DEPARTMENT OF ECONOMICS

SYLLABUS UNDER AUTONOMY

SEMESTER V

Course Title: Public Economics

Course Code: ECO-V.C-7

Marks: 100

Credits: 04

Hours: 60

COURSE OUTCOME: Upon completion of the course students will be able to:

CO1: Understand the difference between public finance and Public economics.

CO2: Appreciate public economics & its rationale.

CO3: Discuss the nature of public economy, the functioning of markets and determinants of market failure.

CO4: Evaluate the welfare effect of taxes

CO5: Demonstrate the theory of public goods in reality.

CO6: Identify the major areas and roles for government activity

CO7: Describe the major items of government revenue and expenditure

CO8: Familiarize the students with concepts of welfare economics

SYLLABUS

Unit 1: Issues in Public Economics (15 Hours)

Nature of the Public Economy; Public economy and markets: Pareto optimality and Market failure, fundamental theorem of welfare, Cases of violation of Pareto optimality; Asymmetric information and market failure: the problem of externality and their internalization; Pigouvian tax; Federal state v/s unitary.

Unit 2: Theory of Public goods (15 Hours)

Public Choice theory: Public goods, Samuelson model, Lindahl model; Empirical theories of public goods: Wagner hypothesis, Wiseman-peacock hypothesis; Preference revelation mechanism for public goods.

Unit 3: Public Revenue **(15 Hours)**

Principles of Taxation and classification of taxes: Impact and incidence of taxes, Benefit and ability to pay principle, deadweight loss, optimal taxation, partial and general equilibrium, examples; Excess burden of tax; tax evasion & tax avoidance.

Unit 4: Public Expenditure and Public debt **(15 Hours)**

Principles of expenditure and classification of expenditure; Cost-Benefit analysis; Causes and Consequences of public debt; Debt sustainability analysis; Modigliani's burden thesis; Burden of internal & external debt; debt trap.

REFERENCES:

Mandatory:

1. Cullis J. and Jones P.(2009) Public Finance & Public Choice: Analytical Perspectives, Oxford
2. Aurebach, A. & M. Feldstein (eds) (1987) Handbook of Public Economics, Vol.I& II, Elsevier, New York
3. Baumol, W. J. (Ed.) (2001), Welfare Economics, Edward Elgar Publishing Ltd. U.K
4. Herber, B.P.. Modern Public Finance, Third Edn. 1975, Richard D. Irwin, Inc.
5. Atkinson, A.B and. Stiglitz J.E (2015), Lectures on Public Economics, McGraw–Hill, New York

Supplementary:

1. Musgrave, R. A. (1959), The Theory of Public Finance, McGraw Hill, New York.
2. Musgrave, R. and Musgrave P. (2004), Public Finance in Theory and Practice, McGraw–Hill.
3. Cornes, R. & T. Sandler (1986) The Theory of Externalities, Public Goods and Club Goods, Cambridge University Press, Cambridge
4. Hindriks J. and Myers G.D. ( ) Intermediate Public Economics, Prentice Hall of India, New Delhi

Web Based

1. https://dea.gov.in/external-debt

2. https://ocw.mit.edu/courses/economics/14-471-public-economics-i-fall-2012/lecture-notes/

3. https://www.startupindia.gov.in/content/sih/en/international/go-to-market-guide/tax-system-india.html

4. https://www.indiabudget.gov.in/exp_budget.php

Course Title: Introduction to Econometrics

Course Code: ECO- E-9

Marks: 100

Credits: 4

Duration: 60Hours

COURSE OUTCOMES: Upon completion of the syllabus students will be able to:

CO1: Understand the concepts used in sampling in particular and in Econometrics at large

CO2:Use OLS for calculating parameters in regression.

CO3:Construction of point and confidence interval estimate.

CO4: Formulate, test and draw inferences from hypothesis.

CO5: Use R programming to run multiple regression models.

CO6:Interpret the results obtained for linear & multiple regression model

SYLLABUS

Unit 1: Basic Ideas of Linear Regression: The Two-Variable Model (15 Hours)

Population Regression Function; Classical Linear Regression Model. Linear Regression Method: Sample Regression Function, Meaning of "Linear" Regression. Method of Ordinary Least Squares for Two-variable regression; Least Squares Residuals, Variances and Standard Errors of Ordinary Least Squares [OLS] Estimators; BLUE Properties of OLS Estimators: The Gauss-Markov Theorem.

