Curriculum

M.Sc. Economics Program

Session 2013 Onward

Department of Economics

University of Swabi, Anbar

District Swabi

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AGENDA ITEM – IV

Consideration & Recommendation for approval of Scheme of Studies for

M.Sc. Economics (2 years – 4 Semesters) Program

SCHEME OF STUDIES

Main Features:

1. Program Objectives:

The state of economy determines the place of the country in today's competitive world. To this end, the economist plays a pivotal role through constructive engagement in various development activities. They can serve in a no. of settings ranging from Banking, planning, research and development, financial institutions, stock exchange and the like. This four semester program is focused on equipping our students with the tools and techniques necessarily required to pursue careers in the private and public sectors as well as the more advances studies in economics. The program is well suited to those interested in industrial organization, technology. Innovation, international trade and economic development.

2. Duration of the Programme:

Total duration of the programme will be of two academic years, i.e. four semesters; each semester consisting upon 18 weeks. A student has to complete 66 credit hours, including 20 courses and research project of 6 credit hours, to become eligible for M.Sc. degree.

Besides 75% attendance in classes is mandatory, otherwise, student will not be allowed to sit in the terminal examination.

Semester wise Breakdown

Semester-I

Course Code	Course Title	Credit Hours
ECO 501	Microeconomics Theory I	3-0
ECO 503	Macroeconomics Theory I	3-0
ECO 505	Mathematical Economics I	3-0
ECO 507	Statistics for Economists	3-0
ECO 508	Monetary Economics	3-0
Total		**15**

Semester-II

Course Code	Course Title	Credit Hours
ECO 502	Microeconomics Theory II	3-0
ECO 504	Macroeconomics Theory II	3-0
ECO 506	Mathematical Economics II	3-0
ECO 509	History of Economic Thoughts	3-0
ECO 510	Economic Development and Growth	3-0
Total		**15**

Semester-III

Course Code	Course Title	Credit Hours
ECO 601	Econometrics I	3-0
ECO 603	Human Resource Development	3-0
ECO 604	Research Methodology	3-0
ECO 605	Industrial Economics and Public Policy	3-0
ECO 606	Major Issues in Pakistan Economy	3-0
ECO 607	Project Appraisal and Investment Analysis	3-0
Total		**18**

Semester-IV

Course Code	Course Title	Credit Hours
ECO 602	Econometrics II	3-0
ECO 608	International Economics	3-0
ECO 609	Environmental Economics	3-0
ECO 610	Applied Economics	3-0
ECO 611	Research Project	0-6
Total		**18**

* The University Authority reserves the right of introducing changes for modification in the program contents/rules/regulations.

AGENDA ITEM – V

Consideration & Recommendation for approval of Course Contents for
M.Sc. Economics (2 years – 4 Semesters) Program

SEMESTER - I

Rev No. **00**	Course Code: **ECO 501**	Credit Hours: **3-0**

MICROECONOMICS THEORY I

Course Objectives:

The purpose of this course is to enhance the microeconomic knowledge of students and to improve their techniques of economic analysis. The course combines the use of economic theory, diagrams and mathematical concepts to ensure that students understand that all of these are necessary tools to be used when economic analysis is being conducted. Therefore, one of the aims of this course is to ensure that students can distinguish when the methods should be used independently and when they should be combined for a more comprehensive analysis.

Course Contents:

- **Introduction**

Scope of Microeconomics and areas of its concern, Economic agents and decision making, Brief account of the Theory of Value, The relationship between production and consumption, The role of markets and importance of price signals in efficient allocation of resources, Economic models as abstraction from the reality, Introduction to mathematical functions used in economics: Utility, Demand, Supply and Production functions etc.

- **Theory of Consumer Behaviour**

Axioms of Rationality, Cardinal approach, Ordinal approach, Revealed Preferences, The utility function and its arguments, Laws of diminishing marginal and equi-marginal utility, Indifference curves and their properties, Concepts of imperfect substitutes and complements, Marginal rate of (commodity) substitution (MRCS), Convexity of indifference curve and diminishing MRS, The budget constraint, Consumer's equilibrium and law of equi-marginal utility, Income & Substitution effects of a price change: diagrammatic representation, Normal, Inferior and Giffen goods, Gross substitutes and net substitutes, The indirect utility function, Non-homothetic Preferences, Introduction to the Revealed Preference Theory.

- **Demand & Elasticity**

Derivation of demand functions using indifference curves, Ordinary and Compensated demand functions, Engel's law and classification of goods, Market demand as horizontal

summation of individual demands, Elasticity of demand, Importance and types: Own-Price, Cross-Price and Income elasticity, Relationships among different demand elasticities.

- **Production Functions**

Definition, classification and problems of firms, Production and value-added functions, Fixed and variable-coefficient functions, Some commonly used production functions: Cobb Douglas and CES etc., Average and marginal products of variable factors and their inter-relationship, Iso-quant maps, Marginal rate of (technical) substitution (MRTS), The cost line and equilibrium of the firm, Output maximization subject to given cost/budget, Demand for variable factors, Elasticity of substitution, Returns to scales and Economies of scales.

- **Cost of Production**

Types of costs: Economic and Accounting costs, Opportunity costs, Fixed and Sunk costs, Total and variable costs, average and marginal costs, Short-run and Long-run cost functions, Decreasing, Constant and Increasing cost industries, Cost minimization subject to given/predetermined level of output, Input cost and demand for factors of production.

- **Behaviour of the Firm**

Profit maximization (loss minimization) as the sole objective of all firms, Equilibrium of the firm when it faces the market, Total, Average and Marginal Revenues, Equality of marginal revenue and marginal costs, Economic profit and rent, Short-run and Long-run position of a price taking and price seeking firm, The controversy over the profit maximization hypothesis.

- **Market Structure and Price Determination**

(i) The Perfectly Competitive Market

Assumptions of the model, Pure and Perfect Competition, Short-run and Long-run equilibrium of competitive firms, Supply functions in the short and long-run, Constant-cost and increasing-cost industries, Derivation of equilibrium Prices and Quantity using simple equations.

(ii) Monopoly and Monopsony

The market power of a firm, Sources of monopoly power: why do monopolies exist, Decreasing-cost industries and natural monopolies, Comparison between monopoly and monopsony, Short-run and Long-run Equilibrium of a firm with monopoly power, Price discrimination, Bi-lateral monopoly, Multi-plant monopoly, The social costs of monopolies,

Public utilities and marginal cost pricing, Market regulation and anti-trust policies, Market equilibrium with monopoly power.

(iii) Monopolistic Competition and Oligopoly

Characteristics of monopolistic competition, Short-run and Long-run equilibrium, The basic theories of monopolistic competition, Comparison with pure competition & monopoly, The role of advertisement and media, Models of non-collusive Oligopoly: Cournot, Bertrand, Chamberlain, Sweezy etc. Price leadership and cartel formation.

- **Pricing of the Factors of Production**

Derived Demand for Variable Inputs, The marginal productivity theory and its criticism, Modern theory of factor demand with emphasis on the labour and capital markets, The labour supply function, Wage determination and the role of government and labour unions, Input price elasticity, Pricing of factors that are fixed in the short-run: Rents & Quasi-rents, Stock prices.

Recommended Texts:

1. Koutsoyiannis, A.- Modern Microeconomics- 2nd edition (1979)- Macmillan.
2. Pindyck and Rubinfled with Mehta- Microeconomics- 6th Edition (2005)- Pearson Education, Singapore
3. Walter Nicholson- Intermediate Microeconomics- 6th Edition (1994) or latest The Dryden Press: Harcourt Brace College Publishers
4. Varian Hall R.- Intermediate Microeconomics: Modern Approach- 6th edition (2002)- W. W. Norton Publishing Company, New York.
5. Leftwich, Eckert – The Price System and Resource Allocation – 10th Edition (1988) or latest- The Dryden Press, New York.
6. Dowling, Edward – Mathematics for Economists -(1980) - (Schaum's Outline Series) McGraw Hill Inc.
7. Hugh Gravelle, Ray Rees, "Microeconomics" Prentice Hall, 2004

Rev No. **00**	Course Code: **ECO 503**	Credit Hours: **3-0**

MACROECONOMICS THEORY I

Course Contents:

- **INTRODUCTION TO MACROECONOMICS:**

1. The Science of Macroeconomics:
2. The Science of Macroeconomics:

1.1 What Macroeconomists Study

1.2 How Economists Think Theory as Model Building The Use of Multiple Models
Prices: Flexible Versus Sticky
Microeconomic Thinking and Macroeconomic Models

2. The Data of Macroeconomics:

2.1 Measuring the Value of Economic Activity: Gross Domestic Product Income, Expenditure, and the Circular Flow Rules for Computing GDP
Real GDP versus Nominal GDP
The GDP Deflator
Chain-Weighted Measures of Real GDP
The Components of Expenditure
Other Measures of Income
Seasonal Adjustment

2.2 Measuring the Cost of Living: The Consumer Price Index
The Price of a Basket of Goods
The CPI versus the GDP Deflator
Does the CPI Overstate Inflation?

2.3 Measuring Joblessness: The Unemployment Rate
The Household Survey
The Establishment Survey

2.4 From Economic Statistics to Economic Models

3. National Income: Where it comes from and where it goes?

3.1 What Determines the Total Production of Goods and Services?
The Factors of Production
The Production Function
The Supply of Goods and Services

3.2 How Is National Income Distributed to the Factors of Production?
Factor Prices
The Decisions Facing a Competitive Firm
The Firm's Demand for Factors
The Division of National Income
The Cobb-Douglas Production Function

3.3 What Determines the Demand for Goods and Services?
Consumption
Investment
Government Purchases

3.4 What Brings the Supply and Demand for Goods and Services into equilibrium?

Equilibrium in the Market for Goods and Services: The Supply and Demand for the Economy's Output.

Equilibrium in the Financial Markets: The Supply and Demand for Loanable Funds

Changes in Saving: The Effects of Fiscal Policy
Changes in Investment Demand

- **MONEY, PRICES, AND UNEMPLOYMENT:**

4. The Monetary System: What it is and how it Works?

4.1 What Is Money?

The Functions of Money, The Types of Money
The Development of Fiat Money

How the Quantity of Money is controlled
How the Quantity of Money is measured

4.2 The Role of Banks in the Monetary System 100-Percent-Reserve Banking
Fractional-Reserve Banking
Bank Capital, Leverage, and Capital Requirements

4.3 How Central Banks Influence the Money Supply A Model of the Money Supply

The Instruments of Monetary Policy
Problems in Monetary Control

5. Inflation: It Causes, Effects, and Social Costs

5.1 The Quantity Theory of Money Transactions and the Quantity Equation From Transactions to Income

The Money Demand Function and the Quantity Equation
The Assumption of Constant Velocity
Money, Prices, and Inflation

5.2 Seigniorage: The Revenue From Printing Money

5.3 Inflation and Interest Rates

Two Interest Rates: Real and Nominal The Fisher Effect
Two Real Interest Rates: Ex Ante and Ex Post

5.4 The Nominal Interest Rate and the Demand for Money
The Cost of Holding Money
Future Money and Current Prices

5.5 The Social Costs of Inflation
The Layman's View and the Classical Response about Inflation

The Costs of Expected Inflation The Costs of Unexpected Inflation One Benefit of Inflation

5.6 Hyperinflation

The Costs of Hyperinflation The Causes of Hyperinflation The Classical Dichotomy

The Cagan Model: How Current and Future Money Affect the Price Level

6. Unemployment

6.1 Job Loss, Job Finding, and the Natural Rate of Unemployment

6.2 Job Search and Frictional Unemployment Causes of Frictional Unemployment
Public Policy and Frictional Unemployment

6.3 Real-Wage Rigidity and Structural Unemployment

Minimum-Wage Laws
Unions and Collective Bargaining
Efficiency Wages

6.4 Labor-Market Experience: The United States The Duration of Unemployment
Variation in the Unemployment Rate across Demographic Groups Transitions into and Out of the Labor Force

6.5 Labor-Market Experience: Europe The Rise in European Unemployment
Unemployment Variation within Europe
The Rise of European Leisure

- **THE ECONOMY IN THE SHORT RUN: ECONOMIC FLUCTUATIONS**

7. Aggregate Demand I: Building the IS-LM Model

7.1 The Goods Market and the IS Curve The Keynesian Cross
The Interest Rate, Investment, and the IS Curve How Fiscal Policy Shifts the IS Curve

7.2 The Money Market and the LM Curve The Theory of Liquidity Preference
Income, Money Demand, and the LM Curve How Monetary Policy Shifts the LM Curve

7.3 The Short-Run Equilibrium

8. Aggregate Demand II: Applying the IS-LM Model

8.1 Explaining Fluctuations With the IS–LM Model
How Fiscal Policy Shifts the IS Curve and Changes the Short-Run Equilibrium
How Monetary Policy Shifts the LM Curve and Changes the Short-Run Equilibrium
The Interaction between Monetary and Fiscal Policy Shocks in the IS–LM Model
What Is the Fed's Policy Instrument - The Money Supply or the Interest Rate?

