St. Xavier's College (Autonomous), Mumbai

Programme: B.A. Economics - Statistics

Department of Economics:
Programme Specific Outcomes (PSOs) and Course Outcomes (CO) for Economics

Department of Statistics:
Programme Specific Outcomes (PSOs) and Course Outcomes (CO) for Statistics

St. Xavier's College (Autonomous), Mumbai
Department of Economics

Programme: B.A. Economics

Programme Specific Outcomes (PSOs) **for B.A. Economics**

Sr. No.	On completing B.A. Economics, the student will be able to:
PSO 1	Adopt and evaluate models to solve economic problems.
PSO 2	Predict the impact of fiscal and monetary policy on the overall economic performance of the country.
PSO 3	Acquire knowledge on national and international trade.
PSO 4	Analyse the economic problems and suggest policy measures for the development of the economy.
PSO 5	Analyse and attain exact data to assess economic variables with statistical tools and techniques.
PSO 6	Acquire entrepreneurial skills and become successful entrepreneur.

Course Outcomes (COs): B.A. Economics

Semester I

Course Title: Microeconomics – Demand and Production Theories
Course Code: AECO0101

Sr. No.	On completing the course, the student will be able to:	PSOs addressed	Cognitive levels
CO 1	Understand the implications of various economic concepts.	1	R
CO 2	Understand basic mathematical concepts underlying economics.	5	Ap
CO 3	Understand demand analysis and its application to consumer behaviour.	1	An
CO 4	Understand and analyze theoretical aspects of production.	1	An
CO 5	Understand concepts of costing, and applications of cost analysis.	5	E
CO 6	Understand various market structures.	3	U
CO 7	Understand the application of revenue analysis.	5	Ap
CO 8	Apply concepts to concrete situations.	4	C

Course Title: Microeconomics – I
Course Code: SECO0101

Sr. No.	On completing the course, the student will be able to:	PSOs addressed	Cognitive levels
CO 1	Understand fundamental economic concepts.	1	R
CO 2	Apply mathematical tools to economics.	5	Ap
CO 3	Analyse demand theories with respect to consumer behaviour.	1	An
CO 4	Analyse production theories with respect to market.	1	An
CO 5	Carry out practical application and problem solving of cost analysis.	5	E
CO 6	Understand the structures of different types of markets.	3	U
CO 7	Carry out practical application and problem solving of concepts in revenue analysis.	5	Ap

Course Title: Macroeconomics – I
Course Code: SECO0102

Sr. No.	On completing the course, the student will be able to:	PSOs addressed	Cognitive levels
CO 1	Gain knowledge of macroeconomics and its scope.	1, 2, 6	U, R
CO 2	Understand classical theory approaches to macroeconomics.	2, 1, 4	U, R
CO 3	Understand Keynesian theory approaches to macroeconomics.	2, 1, 4	U, R
CO 4	Analyse the demand and supply theories of money.	2, 1, 4	U, R

Semester II

Course Title: Microeconomics – Pricing Theories
Course Code: AECO0201

Sr. No.	On completing the course, the student will be able to:	PSOs addressed	Cognitive levels
CO 1	Identify and assess various objectives of a firm.	1	E
CO 2	Understand break-even analysis and pricing methodologies.	5	Ap
CO 3	Understand the concept of equilibrium under perfect competition.	3	U
CO 4	Understand the short-run and long-run equilibrium under perfect-competition.	1	Ap
CO 5	Apply equilibrium analysis to monopoly situation and monopolistic competition.	1	Ap
CO 6	Understand pricing strategies in the factor markets.	4	E
CO 7	Analyse and apply risk and uncertainty to market situations.	6	An
CO 8	Apply concepts to concrete situations.	4	C

Course Title: Microeconomics – II
Course Code: SECO0201

Sr. No.	On completing the course, the student will be able to:	PSOs addressed	Cognitive levels
CO 1	Understands the various objective of a firm.	1	E
CO 2	Apply pricing strategies to the product market.	5	Ap
CO 3	Understand the concept of equilibrium.	3	U
CO 4	Apply the concept of equilibrium to the long run and short run.	1	Ap
CO 5	Apply the concept of equilibrium to monopoly and monopolistic competition.	1	Ap
CO 6	Apply pricing strategies to the factor markets.	4	E
CO 7	Analyse the concept of risk.	6	An
CO 8	Practically apply concepts learnt in class.	4	C