Unit 2: The Two-Variable Model: Hypothesis Testing. (15 Hours)

Hypothesis Testing: Test of Significance Approach; Confidence Interval Approach; Analysis of Variance and Correlation: Sum of Squares; Use of F-ratio to Test the Regression Equation; Use of r^2 to obtain the Goodness of Fit.

Unit 3: Multiple Regressions: Estimation and Hypothesis Testing (15 Hours)

Three-variable Regression Model; Meaning of Partial Regression Coefficients; Assumptions of the Classical Linear (Multiple) Regression Model, Multiple Regression Equation; Estimation of Parameters of Multiple Regression, (OLS Estimators); Variances and Standard errors of OLS Estimators. Properties of OLS Estimators of Multiple Regression, Testing the slope of an individual estimator; Testing the Regression Equation.F test, R Square, Adjusted R Square, Comparing two R^2 Values, Partial Correlation.

Unit 4: Multiple Regression Problems and Forecasting (15 Hours)

Multicollinearity: Perfect and Imperfect Multicollinearity; Consequences of Multicollinearity, Detection of Multicollinearity*, Corrections for Multicollinearity. Heteroscedasticity*; Nature of Heteroscedasticity, Consequences of Heteroscedasticity, Detection of Heteroscedasticity*, Corrections for Heteroscedasticity*.Serial Correlation; Nature of Serial Correlation, Consequences of Serial Correlation, Detection of Serial Correlation*, Corrections for Serial Correlation*, Regression on Dummy Explanatory Variables*, Forecasting with a Single-Equation Regression Model.

* In-class exercise using software packages.

REFERENCES:

Mandatory:

1. Gujarati, Damodar N. (2009), *Basic Econometrics*, McGraw Hill, Singapore.
2. Ramanathan, Ramu (1998), *Introductory Econometrics with Applications*, Thomson Asia Pte Ltd., Singapore.
3. Koutsyannis, A.(1990), *Theory of Econometrics*, Palgrave Macmilan.
4. Journal of Econometrics

Supplementary:

1. Gujarati, Damodar N. (1999), *Essentials of Econometrics*, Irwin/McGraw Hill, Singapore.
2. Studenmund, A. H. (1997), *Using Econometrics: A Practical Guide*, Adisson-Wesley, Reading, Mass.

Web References:

1.https://instruction.bus.wisc.edu/jfrees/jfreesbooks/Longitudinal%20and%20Panel%20Data/Book/Chapters/FreesFinal.pdf

2. https://www.researchgate.net/publication/7222561_Study_Design_III_cross-sectional_studies/link/00463530cc57333de4000000/download

3. https://www.reed.edu/economics/parker/312/tschapters/S13_Ch_1.pdf

Course Title: Indian Economy

Course Code: ECO- E-1

Marks: 100

Credits: 04

Duration: 60Hours

COURSE OUTCOMES: upon completion of the course students will be able to:

CO1: Describe structural changes in the Indian economy from Independence till globalization.

CO2: Identify & explain key issues & challenges faced by the Indian economy.

CO3: Critically evaluate the policies of the Indian economy.

CO4: Review India's position on foreign trade FDI, FII, MNCs, and WTO globally.

CO5: Compare and contrast between the planning commission & NITI Aayog

CO6: Appraise the status of the Indian economy concerning the current economic situation.

SYLLABUS

Unit 1: Structural Changes in the Indian Economy (15 Hours)

India on the eve of independence, Pre-reform period (1951-1991)-Need for planning (brief introduction and highlights of all plans), Structural adjustment programme: need, impact, Liberalization, Privatization, and Globalization; Primary -Secondary -Tertiary sector Linkages – trends

Unit 2: **Key Issues of Indian Economy (15 Hours)**

Key issues: Population-theory of demographic transition, demographic dividend, gender ratio; poverty-Absolute and relative and its extent, Health, Education, inequality, gini coefficient, inequality, unemployment types organised and unorganized, labour force participation; (causes and trends of each issue); Challenges: Inclusive growth: social; Parallel Economy; Rural development, urbanization, migration; Environment & Sustainable development.

Unit 3: Policy Perspectives (15 Hours)

Shift from Planning Commission to NITI Aayog (Planning Commission to be briefly assessed till12th plan); Impact of policy shifts on decisions: finance, infrastructure, Evaluation of the performance of NITI Aayog, investments; Flagship Missions of GOI (MNREGA, PMJDY, Digital India, Swachh Bharat Abhiyan, PMUY, NHM, Make in India), Fiscal Federalism.