8.1 IS–LM as a Theory of Aggregate Demand
From the IS–LM Model to the Aggregate Demand Curve The IS–LM Model in the Short Run and Long Run

8.2 The Great Depression
The Spending Hypothesis: Shocks to the IS Curve The Money Hypothesis: A Shock to the LM Curve
The Money Hypothesis Again: The Effects of Falling Prices Could the Depression Happen Again?

9. Aggregate Supply and the Short-run Tradeoff Between Inflation and Unemployment

9.1 The Basic Theory of Aggregate Supply The Sticky-Price Model
An Alternative Theory: The Imperfect-Information Model Implications 404

9.2 Inflation, Unemployment, and the Phillips Curve
Deriving the Phillips Curve from the Aggregate Supply Curve Adaptive Expectations and Inflation Inertia
Two Causes of Rising and Falling Inflation
The Short-Run Tradeoff between Inflation and Unemployment Disinflation and the Sacrifice Ratio
Rational Expectations and the Possibility of Painless Disinflation Hysteresis

and the Challenge to the Natural-Rate Hypothesis

Recommended Texts:

1. Mankiw, N. Gregory (2013). Macroeconomics. Eighth Edition, Worth Publishers.
2. Abel, Andrew, B., Bernanke, Ben S. &Croushore, D. (2010). Seventh Edition. Addison-Wesley.
3. Williamson, Stephen D. (2010). Macroeconomics. Fourth Edition, Prentice Hall.

And other readings and handouts, as required.

Rev No. **00**	Course Code: **ECO 505**	Credit Hours: **3-0**

MATHEMATICAL ECONOMICS I

Course Objectives:

The course is designed to enable the students use mathematical tools in clarifying their economic concepts and solving problems. This is because economic analysis requires extensive use of mathematics in the present day world of complexity. Mere logical reasoning and diagrammatic approach is perhaps not sufficient. This is true for positive economics in particular. As such, the students of economics have to learn and apply mathematics alongside their theoretical underpinnings.

Course Contents:

- **The Nature of Mathematical Economics**

Pure and applied mathematics, The use of mathematical tools in social sciences, particularly in economics, Economic theory (logical argument) as description of some kind of relationship between variables, Mathematical Support: Expression of theory in functional form, Explaining properties of economic parameters like elasticity, propensity to consume etc., Verification of hypotheses and the use of mathematical models, Parameters and variables (dependent and independent), Linear and non-linear functions: quadratic, polynomial, circular, Types of functions: constant, rational, non-algebraic, logarithms & exponential, Rules of logarithms and exponents, Functions of more than two independent variables, Graphs of various functions, The importance and limitations of mathematical models.

- **Equilibrium Analysis**

Equation of a straight line: Intercept and Slope parameters and their economic interpretation, Partial and general equilibrium analysis, Single and Simultaneous equation models, Examples from market models: Demand and supply equations, Determination of price and quantity, Calculation of elasticities at equilibrium, The effect of an excise tax on market equilibrium, National Income determination: Closed economy with goods and money markets.

- **Linear Models and Matrix Algebra**

Simultaneous equations models and the use of matrices, Types of matrices: Square, identity, null, idempotent, diagonal, transpose and their properties, Laws of matrix operations: addition/subtraction, scalar and vector multiplication, Conditions for non-singularity of a matrix, Determinant & its properties, Minors and cofactors, Ad-joint and inverse of a matrix, Properties of inverse of a matrix, Solution of linear equations: the Gaussian method, the Cramer's rule and Inverse matrix method, Economic applications: Solution of market models, national income models, and the normal equations of the Least-Squares econometric model via matrix approach.

- **Differentiation**

The concept of derivations, Functions of one variable and rules of differentiation: Sum-difference, product and quotient rules, chain rule, power function rule, inverse function rule, Implicit functions rule, Combinations of rules, differentiation of logarithmic & exponential functions, Higher order derivatives, Concept of maxima & minima, First and second derivative tests, point of inflection, Free and Constrained optimization, Partial differentiation & its rules, Hessian and Jacobian determinants, Higher order & cross partial derivatives (Young's theorem), Total differentials & total derivatives, Optimizing cubic functions.

- **Economic Applications of Differential Calculus**

Analysis of Utility, Demand, Production, Cost and Supply functions, Lagrange function: Profit maximization and cost minimization under perfect competition and monopoly, Maximizing excise tax revenue in monopolistic competitive market, Comparative static analysis: Partial equilibrium market model, National Income model, Partial and Substitution elasticities, Optimization of unconstrained functions and their economic applications, Profit maximization by a multi-product and multi-plant firms, Price discrimination and monopoly, Optimization by using Cobb- Douglas, CES and Translog functions with interpretation of the results.

- **Linear Programming**

Ingredients of linear Programming, Graphical approach, Simplex method, Economic application of linear programming, Concept of primal & dual, Duality theorems, Solving of Primal via dual, Economic interpretation of a dual.

Recommended Texts:

1. Chiang, A. C. - Fundamental Methods of Mathematical Economics – 3rd Edition (1984) - McGraw Hill Publishing Company.
2. Frank, Budnick - Applied Mathematics for Business, Economics and Social Sciences- 4th Edition (1993) or latest – McGraw Hill Publishing Company.
3. Dowling E. T.- Mathematics for Economists, Schaum's Outline Series- 3rd Edition (2001) – McGraw Hill Publishing Company.
4. George, Alvery et al – Essentials of Mathematics with Business Applications- 5th Edition (1995) - McGraw Hill Publishing Company.
5. Weber E. Jean - Mathematical Analysis: Business and Economic Applications- (Latest Edition) -Harper and Row Publishers, New York.
6. Colin, Glass – An Introduction to Mathematical Methods in Economics- (Latest Edition) - McGraw Hill Publishing Company.

Rev No. **00**	Course Code: **ECO 507**	Credit Hours: **3-0**

STATISTICS FOR ECONOMISTS

Course Objectives:

This is an introductory course on statistics, with examples to demonstrate its applications in economics. There will be a strong emphasis on the concepts and application of probability theory, random variables, distributions, sampling theory, statistical inference, correlation and linear regression. Statistical inference techniques such as estimation and significance testing are important in the fitting and interpretation of econometric models. Correlation and regression analysis are essential tools for measuring relationships between variables and for prediction.

Course Contents:

- **Descriptive Statistics**

Data Collection and presentation, Frequency distribution and Graphs, Histograms, Frequency Curves, Measures of central tendency. Mean, Median, Mode, Geometric and Harmonic means, Quartiles, Deciles, Percentiles, Simple and weighted measures of dispersion. Absolute and Relative measures of dispersion, Skewness, Kurtosis.

- **Index Number**

Simple and weighted index numbers, Theoretical Tests, Application of Index Numbers to Business and Economics.

- **Correlation & Regression**

Definition of Correlation and its measurement. Partial and Multiple Correlation, Objectives of regression analysis, simple linear regression model. Method of least square Regression lines and Estimators, Prediction from regression.

- **Elements of Probability**

Probability of an event, Addition and Multiplication Laws of Probability, Independent and dependent events, Random variables and expectation. Basic concepts of Binomial, Poisson and normal distributions.

- **Sampling Techniques**

Difference between sample and population, objectives of sampling, different types and techniques of sampling. Sampling distribution of means and standard error.

- **Inferential Statistics**

Basic concepts of estimation, Hypothesis testing, Testing of Hypothesis about mean, difference between two means (Large and Small samples) using Z, and t statistic. Fitting of distribution using Chi-square distribution, Confidence intervals, inference in simple regression and correlation.

- **Analysis of Variance and Experimental Design**

Analysis of variance of one way and two way classification.Experimental design and its different types.

- **Interpolation**

Interpolation with equal and unequal intervals using Newton's and Langrnage's methods.

Recommended Texts:

1. Sher Muhammad Ch. "Introduction to Statistical Theory Part I & Part II", 2011 Edition
2. Earlk Bown and Martin Starr, " Basic Statistics for Business and Economics"
3. Spiegel M. R. Schiller, J.L. and Sirinivasan, R.L., (2000), " Probability and Statistics" Second Edition, Schaums Outlines Series McGraw Hill, N.Y

Rev No. **00**	Course Code: **ECO 508**	Credit Hours: **3-0**

MONETARY ECONOMICS

Course Objectives:

This course is intended to provide the students a thorough understanding of monetary theory, financial markets, importance of money and interest rates along with the conduct of monetary policy in closed and open economy. This course also introduces the alternative monetary policy stances. In addition this includes the discussion of monetarists' and Keynesian views regarding inflation.

Course Contents:

- **Introduction and Development of Monetary Mechanism:**

Evolution of Money and Payment System. Definition of Money, Function of Money & Measurement of Money, Demand for Money & Supply of Money. Definitions of Money, M1, M2, M3, L etc. The Evolution of Monetary Thought, Quantity Theory of money, Keynesian Tradition, Monetarism and Modern Quantity Theory, Rational Expectation Theory.

- **Role of Money in the Economy:**

Debate on neutrality and non-neutrality of Money. Classical Dichotomy and Keynesian Integration of Nominal and Real Sectors. Role of Money in the IS-LM Framework. Money in Aggregate Demand & Aggregate Supply Analysis. Keynesian Vs. Monetarist views of Equilibrium Output, Employment and Prices.

- **Theory of Demand for Money:**

Quantity Theory of Money. Transaction Theories of Demand for Money. Portfolio Theories of Demand for Money. Baumol – Tobin Model of Cash Management. Friedman's Restatement of Quantity Theory of Money: Empirical Evidence on the Demand for Money.

- **The Money Supply Process:**

Monetary Base, Keynesian Liquidity Preference Framework, Friedman's Modern Quantity Theory of Money. Multiple Deposit Creation: Introducing the Money Supply Process. Determinants of the Money Supply: Exogenous and Endogenous. Understanding Movements in the Monetary Base, Money Multiplier. Velocity of Money and its variability. Explaining Depositor and Bank Behaviour: the Complete Money Supply Model. Regressive Expectation
Model.

- **The Conduct of Monetary Policy: Central Bank**

Structure and Functions of Central Bank. Independence of Central Bank and its role in Economic Growth. Tool of Central Bank for Money Control. Monetary Base. The Conduct of Monetary Policy: Goals and Targets. Tools of Monetary Policy: Three Major Tools of Monetary Policy. Required Reserve Ratio, Discount Window Loans and Open Market

Operation. Advantages and Disadvantages and Impact Analysis of each Policy Tool. Central Bank as a lender of last Resort. Financial Intermediateries. Monetization of Public Debt. Infectiveness of Stabilization Policies. Targeting interest rate and inflation.

