monetary policy modeling under the new policy regime

Readings:

1) Carl E Walsh, *Monetary Theory and Policy*, Cambridge, MIT Press, 2010
2) Bennett McCallum, Monetary *Economics: Theory and Policy*, Macmillan, 1989
3) B Friedman and Frank Hahn (eds.), *Handbook of Monetary Economics*, Vol. I-IV, selected chapters.
4) C Rangarajan, Indian *Economy: Essays in Money and Finance*, UBS PD, 2001
5) A Vasudevan, *Central Banking for Emerging Market Economies*, New Delhi, Academic Foundation, 2/e, 2014
6) Pandit and K. Krishnamurthy (eds), *Economic Policy Modeling for India*, Oxford University Press, 2004.

TIME SERIES MODELLING

PECO 302 **4 Credits**

Course objectives: The main objective is to understand the time series data, it's properties and introduce methodologies that could be used to analyze these data sets. The students should get acquainted with the concepts of Time Series, its theory and methodology of estimation. The course should also equip the student with mathematical and statistical understanding of the various methods used for the analysis of time series data.

Course outcomes: Up on completion of the course, the student should be skillful in analysis, estimation and interpretation of univariate and multivariate time series using both the stationary and non stationary data. More specifically, they should know how to estimate and interpret ARIMA models, VAR models, Cointegration and error correction models, ARCH and GARCH models etc. Further, students are also expected to have basic knowledge about the nonlinear time series models like the threshold autoregressive models and it's extensions.

Course Content:

I. Stationary Time series Models (15 Hours)
Stochastic Difference Equation Models – Stationarity - Autocorrelation function (ACF) – Partial Autocorrelation function (PACF) – Box – Jenkins Model selection. Testing for Trends and Unit Roots - Unit Root process – Augmented Dickey – Fuller (ADF) tests – Phillip – Perron (PP) test – Structural change

II. Multiple Time Series Models (15 Hours)
Intervention Analysis – Drawbacks of multivariate macro econometric models - Introduction to VAR analysis – Estimation and identification – The impulse Response Function – Structural VARs

III. Cointegration and Error Correction Models (15 Hours)
Linear combination of integrated variables - Cointegration and common trends – Cointegration and Error correction – Testing for Cointegration – Engle – Granger methodology – Johansen Methodology

IV. ARCH and GARCH Models (15 Hours)
Economic Time Series: The Stylized Facts-ARCH processes – GARCH processes – A symmetric GARCH - A GARCH model of risk-properties of GARCH process.

V. Nonlinear Time-Series Models (15 Hours)
Linear versus Nonlinear Adjustment- Simple extension of the ARMA Model- Pretesting in Nonlinearity- Threshold Autoregressive Models- Extension of the TAR model.

Readings:

1) Walter Enders, *Applied Econometric Time Series*, John Wiley, 2010.

2) Mills T C, Time *Series Techniques for Economists*, Cambridge University press, 1998.

3) K Patterson: *An Introduction to Applied Econometrics a time series approach*, McMillan Press, 2000.

4) Tsay R S, *Analysis of Financial Time Series*, John Wiley, 2014.

ECONOMICS OF GROWTH AND DEVELOPMENT

PECO-303 **3 Credits**

Course Objectives: This course aims to introduce students to the theories of economic growth and development, policies of development economics and to develop their ability to apply the theories to explain real world cases. Specific goal of this course is to prepare students to know the reasons for persistence in underdevelopment and what causes or promotes the development.

Course Outcomes: On completion of this course, students should be able to acquire a basic understanding of the issues and on-going debates on development economics. Students will be able discuss the important models and theories in economic development and their policy implications. This course will enable the students in identifying and evaluating the unevenness in development.

Course Content:

I. Traditional Growth Theories (10 Hours)
Economic growth and development – factors affecting economic growth: Capital, Labour, and Technology – Harrod –Domar model, Instability of Equilibrium – Neo Classical growth: Solow's Model

II. Modern Growth Theories (10 Hours)
Production function approach to Economic growth- Endogenous growth: Human Capital-role of learning education and research - AK model – Explanations of cross country differentials in economic growth

III. Social and Institutional Aspects of Development (8 Hours)
Development and Underdevelopment – measurement and indicators of Development – Population and Development - Economic Development and Institutions – Market incompleteness and informal institutions in the Rural Economy

IV. Theories of Underdevelopment (10 Hours)
Vicious circle of Poverty – Social Dualism – Technological Dualism – Financial Dualism – Ranis and Fei model – Haris –Todaro model

V. Sectoral Aspects of Development (7 Hours)
Role of Agriculture and industry in economic development – Trade and Aid: International trade as 'engine of growth' – Financial Sector and economic development – Globalization and LDCs – WTO and developing countries

Readings:
1) Michael P. Todaro, Stephen C.Smith, "Economic Development", Pearson, 2011.

2) A.P. Thirlwall, "Growth and Development", Palgrave Macmillan, 2006.

3) Barro, R. and Sela-I Martin, "Economic Growth", McGraw Hill, New York, 1995.

4) Philippe Aghion, and Peter Howitt, "The Economics of Growth", The MIT Press, 2009.

PECO 304: ELECTIVE COURSE - III 3 Credits

PECO 305: ELECTIVE COURSE - IV 3 Credits

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COMPUTER APPLICATIONS IN ECONOMIC ANALYSIS – III

PECO 306 2 Credits

Course objectives: The objective of the third module of the computer application in economics is to bring in advanced techniques in time series modelling using the R programme. The emphasis is on the economic interpretation and applications of the estimated models.

Course outcomes: Up on completion of this course, student should be able to prepare economic and financial time series data for estimation, identify the right model and methodology that suits the problem and implement the model using R software. Further, the student should also be in a position to make inferences and write a technical report on the results obtained.

Course Content:

I. **Time series packages in R (10 Hours)**
   Introduction to tseries package

II. **Time Series Modeling (15 Hours)**
   Time Series plots - Checking for stationarity – ACF and PACF tests - ADF and PP tests – ARIMA Model – Selection of lag length – Model selection – Forecasting.

III. **Multivariable Time Series Models (20 Hours)**
   Modelling Economic and Financial data of different orders of Integration - Testing for long run and short run relationships - cointegration and error correction models – VAR models.

IV. **Report writing (15 Hours)**
   Identification of a problem – selection of appropriate variables – Collection of data – Testing order of Integration – Finding the relationships – Discussion – Interpretation.

INDIAN ECONOMY: CONTEMPORARY ISSUES AND POLICIES

PECO 401 **4 Credits**

Course Objectives: The objective of this paper at the postgraduate level would be to sharpen the analytical faculty of the student, by highlighting an integrated approach to the functioning aspects of the Indian economy. More importantly, the focus is on the contemporary issues and its implications. To develop all these themes, the course is divided into specific modules dealing with issues specific to policies, agriculture, industry, trade etc.

Course Outcomes: The successful completion of this course demands students to be in a position to understand the issues and prospects of Indian economy from an analytical perspective. More importantly, they should be in a position to articulate their views on the prospects of Indian economy.

Course Content:

I. Introduction (10 Hours)
India since Independence, Economic Development and Social Opportunity, India in a comparative perspective, Centralized economic planning and the era of a command economy.

II. Contemporary Issues (12 Hours)
Population and Human Development, Poverty and Inequality, Unemployment, **Black money,** Infrastructure, **Latest developments**

III. Agriculture and Industry (15 Hours)
Agriculture: an overview, main springs of agricultural growth, changing contours of Indian agriculture, emerging issues, economic reforms in agriculture, future scenario. Industry: industrial policies and development since independence, industrial growth and diversification, role of demand factors, structural transformation, small scale and cottage industries.

IV. Services and Trade (11 Hours)
India in the globalized economic world, Foreign trade and Balance of Payments, Financial markets, Stabilization policies.

V. Future Scenario (12 Hours)
Priorities for growth reforms, Sustainable development, Human development in a wider perspective.

Readings:

1) Uma Kapila (Ed) "Indian Economy Since Independence: A Comprehensive and Critical Analysis of India's Economy, 1947-2016", Academic Foundation, 2017.
2) Datt & Ashwani Mahajan, "Dutt and Sunduram's Indian Economy", S. Chand & Co., 2016.
   V. K. Puri and Mishra, S. K "Indian Economy", Himalayan Publishing House, Mumbai, 2017.
3) Jean Dreze and Amartya Sen, India – Economic Development and Social opportunity, Oxford University Press, 1995.
4) T.N. Srinivasan and S.D. Tendulkar: India in the World Economy, Oxford, 2001.

HISTORY OF MODERN ECONOMIC ANALYSIS

PECO 402 **4 Credits**

Course Objectives: All the course in economics studied in the earlier semester would not go much in detail beyond the IS-LM framework. Hence it is important to understand the evolution of economic analysis in the recent times. This course would essentially discuss the evolution of modern economic analysis.

Course Outcomes: After the completion of this course, one would in a better position to understand how the subject called economics, got evolved itself in the recent times. This course would make the students to understand the contribution of various economic Nobel Laurates to the field of Economics. New areas such as Behavioural and informational economics and economics as an interdisciplinary course would be learnt by the students.

Course Content:

I. Theory of Value, General Equilibrium, Game Theory, Welfare (12 Hours)
Samuelson, Paul A. - Hicks, John R. - Arrow, Kenneth J. - Debreu, Gerard G.Allais, Maurice - Coase, Ronald H. - Nash, John F. - Harsanyi, John C.

II. Statics, Dynamics, Macromodels, Econometrics, Quantitative Economics (11 Hours)
Frisch, Ragner - Tinbergen, Jan - Klein, Lawrence R - Haavelmo, Trygve - North, Douglas C. Fogel, Robert W.

III. Macroeconomics, Monetary Economics and Financial Economics (15 Hours)
Friedman, Milton - Tobin, James - Modigliani, Franco - Markowitz, Harry M. - Sharpe, William F. - Miller, Merton H. - Scholes, Myron - Merton, Robert C - Meade, James E - Ohlin, Bertil - Mundell, Robert A.

IV. Economic Development and Economic Growth (10 Hours)
Kuznets, Simon - Schultz, Theodore W. - Lewis, Sir W. Arthur - Solow, Robert M.

V. Input-Output Analysis, Programming, Economic and Social Systems (12 Hours)
Leontief, Wassily W. - Kantorovich, Leonid - Koopmans C. Tjalling - Stone, Sir Richard Hayek, Fredriech - Myrdal, Gunnar

Readings:

1) Backhouse, A *history of modern economic analysis, Blackwell Publishers, 1985*

2) Joseph A. Schumpeter, History of Economic Analysis, Oxford University Press, 1996

3) Economics Nobel Laureates – website

4) Nobel Lectures of Nobel Laureates

PECO 403: ELECTIVE COURSE - V 3 Credits

PECO 404: ELECTIVE COURSE - VI 3 Credits

PECO 405: DISSERTATION 6 Credits

COMPUTER APPLICATIONS IN ECONOMIC ANALYSIS – IV

PECO 406 2 Credits

Course objectives: In the fourth and final module, we cover two broad areas. The first relates to modelling volatility and the second is estimation of binary regression models and its interpretation. The objectives in this way are, one, to understand volatility, methodology to model volatility and its estimation using the R program. The second objective is to understand the property and characteristics of discrete variables and its estimation.

Course outcomes: Completing the course, students are expected have technical knowledge in estimating and interpreting, ARCH, GARCH models and Logit, Probit models that deals with modelling volatility and qualitative variables respectively. Finally, the student should be in a position to write a mini project on any of the economic/financial issue of their choice by implementing the techniques that are learned across the four modules as part of computer applications in economics.

Course Content:

I. Modeling the Financial Data (10 Hours)
Time series plots of financial data – Understanding the stylized facts of financial data - Modelling volatility – ARCH models – GARCH models

II. Discrete Choice Models (10 Hours)
Regression with qualitative variables – Linear probability model – Logit Model - Probit model - Goodness of fit measures of discrete choice models – interpretation of the model.

III. Report writing (20 Hours)
Selection of an Economic/Financial problem – Selection of appropriate Variables – Collection of data – Model building – Discussion - Interpretation.