Unit 4: India's Foreign Trade **(15 Hours)**

India's Foreign Trade post-1991: Features, value, composition, direction; India's position in the world economy: Foreign Trade: Features and trends; Capital movements: FDI, FII, MNC's; WTO- structure, its impact on the Indian economy, Agreements.

REFERENCES:

Mandatory:

1. Government of India: Economic Survey (various years), Government of India, New Delhi.

2. Chaudhary, C.M. (2012), Dynamics of Indian Economy, Oxford Book Company, New Delhi.

3. Datt, R.; Sundaram. K.P.M. (2018), Indian Economy, S. Chand & Company Ltd., New Delhi.

Supplementary:

1. Kapila, Uma. (2007), India's Economic development since 1947, Academic Foundation, New Delhi.

2. Rajan, K. (2006), Indian Economy Post Reform Scenario, Serials Publication, New Delhi

Web-based:

1. https://www.indiabudget.gov.in/economicsurvey/

2. https://www.adb.org/sites/default/files/publication/28930/understanding-poverty-india.pdf

3. http://www.iegindia.org/upload/publication/Workpap/wp349.pdf

4. https://dbie.rbi.org.in/DBIE/dbie.rbi?site=home

5. https://www.india.gov.in/website-niti-aayog

6. https://www.researchgate.net/publication/262126139_Economic_Growth_and_Human_Development_in_Indian_States

Course Title: Actuarial Economics

Course Code: ECO-E-11

Marks: 100

Credit: 4

Duration: 60 Hours

COURSE OUTCOMES: upon completion of the course students will be able to:

CO1: Understand concepts in actuarial economics

CO2: Identify the changes in the financial sector due to globalization;

CO3: Calculate annuity and types of annuity.

CO4: Interpret the life table for the calculation of premium.

CO5: Apply probability theory to insurance

CO6: Outline the role of regulatory bodies like IRDA

SYLLABUS

Unit 1: Introduction to Actuarial Economics (15 Hours)

a.Origin, nature and scope of Actuarial Economics: Its importance; Link between financial planning and risk management; Utility and risk preference.

b. Annuity and its Calculations

Annuity: ordinary annuity, annuity due, deferred annuity; Perpetuity: present value of immediate perpetuity, the present value of perpetuity due, deferred perpetuity; annuity with a frequency different from that with which interest is convertible; varying rates of interest; redemption of loan; average interest yield on the life fund.

Unit 2: Pricing (15 Hours)

Basic elements in the computation of life insurance premium; premium calculation; formulae for calculation of net premium.

Unit 3: Mortality Tables (15 Hours)

Probability theory in insurance; mortality table; types: select and ultimate tables; stages involved in the construction of mortality table.

Unit 4: Product Design and Actuarial Profession (15 Hours)

Basic methodology and setting assumptions; product design; actuarial standards and regulations, role of IRDA.

REFERENCES:

Mandatory:

1. Mishra K.C. & Kumar C.S., (2009),*Elements of Actuarial Science*, Cengage Learning, Delhi

2. Booth, P.M. et al., (1999),*Modern Actuarial Theory and Practice*, Chapmen and Hall, London

3. Newton Bowers et al., (1997), *Actuarial Mathematics*, Society of Actuaries, (second edition), Illinois.

4. Sherris, Michael, (2001), *Principles of Actuarial Science,* ***PDF***

5. Marco Corazzaet. al. (2016), *Mathematical and Statistical Methods for Actuarial Science and Finance*, Springer International Publisher.

Web-based:

1. https://www.researchgate.net/publication/306082366_Knowledge_and_Perceptions_of_Actuarial_Science_Among_Students_and_Academics_Evidence_from_JABU

2. https://www.casact.org/library/astin/vol36no1/1.pdf

3. https://faculty.wharton.upenn.edu/wp-content/uploads/2013/05/Lemaire_2005_Actuarial_1.pdf

Course Title: Introduction to Health Economics

Course Code: ECO-E-22

Credits: 04

Marks: 100

Duration: 60 Hours

Prerequisite Courses: (NIL)

Course Objectives

The objective of this course is to provide a better understanding of the economic theory of health and healthcare with the help of economic models of microeconomics. The emphasis is on key economic concepts that health economists use to analyze health and healthcare markets. The course provides tools to evaluate and interpret empirical findings in health economics.