- **Money & Interest Rates:**

Determinants of interest rates. Kinds of Interest Rates. The Behavior of Interest Rates. Understanding & Measuring the Interest Rates. Real & Nominal Interest Rates, Theories of Interest Rate Determination. The Risk and Term Structure of Interest Rates. The Distinction Between Interest Rates and Returns. Maturity & Volatility of Bond Returns. Portfolio Choice: the Theory of Asset Demand.

- **Money and Inflation:**

What is Inflation & Causes of Inflation? Demand – pull Inflation, Cost – push Inflation, Stagflation & Hyperinflation. Inflation as a Monetary Phenomenon. The Philips Curve and Accelerating Inflation. Inflation in Pakistan: Sources and Managing Policies. Sources of Inflation in Pakistan: Spiracle Evidences. Policies to Combat Inflation in Pakistan.

- **Monetary Policy in International Framework:**

Money Demand and Empirical Evidences. Money in Growth Models. Inflationary Spiral. Current Issues in Monetary and Financial Sector Reforms. Conduct of Monetary Policy in Fixed and Flexible Exchange Rates. Perfect Mobility of Capital and Money Control, Effectiveness of Policy. Impact of Reserves on B.O.P and Exchange Rates. Targeting exchange rate. Managed Exchange Rate System and Monetary Policy. Targeting Inflation. Exchange Rate and Balance of Payment.

Recommended Texts:

1. Mishkin, Frederic S., (2001), the Economics of Money, Banking and Financial Markets. (Sixth edition). Addison Wesley, New York. Latest edition
2. Bennett T. McCallum, (1989), Monetary Economics, Theory and Policy, McMillan. latest edition.

Additional Texts:

1. Fredric S. Mishkin, (1995), Financial Markets and Money, Harper & Row Publishers.
2. Laider, David E.W (1996), The Demand for Money: Theories, Evidence and Problems (Fourth edition), Harper & Row, Publishers, New York.
3. Miller, R. L. and David VanHose, (2001), Money, Banking & Financial Markets. South Western, Singapore.
4. Vanish K., Monetary Theory, (2000), Vikas Publishing House, Delhi.
5. Patinkin Don, Money, Interest and Prices, Harper and Row Publishers, (Latest Edition)
6. Handa J. (2000), *Monetary Economics*, London: Routledge.

SEMESTER - II

Rev No. **00**	Course Code: **ECO 502**	Credit Hours: **3-0**

MICROECONOMICS THEORY II

Course Objectives:

The objective of this course is to confront students to advanced theoretical concepts and rigorous analysis with mathematical tools at hand. They have to develop the analytical skills and to enhance the capabilities to solve somewhat complicated problems.

Course Contents:

- **The Theory of Consumption and Demand**

The utility function and budget line, Constrained optimization and the Lagrange function, Utility maximization and ordinary (Marshallian) demand functions, Cost minimization and compensated (Hicksian) demand functions, The inter-relationship between ordinary and compensated demands, The indirect utility function and expenditure function, Homogeneity of demand functions, Elasticity of Demand, Euler's relation and demand elasticities, Engel's Law and income elasticity, Impact of a price change on demand, Bifurcation of the price effect into income and substitution effects, The Slutsky Equation: derivation and interpretation, Gross and net substitutes, Classification of goods: Normal, Inferior and Giffen goods, Clarification of the concepts by using Cobb-Douglas and CES utility functions.

- **The Theory of Production and Supply**

The Production function: components, different forms, Properties of Cobb-Douglas and CES production functions, The iso-quant and its slope, The marginal rate of technical substitution, Diminishing MRTS and convexity of iso-quant, The cost function in relation to production function, Relationship between Average and Marginal cost functions, The short-run marginal cost and supply function, Relationship between the short-run and long-run average cost functions, Relationship between marginal revenue and marginal cost functions, Equilibrium of the firm in the short and long run, Demand for variable factors, Expansion path and returns to scales, Elasticity of substitution, The role of technical progress and shifting of production function overtime.

- **Market Structures and Price Determination**

Critical appraisal of the competitive market assumptions, Efficiency of competitive market, Factors responsible for shifting of demand and supply functions overtime and impact on price, Govt. intervention in the market: price and quantity restriction and impact of taxation on price and consumer's surplus, The imperfect competition: Monopoly and Monopsony, Duopololy and Oligopoly, Monopolistic competition, The economic cost of imperfect competition, Elasticity of demand and Lerner index of market power, The case of public utilities and marginal cost pricing, Natural monopolies and the global markets, The multinational corporations, Introduction to: Game theory and strategic behaviour, Market with uncertainty and imperfect information.

- **General Equilibrium and Welfare Economics**

The concept of efficiency and welfare, Conditions of allocative efficiency: consumption, production and product mix, Theorems of optimality/welfare, The efficiency of competitive market system, Equity and efficiency trade off, Partial versus general equilibrium, The pure exchange economy, Two sector economy (consumption and production), Diagrammatic approach: The Edgworth Box, Production possibility frontier and Social indifference curve, Introduction to computation of general equilibrium in a 2x2x2 (two consumers, two sectors/ commodities, two factors) economy. Uncertainty, Information asymmetry, Moral Hazards and adverse selections. Criterion of Social Welfare, Maximization of social welfare

Recommended Texts:

1. Koutsoyiannis, A.- Modern Microeconomics- 2nd edition (1979)- Macmillan
2. Nicholson, Walter - Microeconomic Theory: Basic Principles and Extensions- 8th Edition (2002) or latest -Thomson & Learning Inc.
3. Henderson &Quandt - Microeconomic Theory: A Mathematical Approach- 3rd Edition (1980)– McGraw Hill International
4. Silberberg, E. &Suen, W.- The Structure of Economics: A Mathematical Analysis- 3rd Edition (2001) – McGraw Hill International
5. Layard & Walters – Microeconomic Theory- (1978) – McGraw Hill Book Company.
6. Perloff, Jeffrey – Microeconomics – (1999) - Addison Wesley Longman, Inc.
7. Pindyck&Rubinfeld – Microeconomics- 6th Edition (2004) – Pearson Education Asia.

Rev No. **00**	Course Code: **ECO 504**	Credit Hours: **3-0**

MACROECONOMICS THEORY II

Course Objectives:

The course is designed for senior level undergraduate students. The objective is to enhance their analytical skills and to clarify further their macroeconomic concepts with quantitative tools at hand. They must have a strong theoretical foundation so as to understand the real problems of the economy with particular emphasis on inflation, unemployment, instability, deficit and debt etc. to which the developing countries are confronted at present.

Homework: The students may be given frequent assignments and exercises from the texts, Economic Survey, reports of the State Bank as well as from articles appearing in the press. The students should be motivated to use computer for solving the assignments.

Course Contents:

A. THE ECONOMY IN THE VERY LONG RUN

1. Economic Growth I: Capital Accumulation and Population Growth

1.1 The Accumulation of Capital
The Supply and Demand for Goods
Growth in the Capital Stock and the Steady State
Approaching the Steady State: A Numerical Example
How Saving Affects Growth

1.2 The Golden Rule Level of Capital
Comparing Steady States
Finding the Golden Rule Steady State: A Numerical Example
The Transition to the Golden Rule Steady State

1.3 Population Growth
The Steady State with Population Growth
The Effects of Population Growth
Alternative Perspectives on Population Growth

2. Economic Growth II: Technology, Empirics, Policy, and Human Capital

2.1 Technological Progress in the Solow Model The Efficiency of Labor
The Steady State with Technological Progress
The Effects of Technological Progress

2.2 From Growth Theory to Growth Empirics Balanced Growth
Convergence
Factor Accumulation versus Production Efficiency

2.3 Policies to Promote Growth Evaluating
the Rate of Saving Changing the Rate
of Saving
Allocating the Economy's Investment
Establishing the Right Institutions Encouraging

Technological Progress

2.4 Beyond the Solow Model: Endogenous Growth Theory
The Basic Model
A Two-Sector Model
The Microeconomics of Research and Development
The Process of Creative Destruction

B. TOWARDS MICROECONOMIC FOUNDATIONS OF THE MACRO ECONOMY

3. Understanding Consumer Behaviour

3.1 John Maynard Keynes and the Consumption Function
Keynes's Conjectures
The Early Empirical Successes
Secular Stagnation, Simon Kuznets, and the Consumption Puzzle

3.2 Irving Fisher and Intertemporal Choice
The Intertemporal Budget Constraint
Consumer Preferences
Optimization
How Changes in Income Affect Consumption
How Changes in the Real Interest Rate Affect Consumption
Constraints on Borrowing

3.3 Franco Modigliani and the Life-Cycle Hypothesis
The Hypothesis Implications

3.4 Milton Friedman and the Permanent-Income Hypothesis
The Hypothesis Implications

3.5 Robert Hall and the Random-Walk Hypothesis
The Hypothesis Implications

3.6 David Laibson and the Pull of Instant Gratification

C. INTERNATIONAL MACROECONOMICS: THE OPEN ECONOMY

4. The Open Economy

4.1 The International Flows of Capital and Goods The Role of Net Exports
International Capital Flows and the Trade Balance International Flows of Goods and Capital: An Example

4.2 Saving and Investment in a Small Open Economy Capital Mobility and the World Interest Rate
Why Assume a Small Open Economy? The Model
How Policies Influence the Trade Balance
Evaluating Economic Policy

4.3 Exchange Rates
Nominal and Real Exchange Rates
The Real Exchange Rate and the Trade Balance The Determinants of the Real Exchange Rate How Policies Influence the Real Exchange Rate The Effects of Trade Policies
The Determinants of the Nominal Exchange Rate The

Special Case of Purchasing-Power Parity

5. Open Economy Revisited: The Mundell-Fleming Model and the Exchange Rate Regime

5.1 The Mundell-Fleming Model, The Key Assumption: Small Open Economy with Perfect Capital Mobility, The Goods Market and the IS* Curve, The Money Market and the LM* Curve, Putting the Pieces Together

5.2 The Small Open Economy Under Floating Exchange Rates Fiscal Policy, Monetary Policy, Trade Policy

5.3 The Small Open Economy Under Fixed Exchange Rates How a Fixed-Exchange-Rate System Works

Fiscal Policy
Monetary Policy
Trade Policy
Policy in the Mundell–Fleming Model: A Summary

5.4 Interest Rate Differentials

Country Risk and Exchange-Rate Expectations
Differentials in the Mundell–Fleming Model

5.5 Should Exchange Rates Be Floating or Fixed?

Pros and Cons of Different Exchange-Rate Systems Speculative Attacks, Currency Boards, and Dollarization The Impossible Trinity

5.6 From the Short Run to the Long Run: The Mundell–Fleming Model With a Changing Price Level

D. MACROECONOMIC POLICY

6 Alternative Perspectives on Stabilization Policy (Mankiw Ch#18, ABC Ch#12)

6.1 Should Policy Be Active or Passive?

Lags in the Implementation and Effects of Policies The Difficult Job of Economic Forecasting Ignorance, Expectations, and the Lucas Critique The Historical Record

6.2 Should Policy Be Conducted by Rule or by Discretion? Distrust of Policymakers and the Political Process

The Time Inconsistency of Discretionary Policy Rules for Monetary Policy

6.3 Making Policy in an Uncertain World

7 Government Debt and Budget Deficits (Mankiw Ch#19, ABC Ch#15)

7.1 The Size of the Government Debt

7.2 Problems in Measurement 1: Inflation Measurement Problem 2: Capital Assets

Measurement Problem 3: Uncounted Liabilities Measurement Problem 4: The Business Cycle
Summing Up

7.3 The Traditional View of Government Debt

7.4 The Ricardian View of Government Debt the Basic Logic of Ricardian Equivalence Consumers and Future Taxes Making a Choice

7.5 Other Perspectives on Government Debt Balanced Budgets Versus Optimal Fiscal Policy Fiscal Effects on Monetary Policy

Recommended Texts:

1. Mankiw, N. Gregory (2013). Macroeconomics. Eighth or latest Edition, Worth Publishers.
2. Weil, David N. (2012). Economic Growth. Third Edition, Pearson.