Course Title: Macroeconomics – II
Course Code: SECO0202

Sr. No.	On completing the course, the student will be able to:	PSOs addressed	Cognitive levels
CO 1	Understand the banking system and the role of banks.	1, 5, 6	U, R
CO 2	Analyse the role of central banks and monetary policies.	1, 5, 6	U, R, An
CO 3	Understand the role of government in an economy.	1, 5, 6	U, R
CO 4	Analyse financial systems and markets.	1, 5, 6	U, R, An

Semester III

Course Title: Macroeconomics – I
Course Code: AECO0301

Sr. No.	On completing the course, the student will be able to:	PSOs addressed	Cognitive levels
CO 1	Understand the different analytical methods in macroeconomics.	1, 2, 6	U, R
CO 2	Understand the methodological difference between micro- and macro-economics.	2, 1, 4	U, R
CO 3	Understand the relevance of macroeconomic theories in the real-world scenario.	2, 1, 4	U, R
CO 4	Learn the techniques of macroeconomic analysis to apply in academic and industrial research.	2, 1, 4	U, R

Course Title: Introduction to Econometrics – I
Course Code: AECO0302

Sr. No.	On completing the course, the student will be able to:	PSOs addressed	Cognitive levels
CO 1	Understand the theory underlying econometric techniques.	1, 5	U, R
CO 2	Understand the statistical methods for generalizing the inferences from a sample.	1, 5	U, R
CO 3	Understand the structure of economic and business data.	1, 5, 6	U, R
CO 4	Understand the theory underlying econometric models.	1, 5, 6	U, R
CO 5	Model economic problems using econometric techniques.	1, 2, 5, 6	Ap, An, E, C
CO 6	Conduct statistical tests for the econometric models.	1, 2, 5, 6	Ap, An, E, C

Course Title: Elementary Statistical Techniques – I
Course Code: AAC03012

Sr. No.	On completing the course, the student will be able to:	PSOs addressed	Cognitive levels
CO 1	Use basic statistical tools and techniques for analyzing data.	5	U, R
CO 2	Apply the techniques to real data to in order to understand the characteristics and features of the data.	5, 6	Ap, An, E, C
CO 3	Perform univariate and bivariate analyses using statistical tools.	5, 6	Ap, An, E, C
CO 4	Understand probability concepts.	5	U, R
CO 4	Use probability concepts to solve analytical problems.	5, 6	Ap, An, E, C

Semester IV

Course Title: Macroeconomics – II
Course Code: AECO0401

Sr. No.	On completing the course, the student will be able to:	PSOs addressed	Cognitive levels
CO 1	Understand new techniques of general equilibrium analysis.	1, 5, 6	U, R
CO 2	Know new methods of macroeconomic analysis and use different tools.	1, 5, 6	U, R, An, Ap
CO 3	Use various tools in general equilibrium analysis for research.	1, 5, 6	U, R
CO 4	Understand the relevance of open economy equilibrium for comparative study.	1, 5, 6	U, R, An, Ap

Course Title: Introduction to Econometrics – II
Course Code: AECO0402

Sr. No.	On completing the course, the student will be able to:	PSOs addressed	Cognitive levels
CO 1	Know different types of econometric models.	1, 2, 5	U, R
CO 2	Use models for understanding features of data and drawing economic conclusions.	1, 2, 5, 6	Ap, An, E, C
CO 3	Run diagnostics checks on the model.	1, 2, 4, 5	Ap, An
CO 4	Formulate models and perform quantitative analysis.	1, 2, 4, 5	Ap, An
CO 5	Write a quantitative paper.	1, 2, 4, 5	Ap, An

