ECONOMETRICS AND DATA MANAGEMENT

Semester I				
Course	**Code**	**Name of the paper**	**Hours**	**Credit**
Common I	A01	Common English Course I	4	3
Common II	A02	Common English Course II	5	3
Common III	A07(1)	Additional Language Course I	4	4
Core 1	ECO1 B01	Microeconomics I	6	5
Complementary (Type 1-Course I)	BCSDM1C01	Statistical Methods for Economics I	6	4
Ability Enhancement/Audit I	AUD1E01	Environment Studies	--	4
Total			25	23

Semester II				
Course	**Code**	**Name of the Course**	**Hours**	**credit**
Common IV	A03	Common English Course III	4	4
Common V	A04	Common English Course IV	5	4
Common VI	A08(1)	Additional Language Course II	4	4
Core 2	ECO2 B02	Macroeconomics I	6	5
Complementary (Type 2-Course I)		Basics of Computing and Data Management	6	4
Ability Enhancement/Audit 2	AUD2E02	Disaster Management	--	4
Total			25	25

Core Course 1

Course Category	Core Course 1
Course Title and Code	Microeconomics - I ECO1 B01
No. of Credits	5
No. of Contact Hours	6 Hours per week

MICROECONOMICS - I

At the end of this course students are expected to have the following course outcome,

No.	Course Outcomes	Cognitive Level
CO 1	Students explain what Economics is and explain why the subject is important	Explaining
CO 2	Students explain how economists use economic models	Explaining
CO 3	Students understand the scarcity and choice in the economy and the basic	Understanding
CO 4	Students explain and illustrate market equilibrium and disequilibrium.	Explaining & illustrating
CO 5	Students analyse how consumers maximize the total utility within a given income using the utility maximizing rule	Analysing
CO 6	Students describe how consumer's utility changes when income or price	Describing
CO 7	Students define the term production and explain what a production function is; define and differentiate between marginal, average and total	Defining & Explaining
CO 8	Students define and differentiate between different cost concepts and	Defining & differentiating

Module I: Exploring the Subject Matter of Economics

Why study economics? Micro Versus Macro- Concepts of wealth, welfare, scarcity and growth- The scope and method of economics- Induction and deduction-Positive and normative economics-Value judgments- scarcity and choice- the basic problems of an economy- Production Possibility curve- basic competitive model- economic systems.

Module II: Demand and Supply Analysis

Concept of Demand- Law of Demand- Determinants of demand - Types of Demand - Demand Function - Market Demand Curve - Elasticity of Demand - Price, Income and Cross elasticity of demand -Measures of Elasticity of Demand. Demand Forecast Meaning- Factors influencing demand forecast. Concept of Supply - Law of Supply - Determinants of Supply - Supply Function - Elasticity of Supply - Market Supply Curve -Market Equilibrium.

Module III: Theory of Consumer Behaviour

Utility Analysis - Cardinal and Ordinal approaches - Law of Diminishing Marginal Utility - Law of Equi-marginal utility, indifference curve, properties of indifference curves - Price (Budget) line - Equilibrium of the Consumer with the help of indifference curves - Price, Income and Substitution effect- Derivation of individual demand curve for normal good - Decomposition of Price effect into income effect and substitution effect - Hicksian and Slutsky's methods - Normal, inferior and Giffen goods - Application of Indifference Curves - Theory of Revealed Preference - Revealed Preference axioms - Consumer surplus - Marshall and Hicks.

Module IV: Theory of Production and Costs

Concept of Production - Production Function - Scale of production- short run versus long run production function- Law of Variable Proportions - Law of Returns to Scale - the Isoquant-Isocost Approach-producers equilibrium-expansion path- Internal and External Economies-Cobb-Douglas production function -Cost function and Cost concepts- Traditional theory of costs- Modern theory of costs.

References:

1. Dominick Salvatore (2003): Microeconomics: Theory and Applications-4th Edition, Oxford University Press.
2. Robert S Pindyck and Daniel L Rubinfeld (2009): Microeconomics- 8th Edition, Pearson India.
3. Watson and Getz (2004): Price Theory and its Uses- 5th Edition, AITBS Publishers and Distributors.
4. A Koutsoyiannis (1979): Modern Microeconomics- 2nd Edition, Macmillan.
5. Salvatore, Dominick. *Schaum's Outline of Microeconomics, 4th edition*. McGraw-Hill, 2006.
6. G S Madalla and Ellen Miller (1989): Microeconomics: Theory and Applications- Tata McGraw-Hill.
7. Robert Y Awh (1976): Microeconomics: Theory and Applications- John Wiley & Sons.