Additional Texts:

1. Abel, Andrew, B., Bernanke, Ben S. & Croushore, D. (2010). Seventh or latest Edition. Addison-Wesley.
2. Williamson, Stephen D. (2010). Macroeconomics. Fourth or latest Edition, Prentice Hall.
3. Romer, David - Advanced Macroeconomics -(latest edition)- McGraw Hills, New York.

Other readings and handouts, as required.

Rev No. **00**	Course Code: **ECO 506**	Credit Hours: **3-0**

MATHEMATICAL ECONOMICS II

Course Objectives:

The objective of this course is to confront the students to advanced mathematical techniques so as to enable them handle economic models, interpret the results and solve complex problems.

Course Contents:

- **Complex Number and Circular Functions**

Imaginary and Complex Numbers, Complex Roots, Circular Functions, Properties of Sine & Cosine functions, Eular and Maclaurin series, Alternative representation of Complex Numbers.

- **Integral Calculus**

Comparative Dynamics and Integration, The Nature of Indefinite Integrals, Rules of Integrations and Operation: Substitution Rule, Integration by parts. Definite integrals and their properties, Definite Integrals and Area under a curve, Improper integrals, Economic Applications of Integrals: Finding total functions from marginal functions, Investment & capital formation, Present value of cash flow, P.V. of a Perpetual Flow, The Domar growth model.

- **Differential Equations**

(i) First Order Linear Differential Equations

Meaning and Definition; Homogenous & non-Homogenous cases, Solution of first order linear differential equations: with constant coefficient & constant term, with variable coefficient and variable terms, Qualitative approach: Concept of phase diagrams, types of time paths and the dynamic stability of equilibrium, Exact differential equations: Solution and Verification, Non-linear differential equations of the first order and first degree, Bernoulli Equation, Separable Variables, Economic Application: Dynamics of market models, Solow growth model.

(ii) Higher Order Differential Equations

Solution and Verification of second order linear differential equations with constant coefficients and constant terms, Real and imaginary roots, Distinct, repeated roots and

complex roots, Dynamic stability of equilibrium, Economic applications: Market models with price expectations, The Interaction of inflation and unemployment in continuous time, Higher order differential equations, Convergence and the Routh theorem, Solution of simultaneous difference equations.

- **Difference Equations**

(i) First Order Difference Equations

Meaning and definition, First order linear difference equations: Solution and verification of results, Conditions for dynamic stability of equilibrium, Types of time paths, Economic applications: The Cobweb model, Market model with inventory, Model with price ceiling, Nonlinear difference equations, The qualitative/graphic approach and phase diagrams.

(ii) Higher Order Difference Equations

Solution and verification of second-order linear difference equations with constant coefficients and constant terms, Real and imaginary roots, Distinct, repeated and complex roots, The convergence and divergence of the time paths. Economic applications: Models of business cycles, The Multiplier-Acceleration interaction model, inflation-unemployment model in discrete time, Higher order difference equations and their solutions, Convergence and the Schur's theorem, Solution of simultaneous difference equations.

- **Non-Linear Programming**

The nature of non-linear programming, Non-linearities in Economics, Kuhn-Tucker conditions and their interpretation, The Kuhn-Tucker Sufficiency theorem: Concave programming, The Arrow-Enthoven Sufficiency theorem: Quasi-concave programming, Economic applications: Utility maximization, Least-cost combination,

Recommended Texts:

1. Chiang A.C and Kevin Wainwright - Fundamental Methods of Mathematical Economics- 4th Edition (2005) McGraw Hill Publishing Company.
2. Gandalfo, G – Economic Dynamics: Methods and Models – (1983 or Latest Edition) North Holland Publishing Company
3. Dowling Edward T. -Mathematics for Economics: Schaum Series – (1981).
4. Weber E. Jean, Mathematical Analysis, Business and Economic Application (latest edition), Harper and Row Publishers, Netherlands.

5. Hoy M., Livermois J, Rees R, Stengos T. - Mathematic for Economics – (1996) - Addison & Wesley Publishers.
6. Shone, R – Economic Dynamics: Phase Diagrams and their Economic Applications- (1997)- Cambridge University Press.

Rev No. **00**	Course Code: **ECO 509**	Credit Hours: **3-0**

HISTORY OF ECONOMIC THOUGHTS

Course Objectives:

This course evaluates the development of economic thought through the eyes of Greek and European traditions before exploring economic thought in the context of the 20th Century. The course is historical in content and international in perspective allowing students to develop a critical understanding of the influence of evolving economic thought on contemporary global economics.

Course Contents:

- **Introduction**

Introduction: Importance of Economic History: Approaches to Study the Subject. Overview of Ancient Greek, Roman and Medieval Economic Thought. Overview of Ancient and medieval thoughts, Quensey's influential ideas, Feudalism, Mercantilism, Nature's Circular Flow, Process of modern theories and thoughts. Overview of Islamic thoughts: Ibne-Khuldoon and thereafter. Overview of Silent Features of Muslim School of Thought

- **Mercantilists and the Physiocrates**

The Contributions of Mercantilists and the Physiocrates. A doctrine of economic process, transition to liberalization: Wage theory to natural price, the task of government. Overtime, Changing Role of Government.

- **Classical School**

The Contributions of Classical School, Adam Smith; Malthus and Ricardo etc., The Labor Theory of Value. Bullin Debate. Ricardo's Monetary Thought. Evolutionists, Ricardo and Reformers of 18thCentury. The Theory of Rent. Profit Concepts of Colonization. Economic

- **Socialism**

Socialism before Marx. English Socialists. Anarchism. Karl Marx's Contributions. The Class Struggle. Criticism on Marx. Challenges to Capitalism. German Historical School, Weber's contributions. The Marginalist School, Neo-Classical Economics. Jeons Inference. The concept of Welfare State. Chamberlin and Robinson. Australian School of thought. Veber and Galberith's Contribution.

- **Keynesian and Post Keynesian School**

The Keynesian and Post Keynesian School, The Great Depression: Economic Policies and Capitalist Instability Between the World Wars. The 20th Century Paradigms. The Growth of International Economy. The Rise and fall of Post-World War II. The American economic history and Lessons.

i) The Emergence of Modern Economic Growth, Building Blocks, Industrial Revolution, Structuralist and Dependency School of thought; Sunkel, Amir Samer, Frank and others' contribution. Technological Change and Impacts. The Crisis of the 1970's and International Responses. Failure of Trickle down effects. Rational Expectation Revolution. Basic Needs Approach and welfare. Emergence Famine and Poverty.

ii) Modern Economic Thought. Comparison of Post Keynesian and Monetarist Thoughts. Supply side economics. Globalization, Liberalization and New Weave of Economic Growth and Welfare. New Growth Theory. Convergence and Divergence Debate. Future of Economics, Quality and International Trade and emergence of markets, New Regionalism, New directions of research. Environment and sustainable growth.

Recommended Texts:

1. A History of Economic Ideas, (1959), Robert Lekachman, McGraw Hill Company.
2. Economic Theory in Retrospect, Blaug, (1978), Cambridge University Press.
3. Frank A. G., (1998), Global Economy in the Asian Age, Univ., of California Press.
4. Henery John D., The Future of Economics, (1992), Black Wall Publishers.
5. Marx k., and Engles F., The Communist Manifesto, Peoples Publishing House, Moscow, latest edition.
6. Rima Ingrid, Development of Economic Analysis, Routledge Publishers (Latest ed.).
7. Spechler, Martin C., (1990), Perspective in Economic Thought, McGraw Hills.
8. The Main Current in Modern Economics (latest edition), The Free Press of Glancer.
9. Theories of Value and Distribution (latest Edition), Dobb M., Cambridge Univ. Press, Latest edition.
10. Twenty Contemporary Economist ed. (1981). Schach and Locksley, MacMillan Press.

Rev No. **00**	Course Code: **ECO 510**	Credit Hours: **3-0**

ECONOMICS DEVELOPMENT AND GROWTH

Course Objectives:

This course focuses on factors that spur economic growth and analyzes the equation between economic growth and human welfare. It also critically examines various measures taken for human welfare. In addition, changes in economic structures such as sectoral output and employment relations and various developmental policies/strategies regarding distribution of income and sectoral development are focused upon.

Course Contents:

- **Scope and New Developments**

Definitions: Economic Development and Growth, Identification of Development variables. Scope and Significance of Development Economics. Characteristics of LDC's. Measurement of Economic Development and Growth. Per Capita Income approach, Quality of Life Index / HDI etc. Historical overview of world development and emerging major issues pertaining to Less Developed Countries (LDC's). Why the whole world is not developed?

- **Major Theories of Development**

Classical and Neo-classical Theories, Adam Smith and Competitive Capitalism, Vicious Circle of Poverty, Stages of Economic Growth, Balanced and Unbalanced Growth, Big Push Theory. Dependency Theory, Structuralist's View Point. Endogenous Growth Theory: New growth Theory. Income Convergence/Divergence debate. Market Friendly Approach.

- **Agriculture and Industry**

Agriculture vs. Industry: Development Debate. Lewis' Model of surplus Labor. Rains' Fei Model and its critical review. Transforming Agriculture, Underemployment problem. Role of Agriculture: Market for Industrial Output, Provision of Input, food, Complementarities, productivity growth. Terms of Trade Issue and Subsidies, etc. and Competitiveness. Land Holdings, Green Revolution and it's Performance. Need for Industrialization. Industrialization and its financing mechanism. Problem of Sectoral Dualism. Why Green Revolution? The Spread of Green Revolution in Pakistan and its Status / Contributions.

- **Population, Education and Human Capital**

Demographic Transition, Human Resources as a source of growth and their contributions. Investment in education and returns. Models of Employment & Unemployment: Time Criterion, Productivity Criterion and New Index etc., and Employment generation Strategies/Techniques.

- **Poverty and Income Distribution**

Definitions and Measurement of Poverty/Poverty Line. Poverty concepts/definitions. Absolute Poverty, Relative Poverty, Income approach, Expenditure approach, Basic needs approach, Poverty of Opportunities Index (POPI) and Calorie-based approach etc. Poverty Indicators. Poverty by socio-economic groups. Sources, impacts and policies to combat poverty. Strategies and tools to combat poverty. Growth and Income Inequality in the world. Empirical evidences on poverty. Redistribution with growth. How to combat income inequality. Basic Needs, Social Action Programs and Poverty alleviation.

- **International Debt, Aid / Assistance**

Why international borrowing? Two Gap Model, Aid commitments and disbursement. Sources of borrowing. Debt Cycle Theory/Stages. Debt Burden: Debt Servicing, Debt Laffer Curve, Debt buy back etc., Latin American Debt Crises, ASEAN Crises, Debt Problem of LDC's and South Asia, Debt Overhang and threat to growth. Policies to combat debt problem: Forecasting debt and solution for debt burden, saving mobilization/Domestic resource mobilization, Debt rescheduling etc. Debt Modeling and Forecasting Future Implication.

- **Multinational Corporations (MNC'S), FDI and Development**

Multinational Corporations (MNC's): Objectives, Role and Contributions, Long term cost of TNC's. Transfer of Technology: Ways and Means. Global integrated production system: MNC's and Globalization, Foreign Direct Investment (FDI) and Its Determinants/Role. Foreign Direct Investment (FDI) and MNC's. Flow of FDI and its contributions.

- **WTO, Liberalization and International Trade**

Trade vs. Aid. Liberalization of Trade and its impacts/gains etc., Foreign Exchange Constraints and Balance of Payment deficit. Role of GATT and its Failure. WTO and LDC's. Trade Instability, Distribution of gains from Trade liberalization. Regional Trade Associations (RTA's): their role and contributions. Basis for trade and benefits: Gains from

Trade: Static and Dynamic Gains. Comparative Advantage, Revealed Comparative Advantage and Competitiveness. Trade as an engine of growth. Product Cycle. Determinants of exports growth. Transfer of Technology: Sources & Need. Technology Centered Development and Appropriate technology issue.