Course Title: Elementary Mathematical Technique
Course Code: AAC04013

Sr. No.	On completing the course, the student will be able to:	PSOs addressed	Cognitive levels
CO 1	Understand basic mathematical techniques required for building economic models.	1, 2	U, R
CO 2	Apply techniques in different areas of economics.	1, 2, 4, 5	Ap, An
CO 3	Apply mathematical tools to find solutions to economic problems.	1, 2, 4, 5	Ap, An
CO 4	Formulate linear programming problems for economic and business problems.	1, 2, 4, 5	Ap, An
CO 5	Solve linear programming problems graphically and iteratively.	1, 2, 4, 5	Ap, An

Semester V

Course Title: Advanced Microeconomics
Course Code: AECO0501

Sr. No.	On completing the course, the student will be able to:	PSOs addressed	Cognitive levels
CO 1	Analyse pricing and output under oligopolistic market situations.	4	An
CO 2	Understand the basic concepts of game theory within oligopoly.	5	U
CO 3	Identify and analyse pricing strategies under imperfect competitive situations in the factor markets.	1	Ap
CO 4	Understand general equilibrium situations.	4	U
CO 5	Assess the impact of pareto optimality criterion and social welfare.	1	E
CO 6	Analyse the situation of information economics.	1	An
CO 7	Understand missing markets and information failure.	4	U
CO 8	Apply concepts to concrete situation.	4	C

Course Title: Principles of Microeconomics
Course Code: AECO0502

Sr. No.	On completing the course, the student will be able to:	PSOs addressed	Cognitive levels
CO 1	Analyse oligopolistic markets.	4	An
CO 2	Understand oligopoly models through the use of game theory.	5	U
CO 3	Apply of pricing strategies to the factor markets.	1	Ap
CO 4	Understand general equilibrium analysis.	4	U
CO 5	Evaluate the relevance of pareto optimality to welfare.	1	E
CO 6	Analyse the concept of information economics.	1	An
CO 7	Understand the impact of asymmetric information.	4	U
CO 8	Apply theoretical concepts to real-life situations.	4	C

Course Title: Growth and Development: Theoretical Analysis
Course Code: AECO0503

Sr. No.	On completing the course, the student will be able to:	PSOs addressed	Cognitive levels
CO 1	Understand the concepts of economic growth and development.	1, 4	U, R
CO 2	Assess the various issues related to growth of an economy.	1, 4	U, R
CO 3	Critically analyze classical growth models.	1, 4, 5	An, U
CO 4	Critically analyze contemporary growth models.	1, 4, 5	An, U
CO 5	Apply growth models to analyse the impact of poverty and inequality.	1, 4, 5	An, U
CO 6	Apply various economic models to developing countries.	1, 3, 4, 5	U, An, Ap

Course Title: Approaches to Growth and Development
Course Code: AECO0504

Sr. No.	On completing the course, the student will be able to:	PSOs addressed	Cognitive levels
CO 1	Understand different economic growth theories.	1, 4	U, R
CO 2	Understand various growth-related issues pertaining to global economy.	1, 4	U, R
CO 3	Critically analyze growth models.	1, 4, 5	An, U
CO 4	Apply classical economic growth models to global situations.	1, 3, 4, 5	U, An, Ap
CO 5	Apply contemporary economic models to global situations.	1, 3, 4, 5	U, An, Ap
CO 6	Understand the impact of inequality and poverty on development issues.	1, 4, 5	U, An

Course Title: Evolution of Economic Thought
Course Code: AECO0505

Sr. No.	On completing the course, the student will be able to:	PSOs addressed	Cognitive levels
CO 1	Understand the contribution of different economic thinkers.	1	U
CO 2	Critique the theoretical contribution of thinkers based on the applicability.	1	U, An, C
CO 3	Learn the significance of various schools of economic thought in the evolution of economic theories.	1	U, R, C
CO 4	Understand the relevance of Indian economic thought in policy making in India.	1	U, R, C

Course Title: International Economics: Theory and Policy
Course Code: AECO0506

Sr. No.	On completing the course, the student will be able to:	PSOs addressed	Cognitive levels
CO 1	Recall the meaning of international economics.	1	R
CO 2	Identify the factors affecting the terms of trade.	2	R
CO 3	Describe trade as an engine of economic growth.	2	U
CO 4	Understand the meaning of tariff, quota and dumping.	3	U