Course Learning Outcomes

Upon completion of the course, the student will be able to:

CLO1. Develop an understanding of the key concepts in health economics.

CLO2. Identify principles and concepts of economic evaluation in health systems.

CLO3. Evaluate the skills that recognize and address the challenges of limited resources within the health sector.

CLO4. Evaluate inter-related components of health systems from an economic perspective.

Course Content

Module I: Health and Economic Development (15 Hours)

Investment in human capital, Health, and Social Welfare, Determinants of Health; Economic growth, Economic development, and Health Linkages; Economic Analysis of Health care, Data on health and health-related aspects in India; Global burden of diseases; India and S.D.G. 3: Universal health care.

Module II: Demand for Health Care Services (15 Hours)

Demand for Health care; Issues of success to health care; Health expenditure: out-of-pocket expenditure on health, Measurement of Impoverishment, and catastrophic effects of out-of-pocket expenditure on health; WHO data on out-of-pocket expenditure on health for India.

Module III Supply of Health care services (15 Hours)

Supply of healthcare; Physicians and Medical Personnel as Health care providers, Non-labour inputs: Health infrastructure, Interaction of Demand and Supply of Health care, Private versus public health care provider; National Health accounts, Health infrastructure Statistics in India.

Module IV: Health Insurance (15 lectures)

Health policy of India; Health insurance market: asymmetric information, principal-agent relationship; Private & public health insurance scheme; Various State government health insurance schemes; Ayushman Bharat.

List of the books recommended as references

Mandatory Reading:

1. D. Jery Josephin, Jeyasingh, D. Solomon Raj, (2016), Health Economics, Creative Crows publishers
2. Nair K. S. (2022), Health Economics and Financing, New Century publication

Supplementary Reading

1. Banerjee, D. (1975), Social and Cultural Foundations of Health Service Systems of India, Inquiry, Supplement to Vol. XII, June.

2. Edwin G Dolan and John C Goodman, (1991), Economics of Public Policy: 4th Edition: West Publishing Company, New York.

3. Grossman M, (1991), 'The Shadow price of Health in the Economics of Health' Vol. 1 by A.J. Culyes (ed), Edward Elger publishing Ltd, U.K.

4. Volan Brian, (1993), Economics Incentives, Health Status and Health Services, Utilisation, Journal of Health Economics, Vol II.

5. William Jack, (1999), Principles of Health Economics for Developing Countries, World Bank Institute Development Studies.

6. World Development Report, (1993), Investing in Health, the World Bank.

Online Resources:

1. Key concepts in health economics: http://www.mcrhrdi.gov.in/FC2020/reading%20material/economics/Reading%20health%201.pdf
2. Introduction to health economics https://www.academia.edu/83748087/Introduction_to_Health_Economics
3. Future of health economics_https://www.sciencedirect.com/science/article/abs/pii/S0167629699000338?casa_token=Jb0a3bc2nUQAAAAA:hhAvmKMxZ8gPb2O78X14NJHhJt7_tAGI9t7aZRtZh2PgIwaR_vCAJ3cRPT71EhIk0Q8plDnZkQ4
4. Towards a definition of health economics https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1951624/
5. Essentials of health economics https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1499968/

SEMESTER VI

Course Title: International Trade and Policy(CORE)

Course Code: ECO-VI.C-8

Marks: 100

Credits: 4

Duration: 60 Hours

COURSE OUTCOME: Upon completion of the course students will be able to

CO1:Define the conditions under which trade is beneficial for both individual nations and the international community and identify gainers and losers from trade
CO2: Compare and evaluate alternative theories of international trade
CO3:Apply partial equilibrium and general equilibrium models in analyzing trade theories &the economic effects of trade policies
CO4: Analyze key issues raised under WTO & through regional trading arrangements
CO5: Evaluate the implications of trade on growth and income distribution under various circumstances.
CO6: Adapt the theory to address the issues of globalization, economic integration, and trade policy.
CO7: Highlight the concept of Portfolio and direct investment

SYLLABUS

Unit 1: Classical Trade Theories **(15 Hours)**

Introduction& importance of international trade, Introduction to international trade theories, Absolute Advantage; Comparative Advantage Theory and its refinements; Reciprocal demand and the international equilibrium model; Gains from Trade and Terms of Trade.