- **Economic Growth and Environment**

Model of Environment and Economic Activity. Market Based Approach and Externalities. Deforestation and Renewable Resources, Measuring environment values. Deforestation and Macroeconomic Environment. Industrialization and its environmental cost, Use of Pesticides and Environmental Impacts. Natural resources degradation. Cost of Pollutions/Environmental degradation. International awareness about environment, production and need for Reforms. Economic thoughts and Environment. International Agencies: Environmental concerns and programs. Urbanization and environmental issues. Sustained development, Ecology and economic progress.

Recommended Texts:

1. Todaro M. P., Economic Development in the third World. Latest Edition, Heinemann, London.
2. Meier Gerald M., Leading Issues in Economic Development, (Latest Issue),Oxford University Press.
3. Thirlwall, A.P., (2003), Growth and Development, With Special Reference to Developing Economies 7th edition, Palgrave Publisher.
4. Van Den Berg H., (2001), Economic Growth and Development,* McGraw Hills.
5. Adelman, Irma, Theories of Economic Growth and Development (Stanford,1961)
6. Rashid, Salim. Economic Policy for Growth: Economic Development is Human Development. (Kluwer Academic Publishers, 2000)
7. William, Easterly, Growth without Development, A Case Study of Pakistan, World Bank.
8. Balasubramanyam V. and Lall, S. (Latest eds.), Current Issues in Development Economics. McMillan , London.
9. Chaudhary M. Aslam and Hamid, A., (1989). Human Resource Development and Management in Pakistan. Ferozsons, Lahore.

10. Chaudhary M. Aslam and Eatzaz, A., (2004), Globalization: WTO, Trade and Economic Liberalization in Pakistan, Ferozsons, Lahore, Pakistan.
11. Chenery H. B. and Srinivasen. Hand Book of Development Economics, vol. I & II, Amsterdam (1988, eds.). North Holland.
12. Cypher J. M. and Dietz James L., (2004), The Process of Economic Development, Routledge. Tayl or Francis Group, London/New York.
13. GhatakSubarta, (2003), Introduction to Development Economics, Routledge, Taylor and Francis Group, London/New York.
14. Herrick B. and Kindleberger C., (latest eds.). Economic Development. McMillan, New York.
15. Hirshman A. O., (1960). Strategy of Economic Development, Yale University, Press.
16. Jones H. G., An Introduction to Modern Theories of Economic Growth, (Latest Edition), McGraw Hills.
17. Mahboob-ul-Haq Center for Human Development (MHCHD). Human Development in South Asia, Annual Reports, Islamabad.
18. ---------- (1999), A Profile of Poverty In Pakistan, (In Collaboration with UNDP).
19. World Bank, World Development Reports, Annual reports, 1986, 1987, 1990, 1991, 1992, 1994, 1995, 1998/99, 2000/2001 and 2004.
20. Yotopolous Pan A. and Nugent Jeffery B., Economics of Development, Empirical Investigation (Latest eds.). Harper and Row Publishers, London/New York.

SEMESTER - III

Rev No. **00**	Course Code: **ECO 601**	Credit Hours: **3-0**

ECONOMETRICS-I

Course Objectives:

This is a foundation course for enabling the students of Economics to analytically formulate and statistically estimate the economic problems for verifying the empirical validity of theoretical models. The course contents range from data transformation to the analyses of both latitudinal and longitudinal data.

The analytical skill is supported by the usage of different Econometrics Software.

Lab work: The students are required to devote at least two hour per week to computer laboratory. They have to attend classes to learn various Econometrics softwares for practical application of Econometric models they have learnt so far.

Course Contents:

Introduction:

Definition and scope of Econometrics, Economic theory as the basis for empirical analysis, Mathematical and Econometric models, Application of Statistical techniques to Economic data, Ingredients of Econometric modeling: Specification, Estimation, Evaluation and Forecasting. Data Types and Sources, Cross-sectional data, time-series data and pool data, Data at current and constant prices, Sources of data

The Classical Linear Regression Model (CLRM)

(a) The Simple Two-Variable Model

Simple Regression function, population and regression function, linear regression function: linearity in variables and linearity in parameters, Simple Regression Analysis: Estimation, Method of Ordinary Least Squares (OLS), Estimation of regression equation using OLS, Standard error of estimates, Numerical properties of OLS estimators, Statistical properties of OLS estimators (BLUE), Classical Linear Regression Model (CLRM), Assumptions of CLRM, Estimation of the coefficient of determination, Interval estimation of regression coefficients, Classical Normal Linear Regression Model (CNLRM), Difference between CLRM and CNLRM, Properties of OLS estimates under CNLRM, Simple Linear Regression Analysis: Inference, Confidence interval approach for regression coefficients, Test of significance approach for regression coefficients, Analysis of variance (ANOVA), Test of the overall significance of the model, Simple Linear Regression Analysis: Extensions, Regression through the origin, Scaling and measurement of variables, Regression on standardized variables Functional Forms of Regression Function, Log linear models, Cobb Douglas production function Log-Lin models, The constant growth model, Estimating the growth rate, Lin-Log models, Engel curve, Reciprocal models

(b) The Multiple Linear Regression Model (MLRM)

Multiple Regression Analysis, Difference between simple and multiple regression analysis, Interpretation of multiple regression function, Multiple Regression Analysis: Estimation, OLS estimation of multiple regression equation, Standard error of partial regression coefficients,

Properties of OLS estimators, Coefficient of determination (R^2), R^2 and Adjusted R^2, Multiple Regression Analysis: Inference, Test of individual significance (t-test), Test of overall significance (F-test) Multiple Regression Function: Extensions, Testing the equality of parameters, testing linear equality restriction, testing for structural stability of regression models: The Chow test

Deviation from the Classical Assumptions:

Assumptions of the classical model and economic reality, Relaxation of the assumptions and estimation issues, Brief introduction to the nature of problems and alternatives.

(i) Multicollinearity:

Linear relationship between any two explanatory variables, Nature and severity of the problem, OLS estimation of regression equation in the presence of perfect multicollinearity, Causes of multicollinearity, Distinction between perfect and partial Multicollinearity, Detection of the problem and remedial measures.

(ii) Heteroskedasticity:

Meaning of Heteroskedasticity, The nature of the problem with reference to economic theory, Cross-section data and the problem of non-constant variances, Consequences for OLS estimators, Detection of the problem and remedial measures in brief, Introduction to the Generalized Least-Squares model (GLS).

(iii) Autocorrelation:

Autocorrelation and its causes, Time-series data and emergence of the problem with reference to economic theory, Serial Correlation, The AR(1) process, Consequences of Autocorrelation for OLS estimators, Detection of the problem and remedial measures

Recommended Texts:

1. Gujrati, D. J. - Basic Econometrics – 4th Edition (2003) McGraw-Hill Company.
2. Maddala, G.S. – Econometrics - (1988) – McGraw-Hill Company.
3. Koutsoyiannis, A.- Theory of Econometrics - 2nd Edition (1977) - McMillan.

Additional Texts:

1. Dougherty, Christopher – Introduction to Econometrics – 2nd edition (2002)

Oxford University Press.

2. Wonnacot&Wonnacot –Econometrics – 2nd Edition (1970)-John Wiley, New York.

3. Pindyck & Rubinfeld- Econometric Models & Economic Forecasts- 3rd Edition (1992)-McGraw Hill Inc.

4. Stock H. J. and M. W. Watson (2003), *Introduction to Econometrics*, India: Pearson Education.

5. Stewart G. K. (2005), *Introduction to Applied Econometrics*, United States of America: Curt Hinrichs.

Rev No. **00**	Course Code: **ECO 603**	Credit Hours: **3-0**

HUMAN RESOURCE DEVELOPMENT

Course Objectives:

This course examines the role of the human resource professional as a strategic partner in managing today's organizations. Key functions such as recruitment, selection, development, appraisal, retention, compensation, and labor relations are examined. Implications of legal and global environments are appraised and current issues such as diversity training, and rising benefit costs are analyzed. Best practices of employers of choice are considered.

Course Contents:

- **Introduction and Basic Concepts**

Basic Concepts, Meanings and Definitions of HRD by various Economists. Human Capital Formation and HRD. Significance of HRD towards economic development. Brief Historical background of HRD. Theories of HRD by T.W. Schultz, Kuznets and modern economists. Factors of HRD. Education, Science and Technology as factors of HRD, its role in HRD, Social and Economic rate of return to Education

- **HRD and Needs.**

Food, Health, Nutrition and Clean drinking water as factor of HRD. Its impact on HRD. Training and Skill development a component of HRD, its various forms and role in HRD.

- **Migration: Needs and Impacts.**

Migration, its kinds and causes, impact on HRD, Brain Drain problem in LDC's, its impact on economy, migration of labour force, remittances and its impact on HRD and economic development.

- **WTO and Labor Migration**.

Information, Globalization, WTO and their impact on HRD. Significance of information in HRD.

- **Manpower Planning & Forecasting Labor**

Concept of Manpower planning, its importance, factors and other allied concepts, stages of Manpower planning, forecasting of labour force in LDC's with special reference to Pakistan

- **Women and Development**

Role of Women in HRD, Female Labour force participations rate, Development of women for HRD, Development of HRD factors in women. Earning of women and economic development Policies / Suggestions to develop the women in Pakistan.

- **LIMS and Labor Issues in Pakistan**

Population profiles in Pakistan. Its salient features, its role in economic development and rate of return to education in Pakistan. Measures to improve the education for HRD in Pakistan, Poverty, Unemployment in Pakistan. Labour force market information (LMIS) in Pakistan. Mismatch between the supply and demand of Labour forces in Pakistan and policies for improvement the population for HRD. Analysis of the efforts regarding HRD in Pakistan, its implications and suggestions to improve HRD in Pakistan. A comparative Study of HRD in Pakistan with other LDCS

Recommended Texts:

1. Chaudhary M. Aslam and Hameed, A., 1989, Human Development in Pakistan, Feroze Sons, The Mall, Lahore, Pakistan
2. UNDP, (Various Issues), Human Development Reports
3. Ali, Karamat, 1998, Political Economy of Human Resource Development, Feroz Sons, The Mall, Lahore
4. HDC, Various Issues, Human Development in South Asia, Oxford, Islamabad Pakistan.
5. Khilji, Bashir Ahmad (2005) 50 years of Human Resource Development in Pakistan, Shaheen Publishers, Faisalabad, Pakistan.
6. Kamal A. R, Human Resource Development in Labour Surplus Economies PDR, PIDE, Islamabad.
7. Schultz. T.W. 1961 Investment in Human Capital American Economic Review, Vol.51 USA
8. PIDE, 1999, Education and Earnings in Pakistan (Research Report No.177, Islamabad, Pakistan)
9. Kuznets S., Human Capital and Development Issues.
10. Federal Bureau of Statistics, 50 years of Pakistan, Islamabad
11. Ministry of Finance, Economic Survey (Various Issues) Islamabad

Rev No. **00**	Course Code: **ECO 604**	Credit Hours: **3-0**

RESEARCH METHODOLOGY

Course Objectives:

The course will familiarize the students with the methodology by which economists conduct research, with an emphasis on the development of an effective research question and strategies for identifying relevant scholarly literature. Students will learn how to read theoretical and empirical research papers that contain mathematical exposition. The course will also provide students with an understanding of where and how to collect data used in economic analysis, and the limitations that the use of data imposes on economic inference.