Course Title: Statistical Techniques for Economics
Course Code: AECO0507

Sr. No.	On completing the course, the student will be able to:	PSOs addressed	Cognitive levels
CO 1	Know the statistical techniques for data analysis.	5	U, R
CO 2	Apply the techniques to economic data.	5	Ap
CO 3	Use statistical softwares to analyze large datasets.	5	Ap
CO 4	Formulate research hypotheses.	2, 4	C
CO 5	Test research hypotheses.	2, 4	E
CO 6	Apply test results on larger scale to population in general.	2, 4	An

Course Title: Advanced Econometrics – I
Course Code: AECO0508

Sr. No.	On completing the course, the student will be able to:	PSOs addressed	Cognitive levels
CO 1	Understand advanced techniques for conducting research in economic areas.	5	U, R
CO 2	Apply econometric techniques to real-world problems.	2, 4	Ap
CO 3	Understand estimation techniques for econometric equations involving qualitative variables.	2, 4	C
CO 4	Use statistical packages for qualitative data.	2, 4	Ap

Course Title: Corporate Finance – I
Course Code: AECO0509

Sr. No.	On completing the course, the student will be able to:	PSOs addressed	Cognitive levels
CO 1	Understand the basic requirements and objectives of corporate finance.	1	U
CO 2	Use various techniques and mechanisms for decision making in business investments.	3	Ap
CO 3	Understand balance sheet and presentation of it.	1, 4, 5	U, Ap
CO 4	Calculate liquidity ratio, leverage ratio and profitability ratio.	1, 4, 5	U, Ap
CO 5	Understand dividend policy, and relevance and irrelevance of it.	1, 4, 5	U, Ap

Course Title: Indian Financial Systems and Institutions
Course Code: AECO0510

Sr. No.	On completing the course, the student will be able to:	PSOs addressed	Cognitive levels
CO 1	Understand the basics of Indian financial system.	1, 4, 5	U, R
CO 2	Understand the role of financial institutions and markets in the Indian financial system.	1, 4, 5	U, R
CO 3	Understand the structure of financial system and its functions.	1, 5, 6	U, R
CO 4	Understand the role of financial regulators in the Indian financial system.	1, 5, 6	U, R

Semester VI

Course Title: Advanced Macroeconomics
Course Code: AECO0601

Sr. No.	On completing the course, the student will be able to:	PSOs addressed	Cognitive levels
CO 1	Understand the impact of monetary policy in the stabilization process.	2	U
CO 2	Analyse AS-AD model and its impact on the inflation-unemployment trade-off.	4	An
CO 3	Understand the concept of business cycles.	2	An
CO 4	Understand the demand-supply analysis in labour markets.	1, 5	Ap
CO 5	Analyse the role of labour unions and government policy in labour markets.	4, 5	E
CO 6	Understand fiscal policies – taxation and public expenditure.	5, 6	Ap
CO 7	Apply concepts to concrete situations.	4	C

Course Title: Macroeconomics: Theory and Practice
Course Code: AECO0602

Sr. No.	On completing the course, the student will be able to:	PSOs addressed	Cognitive levels
CO 1	Revisit the Keynesian consumption theories.	1	R
CO 2	Analyse post-Keynesiann consumption theories.	1, 4	An
CO 3	Analyse the AS-AD model.	4	An
CO 4	Analyse the impact of business cycles on the inflation and unemployment.	2	An
CO 5	Apply the concepts of demand and supply to the labour market.	1, 5	Ap
CO 6	Assess the role and impact of labour unions on government policy.	4, 5	E
CO 7	Understand the management of government budget.	5, 6	Un
CO 8	Apply theoretical concepts to the Indian economy.	4	C

Course Title: Economic Development: Policy and Applications – I
Course Code: AECO0603

Sr. No.	On completing the course, the student will be able to:	PSOs addressed	Cognitive levels
CO 1	Understand the impact of demography and urbanization on the development of an economy.	1, 4	U, R
CO 2	Understand the role of health and education on the development of an economy.	1, 4	U, R
CO 3	Assess the influence of dual economic structures on development.	1, 4	U, E
CO 4	Understand globalization and international networking.	1, 4	U, R
CO 5	Apply theoretical concepts to developing countries.	4	C