IV. Project (20 Hours)
Taking up an independent problem in Economic / Financial problem – Selection of variables – collection of data – construction of the model – Applying suitable model(s) / technique(s) – Presentation of empirical results – Discussion – Interpretation - Conclusions.

ADVANCED MACROECONOMICS

Elective AE1 **3 Credits**

Course Objectives: Since the course Macroeconomics was introduced in the first semester as a compulsory course, it's important to understand the advanced topics of macroeconomics for those who are interested to choose the stream of applied economics. The advanced topics in Macroeconomics such as Expectations, Dynamics, OLG models, Non-Walrasian and open economy models are discussed in this course.

Course Outcomes: The course would be a basis for those students who are interested in pursuing their research in macroeconomics. The students would be able to formulate their research problems in better manner, because this course would make them to understand the advanced macroeconomic theories in a detailed manner. Some of the real world scenarios would have been better understood by a student after undergoing this course.

Course Content:

I. Expectations (9 Hours)
Rational expectations; concepts and axioms; New classical economics and policy ineffectiveness; Wage contracts;

II. Non Walrasian Equilibrium and Quantity Adjustments (10 Hours)
Market rationing; quality adjustments; Fix price equilibrium; Types of unemployment and policy implication; Elements of neo Keynesian economics

III. Economic Dynamics (10 Hours)
Neo classical growth models; Endogenous growth; Keynesian theories of business cycles; Real business cycles; Inflation

IV. Overlapping Generations Models (10 Hours)
The basic elements and significance

V. Open Economy Models (6 Hours)
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-Fleming model with changing price level.

Readings:

1) T Sargent, Macroeconomic Theory, 2/e, Academic Press, 1995.
2) D Romer, Advanced Macroeconomics, McGrawHill, 1995.
3) R Solow, Growth Theory, Oxford University Press, 1999.
4) K Cuthbertson and M P Taylor, Macroeconomic Systems, Blackwell, 1988.
5) P Benassy, Non Walrasian Equilibrium, Money and Macroeconomics, Handbook of Monetary Economics, vol., ch.4.
6) O Jean Blanchard and Stanley Fischer, Lectures on Macroeconomics, 2/e, Prentice Hall of India, 2000.
7) Robert J Baro and X. Sala-i-Martin, Economic Growth, New York, McGraw Hill, 1995.
8) E. Malinvaud, Theory of Unemployment Recommended, Blackwell, 1997.

AGRICULTURAL ECONOMICS

Elective AE2 **3 Credits**

Course Objectives

The focus is to provide a rigorous training on issues in agricultural economics .The paper on agricultural economics highlights important aspects of the agricultural development and planning. Various modules deals with important concepts related productivity, prices, marketing, and growth of agriculture.

Course Outcomes

Students can specialize in this area with the knowledge gained. Students will be familiar with policy issues that are relevant to agricultural economics and enable them to analyze the issues. They will be equipped well with various concepts and can better analyze it in Indian context also.

Course Content:

I. Agriculture and Economic Development (5 Hours)
Role of agriculture in economic development; Interdependence between agriculture and industry— some empirical evidence; Models of interaction between agriculture and the rest of the economy; Agricultural development, poverty and environment.

II. Agricultural Production and Productivity (10 Hours)
Issue of low Productivity, Resource use and efficiency; Factor combination and resource substitution; Cost and supply curves; Size of farm and laws of returns; Farm budgeting and cost concepts; Technical change, labour absorption and gender issues in agricultural services,

III. Agricultural Finance (5 Hours)
Role of capital and rural credit; Characteristics and sources of rural credit — Institutional and non-institutional; Reorganization of rural credit — cooperatives, commercial banks, regional rural banks; Role of NABARD.

IV. Agricultural Prices (10 Hours)
Agricultural markets and marketing efficiency ; Market structure and imperfections; Regulated markets; Marketed and Marketable surplus; Behaviour of agricultural prices — Cobweb model; State policy with respect to agricultural marketing; crop insurance; Objectives of agricultural price policy — Instruments and evaluation; Food security in India.

V: Agricultural Growth in India (15 Hours)
Recent trends in agricultural growth in India; Cropping pattern shifts; Supply of inputs — Irrigation, power, seed and fertilizers; role of subsidies; Distribution of gains from technological change; Strategy of agricultural development and technological progress; Sustainable agriculture — indigenous practices; New agricultural practices - Impact of World Trade Organisation on Indian agriculture

References

1) Bilgrami, S.A.R., An Introduction to Agricultural Economics, (2nd edition), Himalaya Publishing House, Mumbai, 2000

2) Bhaduri, A., The Economic Structure of Backward Agriculture, Macmillan, Delhi, 1984

3) Dantwala, M.L. et.al, Indian Agricultural Development since Independence, Oxford & IBH, New Delhi, 1991

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APPLIED ECONOMETRICS

Elective AE3 **3 Credits**

Course objectives: The objective of this course is to introduce students into application of econometric techniques to specific problems that relate to data as well as theoretical and empirical issues in Economics. The course covers the mathematical, statistical and the practical aspects of these techniques and its applications.

Course outcomes: The expected outcomes are as follows. First, on completion of the course, students should have a thorough understanding about the theory and estimation of dynamic models, panel data models, nonlinear regression models and Maximum Likelihood estimation techniques. Second and the most important outcome relates to application of these models in studying theoretical and empirical issues in Economics. The student should be able to understand the issue, select the appropriate model that suits the issue and the data and interpret the results.

Course Content:

I. Dynamic economic Models (10 Hours)
Role of lags in economics – Estimation of Distributed Lag models – Adaptive Expectation models – Partial adjustment model – Method of instrumental Variable - Autoregressive model – Durbin h test – Almon approach to Distributed lag models – Causality and Exogenity.

II. Panel Data Models (10 Hours)
Introduction – Advantages of panel data - Estimation of panel data models – Fixed effects model – random effect model – Dynamic models.

III. Specification Tests (10 Hours)
Introduction to Maximum likelihood -Three test principles – Lagrange Multiplier tests – Testing for omitted variables – Testing for Heteroscedasticity – testing for Autocorrelataion – Quasi maximum likelihood and moment condition tests.

IV. Non-Linear Regression Model (7 Hours)
Introduction to nonlinear regression models – Different methods of estimating nonlinear regression models – Logarithmic transformation – Linearization of nom linear models.

V. Applications in Economics (8 Hours)
Econometric modeling and estimation of consumption and production functions

Readings:

1) Dawn C. Porter, Sangeetha Gunasekar, Damodar N. Gujarati "*Basic Econometrics*" 5th Edition Tata McGraw - Hill Education (2011).

2) Verbeek, M , *"A Guide to Modern Econometrics"* 4th edition, John Wiley & Sons Ltd. 2012.

3) Baltagi, B H, " *Econometrics"* 3rd Edition Springer 2002.

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BEHAVIORAL ECONOMICS AND FINANCE

Elective AE4 **3 Credits**

Course Objectives: This course examines the topic of Behavioral finance in three themes or parts as suggested by Hersh Shefrin in his famous book 'Beyond Greed and Fear". Three themes of behavioral finance are covered in this topic review: heuristic-driven bias; frame dependence; and inefficient markets.

Course Outcomes: Students will be aware and knowledgeable about the differences between a behavioural finance perspective and a traditional finance perspective. Students will understand, and critically appreciate the importance of cognitive biases and errors of judgment present in individuals. They would recognise the behavioural influences of biases on financial decisions, and be able to comprehend the mechanism of capital markets and the inefficiencies involved in it which is not explained by traditional models. Exposed to the important developments in this new area of behavioural finance and how this can provide practical insights.

Course Content:

1. Behavioral Approach versus Neoclassical Approach (10 Hours)
Foundations of Neoclassical Economics; Assumptions - Rational Preferences; Completeness of Preferences; Transitivity of Preferences- Utility Maximization; Value vs Utility - Relevant Information; Acquisition of information and Assimilation of information

II. Heuristic driven biases (10 Hours)
Representativeness- Overconfidence- Anchoring and Adjustment- Ambiguity Aversion- Bias Description, Practical Application of examples in financial markets, Diagnostic Test using Survey.

III. Frame Dependence (10 Hours)
Loss aversion; loss realization and losing projects- Self-control bias and dividends; Regret minimization- Mental Accounting bias; facing risk- Regret Aversion Bias.

IV. Inefficient Market (15 Hours)
Definition of market efficiency; different forms and theories of efficiency; Market Anomalies as violation of efficiency theory and problem of Joint Hypothesis; Limits to Arbitrage; Momentum and Reversal.

Readings:

1) Behavioral Finance and Capital Markets How Psychology Influences Investors and Corporation by Adam Szyszka, Palgrave Macmillan, 2013 edition.

2) Behavioral Finance: Psychology, Decision-Making, and Markets by Lucy F. Ackert and Richard Deaves, South-Western College Publishing, 2009.

3) Beyond Greed and Fear: Understanding Behavioral Finance and the Psychology of Investing by Hersh Shefrin. Publisher: OUP USA, 1 edition, 2007.

4) Behavioral Finance and Wealth Management, Michael M. Pompian, Publisher: John Wiley & Sons; 2nd edition, 2012.

DEMOGRAPHY

Elective AE5 **3 Credits**

Course Objectives: The main objective of this course is to make the students aware of the importance of population in economic development and the various theories that explain the growth of population in a country. This paper will focus on gender characteristics; migration and urbanization are important structural change taking place in a society.

Course Outcomes: The paper enlightens the student on the qualitative aspects and characteristics of the population through various demographic techniques. The paper exposes the students to sources of population and related characteristics as also to the rationale, need and evolution of population policy. Students will be able to appreciate the dynamics of change.

Course Content:

I. Population and Development (9 Hours)
Meaning and scope of demography; Components of population growth and their inter-dependence; Measures of population change; Structure, distribution and sources of population data; Theories of population — Malthus, Optimum theory of population; Theory of demographic transition — Views of Medows, Enke and Simon; Population and development.

II. Structure of Population (10 Hours)
Population trends in the twentieth century; Population explosion — Threatened or real, distant or imminent; International aspects of population growth and distribution; Pattern of age and sex structure in more developed and less developed countries; Determinants of age and sex structure; Demographic effects of sex and age structure, economic and social implications; Age pyramids and projections — Individual aging and population aging.

III. Migration and Urbanization (9 Hours)
Concept and types — Temporary, internal and international; International migration — Its effect on population growth and pattern; Factors affecting migration; Theories of migration related to internal migration; Urbanization — Growth and distribution of rural-urban population in developed and developing countries.

IV. Population and Development with Reference to India (11 Hours)
Population, economy and environment linkages — Population, health, nutrition, productivity nexus;Population and human development issues; Culture and fertility; Education and fertility, Demography and household economic behavior - Population Policy in India - Evolution of population policy in India — The shift in policy from population control to family welfare, to women empowerment; Family planning strategies and their outcomes; Reproductive health, maternal nutrition and child health policies; Population and strategies for human development of different social groups; Social impact of new reproductive technologies and their regulation

V. The New Population Policy (6 Hours)
The new population policy- Tasks before the National Population Commission-Recent trends in population policy and changes.

Readings

Agarwala S.N., *India's Population Problem*, Tata McGraw-Hill Co., Bombay, 1991.

Majumdar P.K, *Fundamentals of Demography*, Rawat Publications, 2010.

Asha A. B and Tara Kanitkar, *Principles of Population studies*, Himalaya Publishing House, 2015.

Sharma K. Rajendra, *Demography and Population Problems*, Atlantic, 2012.

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ECONOMIC INSTITUTIONS, SYSTEMS AND THEORIES

Elective AE6 **3 Credits**

Course objectives: The course is designed to understand the development of institutional setup in economics starting right from the primitive period and then progressing to era of commercial revolution, industrial revolution, colonialization and then to the modern civil society, as we perceive today. The focus is on the evolution of theories and developments that has led to the kind of economic and social institutions, systems and ideologies that we see today.

Course outcomes: Up on completion of the course, students are expected to have an in-depth understanding of evolution of economic institutions, systems, theories and it's inter linkages. After completion of this course, the students would be in a better position to understand the importance the economics institutions and system which would make the economy to perform better.