Unit 2: Modern Trade Theories and Extensions **(15 Hours)**

Factor-endowments (Heckscher-Ohlin) Theory; Factor-price Equalisation Theorem; Leontief Paradox; Factor Intensity Reversal; Intra-industry Trade: Trade based on Economies of Scale; Differentiated Products; Technological Gaps; Product Cycles; Differences in Tastes; Trade in Goods and Services.

Unit 3: Trade Barriers **(15 Hours)**

Tariffs: Types and Effects; Non-tariff Barriers: Quotas, Exchange Controls, Dual Exchange Rates, Discriminatory Procurement, Local content requirement, Other human rights, Health and Hygiene Safeguards; Dumping; Voluntary Export Restraints; Export Subsidies; Counter trade; International Cartels.

Unit 4: Trade Issues of Developing Countries and Emerging Markets **(15 Hours)**

Trade as an engine of Growth; Factors influencing Terms of Trade of Developing Countries; Prebisch Singer Thesis; Immiserising growth; Trade Disputes and WTO; Strategic trade policies; Regional

Economic Integration and Globalization; Emerging Markets and Global Resource Movements; foreign direct investments and Foreign Portfolio; Multinational enterprises and world trade.

REFERENCES:

Mandatory:

1.Carbaugh, Robert J. (2002), *International Economics*, South-Western (Thomson Publishing), Bangalore, 8th edition (Latest available 15th edition)

2.Paul R. Krugman & Maurice Obstfeld (2009), *International Economics Theory and Policy*, Pearson Education Publication New Delhi.

3.Salvatore, Dominic(2014), *International Economics: Trade and Finance*, John Wiley & Sons, Delhi

4. Gandolfo, G (2006), *International Trade: Theory and Policy*, Springer (India) Private Limited.

5. Krugman, Paul R.; Obstfeld, Maurice (2011), *International Economics: Theory and Policy*, Pearson, New Delhi.

Supplementary:

1. Husted Steven and Michel Melvin(2009), *International Economics*, Addison-Wesley, New York.

2. Jones, K.A.(2015), *Reconstructing the World Trade Organization for the 21st Century:An Institutional Approach*, Oxford University Press, New York.

3. Thompson, Henry (2010), *International Economics*, Cambridge University Press India, New Delhi.

4. Bhagwati, J. (Ed.) (1981), *International Trade*, Selected Readings, Cambridge University Press, Mass

Web-based:

1.http://www.makeinindia.com/policy/foreign-direct-investment

2. https://study.com/academy/lesson/modern-approach-to-international-trade-theory.html

3.https://ocw.mit.edu/courses/economics/14-54-international-trade-fall-2016/lecture-slides/MIT14_54F16_Lecture_8.pdf

Course Title: Introduction to Operations Research for Economists
Course Code: ECO-E-10
Marks: 100
Credits: 04
Duration: 60 Hours

COURSE OUTCOMES: Upon completion of the course students will be able

CO1: To identify the best techniques to solve a specific problem

CO2: To understand the mathematical tools that are needed to solve optimisation problems.

CO3: To explain a real-world problem, given in words, into a mathematical formulation

CO4: To analyze the best choice using a decision tree

CO5: To evaluate linear programming, transportation and assignment problems

CO6: To interpret and discuss the results of solutions to the problems

SYLLABUS

Unit 1: Linear Algebra **(15 Hours)**

Systems of equations; Matrices and determinants; Matrix inversion method and its uses.

Unit 2: Linear Programming **(15 Hours)**

Elements of Linear Programming; Solution to LPP: Graphical, Simplex and the Big M methods.

Unit 3: Transportation and Assignment Problems **(15 Hours)**

Initial allocation methods; Optimization methods.

Unit 4: Statistical Decision-Making **(15 Hours)**

Probability analysis; Decision Trees; Expected Value; Economic and commercial applications.

REFERENCES:

Mandatory:

1. Kantisawrup et al, (2005), *Operations Research* , S Chand & sons, New Delhi
2. TulsianP.C., Pandey V., (2006), *Quantitative Techniques*, Pearson India.

Supplementary:

1. Taha H., (2006), Operation Research: An Introduction, Pearson, 7th Edition

Web-based:

1. https://arxiv.org/ftp/arxiv/papers/1410/1410.4774.pdf
2. https://www.researchgate.net/journal/0377-2217_European_Journal_of_Operational_Research
3. https://www.sciencedirect.com/science/article/abs/pii/S0377221705005047

Course Title: Economics of Foreign Exchange
Course Code: ECO- E-2
Marks: 100
Credits: 4
Duration: 60 Hours

COURSE OUTCOMES: Upon completion of the course students will be able to:

CO1: Identify the factors that influence the price of currency derivatives

CO2: Explain the organization and institutional details of foreign exchange and international money markets.