Course Contents:

Importance of Research Methodologies. Research techniques in social sciences and their limitations. Theory and basis of research. Empirical and theoretical research. Stages of research process. Identification of problem/issue, data, theory and estimation and related problems. Thinking, Field Research Designs; the process of field research, Exploratory Research, Casual Inference. Methods of communication in survey. Vision survey and communication techniques. Art of asking questions and getting quality information. Preparation of Research Proposal Questionnaire, Sample Design; the Nature of Sampling, Measurement and Scaling; Measurement, Measurement Scales, the Characteristics of Sound Measurement, the Development of Measurement Tools, Scaling, the Nature of Scaling, Response Methods, Scale Construction. Data Collection Methods, Survey Instruments and Field Procedures; Survey Instrument Designs, the Survey Situations, the Instrument Development Process, Questionnaire Development, Field Procedures, Personal Interviewing, Telephone Interviewing, Interviewing by mail, observations. Data collection, Observation, Experimentation and Simulations; Experimentation and Simulation. Choice of Research Technique, Experimental Research Design, Simulation, Observation, Observation Designs. Use of Secondary Data; the Nature of Secondary Data Sources, the Use of Secondary Data, Types of Secondary Data Sources, Statistical Sources, Data Research Procedures, Evaluating Secondary Data. Vision Survey: Interpretation of Replies. Data Presentation and Analysis: Elements of Analysis, Data Preparation, Special Data Problem,

Tabulation, Data Presentation, and Data Analysis. Report Writing; the Questions and analysis of Research Proposal. Organization of Research Paper. How to format and Write country Research Report. Executive summary and abstract of a report. Conclusion and its basis. Evaluation of Research Work. The Research Report, Research Report Format, Writing and editing of research Report.

Recommended Texts:

1. Holt, Rinehart and Winston, Holt-Sounders Japan Ltd. Tokyo (Latest edition).
2. Johnson, Glenew Research Methodology for Economists: Philosophy and Practice, McMillan Publishing Co. (Latest edition).
3. Kidder Louise H., Research Methods in Social Relations.
4. Lambert, P., (1985) Advanced Mathematics for Economists. Static and Dynamic Optimization, Basil Black Well.
5. Neuman W. Lawrence, (1997) Social Research Methods, Qualitative and Quantitative Approaches, Allyn and Bacon; Boston.
6. Sckaran Business Research Methods
7. Uma, Sekarn, (1992), Research Methods for Business. A Skill Building Approach, John Willey & Sons, Inc.
8. Young Pauline V., (latest edition), Scientific Social Survey and Research, Prentice Hall Inc.
9. Zikmund William, G., (1994), Business Research Methods, The drydem Press.

Rev No. **00**	Course Code: **ECO 605**	Credit Hours: **3-0**

INDUSTRIAL ECONOMICS AND PUBLIC POLICY

Course Objectives:

The course analyzes the problems of the real economy that cannot be described within the framework of a classical economic theory that is taught by traditional microeconomics and macroeconomics. This course will cover all the three main fields of industrial organization theory: the theory of a firm, the theory of imperfect competition, and the theory of economic regulation.

Course Contents:

- **Theory of a firm**

What is the firm and why is it organized? A firm as an alternative to a market. Transaction costs theory explaining appearance of firms. Production scale, specialization level and advantages of firms as a means of production.

Hierarchical firm structure and its efficiency. Optimal size of a firm (of a number of hierarchical levels). Hierarchical firm structure under oligopoly.

- **Consumer Surplus and Public Welfare**

Estimation of public welfare within the framework of partial equilibrium analysis. Quasilinear utility function and measure of public welfare. Compensated and equivalent variations. Public welfare and Hicksian and Marshallian demand functions. Consumer surplus as an approximate measure of public welfare.

- **Economic Theory of Bundling**

Bundling as a marketing tactics. Price discrimination and bundling. Heterogeneous consumers. Pure components strategy, pure bundling strategy, and mixed bundling strategy. Superiority of mixed bundling relative to pure bundling. Conditions for mixed bundling strategy to be dominant over pure components strategy. Independent distribution of reservation prices. Homogeneous consumers. Commodity bundling and consumer surplus.

- **Mergers and Acquisitions**

Horizontal Mergers and Acquisitions

Types of mergers and acquisitions: horizontal, vertical, conglomerates. Examples of mergers and acquisitions within the last decade. Mergers of firms with identical production costs.

Condition of a merger profitability. Mergers of firms with differing production costs. Reaction of a firm to a change in output by all other firms on the same market. Condition of industry output increase, resulting from a merger.

Horizontal mergers and public welfare. Herfindal-Hirshman index as a measure of public welfare. Condition under which horizontal merger results in higher public welfare.

Vertical Mergers

Effect of a vertical merger on output of final and intermediate products. Vertical mergers and market foreclosure. Vertical mergers and profits of integrated and unintegrated firms.

- **Product Differentiation**

Location Models

Linear city, linear transportation costs. Quadratic transportation costs. Stability of equilibrium states. Circular city. Welfare implications.

Differentiated Goods, Increasing Returns to Scale, and Monopolistic Competition

Markets for differentiated goods. The problems solved by consumers and producers. Market equilibrium under free entry conditions. Effects of fixed costs and market size on product diversity and output.

- **Industrial Agglomeration**

Phenomenon of industrial agglomeration. Increasing returns to scale as a driving force of agglomeration. External and internal mechanisms of increasing returns to scale. The role of transportation costs. A simple model of industrial agglomeration: two regions, two production factors (perfectly mobile workers and immobile farmers). Competition and market size – the main factors affecting the process of industrial agglomeration. Effects of transportation costs, fixed costs, a share of immobile factor on industrial agglomeration. Stability of distributed and agglomerated equilibria. Multiple equilibria and hysteresis.

- **Economics of Innovations**

Model of the innovation process. Patent race. Market structure and innovation efforts. Incentives for innovations. Socially optimal and market investments into R&D. Patent life.

- **Imperfect Competition and Macroeconomics**

Theories of business cycles. Increasing returns to scale and stability of economic equilibrium. Price rigidity as a source of business cycles. Explanations of price rigidities:

kinked demand curve, menu costs. Market monopolization and price rigidity. Small menu costs and large business cycles during economic booms and busts.

Externalities, corrective taxes, and market structure. Possibility of a negative effect of Pigou tax on public welfare under monopoly.

- **Theory of Regulation**

Public costs of monopoly. Subadditivity of cost function – a necessary and sufficient condition for a natural monopoly. Economy of scale, concavity of a cost function and subadditivity. Stability of a natural monopoly.

History of regulation after World War II. When should natural monopolies be regulated? Demsetz competition for a market. Contestability of a market. Deadweight losses, sunk costs and regulation. Regulation under complete information. Price discrimination and nonlinear tariffs as a means of increasing efficiency of a regulated monopoly. Peak-load pricing. Regulating monopoly under asymmetric information. Exogenous mechanisms of regulation. Averch-Johnson model. Endogenous mechanisms of regulation. The delegation and revelation approaches.

- **Analysis of Particular Industries and Enterprises.**

Airlines

Effects of deregulating air companies. "Hub and Spokes" system and its efficiency.

Theatres and restaurants

Why in developed market economies there are queues in theatres, restaurants, etc.? Network externalities in services consumption and nonmonotonicity of demand function. Instability of equilibrium, corresponding to profit maximization, and limitedness of prices and supply of services.

- **Economics of Show Business**

Why relatively small number of people in show business, sports, book publishing, etc. earn a lot of money and dominate on markets? Effect of imperfect substitution: lesser talent is a poor substitute of larger talent. Dependence of demand function on quality. Increasing returns to scale in show business production. Demand and supply structure. Market equilibrium. Convexity of revenue function, depending on talent. Continuous distribution of performers on talent, and rent dissipation. Outstanding performer and rent value.

Recommended Texts:

1. Adams W.J., and J.L. Yellen, 1976, "Commodity Bundling and the Burden of Monopoly", Quarterly Journal of Economics, vol. XC, 475-498.
2. Averch H., and L.L. Johnson, 1962, Behavior of the Firm under Regulatory Constraint, American Economic Review, vol. 52, 1052-1069.
3. Baron D., 1989, Design of Regulatory Mechanisms and Institutions, in R. Schmalensee and R.D.
4. Willig eds.: The Handbook of Industrial Organization, Elsevier North-Holland.
5. Baumol W.J., J.C. Panzar, and R.D. Willig, 1982, Contestable Markets and the Theory of Industry Structure, New York: Harcourt Brace Jovanovich.
6. Becker G., 1991, A Note on Restaurant Pricing and Other Examples of Social Influences on Price, Journal of Political Economy, vol. 99, 1109-1116.
7. Braeutigam R., 1989, Optimal Policies for Natural Monopolies, in R. Schmalensee and R.D.
8. Buchanan J.M., 1969, External Diseconomies, Corrective Taxes, and Market Structure, American Economic Review, vol. 59, 174-177.
9. Coase R.H., 1992, The Institutional Structure of Production, American Economic Review, vol. 82, 713-719.
10. Farrel J., and C. Shapiro, 1990, Horizontal Mergers: An Equilibrium Analysis, American Economic Review, vol. 80, 107-126.
11. Krugman P., 1991, Geography and Trade, The MIT Press.
12. Krugman P., 1991, Increasing Returns and Economic Geography, Journal of Political Economy, vol. 99, 483-499.
13. Krugman P., 1995, Development, Geography, and Economic Theory, The MIT Press.
14. Loury G.L., 1979, "Market structure and Innovation", Quarterly Journal of Economics, vol. XCIII, No. 3, 395-410.
15. Mankiw G., 1985, Small Menu Costs and Large Business Cycles: A Macroeconomic Model of Monopoly, Quarterly Journal of Economics, vol. 100, 529-537.
16. Martin S., 1993, Advanced Industrial Economics, Blackwell.

17. McAfee R.P., J. McMilan, M.D. Whinston, 1989, "Multiproduct Monopoly, Commodity Bundling, and Correlation of Values, Quarterly Journal of Economics, vol. CIV, 371-383.
18. Posner R.A., 1975, The Social Costs of Monopoly and Regulation, Journal of Political Economy, vol. 83, 807-827.
19. Rotemberg J.J., and G. Saloner, 1987, The Relative Rigidity of Monopoly Pricing, American Economic Review, vol. 77, 917-926.
20. Salant S.W., S. Switzer, and R.J. Reynolds, 1983, Losses from Horizontal Merger: The Effects of an Exogenous Change in Industry Structure on Cournot-Nash Equilibrium, Quarterly Journal of Economics, vol. 98, 185-199.
21. Salinger M.A., 1988, Vertical Mergers and Market Foreclosure, Quarterly Journal of Economics, vol. 77, 345-356.
22. Shy O., 1995, Industrial Organization, The MIT Press.
23. Tirole J., 1988, The Theory of Industrial Organization, The MIT Press.

Rev No. **00**	Course Code: **ECO 606**	Credit Hours: **3-0**

MAJOR ISSUES IN PAKSIATN ECONOMY

Course Objectives:

This course is designed to provide students with critical information and knowledge about Pakistan economic environment. Important components which contribute to the development and progress of the economy of country are included here. The students are expected to learn about the current economic condition of Pakistan and also to develop analytical thinking about future. Since the topics discussed have both descriptive and quantitative approach students will be beneficial from both angles.

Course Contents:

- **Overview of Pakistan Economy**

Development Experience, Approaches, Policies and Outcomes. Identification of Issues: The era of 1950's, 1960's, 1970's, 1980's 1990's and 2000's. Structural Change and Sources of Growth. Emergence of Economic Issues, Human Resource Development, Unemployment, Poverty, Income Distribution, Debt, Deficit etc. Growth with limited development in Pakistan.

- **Development Planning and Resource Mobilization**

Agricultural Development Policies and Priorities, Major Targets of Develop Plans and Emerging Issues; Neglects and Successes: Mobilization of Domestic Resources; Shortages, Deficits and Role of Foreign Aid. Agricultural Vs. Industrial Development Debate. Agricultural Adequacy.

- **Agriculture and Industrial Development: Emerging Issues**

Pattern of Agricultural and Industrial Development, Land Reforms and Its Impacts, the Role of Green Revolution and its Impacts: Present Status. Agricultural Price Policy and Income Tax. Sectoral Terms of Trade. Industrial Development Policies and Strategies. Development of Large and Small Industries. Value Added: Manufacturing Goods Vs. Primary Goods Production. Agriculture Vs. Industry: Development Debate.

