

Course Type	Course Code	Name of Course	L	T	P	Credit
DC	EMSC508	Statistics for Managers	3	1	0	4

Course Objective

This course is expected to provide the student with the fundamentals of statistics, applications of statistics and various data analysis methods that are relevant to real-world management problems.

Learning Outcomes

To understand the basic concepts of probability distribution, sampling, and hypothesis testing and their application to a business problem. Moreover, students are supposed to learn some software for statistical analysis like MS Excel/SPSS/R-studio, etc.

Unit No.	Topics to be Covered	Lecture Hours	Learning Outcome
1	Introduction to statistics: Importance of statistics, Examples of raw data, Data arrangement, Constructing frequency distribution, Measures of central tendency and dispersion, Overview on software packages for statistical analysis and some business applications.	8L+2T	Understand the importance of statistics and learn about how to use statistics at work.
2	Probability Distributions: Overview on probability and probability distributions, Random variables, Examples of Binomial, Poisson, Uniform, Normal, Log-normal, Exponential, Weibull and other distributions, Choosing correct probability distribution.	9L+3T	Understand the concept of probability distributions and identify the correct distribution for a given data.
3	Sampling, Estimation, and Hypothesis Testing: Introduction to sampling, Random sampling, Sampling distributions, Relation between sample size and sample error. Point and Interval estimates, Testing hypotheses of mean and proportion: one/two-sample tests; z-test, t-test, chi-square test, F-test; Analysis of Variance (ANOVA).	9L+3T	Learn how to calculate the sample size. Learn and apply various methods of testing the proposed hypotheses.
4	Regression Models: Simple regression and correlation, Multiple Linear Regression Models, Logistic Regression.	8L+4T	Understand and apply regression models on given data set.
5	Non-parametric methods: Importance of non-parametric methods, Few Tests – Sign test, Rank sum tests, Runs tests, Kolmogorov-Smirnov test.	8L+2T	Learn and apply non-parametric methods on a given data set.
	TOTAL	42L+14T	

Textbooks:

1. *Statistics for Management*, 8th edition, 2017, Richard I. Levin, Masood Husain Siddiqui, Sanjay Rastogi and David S. Rubin, Pearson Education Publication. ISBN 9789332581180.

Reference Books:

1. *Introduction to Probability Models*, 12th Edition, 2019, Sheldon M. Ross Academic Press, Elsevier. ISBN: 9780128143469.
2. *Applied Statistics and Probability for Engineers*, 7th edition, 2018, D. C. Montgomery and G. C. Runger, John Wiley & Sons. ISBN: 978-1-119-40036-3