Course Title: Economic Development: Policy and Applications – II
Course Code: AECO0604

Sr. No.	On completing the course, the student will be able to:	PSOs addressed	Cognitive levels
CO 1	Understand the conceptual difference between growth and development.	1, 4	U, R
CO 2	Understand different dimensions of development, and theories related to development issues.	1, 4	U, R
CO 3	Evaluate development policies at national and international levels using case studies.	1, 4	U, E
CO 4	Be sensitive to gender-, poverty- and inequality-related issues.	1, 4	U, R

Course Title: An Introduction to Political Economy
Course Code: AECO0605

Sr. No.	On completing the course, the student will be able to:	PSOs addressed	Cognitive levels
CO 1	Understand the subject matter of political economy.	1, 4	U, R
CO 2	Know the study method of political economy to evaluate the issues at national and international levels.	1, 4	U, R
CO 3	Relate the method of political economy to real-world scenario.	1, 4	U, R
CO 4	Understand the method to evaluate political economy issues in different countries.	1, 4	U, R

Course Title: International Finance: Theory and Policy
Course Code: AECO0606

Sr. No.	On completing the course, the student will be able to:	PSOs addressed	Cognitive levels
CO 1	Recall the meaning of foreign exchange market	4	U
CO 2	Describe the structure of balance of payment.	5	U
CO 3	Identify the pattern of membership and organization in the World Bank.	5	U
CO 4	Describe the structure of WTO.	5	U
CO 5	Develop the capability of tracing out the opportunities for trading.	1	U
CO 6	Discuss the process of adjustment under systems of fixed exchange rates and flexible exchange rates.	4	U
CO 7	List the main objectives of IMF.	4	R
CO 8	Recall the objectives of GATT, WTO, UNCTAD, SAARC, ASEAN, BRICS.	5	R
CO 9	Discuss the recent changes in the trade policy in India.	5	U

Course Title: Mathematical Techniques for Economics
Course Code: AECO0607

Sr. No.	On completing the course, the student will be able to:	PSOs addressed	Cognitive levels
CO 1	Learn mathematical techniques for building economic models.	2, 4	U, R
CO 2	Understand the variables in the model.	2, 4	An, E
CO 3	Learn techniques to find equilibrium solution of the model.	2, 4	U
CO 4	Apply mathematical techniques in different areas of economics.	2, 4	Ap, An, C, E

Course Title: Econometrics – II
Course Code: AECO0608

Sr. No.	On completing the course, the student will be able to:	PSOs addressed	Cognitive levels
CO 1	Understand advanced time series techniques for understanding the dynamics of data and changes over time.	5	U, R
CO 2	Learn time series techniques for forecasting economic variables.	2, 4	Ap
CO 3	Learn techniques for modeling volatility in stock prices.	2, 4	C
CO 4	Learn techniques for testing time series stationarity.	2, 4	Ap

Course Title: Corporate Finance – II
Course Code: AECO0609

Sr. No.	On completing the course, the student will be able to:	PSOs addressed	Cognitive levels
CO 1	Carry out risk and return analysis for single assets.	1, 4, 5, 6	U, Ap
CO 2	Carry out risk and return analysis for two assets.	1, 4, 5, 6	U, Ap
CO 3	Understand cost benefit analysis of merger and acquisition.	1, 4, 5, 6	U, Ap
CO 4	Understand the international financial management.	1, 4, 5, 6	U, Ap

Course Title: Indian Financial Markets
Course Code: AECO0610

Sr. No.	On completing the course, the student will be able to:	PSOs addressed	Cognitive levels
CO 1	Understand the role of financial markets and financial instruments in the Indian financial system.	1, 5	U, R
CO 2	Learn the techniques of derivatives as financial instruments.	1, 5	U, R
CO 3	Understand the functions of various markets in the financial system.	1, 5	U, R
CO 4	Learn the tools to evaluate the performance of financial system based on different parameters.	1, 5	U, R

St. Xavier's College (Autonomous), Mumbai
Department of Statistics

Programme: B.A. Statistics

Programme Specific Outcomes (PSOs) **for B.A. Statistics**

Sr. No.	On completing B.A. Statistics, the student will be able to:
PSO 1	Recognize the importance and value of statistical thinking, training and approach to problem solving.
PSO 2	Recognize and appreciate the connection between theory and application in a variety of disciplines.
PSO 3	Review statistical literature available in survey articles, scholarly books, and online sources.
PSO 4	Use statistical techniques and work effectively in analytic, scientific, financial, actuarial, pharmaceutical, technical and other positions of government and non-government organizations.
PSO 5	Pursue academic research to widen the domain of the subject.