- **Sectoral Development, Employment Pattern and Unemployment**

Sectoral Priorities and Development Issues. Human Resource Development and Emerging Issues: Population Growth, Labor Force Participation Rate and Employment Pattern,

Unemployment and Underemployment, Forecasting Manpower Needs and Employment. Strategies to combat unemployment. Criteria to Measure Unemployment / Underemployment: Time Criterion, Productivity Criterion and New Index of Unemployment: Application to Pakistan and Empirical Evidences. Good Governance, Social Action Plan and its Impact. Role of Institution in Development. Social Sectors development Vs. High Return Sectors: Growth trade off.

- **International Debt and Dependency**

Concepts of Foreign Aid and Debt. Borrowing Vs. Domestic Reserve Mobilization (failure). Size of Foreign Debt, Debt Saving and its Impacts. Strategies to combat with High Debt: Saving Policy, Foreign Trade Promotion, Cutting non-development Expenditures, Rescheduling and its Impacts. Debt Management in Pakistan and Its Impacts. Debt Modeling and Future Implications.

- **Poverty and Income Distribution**

Pattern of Income Distribution: Rural and Urban. Definitions and Approaches to Measure Poverty: Income Approach, Expenditure Approach, Basic Needs Approach, Poverty of Participatory Index (POPI). How to Combat Poverty; Growth Strategy, Basic Needs, Labor Intensive Investment: Education / Training etc. and Social Action Plan (SAP) , its Role and Critical Review, Evasion of Policies / Strategies to Combat

Poverty and Improving Income Distribution: Critical Evaluation. Neglect of Human Resource Development. Child Labor. Factors Productivity Issues.

- **Inflation, Foreign Trade Deficit and Emerging Issues**

Sources of Inflation in Pakistan. Policies to Combat Inflation and their Impacts.

Trade Performance, Instability and its Impacts. Pakistan major exports and imports, and its composition and direction. Trade policy of Pakistan, Policies to Combat Deficit and Trade Instability. WTO and Its Impacts. Reforms and Further Needs. Expected Impacts of WTO and Challenges. Terms of Trade Issues, Market Access and Health Related Rates.

Recommended Texts:

1. Zaidi, Akbar, (1999), Issues in Pakistan Economy, Oxford Univ., Press, Karachi.
2. Aslam M., Perspective on Development Planning In Pakistan, Allied Book Centre, Lahore, 2001-2002.

3. Chaudhary M. Aslam and Ahmad Eatzaz: Globalization, WTO and Trade Liberalization in Pakistan, FerozSons, Lahore (2004).
4. Chaudhary M. Aslam, Human Resource Development and Management in Pakistan, Ferozsons, Lahore (1989).
5. Khan, Shahrukh R., 50 Years of Pakistan's Economy – Traditional Topics and Contemporary Concerns. Oxford Univ. Press, Karachi (2000).
6. Mahbool-ul-Haq Centre for Human Development (MHCHD), Poverty Profile of Pakistan, (1989) Oxford University Press.
7. Human Development In South Asia, Annual Report.
8. Saeed, Khawaja Amjad, The Economy of Pakistan, Karachi: Oxford University Press, 2004.
9. World Development Reports, World Bank.

Rev No. **00**	Course Code: **ECO 607**	Credit Hours: **3-0**

PROJECT APPRAISAL AND INVESTMENT ANALYSIS

Course Objectives:

This course aims at contributing to the comprehension of Project and Investment Appraisal fundamental principles and to the way these principles have been applied on planning, programming and management of private and public Projects and Investments. The course focuses on describing and analyzing Project and Investment outlining, Project Objectives and Identification, Mathematical methods in economics and Finance and Project Financial Analysis. Even, it outlines the methodologies of evaluation approaches and project risk assessment and the relationships between investment and regional or urban development are analyzed. Moreover, project analysis by sector is presented and characteristic exercises and case studies are discussed. The course contains a series of exercises regarding the implementation of methodologies presented in the theoretical part. The exercises target at simulating real-world problems and, thus special attention is paid to project size issues. In this way, students can become effectively familiar with reality and get the sense of project or investment appraisal, project programming and planning.

Course Contents:

- **Introduction**

Meaning of Project Appraisal, usefulness and significance, Aspect of project appraisal with a special focus on economic versus financial analysis, Contours and Dimensions of a project and its essential ingredients, Project Vs. Plans. Project Cycle.

- **Identify Project Benefits and Costs**

Objectives of Costs and Benefits, The Incremental / Net Benefits and "With" and "Without" Comparisons. Categories of Costs and Benefits.

- **Pricing Project Costs and Benefits**

Prices reflecting values, Market price and financial analysis, Finding market prices and related problems, Change in relative prices and inflation: Shadow Prices and economic analysis, Removal of market price distortions in traded and non-traded goods. Premium on foreign exchange through use of Shadow exchange rate and conversion factor approach.

- **Comparing Project Costs and Benefits (Measuring of a Project Worth)**

Undiscounted measures of project worth, Discounted measures of NPV, IRR, BCR, Net benefit – Investment Ratio, Comparative assessment of discounted measures. Social vs. Economic benefits and selection of projects.

- **Applying Discounted Measures of Project Worth**

Sensitivity analysis, Switching value, Choice among mutually exclusive alternatives, Domestic resource cost of foreign exchange earning / saving.

- **Cost Effectiveness Analysis**

Areas and elements of analysis, Methods of analysis: Constant Effect Method, Constant Cost Method, Measuring of cost effectiveness, Present Worth, Annual Worth, Cross over discount rate, Limitation of analysis.

- **Financial (Investment) Analysis**

Theoretical and empirical examination and saving and investment, Concept of capitalization types of securities, non-banking financial institution. Development financing, Asset Structure, Stock Prices, Money Market, Portfolio Theory and Investment Analysis. Financing theindustrial sector; Large scale and small scale, Interest rate. Bond market, Real and financial investment. Financial intermediaries; Speculation and Inter – relationship of financial and real variables in the economy.

Recommended Texts:

1. Hughes, A., & D.J. Storey: "Finance and The Small Firm" (Ed) Routledge, London, (Latest).
2. Burno Solnik: "International Investments" 3rd Ed. Addison, Wesley publishing Co. (Latest).
3. Donald, E., Fischer, Arnold, J., Security Analysis and Portfolio Management. Prentice Hall, Delhi, (Latest).
4. Edwin J., Elton and Martin J. Goober, Modern Portfolio Theory and Investment Analysis, John Wiley and Sons (Latest).
5. Gittinger J. Price, "Economic Analysis of Agricultural Projects", The Johns Hopkins University Press, London, Dec. (Latest).
6. Hughes and Storey D.J., Finance and Small Firms, RoutLedge, London (Latest).

7. Hussain, Ch. M: "Project Appraisal, Monitoring and Evaluation Process with Special Reference to Pakistan" Royal Book Co. Karachi, (Latest).
8. United Nations: "Guide to Practical Project Appraisal – Social Benefit – Cost Analysis in Developing Countries." Oxford & IBH publishing Co. New Delhi. (Latest).
9. William F. Sharpe &Gorden J., "Investments" 5th Ed., Prentice Hall, (Latest).
10. ZviBodie, Alex Kane, Alan K., Essentials of Investment, McGraw Hill, (Latest).

SEMESTER - IV

Rev No. **00**	Course Code: **ECO 602**	Credit Hours: **3-0**

ECONOMETRICS-II

Course Objectives:

This course follows up the data analysis and data estimation techniques included in Econometrics I. The major objective of this course is to enable the student for competing in a job market where positive analysis is increasingly becoming subject to highly intensive and extensive analytical formulations, largely owing to the unprecedented and remarkable development in information technology. The main contents of the course include panel data estimation techniques, identification problem and dummy on dependent variable, the Logit/Probit model. Hence, this course is designed for senior undergraduates more inclined towards quantitative studies. The objective is to enable the students dive deep into complex problems of the real world economic life. The students have to learn certain computer packages like SPSS, E-views and STATA besides Excel.

Lab work: The students are required to devote at least two hour per week to computer laboratory. They have to attend classes to learn various Econometrics softwares for practical application of Econometric models they have learnt so far.

Course Contents:

- **Matrix Approach of the Classical Linear Regression Model:**

The multiple regression (K-variable) model in matrix format, Assumptions of the model, The Least-Squares estimation procedure in matrix notation, Properties of the OLS estimators, Interpretation of the Beta coefficients (β1, β2,…., βk), Hypothesis testing using matrix approach, Forecasting in OLS model, OLS estimation: variance-covariance matrix of estimators, Coefficient of determination, R^2, in matrix notations, Correlation matrix

- **Dummy Variable Regression Models:**

Nature of dummy variables, ANOVA models with qualitative variables, Regression with dummy dependent and independent variables, Technical aspects of the dummy variable.

- **Econometric Modeling: Model Specification:**

Model selection criteria, Types of specification errors, Consequences of model, specification errors, Tests of specification errors, Errors of measurement, Model selection criteria, Endogeneity: where X is not fixed in repeated sampling, Nature of Endogeneity, OLS estimation in presence of Endogeneity, Detection of Endogeneity, BLUE estimator in the presence of Endogeneity, Consequences of Endogeneity in OLS estimation, Remedial measures.

- **Pool the Cross-sectional and Time-series Data:**

Why panel data regression models, Estimation of pool data regression models, Common

intercept method, Fixed effects model, Least Square Dummy Variables Approach, Random effects model, Generalized Least Square Approach, Fixed effects model vs. random effects model, Hausman Specification Test.

- **Simultaneous Equation Models & Estimation Methods:**

Simultaneous equation models, Nature of simultaneous equations, Examples of simultaneous equation models from economic theory, Inconsistency of OLS estimators, Identification problem, Notations and definitions, Unidentified, exactly identified and over identified, Rules for identification, Simultaneous equation approaches to estimation, Method of indirect least squares (ILS), Method of two stage least squares (2SLS), Instrumental Variable approach to 2SLS, Seemingly unrelated equations (SUR), Nature of SUR equations, Method of GLS, Equations having characteristics of simultaneity and SUR, Three stage least squares technique (3SLS), Full information maximum likelihood estimation (FIML)

- **Time Series Econometrics:**

Concept of Stationarity, Tests of Stationarity, Unit Root test, Transforming Non-stationary Time Series, ARMA and ARIMA Models, Comparison of forecast based on ARIMA and regression models, Cointegration and Error Correction Mechanism (ECM), ARCH models

Recommended Texts:

1. Stock H. J. and M. W. Watson (2003), *Introduction to Econometrics*, India: Pearson Education. Latest edition
2. Gujrati, D.J. - *Basic Econometrics* (2003)- McGraw Hill Company. Latest edition
3. Jeffrey M. Wooldridge J. M., (2001) "*Econometric Analysis of Cross Section and Panel Data*",The MIT Press, Latest edition
4. Dimitrios A. (latest edition), "*Applied Econometrics: A Modern Approach using Eviews and Microfit*", Palgrave, Macmillan

Additional Texts:

1. Johnston, J & John Dinardo- *Econometric Methods* – (1997) The McGraw Hill Companies, Inc, Singapore. Latest edition
2. Greene W. H (latest edition), *Econometrics Analysis*, Pearson Education, Inc
3. Intrilligator, M - *Econometric Models: Techniques and Applications*- N. J. Prentice Hall, (Latest edition).
4. Judge, George G. et al - *The Theory and Practice of Econometrics*-(1988), John Willey and Sons.
5. Maddala, G.S. & Kim –*Unit Roots, Co-integration and Structural Change* - (1998)

Rev No. **00**	Course Code: **ECO 608**	Credit Hours: **3-0**

INTERNATIONAL ECONOMICS

Course Objectives:

The objectives of the course are to provide an understanding of the determinants of international trade, including the implications of imperfect competition in international markets, the cases when a protectionist policy towards international trade may be appropriate; the fundamental determinants of the balance of payments and exchange rates; the theory and evidence relating to exchange rate behaviour and to alternative exchange rate arrangements and the international context within which domestic macroeconomic policy is designed and conducted; international macroeconomic linkages; and the importance of international macroeconomic policy coordination

Course Contents:

- **Importance and Bases of Trade**

Why Study International Economics? The Changing World and Interdependence: Basis of Trade, Gains from Trade. Absolute Advantage, Comparative Advantage, Overview of Comparative Advantage and Pattern of Trade. Offer Curves and Free Trade Equilibrium. Disagreements on Free Trade: Overview of Emergency of International Trade Issues. The Elasticity of Exports Demand and Balance of Payment. Substitution and Income Effects, Impacts of Rise in Exports Demand.