CO3: Apply the theories and models covered to the various issues of international banking

CO4: Analyze the impact of fiscal and monetary policies on exchange rates and international resource movements.

CO5: Show the structure of the balance of payments and the role of international financial institutions and multinational enterprises in the movement of financial & non-financial resources.

CO6: Formulate strategies to manage foreign exchange risks and use the theories of international finance and monetary issues in real-world situations.

SYLLABUS

Unit 1: Foreign Exchange and Exchange Rate Determination (15 Hours)

Foreign exchange market: types & participants; foreign exchange quotations*; Derivative markets: Forward*, Futures* and Options*; Exchange rate determination: Demand and supply of foreign exchange; Appreciation and depreciation of currency; effective exchange rates*; arbitrage*; forward rates*; interest arbitrage*; Role of speculation and foreign exchange rates*.

Unit 2: Exchange Rates and Balance of Payments (15 Hours)

Effects of exchange rate changes on costs, and prices; Effects of currency appreciation, depreciation and balance of payments; Devaluation and Revaluation: Requirements for a successful devaluation; Elasticity approach to exchange rate adjustment; Absorption approach to exchange rate adjustment; Monetary approach to exchange rate adjustment.

Unit 3: Exchange Rate Systems and International Banking. (15 Hours)

Exchange rate practices; Fixed exchange rate systems; Floating exchange rates; Managed floating rates(Ex. RBI mechanism); Exchange controls; Nature of international reserves; International Monetary Fund and facilities for borrowing reserves; Basel Norms(emphasis on latest).

Unit 4: Exchange Rate and International Resource Movement (15 Hours)

Role of exchange rate and Movement of capital: International lending and borrowing; Foreign direct investment, Foreign institutional investment; International movement of labour; Transfer of technology; Multinational enterprises; Role of commercial banks & financial institutions.

*Students have to solve numerical problems on these subtopics.

REFERENCES:

Mandatory:

1. Salvatore, Dominic (2014), *International Economics: Trade and Finance*, John Wiley & Sons, Delh
2. Krugman, P.R. and M. Obstgeld (2011), *International Economics: Theory and Policy*, Glenview, Foresman.

Supplementary:

1. Carbaugh, Robert J. (2002), *International Economics*, South-Western (Thomson Publishing), Bangalore.
2. Pilbeam, Keith (2013), *International Finance*, Palgrave Macmillan, London

Web based:

1. https://www.drishtiias.com/to-the-points/paper3/basel-norms#:~:text=The%20Basel%20norms%20is%20an,banks%20and%20the%20financial%20system.
2. https://www.kotaksecurities.com/ksweb/Research/Investment-Knowledge-Bank/what-is-derivative-trading

Course Title: Financial Economics

Course Code: ECO- E-16

Marks: 100

Credits: 04

Duration: 60 Hours

Course outcomes: Upon completion of the course students will be able to

CO1: State the different types of financial instruments and techniques of asset management

CO2: Interpret various ratios used in the course

CO3: Develop insights into the role played by time, uncertainty, information and inflation in evaluating financial instruments

CO4: Classify various instruments and inspect the feasible

CO5: Measure risks, returns, value of investments & assets,

CO6: Propose solutions to specific financial issues or problems of corporate financial decisions

SYLLABUS

Unit 1: Types of Financial Securities (15 hours)

Introduction to financial economics; types of financial markets their features; Types of money market securities; Capital market securities: common and preferred stock; Rights and Warrants; Bonds: corporate, government and public sector bonds; Mutual funds.

Unit 2: Valuation of Financial Securities (15 Hours)

Discount rates and the time value of money: Present value (PV) and net present value(NPV); Mechanics of NPV calculations; Compound interest, annuity and perpetuity formulas; Real vs. nominal cash flows, Fixed income markets, Bond Valuation; Discount bond and Coupon bond.

Unit 3: Return and Risk Analysis (15 Hours)

Investment and returns: Interest rates, dividends, capital gains; Time value of money; Inflation and returns; Measuring investment returns; Risk and Risk factors; Measuring investment risks; Diversification; Systematic and idiosyncratic risk; Portfolio mean and variance; Covariance and correlation of returns; feasible combinations of mean and variance; Portfolio optimization; Efficient risk/ return trade-offs.