Course Outcomes (COs): B.A. Statistics

Semester I

Course Title: Descriptive Statistics (A)
Course Code: ASTA0101

Sr. No.	On completing the course, the student will be able to:	PSOs addressed	Cognitive levels
CO 1	Usevarious techniques of data collection and presentation.	1, 2	U, Ap
CO 2	Use various summary measures of location (averages) used for data analysis and the basis for their selection.	2	U, R
CO 3	Select appropriate methods to present data.	4	Ap
CO 4	Select and calculate appropriate averages to represent data sets.	1, 2, 4	U, R, Ap, E
CO 5	Select and calculate appropriate measures of dispersion for data sets.	1, 2, 4	U, R, Ap, E
CO 6	Possess knowledge about the use of statistical tools to carry out elementary categorical data analysis.	4	Ap
CO 7	Acquire information about various statistical organizations in India and their functions.	4, 5	U, R, Ap, An, E, C

Semester II

Course Title: Statistical Methods (A)
Course Code: ASTA0201

Sr. No.	On completing the course, the student will be able to:	PSOs addressed	Cognitive levels
CO 1	Relate to the concept of probability and random variables.	1, 2	U, Ap
CO 2	Identify basic discrete distributions and be cognizant of their properties.	2, 4	U, Ap
CO 3	Acquire knowledge of the properties and uses of various discrete distributions (Uniform, Bernoulli, Binomial, Poisson, Hypergeometric).	4	U, R, Ap, An, E, C

Semester III

Course Title: Descriptive Statistics (B)
Course Code: ASTA0301

Sr. No.	On completing the course, the student will be able to:	PSOs addressed	Cognitive levels
CO 1	Measure simple correlation, regression and diagnostic regression in bivariate data sets.	4, 5	U, R, Ap, An, E
CO 2	Understand specialized averages under the domain of index numbers.	4	U, E
CO 3	Know the concept of a time series and be familiar with simple measures of trend and seasonal variation.	2, 4	U, R, E

Course Title: Operations Research
Course Code: ASTA0302

Sr. No.	On completing the course, the student will be able to:	PSOs addressed	Cognitive levels
CO 1	Understand of the topic of Operations Research.	1, 2, 4	U
CO 2	Understand the concept of formulating real-life situations into mathematical models.	1, 2, 4	U, Ap
CO 3	Use techniques under linear programming problems (graphical and simplex).	1, 2, 4	U, Ap
CO 4	Use techniques to solve transportation and assignment problems.	1, 2, 4	U, Ap
CO 5	Be familiar with simple project management techniques (PERT and CPM).	1, 2, 4	U, Ap, E

Semester IV

Course Title: Statistical Methods (B)
Course Code: ASTA0401

Sr. No.	On completing the course, the student will be able to:	PSOs addressed	Cognitive levels
CO 1	Identify some basic continuous distributions and be cognizant of their properties.	2, 4	U, Ap
CO 2	Understand the theoretical normal distribution, its properties and uses.	4	U, R, Ap, An, E, C
CO 3	Know in general about the concept of 'testing of hypothesis' and in particular 'test of hypothesis for large samples'.	2, 4	U, R, Ap, An, E

Course Title: Data Analysis
Course Code: ASTA0402

Sr. No.	On completing the course, the student will be able to:	PSOs addressed	Cognitive levels
CO 1	Be aware of the various sampling techniques (method, merits and limitations).	2	U, Ap
CO 2	Know the methods to study the independence/ association between qualitative variables (Chi-square test, Yule's coefficients, odds ratio).	4	U, Ap, E
CO 3	Gain programming skills using R-software and know its applications.	4, 5	U, Ap