8. H.R Varian (2009), Intermediate Microeconomics- A Modern Approach., W W Norton & Co Inc; 8th edition

9. Gregory Mankiw (2006) Principles of Microeconomics, (Paperback) South Western Educational Publishing

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COMPLEMENTARY (TYPE 1-COURSE I)

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Course Category	Complementary (Type 1-Course I)
Course Title and Code	Statistical Methods for Economics I
No. of Credits	4
No. of Contact Hours	6 Hours per week

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Statistical Methods for Economics I

Syllabus

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Module I: Meaning of Statistics and Data Collection Methods

Definition- Scope and Limitations of Statistics-Primary vs Secondary data - Census Method vs Sample Method- Methods of primary data collection: Personal Interview, Questionnaires and Schedules - Methods of sampling: SRS, Systematic, Stratified, Cluster Quota and Snowball sampling methods.

Module II: Description of Data

Types of Data-Scale of Measurement- Measures of Central tendency- Arithmetic Mean, Median, Mode, Geometric Mean and Harmonic mean-Weighted and combined mean. Measures of Dispersion- Absolute and Relative measures of dispersion-Range, Quartile Deviation, Mean Deviation and Standard Deviation- Coefficient of variation Lorenz Curve- Gini Coefficient-Skewness and Kurtosis.

Module III: Correlation

Correlation-Meaning, Types and Degrees of Correlation- Methods of Measuring Correlation-Scatter Diagram and Correlation Graph- Karl Pearson's Coefficient of Correlation and Spearman Rank Correlation Coefficient - Properties and Interpretation of Correlation Coefficient.

Module IV: Index Numbers

Index Numbers- Meaning and Uses- Unweighted and Weighted Index Numbers: Laspeyre's, Paasche's, Fisher's, Dorbish-Bowley, Marshall-Edgeworth and Kelley's Methods- Tests of Index Numbers: Time Reversal and Factor Reversal tests -Base Shifting, Splicing and Deflating-Price Index Numbers-CPI and WPI-Stock Market Index.

Module IV– Applied Statistics Using MS Excel

Excel Basics- Cell References-Creation and Manipulation of Charts –Pareto Chart- Manipulation of data: Formulas and Formula Syntax -Functions - Function Library - Data Filter and Sorter – Analysing data with Pivot Tables (Sum, Count, Average and Grouping) – HLOOKUP and VLOOKUP Functions-Descriptive statistics and Correlation using Data Analysis ToolPack.

References

1. Anderson, Sweeney and Williams (2013), Statistics for Business and Economics, 12th Edition, Thomson Education.
2. Gupta S. P (2007), Statistical Methods, Sultan Chand and Sons, New Delhi.
3. Mann S Prem (2012), Introductory statistics, 8th Edition, John Wiley and Sons

Course Category	Core Course 2
Course Title and Code	Macroeconomics I ECO2 B02
No. of Credits	5
No. of Contact Hours	6 Hours per week

MACROECONOMICS I

At the end of this course students are expected to have the following course outcome,

No.	Course Outcomes	Cognitive Level
CO 1	Students appreciate the context in which Macroeconomics emerged as a separate discipline	Appreciating
CO 2	Students understand the concepts regarding macroeconomic model building.	Understanding
CO 3	Students understand and evaluate different concepts and measurements of national income	Understanding& evaluating
CO 4	Students explain how output and employment are determined in classical and	Explaining
CO 5	Students explain and analyse why actual output will fall short of the productive capacity of the economy.	Explaining & Analysing
CO 6	Students evaluate fiscal policies of Governments at different situations.	Evaluating
CO 7	Students understand and generalize the concept of money and money supply in	Understanding & Generalising

Module I: Introduction to Macroeconomics

Nature, scope and limitations of macroeconomics   - Macroeconomic model - Types   of variables: Stock and flow, endogenous and exogenous, ex-ante and ex-post - static, comparative static and dynamic - equilibrium and disequilibrium - Circular flow of income and output-national income and its measurement-Production approach, Expenditure approach, Income approach--Real and Nominal GDP.