Course Content:

I. Primitive Economics and Transformations (11 Hours)
The age of hunting - Pastoral Society - Transformation to agrarian economy and society - Traditional agriculture -Blend of economy, society, religion and politics- Early economic thought in Greece and India- Churchmen.

II. Commercial Revolution of Europe (9 Hours)
Rise of the Nation State-Schism of the church- Emergence of Protestantism- Mercantilism

III. Industrial and Agricultural Revolutions (6Hours)
The age of Enlightenment- Scientific discoveries- The Encyclopediacs- Physiocracy- Classical Economics.

IV. Empire Building (9 Hours)
Economics of colonization-Industrialization of England, Europe and America- Marginalism- Rise of protest- Welfare State- Marxism-Capitalism and Socialism.

V. Modernism and Civil Society (10 Hours)
World wars - The Great Depression - Neo Colonialism - International agencies and nation states -Marshall - Keynes; Super Capitalism and the 21st Century- Values based Civil Society- -Now era of Spiritualism and Social order: Vivekananda, Gandhi and Sathya Sai Baba.

Readings:

1) V Pandit, *Ethics Economics and Institutions*, Springer, 2016.

2) Joel Mokyer, *The Economics of the Industrial Revolution*, Routledge, 2012.

3) Joel Mokyer, The Enlightened Economy: An Economic History of Britain 1700-1850, Yale University Press, 2012.

4) Lionel Robbins, *A History of Economic Thought*, Princeton University Press, 2000

5) Arner Ben Ner and Louis Putterman, *Economics, Values and Organization*, Cambridge, Cambridge University Press, 1998.

ECONOMICS OF EDUCATION AND HEALTH

Elective AE7 **3 Credits**

Course Objectives

This course studies the role of economics in evaluating education and health policy. This course focuses on topics like human capital theory, education and health production, externalities, public vs private institutions and several others. The course is divided into various modules dealing with various aspects of education and health.

Course Outcomes

Students should be able to understand the theory of human capital. They will be able to understand methods used by economists to evaluate education and health policies. They will be well versed with concept of education and health production function, return to education, externalities of education and health.

Course Content:

I. Education and Development (10 Hours)
The Bilateral Linkages- Education in the Human Capital Theory and in Human Development. Economic Models of Educational Planning - Rate of return to Education - Manpower Planning - Social Demand Approach and other Econometric Models.

II. Educational Planning in India (10 Hours)
Education in the Five Year Plans - Universalisation of Elementary Education, National Policies and Programmes on Education.

III. Financing Education (10 Hours)
Public Vs private financing of Education - Sources of Funds for Education and Mobilisation of Resources - Philosophy of Free Education of Sri Sathya Sai Baba - Education in turmoil - Externalities, Public Good - Free Education and Values in Education.

IV Health and Health care (10 Hours)
Alternative Systems of health Provision - Health Care as an Economic Good - Demand and supply of Health care - health markets - Health status - Economics of Health Insurance - Health Care in India.- Need for Health security – Health insurance .

V. Role of Voluntary Organization (5 Hours)
Health in a holistic perspective - Sri Sathya Sai System of Health Care – A role Model - Spiritual dimension of Health care.

Readings:

1) Saumen Chattopadhyay, *Education and Economics: Disciplinary Evolution and Policy Discourse*, Oxford University Press (2012)

2) Jandhyala B.G. Tilak, *Education and Development in India: Critical Issues in Public Policy and Development*, Palgrave Macmillan; 1st edition (2018)

3) Sherman Folland, Allen C. Goodman, Miron Stano, *Economics of Health and Health Care*, Pearson International; 7th edition (2013).

4) Jay Bhattacharya Timothy Hyde, Peter Tu, *Health Economics*, Palgrave Macmillan; 1st edition (2013)

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ECONOMICS OF INFRASTRUCTURE

Elective AE8 **3 Credits**

Course Objectives
Infrastructure plays an important role in a country's development. Of the various categories of infrastructure, the category of social overhead capital has gained particular prominence. This paper is divided into various modules dealing with infrastructure related to transport and communication, energy, health and education sector.

Course Outcomes
This course exposes the student wholly to issues involved in development of infrastructure in developing countries like India. Students will have basic foundation of knowledge regarding social and economic infrastructure. They will be able to analyze the various policy decisions in these sectors.

Course Content:

I. Introduction (10 Hours)
Infrastructure and economic development — Infrastructure as a public good; Social and physical infrastructure; Special characteristics of public utilities. The peak-load, Off-Load Problem, Dual Principle Controversy; Economies of scale of Joint supply; Marginal Cost Pricing vs. other methods of pricing in public utilities; Cross-subsidization — free prices, equity and efficiency.

II. Transportation and Communications (10 Hours)
The structure of Transport Costs and Location of Economic Activities. Demand for Transport. Models of Freight and Passenger Demand. Model Choice; Cost Functions in the Transport Sector. Principle of Pricing. Special Problems of Individuals Modes of Transport; Inter-modal condition in the Indian Situation – Communications - Rate-making in Telephone Utilities. Principles of Decreasing Costs in Telephone Industry. Characteristics of Postal Services. Criteria for Fixation of Postal Rates. Measurement of Standards of Service in Telephone and Postal Utilities.

III. Energy Economics (12 Hours)
Primacy of Energy in the Process of Economic Development. Factors Determining Demand for Energy; Effects of Energy Shortages. Energy Conservation. Renewable and Non-conventional Sources of Energy. Energy Modelling. The Search for an Optimal Energy Policy in the Indian Context - Electricity, Gas and Water Supply - Bulk Supply and Pricing of Electricity. The Relative Economics of Thermal, Hydel and Nuclear Power Plants. The Case for a National Power Grid. Financing Water Utilities. Urban and Rural Water Supply. The Exploitation of Natural Gas. Pricing Problem.

IV. Education and Health (13 Hours)
Education and Economic Growth. Approaches to Educational Planning. Social Demand. Rate of Return and Manpower Balance Approaches. The Case for Universal, Free, Primary Education; Structure of higher education and problems of its financing in India; Human Resources and Human Capital Development. The issues in education policy; Health dimensions of development; Determinants of Health — poverty, malnutrition, illiteracy and lack of information; Economic dimensions of health care — Demand and supply of health

care; Financing of health care and resource constraints; Inequalities in health — class and gender perspectives; Institutional issues in health care delivery.

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.) (1999), India Development Report — 1999-2000, Oxford, New Delhi.

Turvey, R. (Ed.) (1968), Public Enterprises, Penguin, Harmondsworth.

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ECONOMICS OF INSURANCE

Elective AE9 **3 Credits**

Course Objectives: This course aims to describe and discuss the application of utility theory to economic and financial problems. Enables students to understand the concept of risk and risk management in Insurance. Besides this course also deals with asset pricing models with insurance component and insurance pricing

Course Outcomes: Students will be able apply basic economic concepts to financial problems. Upon the completion of this course students define, identify, assess, quantify risk and interpret the results obtained from the pricing models applied in various practical scenarios in a given organization.

Course Content:

I. Economic Foundations (9 Hours)
Expected utility, St. Petersberg paradox, Bernoullis solution, Von Neumann Morgenstern Expected utility theorem, Risk preference, Demand for full insurance, maximum premium, Insurance at Fair Odds, Partial Insurance, Insurance Market-State Space Approach, contingent commodities, zero profit constraint , odd price ratio.

II. Asymmetric Information and Insurance (7 Hours)
Moral Hazard and Insurance, Insurance and Selection Problems, single Crossing Property; Imperfect information: pooling, contract, separate insurance, self-selection constraint, separating equilibrium.

III. Risk Management and Insurance (9 Hours)
The concept of risk; Business risks and Individual risks; Risk management methods-loss control, loss financing and internal risk reduction methods; frequency of loss, magnitude and severity of loss; Important distributions of claim costs; diversification and polling arrangement; contract costs; diversification of underwriting risk; reinsurance; proportional and non proportional contracts; Insolvency issues.

IV. Insurance Pricing and Selective Insurance Products (11 Hours)
Fundamentals – fair premium; fair profit loading; Actuarial Science pricing techniques-individual risk theory and collective risk theory; financial pricing of Insurance-insurance capital asset pricing model; present value model and option pricing model; types of insurance products; life and health insurance term, endowment and whole life policies; universal and variable life; group insurance; annuity contracts with level and varying benefits; future life time random variable, its distribution function, force of mortality, curtate future life time; deferred probabilities; analytical laws of mortality-Gompertz, Maheham, single decrement life table, select and ultimate life table. Calculate premium for term assurance and endowment products for a given interest rate and mortality table.

V. Experience Rating and Credibility Theory (9 Hours)
Experience or merit rating, risk classification, Bonus Malus System; Credibility theorem-Empirical Bayes approach to credibility theory, credibility premium formulae and standard elementary models, credibility premiums, full and partial credibility; the aggregate claim

distribution for short term insurance contracts, aggregate claim distribution and application of binomial, Poisson, negative binomial distribution and normal distribution

Readings:

1) Harrington and G. Niehaus, *Risk Management and Insurance*, Tata McGraw-Hill, 2/e, 2004.
2) Black, K. and H. Skipper, *Life and Health Insurance*, Pearson Education, 13/e, 2004.
3) Brian Hiller, *Economics of Asymmetric Information*, Palgrave, 1997
4) Hun Seog S. *Economics of Risk and Insurance*, Wiley-Blackwell, 2010.

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ENERGY AND RESOURCES ECONOMICS

Elective AE10 **3 Credits**

Course Objectives: This course would provide an understanding of economic concepts and theories related to the supply and utilization of energy resources, and technologies at various levels- economy, firm and individual. The objective is to apply economic tools and frameworks for economic analysis and influence decision making in the context of resource planning and energy efficiency.

Course Outcomes: Students will have a thorough grounding in the key concepts of energy economics. They will be aware of how these concepts and standard economic tools can be used to analyze energy-related policy issues. They will be able to apply this knowledge to the analysis of specific energy issues in India.

Course Content:

I. Types of natural resources - Economics of exhaustible resources (10 Hours)
Energy and economic development in India – Review of energy markets in India – Energy, Resources and Management – energy conservation and public policy – Rising demand for energy sources

II. Energy, economic growth resource use with special reference to India (8 Hours)
Energy sources - Uses - and substitutions possibilities - Economics of renewable resources – energy future – energy for a sustainable world

III. Economics of Renewable Resources (8 Hours)
The Allocation Problem and the Method of Lagrange Multiplier, Net Biological growth functional Forms, Production Functions, The Yield-Effort Function, and Models of Open Access: Static and Dynamic.

IV. Integrated frame work for energy pricing and investment (10 Hours)
Energy strategies for developing countries - Alternative perspectives

V. Indian energy sector (9 Hours)
Markets and institutions - International environmental constraints and national energy policy.

Readings:

1) P.S. Dasgupta and G.M. Heal, *Economic Theory and Exhaustible Resources*, Cambridge University Press, 1979.

2) N.D. Nordhaus, *The Efficient use of Energy Resources*, Yah University Press, 1979

3) Griffin J.M., *Energy Economics and Policy*, Academic Press 1986

4) Munasinghe, M. and G. Schramm, *Energy Economics, Demand Management and Conservation Policy*, Van Nortrand Reinhold Co. 1983

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ENVIRONMENTAL ECONOMICS

Elective AE11 **3 Credits**

Course Objectives: This course will familiarize students with the theory and application of economics to environmental problems and prepare them for analyzing issues in environmental economics and policy. It will focus on the design of cost effective environmental policies and on methods for determining the value of environmental amenities

Course Outcomes: Students will appreciate and understand the nexus between environmental and business decision complexities. They will be able to analyze and interpret the environmental implications of business decisions. They will be equipped with various economic valuation techniques of environment and will be aware of taxation and polices for sustainable development.