Unit 4: Financial Statement Analysis (15 hours)

Introduction to Financial Statements; Importance of Financial ratios; Calculations and Interpretation of Liquidity ratios, Leverage ratios, Turnover ratios, Profitability ratios, Capital Gearing ratios: Limitations.

REFERENCES:

Mandatory:

1. Francis J C & R.W Taylor (1992), Theory and Problems of Investments, McGraw Hill, Schaum's Outline Series, Singapore.
2. Bodie, Zvi Kane, Alex Marcus Alan (2012), Essentials of Investments, 9th Edition, McGraw Hill Higher Eduction.
3. Eichberger J and Ian.R. Harper,(1997), Financial Economics, Oxford University Press,Oxford.
4. Avadhani V. A 2012, Financial Economics, Theory and Practice, Himalaya Publications
5. PilbeamKeith(1998), Finance and Financial Markets, Palgrave , New Delhi.

Supplementary:

1.D.E. Fisher and R.J. Jordan –(2001) Security Analysis and Portfolio Management, Prentice-Hall/Pearson Edu., 6th Edition,
2. Reilly Frank K and Keith C. Brown,(2007) Investment Analysis and Portfolio Management, 8th edition, Thomson Learning
3.Kohn, Meir (1994), Financial Institutions and Markets, McGraw Hill, New York.
4.Richard A. Brealey and Stewart C. Myers (2002), Principles of Corporate Finance, McGrawHill, 7th edition.
5.Thomas E. Copeland, J. Fred Weston and KuldeepShastri (2003), Financial Theory and Corporate Policy, Prentice Hall, 4th edition.

Web based:

1. https://www.bseindia.com/
2. **https://www.nseindia.com/**
3. https://www.sebi.gov.in/
4. https://economictimes.indiatimes.com

Course Title: Introduction to Data Science (Elective)
Course Code: ECO-E-23
Credits: 4
Marks: 100
Semester: VI
Duration: 60 Hours

Course objectives: The main objective of this course is to provide a gentle introduction to data science and tools used by data scientists.

Course Learning Outcomes: Upon completion of this course students will be able to learn.
CLO1: Basic Python programming
CLO2: Data visualization using Python
CLO3: Basics of R programming
CLO4: Data analysis using R
CLO5: Large data sets handling and analysis using R.

Module I: Data handling using Pandas (15 Hours)
Features of Python Pandas; Data structure; Series data structure; Data frame and Data structure; Descriptive statistics; Data frame operations. Modifying data frames; Handling missing data; combining data frames; grouping by () functions.

Module II: Data Visualization (15 Hours)
Using Pyplot of Matplotlib library; different types of plotting; creating line charts, scatter charts, bar charts, multiple bar plots, pie charts, histograms, frequency polygons, and box plots; customizing plots.

Module 3: Introduction to R (15 Hours)
Basic graphics in r; Objects and functions in R; Crane task view; Bivariate data analysis; simple linear regression, multiple linear regression; analysis of covariance; Longitudinal data analysis; summarizing categorical and continuous variable; R inbuilt functions for exploratory data analysis.

Module 4: Large Data analysis using R. (15 Hours)
R.B.I. data on the Indian Economy; N.F.H.S. data; World Bank data; WHO data

*Practical Components
(Continuous assessment of 40 marks using any data set and R for data analysis).

List of books recommended for Reference:

Mandatory Readings:

N.C.E.R.T. textbook on Information Practice, https://ncert.nic.in/textbook/pdf/leip1ps.pdf

Hatekar N(2010) Principles of Econometrics: An Introduction (Using R) SAGE Publications,

Supplementary Readings:

1. Dawson M(2003) Python programming for absolute beginners, Premier press
2. S Chand, (2023), Code with Python S. Chand's publishers
3. Vickler Andy(2022)R Programming, Ladoo Publishing
4. Pace, L. (2012). *Beginning R: An introduction to statistical programming*. Apress.
5. Pathak, M. A. (2014). *Beginning data science with R*. Springer.

Online Resources:

1. Teaching programming to beginners https://dl.acm.org/doi/abs/10.1145/800104.803365
2. R software https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7063554/
3. Beginning to programming https://www.mdpi.com/2075-1729/12/5/648
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