Module II: Classical macroeconomics

Classical Economy - Say's Law of Market - Wage-price flexibility - Classical model of output and employment - Classical theory of price level determination - Quantity theory of Money - Fisher's Equation of Exchange - Cash Balance Approach - Neutrality of Money – Money

illusion-Classical dichotomy-Classical response to the Great Depression-Crisis in the discipline of Economics

Module III: Keynesian macroeconomics

Effective demand - Aggregate demand and aggregate supply - Consumption, Investment and Government Expenditure (C+I+G)- -Autonomous Consumption and Induced Consumption-Keynesian Consumption function-investment function-MEC and MEI- Sticky prices and wages-Assumption of fix price-Keynesian Cross model and determination of equilibrium output-Multiplier-Inflationary and Deflationary gaps-Fiscal Policy-Understanding fiscal policy using Keynesian Cross model-tax multiplier-government expenditure multiplier-balanced budget multiplier.

Module IV: Money

Nature of money-types-functions-time preference-interest rate: real and nominal- bond-relationship between bond price and interest rate-Theories of Demand for money-Liquidity Preference theory and Keynesian Liquidity Trap-Friedman's re-statement of Quantity Theory of Money. Theories of Supply of money-Measuring supply of money-High powered money-money multiplier.

References:

1. Edward Shapiro - 'Macro economics' Oxford University press.
2. GregoryMankiw - 'Macro economics' - 6th Edn. Tata McGraw Hill.
3. Richard T. Froyen - 'Macro economics', Pearson education.
4. Eugene Diulio - Macro economic Theory, Shaum's Outline series. Tata McGraw Hill
5. Errol D'Souza - 'Macro Economics' - Pearson Education 2008.
6. Abhijit Kundu (2009) : Methodology and Perspectives of Social Science - Pearson Education 8
7. Dornbusch, Fischer and Startz-MacroEconomics-Tata McGraw -Hill

Additional References:

1. Lipsey R. and A Chrystal - Economics (11th Edition) Oxford University Press New Delhi.
2. NicoliNattrass and G.VisakhVarma, 'Macroeconomics simplified: understanding Keynesian and Classical Macroeconomic Systems", Sage India Publications, 2014

Course Category	Complementary (Type 2-Course I)
Course Title and Code	Basics of Computing and Data Management
No. of Credits	4
No. of Contact Hours	6 Hours per week

Objective: The student should be able to write reasonably complex programs involving sorting, searching, file operations, etc. in a procedural and object-oriented way.

Basics of Computing and Data Management

Module 1: Introduction to Computer System

Features, Limitations, Types- Number Systems and Character Representation, Binary Arithmetic- Computer Software Types –Utility Program Operating Systems Functions and Types - Basic Components of Computer - Input and Output Devices - Primary Memory and Secondary Storage

Module 2: Introduction to problem-solving and Python programming language:
What is computing; Programming languages; Getting started with Python; Python elements, order of evaluation, operator precedence; Variables and assignment; Boolean expressions,

Module 3: Control structure
Branching Programs- if, if-else, if-elif-else Conditional expressions- single, nested, compound; string objects and operations on strings; Input/output, type conversions; Iteration-while, while else; Enumeration and for loops; Applications of loops

Module 4: Approximation algorithms
Approximate solutions, exhaustive search; Bisection search; Comparing execution times, floats; Introduction to computational complexity, Solving problems by search (review), Newton-Raphson

Module 5: Functions, scoping, and abstraction
Function definitions, keyword arguments and default values; Variable scoping; Recursion: count-down, fibonacci numbers; Modules.

Module 6: Structured types and mutability
Tuples, lists, and mutability; Lists and sets; Dictionaries. File handling, encoding- File Input/Output, Discussion on encoding; Reading data via files; Writing data via files.

References
1. Goel, Computer Fundamentals, Pearson Education, 2010
2. Introduction to Computation and Programming Using Python, 2nd Edition with Application to Understanding Data by *John V. Guttag*. 2016. Note: *Indian edition available in the market.*
3. How to Think like a Computer Scientist by *Allen B. Downey*. 2002.

4. How to Think Like a Computer Scientist: Learning with Python 3 by *Peter Wentworth, Jeffrey Elkner, Allen B. Downey, and Chris Meyers*. 2012. Note: *Online chapters available* <u>here</u>