Course Content:

I. Link between poverty, population and environmental problems (9 Hours)
Poverty and the environmental resource base – economic development and environment – Market failure-public bads and externalities

II. Sustainable development; intergenerational allocation of natural resources (9 Hours)
Environment and sustainable development - economics of natural resources

III. Market and environment - Environmental taxation - Social benefit cost analysis (10 Hours)
Economic efficiency and markets – pollution taxes for the efficient control of pollution – incentive based strategies: emission charges and subsides – carbon taxes and carbon emission trading – benefit –cost analysis – Limits to growth model

IV. Valuation methods: Ethics and the limits of economics (8 Hours)
Economic valuation of environmental benefits and costs – culture and environment (with special reference to India)

V. Design and Implementation of Environmental Policy (9 Hours)
Overview - Pigouvian taxes and effluent fees - tradable permits - choice between taxes and quotas under uncertainty - implementation of environmental policy.

Reading:

1) Turner, R. Kerry: Sustainable Environmental Management Principles and Practice, Belhaven Press., 1988
2) Charles Kolstad, Intermediate Environmental Economics, Oxford University Press, 2nd edition, 2010.
3) Hanley, N. (et. al) Environmental Economics in Theory and Practices
4) Macmillan, 1997
5) Tietenberg, J (1992) Environmental and Natural Resources Economics, Harper Collins, 1992
6) U Shankar, Environmental Economics, Oxford University Press, 2000

FORECASTING METHODS FOR FINANCE & ECONOMICS

Elective AE12 **3 Credits**

Course objectives: The objective of the course is to introduce students to techniques used in forecasting economic and financial time series. The course provides a thorough coverage on the need for forecasting economic and financial series, preparation of data, methodologies for forecast and the evaluation measures.

Course outcomes: The completion of the course will enable students to use methods like ARIMA models, ARCH GARCH models, dynamic regression models, multivariate autoregressive models, neural networks in forecasting economic and financial time series. Moreover, the students will also be in a position to evaluate and compare the forecasts obtained from the models based on accuracy measures.

Course Content:

I. Basic Forecasting Tools (7 Hours)
Time Series and Cross Sectional Data – Graphical Summaries – Numerical Summaries – Measuring Forecast accuracy – Prediction Intervals – Least Square Estimates – Transformation and Adjustments.

II. Exponential Smoothing Methods (9Hours)
Forecasting Scenario – Averaging and exponential smoothing methods –comparison of methods –General aspects of smoothing methods.

III. ARIMA Models (10 Hours)
The Box-Jenkins Approach, Examining correlations in time series data – Examining stationarity of time series data. ARIMA models for time series data – Identification – Estimation of Parameters – Diagnostic checking – Forecasting with ARIMA models.

IV. Volatility Measurement (9 Hours)
The basic ARCH process-The GARCH process-Extension of ARCH and GARCH models-Estimating, Forecasting, and Diagnosing GARCH models- Stock Market Volatility

V. Advanced Forecasting Models (10 Hours)
Dynamic regression Models –Intervention analysis – Multivariate autoregressive models – State space models – Non Linear models – Neural network forecasting.

Readings:

1) S. Makridakis, S. C. Wheelwright and R. J Hyndman: *Forecasting Methods and Applications* 3/e, John Wiles and Sons 1998
2) D.X.Francis, *Elements of Forecasting, 4/e,* Thomson *South* Western, 2007.
3) M. K. Evans, *Practical Business Forecasting*, Blackwell Publishers, 2003.
4) J. E. Hanke, D. W. Wichern and A. R. Reitsch ; *Business Forecasting*, Pearson Education, Asia, 2001.

INDUSTRIAL ECONOMICS

Elective AE13 **3 Credits**

Course Objectives
This course intends to provide rigorous training to the students on the various concepts such as market structure, conduct and performance which are crucial in Industrial Economics. The objective is to provide a thorough knowledge about the economics of industry in a cogent and analytical manner.

Course Outcomes
The focus is to give exposure of various concepts related to industrial economics. Students will be familiar with product pricing, growth of firm, productivity of firm, industrial finance and market behavior of firm. Moreover students will be aware of various issues and policy implications related to Indian industries.

Course Content:

I. Introduction (5 Hours)
Industry and Economic Development, Need of Industrialization, Problems and Factors associated with Industrialization, Industry and sectoral linkages with Agriculture and Trade, Concept and Organization of Firm-ownership, control and objectives of Firm

II. Market Structure (10 Hours)
Sellers' concentration; Product differentiation; Entry conditions; Economies of scale; Market structure and profitability; Market structure and innovation; Theories of industrial location — Weber and Sargent Florence; Factors affecting location.

III. Market Conduct (10 Hours)
Product pricing — Theories and evidence; Investment expenditure — Methods of evaluating investment expenditure; Theories and empirical evidence on Mergers and acquisitions (M & As) and diversification

IV. Market Performance (8 Hours)
Growth of the firm — Size and growth of a firm; Growth and profitability of the firm; Constraints on growth; Productivity, efficiency and capacity utilization — Concept and measurement, Indian situation.

V. Growth and Structure (12 Hours)
Industrial Finance-need, types and sources, Industrial Sickness-causes, impact, remedies, Regional Imbalances-cause and measure to remove it.

References

1) Barthwal, R. R., Industrial Economics New Age International Limited, New Delhi, 2010
2) Cherunilam, F., Industrial Economics: Indian Perspective, Himalaya Publishing House, Mumbai, 1994
3) Desai, B., Industrial Economy in India, Himalaya Publishing House, Mumbai, 1999

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INTERNATIONAL ECONOMICS AND FINANCE

Elective AE14 **3 Credits**

Course Objectives: This is course which has a combination of both economics and finance. The main objective of this course is to understand the issues relating to international economics such as need for international trade, developments in international economy, evolution of international monetary system and macroeconomics of an open economy. On the international finance side, we have topics such as exchange rates, interest and inflation rates and their relation to each other.

Course Outcomes: A student after completing this course, would be in a better position to understand the issues relating to international economics and finance. This is a unique course, since it gels these two aspects. Apart from understanding the importance of trade, we could also see how any economy would frame its policies in an open economy framework. One would also be in sound position to understand the dynamics of exchange rates.

Course Content:

I. Evolution of International Monetary System (5 Hours)

Changes in the International Economy - Trade flows, capital flows, services and Labour movements.

II. Macroeconomics of an open economy (10 Hours)

Mundell Fleming Model; Fixed and flexible exchange rates - Exchange rate management; Monetary, Commercial and fiscal policy for full employment.

III. Interest, inflation and exchange rates (10 Hours)

Covered and uncovered parities – Overshooting, Market efficiency, Theories of exchange rate determination: Purchasing power parity-Monetary model-Flexi-price-Sticky price-Portfolio balance model.

IV. Functioning of foreign exchange markets (10 Hours)

Foreign exchange risk management - Currency futures and Swaps - Options and hedges; Multinational Banking.

V. Volatility in exchange rates (10 Hours)

Market intervention - Capital account convertibility - Models of currency crisis -International Monetary System Reforms.

Readings:

1) P Krugman and M. Obstfeld, International Economics: Thoery and Policy, 5/e, Pearson Education, 2000
2) G Gandalfo, International Finance and Open Economy Macroeconomics, 2/e, Heidelberg, Spinger Verlag, 2002
3) Adrian Buckley, Multinational Financial Management, Prentice Hall, 3/e, 2003.
4) P B Kenen, International Economics, Cambridge University Press, 2000.
5) Peijie Wang, The Economics of Foreign Exchange and Global Finance, Springer, Heidelberg, 2005
6) Sarno L amd Taylor M P, The Economics of Exchange Rates, Cambridge University Press, Cambridge, 2002

INTERNATIONAL TRADE

Elective AE15 **3 Credits**

Course Objectives: At the undergraduate level, a student undergoes to understand the basic theories relating to the International trade. But at the post graduate level, one needs to understand the advances theories relating to the International trade. The objective of this course is to look at various international trade theories, measuring the gains from trade, issues relating to BoP, importance of regional blocs and finally look at India's trade policies.

Course Outcomes: After completing this course, one is expected to understand the importance of theories which explain the need for international trade and also relating to measuring the gains from international trade. The importance of regional blocs would be appreciated in a better manner. By the end of the course, one would be able understand India's trade policies in a more structured manner.

Course Content:

I. Theory of International Trade (10 Hours)

The pure theory of international trade — traditional trade theories and their empirical testing - Kravis and Linder theory of trade, The Rybczynski theorem — concept and policy implications of immiserizing growth; Causes of emergence and measurement of intraindustry trade and its impact on developing economies.

II. Measurement of Gains and Theory of Interventions (5 Hours)

Measurement of gains from trade; terms of trade, its empirical relevance and policy implications for less developed countries; Trade as an engine of economic growth; Welfare implications, The Theory of Interventions (Tariffs, Quotas and non-tariff barriers); Economic effects of tariffs and quotas on national income, output, employment, terms of trade, income distribution.

III. Balance of Payments (10 Hours)

Balance of payments – its Equilibrium and disequilibrium; The process of adjustment under systems of gold standard, fixed exchange rates and flexible exchange rates; Policies for achieving internal and external equilibrium simultaneously under alternative exchange rate regimes; Approaches to the theory of balance of payments; Foreign trade multiplier.

IV. The Theory of Regional Blocs (10 Hours)

Forms of economic cooperation; Static and Dynamic effects of a customs union and free trade areas; Rationale and economic progress of SAARC/SAPTA and ASEAN regions. Regionalism (EU, NAFTA); International Monetary System - Theory of short-term capital movements and East-Asian Crisis and lessons for developing countries; International trade and financial institutions— Functions of GATT/WTO (TRIPS, TRIMS), UNCTAD, IMF, World Bank and Asian Development Bank — Their achievements and failures; relation with India.

V. Trade Policies in India (10 Hours)

Trade problems and trade policies of India; Recent changes in the direction and composition of trade and their implications; Rationale and impact of trade reforms since 1991 on balance of payments, employment and growth. Problems of India's international debt; Working and regulations of MNCs in India; Instruments of export promotion and recent import and export policies and agenda for future.

Readings:

1) Bhagwati, J. (Ed.) (1981), International Trade, Selected Readings, Cambridge, University Press, Massachusetts.

2) Carbough, R.J. (1999), International Economics, International Thompson Publishing, New York.

3) Kenen, P.B. (1994), The International Economy, Cambridge University Press, London.

4) Krugman, P.R. and M. Obstfeld (1994), International Economics: Theory and Policy.

5) Salvatore, D. (1997), International Economics, Prentice Hall, N.J., New York.

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LABOUR ECONOMICS

Elective AE16 **3 Credits**

Course Objectives

This course deals with the study of labor markets, labor market institutions (e.g., unions), public policy labor market issues (e.g., the minimum wage), the wage structure (e.g., income inequality), and the economics of human resource management. Issues pertaining to the labor market, wage theories, employment policies, trade unions and collective bargaining in the globalized economy have become vitally important for developing countries.

Course Outcomes

Students are expected to learn the basic theories that help them understand how practical business decisions involving labor takes place. Thus, the course is focused on reasoning and analysis. This paper exposes students to theoretical issues relating to the labor market with special reference to India

Course Content:

I. Labour Supply (14 Hours)

The labour leisure choice model - hours of work - labours - force participation - Issues of labour absorption- Migration of labour

II. Wages and earning (9 Hours)

Human capital – signaling – Man power planning – discrimination- Brain drain

III. Employment - unemployment & Public policy poverty and inequality (15 Hours)

Minimum wages.- Labour unrest – Labour laws.

IV. Institutional framework (7 Hours)

Labour contracts - unions - collective bargaining and trade unions - dispute resolution.

Readings:

1) P. Visaria and B.S. Minhas, Evolving and Employment Policy for the 1990's, Economic and Political Weekly, 1991.

2) O. Ashenfelter and P. Layard, Handbook of Labour Economics, Vol. 1 and 2, North Holland.

3) P. Bardhan, Law labour and Rural Poverty, Oxford, 1984.

4) Ronald G. Ehrenberg and Robert S. Smith, Modern Labour Economic Theory and Public Policy, 6/e, New York, Harper Collins, 1997.