- **Growth and Trade**

International Trade and Shift in Production Function, Immerizing Growth, Output Growth and Terms of Trade (T.O.T) / Deterioration: Uniform Growth at given T.O.T. The Transfer Problem: Marshall Plan and Transfers, Transfer of Resources: Neutral Case.

- **Technology and Factor Endowment**

Ricardian Trade Model, World Production and Gains. Comparative Cost and Trade Pattern. National and World Gains from Trade. International Wage differentials and Productivity. Technical Progress and International Gains. WTO and Gains from Technical Progress: Impacts on Prices. Equilibrium Production and Consumption: Non-traded and Tradable, Costs, Marginal Physical Product and Production Possibilities. Production Possibilities with

Diminishing Returns, Increasing Opportunity Cost. Free Trade and Income Distribution, Relative Demand, Supply and Pattern of Trade. Dutch Disease and its application.

- **Factor Endowment and Heckscher – Ohlin Theory**

Output and Factors Rewards in 2*2 Model. Factor Intensity Comparison. Heckscher- Ohlin (H.O) Model, The Role of Demand, Factor's Prices and Commodity Prices, Factor Price Equalization, and Factor Intensity Reversal. Newly Industrializing Countries (NIC's) and Footloose Production Process. NIC's and H.O Theorem. The Product Cycle, Critical Analysis of Traditional Trade Theories. Rybescky Theorem and its critical review.

- **Markets, Cartels and International Trade**

Monopoly and Import Competition, Export Opportunities. Product Differentiation and Monopolistic Competition. Dumping / Discrimination and WTO, Competitiveness and Market Share, Gains from Migration. WTO and Factor's Movements and the Commodity Movement.

Multinationals Firms and Foreign Direct Investment, Transfer of Capital, Technology, Skill and other Gains, Transfer of Resources and Transfer Problem.

- **Tariff, Quota, Trade Policies and WTO**

Tariff and Small Country: Effects of Tariff, Price and Demand for Imports, Welfare impacts. Impacts of Tariff on Government Revenue, T.O.T Production and Welfare. Impact of Tariff on Domestic and World Welfare. The Optimal Tariff. Tariff and Distribution of Income. Brief Introduction of Tariff and WTO Laws, Tariff and Second Best Choice, Subsidies and Quota, Voluntary Quota, Growth with Protection vs. Free Trade Gains and WTO.

Managed Trade, Quantitative Restrictions, Voluntary Export Restrictions and Their Impacts. Trade Diversion and Preferential Arrangements. WTO: Injury, Anti-dumping Duties, Tariff and B.O.P Support. Success and Failure of WTO Agenda. WTO Rules: Sanitary, Phytosanitary, Dumping, Anti-Dumping etc Rules and Emerging New Issues and Their Impacts.

- **Major Contemporary International Economic Issues:**

WTO: GATT and Emergency of WTO. Why necessary to Join WTO? WTO: Major Trade Rules and Their Expected Impacts on Trade, B.O.P Deficit. WTO and Fair Trade / Free Trade. Free Trade will it be? Issue of "Are Free Trade Gains more than Restricted Trade"? Emerging Regional Trading, Blocks, Special Preference and their Impacts. Issues relating to

the Contributions of International Financial Institutions and Their Evaluations. Is there need to Reform International Institutions?

Monetary Integration and Their Impacts. Terms of Trade Issue.

Recommended Texts:

1. Caves Richard, E., and Jones Ronald W., World Trade and Payments: An Introduction, Latest Editions. Little, Brown and Company, Boston, Toront. Latest edition..
2. Chacholiades, Miltiades, International Trade Theory and Policy (Latest Edition). McGraw Hill Book Company, New York, London, Latest edition.
3. Donomick Sal Vatore B., International Economics (Latest Edition), Prentice Hal, Latest edition.
4. Grubel Herbert C., International Economics, (Latest Edition) Richard D. Irwin Inc., Honewood, Illinois.
5. Peter Holinder& Thomas A., Pugel., International Economics. Latest edition.
6. Sodersten B. and Geoffry Read., (1994). International Economics, MacMillan Press Ltd. Latest edition.
7. The Global Competitiveness, Report 1999, World Economic Forum, Oxford University Press, Oxford, New York.
8. World Bank. World Development Report, 1986. Oxford University Press.
9. Baldwin Robert L. and Richardson David J., (1986). International Trade and Finance, Little Brown and Company, Boston, Toronto.
10. Krugman and Obstfeld, International Economics: Theory and Policy, Addison Willey (1998).

Rev No. **00**	Course Code: **ECO 609**	Credit Hours: **3-0**

ENVIRONMENTAL ECONOMICS

Course Objectives:

The protection and sustainable management of the natural environment is an area of growing concern across the globe. It is widely recognized that most environmental problems, whether small-scale or global, are the result of a complex interaction of natural processes with economic forces and decisions. The course examines the continuing conflict between market forces and environmental integrity and explains how economic theory views the relationship between economic activity and the natural world. Examples of local, regional, national, and international issues are presented and discussed. The course will give students an opportunity to develop a critical understanding of the different ways in which economic decisions, market forces, and government policies can affect environment.

Course Contents:

- **Introduction and Awareness**

What is Economics of Environment. Historical Framework for Environmental Protection. Distinction between natural resource economics and environmental economics. The Economy and the Environment. First and the second laws of thermodynamics. The fundamental balance.

- **Analytical Tools: An Environment**

Supply and Demand Issue: Cost of Controlling Environment Benefit – Cost and its Estimation. Willingness to Pay. Equilibrium Principle Technology and Equi. Marginal Principles, Marginal Cost and Supply, Economic Efficiency and Markets. Equity and Social Efficiency. External costs and external benefits.

- **The Economics of Environmental Quality**

Pollution and Impacts on Human Life, quality of life and Environment Quality, General Models of Pollution Control. Emission Reduction and Equi. Marginal Principle. Long Run Sustainability through Pricing Mechanism.

- **Valuing the Environment and Benefit Cost Analysis**

Measuring environmental benefits: Contingent valuation, the travel cost method and the hedonic approach. Benefit Cost analysis: Costs: The value of life, health, safety and risk. Pigovian Analysis, The Coase Theorem.

- **Economic Development and the Environment**

General considerations, Environmental degradation in developing economies. Economy and Environment. The Pollution Haven hypothesis. The role of developed countries.

- **Environment and Pakistan**

Emergence of Environment Issue in Pakistan, Industrial Waste, Urban Waste and Agricultural Issues Related to Pesticides use, Salinity and Water Logging. Urban Environmental Issues. Public and Private Efforts to Improve Environment Quality and Impacts. Air pollution in Pakistan. Public Policies and Awareness to Control Pollution. Environmental Policy and Strategy in Pakistan

- **The Global Environment**

Ozone Depletion, The Economics of Global Warming. Keyoto – Protocol and Issues. International Environmental Agreements. UN and Environmental Cooperation. International trade and the Environment. Impacts of Awareness Policy.

Recommended Texts:

1. Field, B.C and M.K Field, Environmental Economics: An Introduction (3rd Edition) 2002 New York: McGraw Hill
2. Barry C. Field, Environmental Economics, An Introduction, McGraw Hill (Latest Edition).
3. Chapman, D. Environmental Economics: Theory Application and Policy, Latest eds. Massachusetts: Addison- Wesley
4. Hussen A. (2003), Principles of Environmental Economics, Routledge Publishers.
5. Baker S. Environmental Economics, (2003) Dominant Publisher and Distributors, New Delhi.

Rev No. **00**	Course Code: **ECO 610**	Credit Hours: **3-0**

APPLIED ECONOMICS

Course Objectives:

After studied this course students will not only learn the data analysis techniques, which will be very helpful in quantitative research in Economics, but also become skilled at the building of best econometric modelling which is the nitty-gritty for the students of Economics to carrying their research work.

Course Contents:

Introduction to MS Office, Composing Models and Mathematical Equations, graphs

- **PowerPoint and MS-Access (XP)**

Database Concepts, File Linkages, Data Retrieval, Data Editing / Updating. Data Transferring.

- **SPSS and E-View**

Menu, Tool Bars, File Linkages, Dialog Boxes. Data Analysis, Analysis of Variance. Simple and Multiple Regression Analysis, Formatting Reports, Creation and Modification of Chart, Line Area and Pie Chart. Output Navigator Printing, Data Editor Printing, Command Syntax Printing. Use of E-view for Model Estimation.

- **Estimation of Economic Relationships**

Use of Computer, SPSS, E-View, STATA to Estimate Production Functions.

Cob-Douglas Production Function, Constant Elasticity Production Function etc. Consumption Functions

- **Computer Applications: Demand – Supply & Equilibrium**

Estimation of Demand and Supply using E-View / SPSS. Aggregate Demand – Aggregate Supply and Equilibrium.

- **Model Building and Estimation**

Building Simple Econometric Models and Estimation. Single Equation Models, Multiple / Simultaneous Equation Model. Choose Best Econometrics Model Based on the Model Selection Criterion (Coefficient of Determination, Adjusted Coefficient of Determination, Mean Dependent Variable, S.D. Dependent Variable, S.E. of Regression, Sum of Squared Residual, Prob(F-statistic), Durbin-Watson statistic, Determinant residual covariance,

Maximum likelihood, Log likelihood, Avg. log likelihood, Akaike Information Criterion, Schwarz Information Criterion, Hannan-Quinn Information Criterion and Determinant residual covariance

- **Econometrics Analysis of Time Series Data (Use Eviews)**

Unit Root Test, Johanson Cointegration Test, Vector Error Correction Model & its diagnostic Test, VAR Model and Its diagnostic tests, Auto-Regressive Distribution Lag Model and its diagnostic tests, Forecasting Models-Autoregressive Models, Exponential Smoothing and ARMA & ARIMA Models. Forecasting Evaluations-Root Mean Squared Error Model, Mean absolute Error, Means-Abs percent Error, Theil Inequality Coefficient, Bias proportion, Variance proportion and covariance proportion

- **Econometric Analysis of Panel Data (Eviews)**

Pooled Regressions, LSDV Model, Random Effects Models, Hausman Test, Wald Test Diagnostic Tests: Redundant Fixed effect, Normality Tests, Cross-Sectional Dependence Tests, Panel Unit Root Tests, ARDL Model, Crosse-sectional Short Run Coefficients, Cointegrassion Regression.

Recommended Texts:

1. E-View Manual, (Learning help available with package (software)).
2. Gimi, Carter and Annette, Marquis, with Karl Browning, Mastering Microsoft Office XP Premium, Selection B.P.B., Publishers, New Dehli , (2001).
3. Robertson, D.F., Computer Applications and Programming, Har Brace Jovanovich

AGENDA ITEM – VI

Consideration & Recommendation for approval of Admission Criteria for M.Sc. Economics (2 years – 4 Semesters) Program

Eligibility Criteria for Admission in M.Sc. Economics:

Candidates holding Bachelor degree (BA/BSc/B.Com) or equivalent with Economics/ Statistics/ Mathematics as one of the subject in Bachelor level & at least 45% marks (2nd Division) from recognized university/institutions are eligible to apply.

Candidates need to appear in an entry test/interview conducted by the university.