

COURSE OUTCOMES - I YEAR SEMESTER-I PAPER-I

Course Title	Course Type	HPW	Credits
Descriptive Statistics and Probability (Theory + Practical)	DSC-2A	4(Th)+2(Pr)	4+1

Upon successful completion of the course, students will be able to:

- ✓ Organize, manage and present data.
- ✓ Analyze statistical data graphically using frequency distributions and cumulative frequency distributions.
- ✓ Analyze statistical data using measures of central tendency, dispersion and location.
- ✓ Use the basic probability rules, including additive and multiplicative laws, using the terms, independent and mutually exclusive events.
- ✓ Translate real-world problems into probability models.
- ✓ Derive the probability density function of transformation of random variables.
- ✓ Calculate probabilities, and derive the marginal and conditional distributions of bivariate random variables.
- ✓ Analyze Statistical data using MS-Excel.

I YEAR SEMESTER-II PAPER-II

Course Title	Course Type	HPW	Credits
Probability Distributions (Theory + Practical)	DSC-2B	4(Th)+2(Pr)	4+1

Upon successful completion of the course, students will be able to:

- ✓ Use discrete and continuous probability distributions, including requirements, mean and variance, and make decisions.
- ✓ Define binomial outcomes and compute probability of getting X successes in N trials.
- ✓ Identify the characteristics of different discrete and continuous distributions.
- ✓ Identify the type of statistical situation to which different distributions can be applied.
- ✓ Use Poisson, exponential distributions to solve statistical problems.
- ✓ Use the normal probability distribution including standard normal curve calculations of appropriate areas.
- ✓ Use different distributions to solve simple practical problems.
- ✓ Analyze Statistical data using MS-Excel.

II YEAR SEMESTER-III PAPER-III

Course Title	Course Type	HPW	Credits
Statistical Methods (Theory + Practical)	DSC-2C	4(Th)+2(Pr)	4+1

Upon successful completion of the course, students will be able to:

- ✓ Calculate and interpret the correlation between two variables.
- ✓ Calculate the simple linear regression equation for a set of data.
- ✓ Employ the principles of linear regression and correlation, including least square method, predicting a particular value of dependent variable for a given value of independent variable and significance of the correlation coefficient.
- ✓ Know the association between the attributes.
- ✓ Know the construction of point and interval estimators.
- ✓ Evaluate the properties of estimators.
- ✓ Demonstrate understanding of the theory of maximum likelihood estimation.
- ✓ Analyze Statistical data using MS-Excel.

II YEAR SEMESTER-IV PAPER-IV

Course Title	Course Type	HPW	Credits
Inference (Theory + Practical)	DSC-2D	4(Th)+2(Pr)	4+1

Upon successful completion of the course, students will be able to:

- ✓ Define null hypothesis, alternative hypothesis, level of significance, test statistic, p value, and statistical significance.
- ✓ Identify the four steps of hypothesis testing.
- ✓ Apply central limit theorem to describe inferences.
- ✓ Perform parameter testing techniques, including single and two sample tests for means, standard deviations and proportions.
- ✓ State and define the inference from small samples including differences between two population means, population variances.
- ✓ Analyze data including Chi-square test for goodness of fit and independence of attributes.
- ✓ Use in practice the parametric and non-parametric statistical methods.
- ✓ Use MS-Excel to generate output for the most common inference procedures.

III YEAR

SEMESTER-V

PAPER-V

Course Title	Course Type	HPW	Credits
Sampling Theory, Time series, Index Numbers and Demand Analysis (Th+Pr)	DSC-2E	3(Th)+2(Pr)	3+1

Upon successful completion of the course, students will be able to:

- ✓ Know the practical issues arising in sampling studies.
- ✓ Demonstrate understanding of the concepts of time series and its applications in different areas.
- ✓ Determine and apply appropriate models to real time series data and interpret the outcomes of analysis.
- ✓ Explain how supply and demand relationships between the price of a product and the quantity of the same product.
- ✓ Determine the equilibrium price and quantity from a table of prices and the related quantity supplied and quantity demanded.
- ✓ Analyze statistical data using MS-Excel.

III YEAR

SEMESTER-V

PAPER-VI

Course Title	Course Type	HPW	Credits
Statistical Quality Control and Reliability (Theory + Practical)	DSC-2E	3(Th)+2(Pr)	3+1

Upon successful completion of the course, students will be able to:

- ✓ Understand the concepts of quality control, chance and assignable causes of variation, control charts for variables and attributes. producer's and consumer's risk –
- ✓ Acceptance sampling plans.
- ✓ Understand the setting of control limits and apply the concepts using the problem solving.
- ✓ Demonstrate the ability to design, use, and interpret the control charts for variables and attributes.
- ✓ Analyze statistical experiments leading to Reliability modeling.
- ✓ Understand the link between SQC and industry.
- ✓ Analyze statistical data using MS-Excel.

III YEAR

SEMESTER-VI

PAPER-VII

Course Title	Course Type	HPW	Credits
Design of Experiments, Vital Statistics, Official Statistics and Business Forecasting (Th + Pr)	DSC-2F	3(Th)+2(Pr)	3+1

Upon successful completion of the course, students will be able to:

- ✓ **Appropriately interpret results of analysis of variance tests.**
- ✓ **Design experiments, carry them out, and analyze the data they yield.**
- ✓ **Acquire knowledge on vital statistics, Index numbers and calculate an indices from given data.**
- ✓ **Know the functions of various statistical organizations.**
- ✓ **Demonstrate the knowledge of business forecasting.**
- ✓ **Analyze statistical data using MS-Excel.**

III YEAR

SEMESTER-VI

PAPER-VIII

Course Title	Course Type	HPW	Credits
Operations Research (Theory + Practical)	DSC-2F	3(Th)+2(Pr)	3+1

Upon successful completion of the course, students will be able to:

- ✓ **Know the various techniques of operations research.**
- ✓ **Translate a real – world problem, given in words, into a mathematical formulation.**
- ✓ **Analyze the results and propose recommendations to the decision making processes.**
- ✓ **Build and solve transportation models and assignment models.**
- ✓ **Develop Linear programming models of the Assignment problem and Transportation problem.**
- ✓ **Solve the mathematical model manually as well as using software TORA**
- ✓ **Implement practical cases in operations research by using TORA software.**
- ✓ **Analyze statistical data using MS-Excel.**