5) *Kenneth Arrow and L. B. Thurow, Human Capital: Screening Discrimination*

6) *Anne Booth and R M Sundrum, Labour Absorption in Agriculture, Oxford University press, 1984*

OPEN ECONOMY MACROECONOMICS

Elective AE17 **3 Credits**

Course Objectives: The main aim of this course is to introduce various issues and theories relating to the open economy macroeconomics. This course goes beyond the traditional IS-LM framework. It covers basic concepts relating to open economy, highlights the role of capital flows. Various theories relating to the determination of exchange rates is also discussed. The last topic deals with the famous Mundell-Fleming model.

Course Outcomes: Macroeconomics of an open economy is totally different as compared to a closed one. By the end of the course, one would be in a position to understand the importance framing macroeconomic policies in an open economy framework. The resultant of integration with the rest of the world, makes more and more difficult to frame effective policies.

Course Content:

I. A Review of Closed Economy Macroeconomics (4 Hours)
IS-LM Analysis, Aggregate Supply, and Aggregate Demand

II. Basic Concepts in Open Economy Macroeconomics (10 Hours)
Small Country Assumption, Stock vs. Flow, The Balance of Payments, The Exchange Rate, The Interest Rate Parity Condition

III. Capital flows (10 Hours)
Current and Capital accounts, net foreign assets - Capital market liberalization
Financial development and capital flows - Trade costs and capital flows - Sovereign debt

IV. Theories of Exchange Rate Determination (11 Hours)
Purchasing Power Parity, Stock Equilibrium Approach, Flow Approach, The Marshall-Lerner Condition, The J-curve Effect, Modeling International Capital Markets- Overshooting- Currency Crises- Economic Interdependence and Choice of Exchange Rate Regimes

V. The Mundell-Fleming Model (10 Hours)
The M-F Result and the Structure of the Model - a Simple Model, The M-F Result under Fixed Exchange Rates, Alternative Assumptions: Two-Country, Imperfect Capital Substitution, The M-F Result under Flexible Exchange Rates, Alternative Assumption: Two-Country, Mundell Fleming Model: Real World Applications

Readings:

1) Dornbusch, Rudiger (1980) *Open Economy Macroeconomics*, Basic Books, Chapter 10

2) Kaji, Sahoko (2004) *Kokusai Tsuka Taisei no Keizai Gaku* (The Economics of Exchange Rate Systems), Nihon Keizai Shimbun Publishing

3) Canzoneri, M. and D. Henderson (1988) "Is Sovereign Policymaking Bad?"*Carnegie-Rochester Conference Series on Public Policy* No.28, pp.93-140

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UNDERWRITING AND ACTUARIAL APPLICATIONS

Elective AE18 **3 Credits**

Course Objectives: This course aims to describe fundamental concepts of insurance business. Explain students the actuarial and underwriting application to Insurance business. Learn insurance pricing and underwriting with examples alongside the impact of regulation on insurance business life cycle.

Course Outcomes: By the end of this course students will apply fundamental insurance concepts to Life, General and Health insurance businesses. They would be able to price term assurance and endowment products, underwrite simple life insurance contracts, there by Interpret Insurance regulation to Life and General Insurance companies.

Course Content:

I. Insurance Foundation (10 Hours)

Life and General Insurance Business, Management of Actuarial & Underwriting aspects in Life and General Insurance, Product Design, Benefits and Underwriting, Role of Appointed Actuary in Life & General Insurance Companies

II. Actuarial Application (15 Hours)

Pricing of Insurance Products, Mortality & Morbidity Factors in Life & Health Insurance Companies, Actuarial Basis of Premium Rates and Underwriting, Risk Management – Evaluation of Suitability of Insurance Products

III. Regulation of Insurance Business (10 Hours)

Insurance Regulation – IRDA, Tariff rating and Contributions of TAC, Purchasing Insurance in Non-Tariff Markets, Competitive Pricing in Insurance

IV. Insurance Pricing and Selective Insurance Products (10 Hours)

Management of Insurance Claims, Imperial Statistics and Probability in General Insurance, Actuarial control cycle, Underwriting control cycle.

Readings:

1) Ravi Puliani and Mahesh Puliani, *Manual of insurance laws*, Bharat law house Pvt Ltd, 2006
2) ICFAI, *Insurance law and regulation*, ICFAI publication, 2003
3) Trieschmann, Hoyt, and Sommer, *Risk Management and Insurance*, South-Western, 2001.
4) Mark. S Dorfman, *Introduction to Risk Management and Insurance*, Pearson Prentice Hall, 2012.
5) Scott Harrington, *Risk management and Insurance*, Tata Mc Graw Hill, 2007.
6) Insurance underwriting a managerial perspective VOI ICFAI
7) Taxman's Insurance law manual, Taxman publication 2007

BEHAVIORAL ECONOMICS AND FINANCE

Elective FE1 **3 Credits**

Course Objectives: This course examines the topic of Behavioral finance in three themes or parts as suggested by Hersh Shefrin in his famous book 'Beyond Greed and Fear". Three themes of behavioral finance are covered in this topic review: heuristic-driven bias; frame dependence; and inefficient markets.

Course Outcomes: Students will be aware and knowledgeable about the differences between a behavioural finance perspective and a traditional finance perspective. Students will understand, and critically appreciate the importance of cognitive biases and errors of judgment present in individuals. They would recognise the behavioural influences of biases on financial decisions, and be able to comprehend the mechanism of capital markets and the inefficiencies involved in it which is not explained by traditional models. Exposed to the important developments in this new area of behavioural finance and how this can provide practical insights.

Course Content:

1. Behavioral Approach versus Neoclassical Approach (10 Hours)
Foundations of Neoclassical Economics; Assumptions - Rational Preferences; Completeness of Preferences; Transitivity of Preferences- Utility Maximization; Value vs Utility - Relevant Information; Acquisition of information and Assimilation of information

II. Heuristic driven biases (10 Hours)
Representativeness- Overconfidence- Anchoring and Adjustment- Ambiguity Aversion- Bias Description, Practical Application of examples in financial markets, Diagnostic Test using Survey.

III. Frame Dependence (10 Hours)
Loss aversion; loss realization and losing projects- Self-control bias and dividends; Regret minimization- Mental Accounting bias; facing risk- Regret Aversion Bias.

IV. Inefficient Market (15 Hours)
Definition of market efficiency; different forms and theories of efficiency; Market Anomalies as violation of efficiency theory and problem of Joint Hypothesis; Limits to Arbitrage; Momentum and Reversal.

Readings:

1) Behavioral Finance and Capital Markets How Psychology Influences Investors and Corporation by Adam Szyszka, Palgrave Macmillan, 2013 edition.
2) Behavioral Finance: Psychology, Decision-Making, and Markets by Lucy F. Ackert and Richard Deaves, South-Western College Publishing, 2009.
3) Beyond Greed and Fear: Understanding Behavioral Finance and the Psychology of Investing by Hersh Shefrin. Publisher: OUP USA, 1 edition, 2007.
4) Behavioral Finance and Wealth Management, Michael M. Pompian, Publisher: John Wiley & Sons; 2nd edition, 2012.

COMPUTATIONAL FINANCE

Elective FE2 **3 Credits**

Course Objectives: Computation finance intends to provide an experience of formulating finance problems into computational problems. Provides an illustration of the role of optimization in computational finance viz. mean-variance portfolio management alongside valuation of option pricing.

Course Outcomes: By the end of this course, students will get hands on experience in computational finance as the course contains both theoretical and practical concepts of finance. Students will be able to analyze the market performance and apply the strategies to minimize the potential risks in investments.

Course Content:

I. Introduction to Computational Finance and Programming in Finance (8 Hours)
Usage of finance specific packages/toolboxes/libraries

II. Risk Measurement (12 Hours)
(Value-at-Risk) under different assumptions – EWMA/Risk Metrics, and VaR back testing. Bootstrapping and simulation in asset return modeling, Option pricing.

III. Monte Carlo simulations (8 Hours)
Insurance P& L modeling using Monte Carlo simulation, Option pricing using Monte Carlo simulation

III. Portfolio Theory (8 Hours)
Efficient frontier, Optimization under Markowitz, factor models, and performance analysis

IV. Trading Systems (9 Hours)
Analysis of performance based on return as well as risk metrics, Creating and Back testing performance of trading rules based on fundamental and technical indicators- quantitative trading strategy evaluation

Readings:

1) David Ruppert: Statistical and data analysis for financial engineering, Springer 2010

2) Kevin Dowd, Market Risk Measurement, Wiley, 2005

3) Carol Alexander, Market Risk Analysis, Wiley, 2008

4) Shu Heng Chen, Computational Intelligence in Economics and Finance, Springer, 2004

5) Paulo BrandiMarte, Numerical Methods in Finance, Wiley, 2004
6) Documentation from packages/toolboxes

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CORPORATE FINANCE

Elective FE3 **3 Credits**

Course Objectives: The objective of this course is to educate the students about the role of finance manager in the firm and also the organizational setup of a firm. This course also intends to discuss about various sources of capital to finance the firm also the components of capital structure and avenues in raising finance.

Course Outcomes: This course will enable students to understand the company's capital structure, there by the proportion of funds from various sources of capital. Upon the completion of this course, students will be able to evaluate the projects and identify the problems in capital budgeting.

Course Content:

I. Introduction (5 Hours)

Finance Manager's Role − Separation of Ownership and Management Objectives of the Firm and Corporate Governance − Financial Statements and Cash Flow − Financial Statements Analysis and Long-Term Planning

II. Working Capital Management (10 Hours)

Working Capital Components − Leverage − Cash management − Receivables Management − Inventory Management − Financing Current Assets − Regulation of Bank Finance.

III. Capital Budgeting (10 Hours)

Measures of Investment - Choice Investment and Financing Decisions − Time Value of Money − Net Present Value – Internal Rate of Return − Discounted Payback Period − Cost of Capital − Selection of Criteria Risk, Return and Opportunity Cost of Capital Valuation of Bonds and Common Stock Scenario Testing and Sensitivity Analysis Strategy V Investments − Practical Problems in Budgeting − Agency, Compensation and Performance Measure.

IV. Patterns of Financing (10 Hours)

Internal Funds − Common Stock − Debt − Financial Markets/Institutions − Issue of securities − Venture Capital − Initial Public Offering − Security Sales and Auctions – Private Placements and Public Issue Junk Bonds - Options and Corporate Finance

V. Capital Structure & Financing of Long Term Capital (10 Hours)

Planning Capital Structure − Capital Structure Choice Extended Probabilistic Analysis − Dividend Payout Policies − Share Valuation − Sources of Long Term Capital – Debt Securities − Debt Policy and Leverage Risk Management.

Readings

1) Ross, Stephen, Westerfield, Randolph, Jaffe, Jaffrey (February 2002), Corporate Finance, 6th Ed., McGraw-Hill Companies.
2) Berk, Jonathan, and DeMarzo, Peter (2007), Corporate Finance, Pearson International.
3) Brealey, R.A., Myers, S.C. and Allen, F. (2003), Principles of Corporate Finance, 7th Ed, McGrawHill.
4) Copeland, T., Weston, F., and Shastri, K. (2004), Financial Theory and Corporate Policy, 4th Ed., New York: Addison-Wesley.

DATA ANALYTICS

Elective FE4 **3 Credits**

Course Objectives: To make students understand the importance of data analytics in this contemporary world and fundamental concepts of data science such as different types of data, tools to pre-process the raw data, linear regression, logistic regression, and different time series techniques to analyze the data.

Course Outcomes: After going through this course, they should be able to understand different types of data and they should be able to clean the data by using different data science tools. This course would enrich the students in using various tools and techniques regarding the data which they use for analysis purpose. The best part of the course is having a hands on experience while learning these techniques.