Course Title: Data Statistics
Course Code: ASPC04014

Sr. No.	On completing the course, the student will be able to:	PSOs addressed	Cognitive levels
CO 1	Know various techniques of data collection and presentation.	1, 2	U, Ap
CO 2	Understand various summary measures of location (averages) used for data analysis and the basis for their selection.	2	U, R
CO 3	Select appropriate methods to present data.	4	Ap
CO 4	Select and calculate appropriate averages to represent data sets.	1, 2, 4	U, R, Ap, E
CO 5	Select and calculate appropriate measures of dispersion for data sets.	1, 2, 4	U, R, Ap, E

Semester V

Course Title: Probability and Sampling Distributions (A)
Course Code: ASTA0501

Sr. No.	On completing the course, the student will be able to:	PSOs addressed	Cognitive levels
CO 1	Know the concepts and derivation of important statistical functions of variables, namely, moment generating function, cumulant generating function, joint probability mass functions, marginal densities, conditional distributions (expectation and variance).	1, 5	U
CO 2	Understand the properties and uses of various discrete distributions (Uniform, Bernoulli, Binomial, Poisson, Geometric, Negative Binomial).	4	U, R, Ap, An, E, C
CO 3	Know the properties and uses of normal distribution.	4	U, R, Ap, An, E, C

Course Title: Sampling Techniques
Course Code: ASTA0502

Sr. No.	On completing the course, the student will be able to:	PSOs addressed	Cognitive levels
CO 1	Know about various sampling methods available to estimate parameters of the population.	1, 5	U, Ap, An, E
CO 2	Prove (by derivation) the various properties of the estimators in each sampling scheme.	1	U, Ap, An, E, C
CO 3	Compare estimators of a population parameter with the aim of selecting an appropriate one.	1, 2, 4	U, Ap, An, E, C

Course Title: Applied Statistics (A)
Course Code: ASTA0503

Sr. No.	On completing the course, the student will be able to:	PSOs addressed	Cognitive levels
CO 1	Be aware of the concept of vital statistics and mortality tables.	2, 3, 4	U, Ap, An, E
CO 2	Understand and calculate several quantities pertaining to the field of actuarial science (compound interest and annuities certain, life annuities, assurance benefits).	2, 3, 4	U, Ap, An, E

Semester VI

Course Title: Probability and Sampling Distributions (B)
Course Code: ASTA0601

Sr. No.	On completing the course, the student will be able to:	PSOs addressed	Cognitive levels
CO 1	Know the properties and uses of various continuous distributions (rectangular, exponential, Laplace, gamma and beta).	1, 5	U
CO 2	Understand the transformation of continuous (1D and 2D) random variables using Jacobian.	2, 4, 5	U, Ap
CO 3	Be knowledgeable of the properties and uses of various continuous distributions (Chi-Square, t and F-distribution).	2, 4	U, R, Ap, An, E, C

Course Title: Analysis of Variance and Design of Experiments
Course Code: ASTA0602

Sr. No.	On completing the course, the student will be able to:	PSOs addressed	Cognitive levels
CO 1	Understand analysis of variance (one way and two way).	1	U
CO 2	Understand the principles of Design of Experiments and how they are incorporated into various basic designs namely Completely Randomized design (CRD), Randomized Block design (RBD) and Latin Square design (LSD).	1	U, Ap, An, E
CO 3	Derive proofs of theorems pertaining to properties of estimators used in the above-mentioned designs.	5	U
CO 4	Handle the above designs in case of missing observations.	1	U
CO 5	Understand the construction and procedure of factorial experiments (22 and 23).	1, 2	U, Ap

Course Title: Applied Statistics (B)
Course Code: ASTA0603

Sr. No.	On completing the course, the student will be able to:	PSOs addressed	Cognitive levels
CO 1	Fit a multiple linear regression model with two independent variables.	1, 2, 4	U, Ap, An, E, C
CO 2	Understand the techniques of decision making in various scenarios in the field of Operations Research, and techniques in the topics of decision theory and game theory.	2, 4	U, Ap, An, E
CO 3	Understand the concept of simulation and apply its techniques to inventory and queuing models.	2, 4	U, Ap, An, E