Course Content:

I. The need for Analytics and Understanding Analytics (10 Hours)

Decision Making – Heuristics and Biases - The need for analytics - Impact of analytics on business - Being analytically competitive - The difference between analytics and BI - Introduction to the business Analytics model - Types of analytics - Models and algorithms in Analytics - The Analytics Methodology

II. Data Processing (10 Hours)

Data Cleaning - Fill in the missing values and Identify Outliers and smooth out noisy data, Exploratory Data Analysis - Using statistical measures over the datasets, Dealing with Imbalanced Data - overcoming class imbalance for data preparation, Data Transformation - Standardisation and feature scaling, Data Integration - How to integrate the clean data

III. Predictive Models (10 Hours)

Linear Regression Models and their applications - Logistics Regression Models and Their applications - Time Series Forecasting

IV. Classification Techniques (10 Hours)

Clustering Algorithms and application - Decision Tree Algorithms and applications - Random Forest Algorithms and applications

V. Multicriteria Decision Analysis (5 Hours)

Introduction – Analytic Hierarchy Process – Principal Component and Factor Analysis

Readings:

1) Pang – Ning Tan, Vipin Kumar and Steinbach M, "Introduction *to Data Mining*", Pearson, 2007
2) Joseph F Hair, William C.Black, and Barry J. Babin, "*Multivariate Data Analysis*", Pearson, 2013
3) Micheal J. Berry, Linoff S Gordon, "Data *Mining Techniques*", Wiley India Pvt. Ltd. 2012
4) Sandhya K and Basu H, "*Business Analytics: Application to Consumer Marketing"*, McGraw Hill, 2015.

DEVELOPMENTAL FINANCE

Elective FE5 **3 Credits**

Course Objectives: The objective of this course is to provide students the understanding of development finance, social finance and conventional finance with major differences among them. This course also aims to discuss the project appraisal, shadow pricing and governments and NGOs financing development activities.

Course Outcomes: At the end of this course students will have an idea about varieties of development finance and also the organizations involved in financing at all levels viz. nationally, internationally. Students will be able to evaluate the projects based on the cost-benefit analysis which will result in prompt decision making.

Course Content:

I. Overview of Development Finance (10 Hours)

Background on Financing for Development Issues − Difference between development finance, social finance and conventional finance − Problems of Development Finance − Introduction to the agencies involved Government − Multi National − Organizations − International Financing − NGOs −Agencies involved − Recent trends

II. Project Appraisal for a Developmental Project (5 Hours)

Social cost Benefit analysis − How it differs from the private cost benefit analysis – Issues and problems − shadow pricing − methods of social cost benefit analysis.

III. Government Financing of Development (10 Hours)

Resources −Taxation − Public expenditure and deficit − Public debt − Issues related to India - New Sources of Developmental Finance - Sovereign Wealth Funds and Foreign Reserve Accumulation

IV. NGOs as Financing Agencies, Fundamentals of NGOs (10 Hours)

Meaning and Definition − Role of NGOs − Types of NGOs and History of NGOs in India − NGOs and the State: Withdrawing of the State and Expanding Role of NGOs − Role of NGOs in Socio-Economic Development − Sustainability of NGOs and Globalisation − Non-Profit Financing Sources − Structure and Management − Sustaining the Social Development Partnership − International Agencies Supporting NGOs and NGOs of India Donor Agencies − World Bank, Asian Development Bank, Melinda and Gates Foundation, SEWA, PRADHAN, Disha, Asha, CINI, Seva Mandir, MYRADA.

V. Inclusive Credit Policies for Developing Economies (10 Hours)

Microfinance trends: development, contribution, problems − Strategic Issues in Microfinance Sustainability, Effective Interest Rates for micro credit − National Development Banks and other "inclusive" credit policies: Types, contribution, problems − Structured Finance and Private Investment in Infrastructure: trends, contribution, problems.

Readings:

1) Addison, Tony, McGillivray, Mark, and Mavrotas, George, (Ed.) (2005) Development Assistance and Development Finance. UNU-Wider.
2) Giles, Susan L., Blakely, Edward J. (2004), Fundamentals of Economic Development Finance, Sage Publications.
3) Stiglitz, Joseph (2000), The Economics of Public Sector, W.W. Norton & Co.

ECONOMICS OF INSURANCE

Elective FE6 **3 Credits**

Course Objectives: This course aims to describe and discuss the application of utility theory to economic and financial problems. Enables students to understand the concept of risk and risk management in Insurance. Besides this course also deals with asset pricing models with insurance component and insurance pricing

Course Outcomes: Students will be able apply basic economic concepts to financial problems. Upon the completion of this course students define, identify, assess, quantify risk and interpret the results obtained from the pricing models applied in various practical scenarios in a given organization

Course Content:

I. Economic Foundations (9 Hours)

Expected utility, St. Petersberg paradox, Bernoullis solution, Von Neumann Morgenstern Expected utility theorem, Risk preference, Demand for full insurance, maximum premium, Insurance at Fair Odds, Partial Insurance, Insurance Market-State Space Approach, contingent commodities, zero profit constraint , odd price ratio.

II. Asymmetric Information and Insurance (7 Hours)

Moral Hazard and Insurance, Insurance and Selection Problems, single Crossing Property; Imperfect information: pooling, contract, separate insurance, self-selection constraint, separating equilibrium.

III. Risk Management and Insurance (9 Hours)

The concept of risk; Business risks and Individual risks; Risk management methods-loss control, loss financing and internal risk reduction methods; frequency of loss, magnitude and severity of loss; Important distributions of claim costs; diversification and polling arrangement; contract costs; diversification of underwriting risk; reinsurance; proportional and non proportional contracts; Insolvency issues.

IV. Insurance Pricing and Selective Insurance Products (11 Hours)

Fundamentals – fair premium; fair profit loading; Actuarial Science pricing techniques-individual risk theory and collective risk theory; financial pricing of Insurance-insurance capital asset pricing model; present value model and option pricing model; types of insurance products; life and health insurance term, endowment and whole life policies; universal and variable life; group insurance; annuity contracts with level and varying benefits; future life time random variable, its distribution function, force of mortality, curtate future life time; deferred probabilities; analytical laws of mortality-Gompertz, Maheham, single decrement life table, select and ultimate life table. Calculate premium for term assurance and endowment products for a given interest rate and mortality table.

V. Experience Rating and Credibility Theory (9 Hours)

Experience or merit rating, risk classification, Bonus Malus System; Credibility theorem-Empirical Bayes approach to credibility theory, credibility premium formulae and standard elementary models, credibility premiums, full and partial credibility; the aggregate claim distribution for short term insurance contracts, aggregate claim distribution and application of binomial, Poisson, negative binomial distribution and normal distribution

Readings:

Harrington and G. Niehaus, *Risk Management and Insurance*, Tata McGraw-Hill, 2/e, 2004.

Black, K. and H. Skipper, *Life and Health Insurance*, Pearson Education, 13/e, 2004.

Brian Hiller, *Economics of Asymmetric Information*, Palgrave, 1997

Hun Seog S. *Economics of Risk and Insurance*, Wiley-Blackwell, 2010.

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EMERGING MARKET ECONOMIES

Elective FE7 **3 Credits**

Course Objectives: The rationale of this course is to introduce students the evolution of emerging economies and their growth ever since they embarked upon the liberalization since 1980s with a special emphasis on BRIC economies. This course also gives an overview of these four countries' economic historical background and the series of crises along with the reasons of those crises.

Course Outcomes: This course enables the students to get a thorough understanding about the issues of emerging economies. They would be able to analyze the strategies used by the emerging companies to overcome the voids present in these economies.

Course Content:

I Introduction to Emerging Markets (9 Hours)

Brief history of emerging markets - A tale of two decades – Information between emerging markets – The ethical dimension

II. The BRICS Economies (11 Hours)

Overview of BRICS economies – Brief economic history of Brazil, Russia, India, China, and South Africa –country specific risks – Evolution and performance of Brazil, Russia, India, China, and South African Stocks.

III. Emerging Giants (12 Hours)

Facing Institutional voids and multinational competition – Response to Institutional Voids – Emerging giants competing at home – Strategic Choices – Examples in Emerging Markets

IV. Emerging Giants: Going Global (8 Hours)

Strategies for going global – Response to Contextual challenges in Globalization – Some case studies – Globalizing Emerging Markets

V. The Emerging Arena (5 Hours)

The emerging arena – emerging market action items – the emerging future

Readings:

1) Marr and Reynard.C, "*Investing in Emerging Markets: The BRIC Economies and Beyond*", John Wiley and Sons Ltd. 2010.
2) Tarun Khanna and Krishna G. Palepu, "*Winning in Emerging Markets: A Road Map for Strategy and Execution*", Harward Business Press, 2011
3) The BRICS Report, Oxford University Press, 2012
4) Harinder S. Kholi, *Growth and Development in Emerging Market Economies*, Sage Publications, 2008

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FINANCIAL DERIVATIVES

Elective FE8 **3 Credits**

Course Objective: The purpose of this course is to provide a comprehensive understanding about the concept of Derivatives, trading of derivatives. This course also aims at describing the pricing of options, factors determine the options and the trading strategies in derivative instruments.

Course Outcome: After the completion of this course, students will have an understanding of valuation of financial derivatives, formulate hedging, arbitrage and speculative strategies with derivatives. Also will be able to use option pricing models in pricing and identifying profits in financial instruments.

Course Content:

I. Introduction (11 Hours)

Derivatives Markets, Forwards, Futures, Options, Swaps, Role of Derivatives Markets, Linkages between spot and Derivatives Markets, Criticisms of Derivatives Markets- Ethical concerns in Derivatives usage .

II. Forward and Futures (9 Hours)

Market Structure, Types of Future Contracts, Pricing principles, Futures Hedging Strategies.

III. Options (11 Hours)

Options markets, Options pricing principles, Binomial Models, Black-Scholes Model, Introduction to Option Greeks, Option Trading Strategies.

IV. Currency Derivatives (5 Hours)

Currency forwards, Currency futures, Currency options, Pricing, Trading Strategies.

V. Interest Rate Derivatives (9 Hours)

Interest Rate Futures, Forward Rate Agreements, Swaps, Options, Swaptions, Term-Structure and pricing principles, Trading Strategies.

Readings:

1) Hull, John C, *Options, Futures and other Derivatives*, Prentice Hall of India 7./e 2008. First half in the 7/e.

2) Chance Don M, *An Introduction to Derivatives and Risk Management*, South Western, 2001

3) Jarrow & Turnbull, *Derivative Securities*, South Western, 2000.

4) Paul Wilmot, *Derivatives- Theory and Prentice*, John Wiley & Sons, 2000.

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FINANCIAL ECONOMETRICS

Elective FE9 **3 Credits**

Course objectives: The focus is on the empirical techniques, which are mostly used in the analysis of financial markets and its application to actual data. These include techniques for modelling volatility in financial markets, switching models, simulation methods, measuring value at risk etc.

Course outcomes: Up on completion of the course, students should have thorough understanding on characteristics of time series data and its properties. Further, students will have a thorough understanding on the econometric techniques like the ARCH GARCH models, Markov switching models, threshold autoregressive models, Monte Carlo simulations, variance reduction techniques etc. and will be able to apply them in suitable cases.

Course Content:

I. Characteristics of Financial Time Series (5 Hours)

Asset return-distributional properties of returns-statistical distributions and their moments-distributions of returns-multivariate return-likelihood function of returns- empirical properties of returns.

II. Modeling Volatility in Financial Markets (11 Hours)

Introduction – models for volatility – ARCH models – GARCH models – asymmetric GARCH models – EGARCH and GJR GARCH.

III Value at Risk Models (10 Hours)

Introduction to value at risk – Extreme value theory – Extreme value approach to VaR

IV. Switching models (9 Hours)

Introduction – Markov switching models – threshold autoregressive models – regime switching models and forecasting.

V. Simulations Methods (10 Hours)

Introduction to simulation – Monte Carlo simulations – Variance reduction techniques – Bootstrapping – Limitations of simulation methods

Readings:

1) Chris Brooks, *Introductory Econometrics for Finance*, Cambridge University Press, 2002
2) Tsay, R S, *Analysis of Financial Time series*, Third edition, John Wiley and sons, 2010.
3) Terence C Mills, *The Econometric Modeling of Financial Time Series*, second edition, Cambridge University Press, 1999.
4) Campbell, J Y., LO, A W and MacKinlay, A C, *The Econometrics of Financial Markets*, Princeton University Press, 1997

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FINANCIAL ECONOMICS

Elective FE10 **3 Credits**

Course Objectives:
The aim of this is to introduce students to the theory of efficient markets, risk and return relationship of financial assets, risk aversion in the context of utility theory, examines portfolio theory, the capital asset pricing model and arbitrage pricing model. Helps in understanding of stochastic models, measurement of risks i.e. VaR, Tail VaR besides valuation of Derivatives.

Course Outcomes:
Students will be able to have an understanding and ability to discuss the efficient market theory and understanding of risk aversion in the context of utility theory. They will have an understanding and ability to discuss portfolio theory, the capital pricing model and arbitrage pricing theory. By the end of this paper, students should be able to get a thorough idea on risk assessment models and valuation of derivatives.

Course Content:

I. Efficient Market Hypothesis (5 Hours)
Introduction to financial economics – Technical and Fundamental analysis - Efficient Market Hypothesis (EMH): Weak form – Semi-strong and Strong form - Tests for Efficient Market Hypothesis

II. Risk and Uncertainty (12 Hours)
Concepts of uncertainty and risk – axioms of choice under uncertainty – Utility functions, Expected utility hypothesis – certainty equivalence – Risk aversion: absolute and relative risk aversions – Risk Neutral and Risk lovers - Measures of investment risk: variance and semi-variance or return, shortfall probabilities, VaR and Tail VaR

III. Valuation of Fixed Income Securities (8 Hours)
Yield Curves - Yield-to-maturity – Bond Pricing Theorems – Term structure theories of interest rates: The unbiased Expectations Hypothesis - Liquidity Preference Theory – Market Segmentation Theory - Preferred Habitat Theory

IV. Pricing Models (10 Hours)
Mean Variance Portfolio theory - The capital asset pricing model (CAPM) – Capital market line – Security Market Line - Multiple Factor Models of Asset returns: Macroeconomic models – fundamental factor models, Ross Arbitrage pricing Theory model (APT)

V. Options and financial derivatives (10 Hours)
Derivatives – Put and Call options - valuation of options – Binomial Option Pricing –Black Scholes Formula. .

Readings:

1) William Sharpe, Gordon Alexander and Jeffery Bailey, *Investments*, PHI, 2006
2) Edwin j. Elton and Martin J. Gruber, *Modern Portfolio Theory and Investment Analysis*, John Wiley, 2000
3) J.C.Hull, *Futures and Option Markets*, Prentice-Hall, New Jersey, 7th Edition, 2010
4) Bodie, Zvi, Kane, Alex and Marcus, Alan J. (2009) Investments, 8th Ed., McGraw-Hill

FINANCIAL RISK MANAGEMENT

Elective FE11 **3 Credits**

Course Objective: This course aims to explain the students the concept of risk, tools to manage risk, measurement of risk with various methods. Also discusses about the diversification to mitigate the risk and measurement of risk for corporations with the application of VaR, risk management through derivatives.

Course Outcomes: Upon the competition of this course, students will be able to have a better understanding of risk in investments, managing the risk and evaluating risk and return on individual securities and portfolios. Students will be able enumerate the theoretical price of options with the underlying factors.

Course Content:

I. Introduction (5 Hours)

Definitions and concepts of risk – basic tools for risk management – Derivatives – Options - Forward contracts – Models of risk management – The risk management horizon

II. Measurement of Risk (10 Hours)

Measuring uncertainty - Sensitivity analysis – Assigning probability – Scenario analysis – Simulation – Precise measurement of risk – Absolute measurement of risk – Relative measure of risk – Risk evaluation approaches: Risk adjusted discount rate approach – Certainty equivalent approach – probability distribution approach – decision tree approach

III. Investor's risk management (10 Hours)

Evaluating the risk and return of individual securities and portfolios – Asset allocation and expected returns – Diversification and risk management.

IV. Corporate risk management (10 Hours)

Measuring risk for corporations – VaR, CaR and firm value – Managing firm risk by VaR and CaR – Reducing risk through project choice

V. Risk management using derivatives (10 Hours)

Forward contracts – Future contracts – The cost of carrying model – Pricing index future – Pricing stock future - Option contracts – Black Scholes model.

Readings:

1) Khan, M Y and P K Jain, *Financial Management: Text, problems and* cases, Seventh edition, McGraw Hill education, 2015

2) Paul Sweeting, *Financial Enterprise and Risk Management,* Cambridge University Press, 2011.

3) Rene M Stulz, *Risk management and derivatves,* Thomson south western publishers, 2003.

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FINANCIAL SERVICES

Elective FE12 **3 Credits**

Course Objective: The objective of this course is to give a thorough understanding about the structure of Indian financial system and mainly about the component of financial services. This course also aims at describing various financial services and products available in the financial system alongside the regulatory bodies.

Course Outcome: After the completion of this course, students will have a clear understanding of Indian financial system, need for financial services, and products for the purpose of investments. Also the latest technology which facilitates the financial transactions between parties.

Course Content:

I. Overview of Indian Financial System (5 Hours)

Indian Financial System – Structure, functions, constituents – Financial System and Economic Development, Industrial Development, Inter-relationships. Financial Development Ratios. Efficiency Indicators. Globalisation of Indian Financial System.

II. Financial Services & Financial Intermediation (15 Hours)

Need for Financial Services, Fund based and Non-Fund based financial services. Characteristics and role of financial intermediaries. Asset /Fund-based Financial Services - Lease Finance. Leasing and Hire Purchase - Types of Lease - Financial Evaluation of a Lease – Cross Border Leasing - Contents of a lease agreement. Consumer Credit and Hire Purchase Finance. Vehicle & Consumer Durables Finance. Mortgages. Factoring - definition, functions, advantages, evaluation. Forfaiting. Bills Discounting. Housing Finance. Asset Securitization. Non-Deposit taking Institutions and their role. Non-Banking Finance Companies (NBFCs). Functions. Prudential Norms for NBFCs. Micro-finance. Institutions & recent developments. Role of governance and regulatory bodies. Chit funds organization, functioning and regulatory aspects. Insurance Public and Private organization: Life and Non-life Insurance Companies: LIC & GICs working and regulatory framework; Pension Funds: organization and working of pension funds.

III. Financial Products and Services (10 Hours)

Introduction to the entire product spectrum of financial services − Business logic, and how they converge and compete with one another and the value addition by specific financial services − Classification of financial products into Core Product — Banks' savings/current accounts, term deposits, insurance- life and general insurance, pension, all other value added services as unique selling points (USP's).

IV. Marketing the Financial Products and Services (7 Hours)

Difference between Marketing financial services and marketing physical goods and marketing other services − Transfer of Information vs. Transfer of Physical Goods − Role of IT in marketing financial services - Relational Transactions vs One-Time Transaction

V. Regulatory Environment and Evolution of the Financial Services Industry (8 Hours)

The issues and environmental forces that shape the financial services marketplace – Main features and sectors of the FSI − Marketing norms and regulations for various financial sector

entities like insurance companies, NBFCs, Banks etc Regulatory guidelines by SEBI,IRDA and RBI for marketing of respective financial products in India.

Readings:

1) Vasant Desai, Indian Financial System and Development, Himalaya Publishing House.
2) Bharathi Patak, Indian Financial System, Pearson Publications, 2014
3) Gordan and Natarajan, Indian Financial System, Himalaya Publishing House.
4) M.Y.Khan,Indian Financial System, Tata McGraw Hill
5) Estelami, Hooman, Marketing of Financial Services, Dog Ear publishing, LLC, 2006
6) Farquhar, Jillian and Meidan, Arthur, Marketing of Financial Services, 2nd Ed. Palgrave MacMillan, 2010

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FORECASTING METHODS FOR FINANCE & ECONOMICS

Elective FE13 **3 Credits**

Course objectives: The objective of the course is to introduce students to techniques used in forecasting economic and financial time series. The course provides a thorough coverage on the need for forecasting economic and financial series, preparation of data, methodologies for forecast and the evaluation measures.

Course outcomes: The completion of the course will enable students to use methods like ARIMA models, ARCH GARCH models, dynamic regression models, multivariate autoregressive models, neural networks in forecasting economic and financial time series. Moreover, the students will also be in a position to evaluate and compare the forecasts obtained from the models based on accuracy measures.

Course Content:

I. Basic Forecasting Tools (7 Hours)

Time Series and Cross Sectional Data – Graphical Summaries – Numerical Summaries – Measuring Forecast accuracy – Prediction Intervals – Least Square Estimates – Transformation and Adjustments.

II. Exponential Smoothing Methods (9Hours)

Forecasting Scenario – Averaging and exponential smoothing methods –comparison of methods –General aspects of smoothing methods.

III. ARIMA Models (10 Hours)

The Box-Jenkins Approach, Examining correlations in time series data – Examining stationarity of time series data. ARIMA models for time series data – Identification – Estimation of Parameters – Diagnostic checking – Forecasting with ARIMA models.

IV. Volatility Measurement (9 Hours)

The basic ARCH process-The GARCH process-Extension of ARCH and GARCH models-Estimating, Forecasting, and Diagnosing GARCH models- Stock Market Volatility

V. Advanced Forecasting Models (10 Hours)

Dynamic regression Models –Intervention analysis – Multivariate autoregressive models – State space models – Non Linear models – Neural network forecasting.

Readings:

1) S. Makridakis, S. C. Wheelwright and R. J Hyndman: *Forecasting Methods and Applications* 3/e, John Wiles and Sons 1998
2) D.X.Francis, *Elements of Forecasting, 4/e*, Thomson *South* Western, 2007.
3) M. K. Evans, *Practical Business Forecasting*, Blackwell Publishers, 2003.
4) J. E. Hanke, D. W. Wichern and A. R. Reitsch ; *Business Forecasting*, Pearson Education, Asia, 2001.

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INTERNATIONAL ECONOMICS AND FINANCE

Elective FE14 **3 Credits**

Course Objectives: This is course which has a combination of both economics and finance. The main objective of this course is to understand the issues relating to international economics such as need for international trade, developments in international economy, evolution of international monetary system and macroeconomics of an open economy. On the international finance side, we have topics such as exchange rates, interest and inflation rates and their relation to each other.

Course Outcomes: A student after completing this course, would be in a better position to understand the issues relating to international economics and finance. This is a unique course, since it gels these two aspects. Apart from understanding the importance of trade, we could also see how any economy would frame its policies in an open economy framework. One would also be in sound position to understand the dynamics of exchange rates.

Course Content:

I. Evolution of International Monetary System (5 Hours)

Changes in the International Economy - Trade flows, capital flows, services and Labour movements.

II. Macroeconomics of an open economy (10 Hours)

Mundell Fleming Model; Fixed and flexible exchange rates - Exchange rate management; Monetary, Commercial and fiscal policy for full employment.

III. Interest, inflation and exchange rates (10 Hours)

Covered and uncovered parities – Overshooting, Market efficiency, Theories of exchange rate determination: Purchasing power parity-Monetary model-Flexi-price-Sticky price-Portfolio balance model.

IV. Functioning of foreign exchange markets (10 Hours)

Foreign exchange risk management - Currency futures and Swaps - Options and hedges; Multinational Banking.

V. Volatility in exchange rates (10 Hours)

Market intervention - Capital account convertibility - Models of currency crisis -International Monetary System Reforms.

Readings:

1) P Krugman and M. Obstfeld, International Economics: Thoery and Policy, 5/e, Pearson Education, 2000
2) G Gandalfo, International Finance and Open Economy Macroeconomics, 2/e, Heidelberg, Spinger Verlag, 2002
3) Adrian Buckley, Multinational Financial Management, Prentice Hall, 3/e, 2003.
4) P B Kenen, International Economics, Cambridge University Press, 2000.
5) Peijie Wang, The Economics of Foreign Exchange and Global Finance, Springer, Heidelberg, 2005
6) Sarno L amd Taylor M P, The Economics of Exchange Rates, Cambridge University Press, Cambridge, 2002

INTERNATIONAL FINANCE

Elective FE15 **3 Credits**

Course Objectives: It is inevitable for the underdeveloped and developing countries to approach the international institutions to finance their investment activities, it is in this context this courses address the issues relating to the international finance. The topics covered in this course are debt, global finance, international asset portfolios, financial management in a multinational firm and international financial regulations.

Course Outcomes: The major outcome of this course is to understand the functioning of the international financial markets. It deals with various sources in the international markets, functioning of these markets and rules and regulations of these markets. At the end of the course, the student would be in a position to understand the need and significance of international financial markets.

Course Content:

I. Long Term Debt and Foreign Exchange Exposure (10 Hours)

Debt Denominated in Foreign Currencies: Eurobonds − Debt and Foreign Exchange Net Cash Flow Exposures − Foreign Exchange Value Exposure − Foreign Exchange Equity Exposure − Hedging − Debt Maturity Estimation of Foreign Exchange Equity Exposure−Currency Swaps−Swap-Driven Financing.

II. Global Finance and the Cost of Capital (10 Hours)

Returns on Foreign Assets − Depositary Receipts − Cost of Capital − The Capital Asset Pricing Model − Global Equity Beta and the Cost of Equity − Risk-free Rate − Cost of Debt and the WACC − Systematic Foreign Exchange Risk − Risk-Adjusted Uncovered Interest Rate Parity Operating Risk Approach − Accounting Beta Method − Country Beta Method − Emerging Market Investments − Cost of Capital in a Foreign Country − Unlevering Equity Betas.

III. International Asset Portfolios (10 Hours)

International Equity Portfolios − Composition of Global Equity Market − Techniques of Making International Equity Investments − Calculation of Hedged and Unhedged Return on a Foreign Equity Share − Benefits of Holding a Global Portfolio of Equities − Risk and Return from Foreign Equity Investment − The International Capital Asset Pricing Model − Equity Financing in the International Markets − International Bond Portfolio Overall Composition of the Global Bond Market − Unhedged and Hedged Return on a Bond Portfolio − Active Vs. Passive Hedging of Currency Risk in a Global Bond Portfolio.

IV: Financial Management in a Multinational Firm (10 Hours)

Short Term and Long Term Borrowing and Investment − Cash Surplus Management − Centralised vs. Decentralised Cash Management − Cash Transmission − The Central Financial Decisions Multinational Firms Must Make Concerning Capital Structure – Risk Management and Tax Optimization − Decisions Regarding Capitalizing Subsidiaries Around the World – Forming Partnerships with Local Firms − Exposure To Exchange Rates − Tax Considerations Factor Into Internal Financial Decision-Making.

V. International Financial Market Regulation (5 Hours)

Foreign Exchange Management Act (FEMA1999) − Reserve Bank of India Regulation and Guidelines with Respect to External Commercial Borrowings (ECB) − NRI Remittances − Clearing Corporation of India Ltd.(CCIL,2003) − Regulations and Guidelines Regarding International Capital Flows − SEBI Regulations of FIIs − Foreign Exchange Derivatives and Hedging − Financial Stability and Regulation of Foreign Exchange Flows in India.

Readings:

1) O'brien, Thomas J. (2005), Corporate Decisions in Global Markets, 2nd Ed., Oxford University Press.
2) Levi, Maurice D. (2009), International Finance, Routledge.
3) Madura, Jeff (2006), International Financial Management, 6th Ed., Thomson Publications
4) Choel, S. Eun and Bruce, Risnick (2001), International Financial Management, Tata Mc Graw Hill.
5) Mark, N. (2001), International Macroeconomics and Finance, Blackwell Publishers.
6) Choi, E. Kwan, Harrigan (Ed.) (2003), Handbook of International Trade, Blackwell Publishers.

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RURAL FINANCE

Elective FE16 **3 Credits**

Course Objectives: The objective of this paper is to equip students to appreciate the role and importance of finance for development of economy and different forms, sources causes and constraints of rural finance and the available policy, alternatives to gear up rural economy by ensuring belter rural financial institutions and facilities.

Course Outcomes: By the end of this paper student should be able to understand the rural financial structure in India. Mainly the achievements of various institutional credit agencies since their inception. The policy measures taken up by the government so as to improve the credit facilities in rural areas.

Course Content:

I. Financial Institutions in Rural India (5 Hours)

Formal and informal financial institutions – Source of informal finance and role, performance, present status of informal finance with reference to Agriculture credit

II. Rural Credit Institutions (12 Hours)

Function and policies of RBI in Rural Banking - NABARD-Main functions, role, refinance support - Lead bank approach, State level and District level Credit committees - Co-operative Credit Societies and Banks, Land Development Banks, Regional Rural Banks, Commercial Banks – financial inclusion & inclusive growth for rural banking, rural insurance micro insurance scheme

III. Financing SMEs and Rural Non-Farm Sectors (8 Hours)

Importance of RNFS, Segments in RNFS, Role of Development and Promotional Institutions in RNFS - Importance of SMEs to Indian economy - Financing of SME and small enterprise Refinance from SIDBI. Risk rating of SME proposals, role of rating agencies and rating methodology.

IV. Priority Sector Financing and Govt. initiatives (10 Hours)

Components of priority sector. RBI guidelines. Government initiatives; Poverty alleviation programmes, Employment programmes, Production oriented programmes - rationale and philosophy, progress and impact, problems and deficiencies.

V. Problems and prospects in Rural Banking (10 Hours)

Problems of Rural branches of Commercial banks - transaction costs and risk costs. Technology based Financial Inclusion. Emerging trends in rural banking-financing poor as bankable opportunity, Micro Credit, Self Help Groups / NGOs, linkages with banking, latest guidelines of GOI and RBI.

Readings:

1) Indian Institute of Banking and Finance, *Rural Banking*, Macmillan, 2013
2) Satya Sundaram, I., *Rural Development*, Himalaya Publications, 2002
3) Dutt and Sundaram, *Indian Economy*, S.Chand Publications, 2013

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SECURITY ANALYSIS AND PORTFOLIO MANAGEMENT

Elective FE17 **3 Credits**

Course Objectives: This course is intended to provide a general overview of capital markets, financial instruments, and investment process. The course emphasizes on the role of modern financial theory in portfolio management.

Course Outcomes: By the end of the course, the students are expected to be acquainted with the working of financial markets, to analyze securities, and to make intelligent investment decisions based on available evidence and analysis. The course will also improve the ability of the reader to understand financial articles and news with a critical approach.

Course Content:

Module 1: Securities Analysis Methodologies (5 Hours)

Financial Analysis - Structure & analysis of Financial Statements - deconstructing Financial Statements - differences across Industries. Financial Ratios and their significance. Chemistry of Earnings. Advanced Technical. Analysis - Elliot wave theory, market structure, market indicators. Trend indications - Rupee cost averaging: meaning of RCA - guidelines for using RCA - modified RCA plans. Formula plans: need, logic, assumptions, types, pros vs. cons. Industry, Company, and Security Research Reports: Evaluating Analysts, method of forecast, forming market expectations, accuracy of forecast, conviction of the investment argument, pricing call, behavioral fallacies of analysts – biases, types, effects on forecasts, problems with historical data - errors, issues, commonly used valuation ratios, rational applicability of ratios to situations, Indian vs. global experience, case studies

Module 2: Equity Instruments and Valuation (10 Hours)

Players in the equities market. Overview of issuance, valuation, accounting principles, legal backing and usage: Equity, Preference Share, Convertible Preference Share, Cumulative Convertible Preference Share. Analysis of prospectus, equity offer, letter of offer, securities memorandum. Risk factors, accounting, and corporate disclosures. Forecasting Corporate performance and share price, using fundamental analysis. Constant Growth Model - Dividend capitalization - Earnings capitalization, security pricing model earnings valuation, revenues valuation, cash flow valuation, asset valuation, yield valuation, member valuation, and valuation of private company. Warrants: definition, considerations for shares issued through warrants, gearing effect, exercising warrants, lapse of warrants. Issuance, valuation, accounting principles, legal backing, and usage: equity warrants, equity index options, complex equity-linked instruments.

Module 3: Debt Instruments and Valuation (10 Hours)

Players in the debt market. Overview of issuance, valuation, accounting principles, legal backing and usage: debt instruments /debentures /bonds. Overview of yield and yield concepts. Analysis of debt offer documents. Risk factors, accounting and corporate disclosures. Forecasting interest rate movements and bond prices. Advanced techniques: yields to call/put, twists & shifts in yield curves, yields on index linked bonds, risk management in bonds, bonds duration, bond convexity, bond dispersion. Binomial Trees. Issuance, valuation, accounting principles, legal backing, and usage: debt derivatives - complex, exotics, swaps, securitized debt instruments - ABS, MBS, debt options (put, call), non-convertible debentures, non-convertible debt warrants, OTC derivatives.

Module 4: Portfolio: Theory & Analysis (10 Hours)
Risk & return on portfolio. Risk diversification – securities, markets, timing. Measurement and significance of Beta. Hedging. Estimating firm's beta. Efficient Markets hypothesis. Traditional portfolio selection. Portfolio theory: William Sharpe, Harry Markowitz. Markowitz Risk-Return Optimisation (RRO). Single Index Model. Portfolio Total Risk. Portfolio Market Risk, Portfolio Unique Risk, Sharpe's Optimisation Solution, SML, CML. CAPM, Risk-Free Lending, Borrowing - Market Premium - Arbitrage Pricing Theory (APT) - Limitations of CAPM.

Module 5: Portfolio Management (10 Hours)
Techniques of Portfolio Construction. Measuring and controlling portfolio risk. Measuring risk in fixed income instruments. Fixed income portfolio risk. Leverage and risk in a security /portfolio. Optimum Portfolio construction using CAPM, SML, and other techniques. Simulating multiple asset interaction in a portfolio. Active and Passive portfolio management. Stock portfolio management strategies. Bond portfolio management strategies - passive, semi-active and active along with immunization strategies, Performance Evaluation, Traditional portfolio analysis - Diversification of portfolio - Portfolio selection - Portfolio revision Techniques - Advantages and Limitations. Artificial neural networks, Fuzzy theory (Concepts only), Behavioural models, OR models. Portfolio Management Services (PMS) - Portfolio Managers - SEBI Guidelines for Portfolio Managers. Indian experience.

Readings:

1) Investments - William F. Sharpe, Gordon J. Alexander, Jeffery V. Bailey - PHI
2) Security Analysis and Portfolio Management - Donald E. Fischer, Ronald J Jordan - PHI
3) Managing Investments - Prasanna Chandra
4) Fundamentals of Investments - Gordon J. Alexander, William F. Sharpe, Jeffery V. Bailey - PHI
5) Investment Management: Security Analysis and Portfolio Management - Bhalla V. K. - PHI

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UNDERWRITING AND ACTUARIAL APPLICATIONS

Elective FE18 **3 Credits**

Course Objectives: This course aims to describe fundamental concepts of insurance business. Explain students the actuarial and underwriting application to Insurance business. Learn insurance pricing and underwriting with examples alongside the impact of regulation on insurance business life cycle.

Course Outcomes: By the end of this course students will apply fundamental insurance concepts to Life, General and Health insurance businesses. They would be able to price term assurance and endowment products, underwrite simple life insurance contracts, there by Interpret Insurance regulation to Life and General Insurance companies.

Course Content:

I. Insurance Foundation (10 Hours)

Life and General Insurance Business, Management of Actuarial & Underwriting aspects in Life and General Insurance, Product Design, Benefits and Underwriting, Role of Appointed Actuary in Life & General Insurance Companies

II. Actuarial Application (15 Hours)

Pricing of Insurance Products, Mortality & Morbidity Factors in Life & Health Insurance Companies, Actuarial Basis of Premium Rates and Underwriting, Risk Management – Evaluation of Suitability of Insurance Products

III. Regulation of Insurance Business (10 Hours)

Insurance Regulation – IRDA, Tariff rating and Contributions of TAC, Purchasing Insurance in Non-Tariff Markets, Competitive Pricing in Insurance

IV. Insurance Pricing and Selective Insurance Products (10 Hours)

Management of Insurance Claims, Imperial Statistics and Probability in General Insurance, Actuarial control cycle, Underwriting control cycle.

Readings:

1) Ravi Puliani and Mahesh Puliani, *Manual of insurance laws*, Bharat law house Pvt Ltd, 2006
2) ICFAI, *Insurance law and regulation*, ICFAI publication, 2003
3) Trieschmann, Hoyt, and Sommer, *Risk Management and Insurance*, South-Western, 2001
4) Mark. S Dorfman, *Introduction to Risk Management and Insurance, Pearson Prentice Hall*, 2012
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