

NOC:Probability and Statistics - Video course

COURSE OUTLINE

The use of statistical reasoning and methodology is indispensable in modern world. It is true for any discipline, be it physical sciences, engineering and technology, economics or social sciences. Much of the advanced research in biology, genetics, and information science relies increasingly on use of statistical tools. It is essential for the students to get acquainted with the subject of probability and statistics at an early stage. The present course has been designed to introduce the subject to undergraduate/postgraduate students in science and engineering. The course contains a good introduction to each topic and an advance treatment of theory at a fairly understandable level to the students at this stage. Each concept has been explained through examples and application oriented problems.

COURSE DETAIL

WeekNo.	Topics
1.	<ul style="list-style-type: none"> Algebra of Sets – 2 lectures Introduction to Probability – 2 lectures
2.	<ul style="list-style-type: none"> Conditional Probability – 1 lecture Problems on Probability – 1 lecture Random Variables and Probability Distributions – 2 lectures
3.	<ul style="list-style-type: none"> Characteristics of distributions – 1 lecture Special distributions -3 lectures
4.	<ul style="list-style-type: none"> Special distributions - 4 lectures
5.	<ul style="list-style-type: none"> Functions of a random variable – 1 lecture Jointly distributed random variables – 3 lectures
6.	<ul style="list-style-type: none"> Jointly distributed random variables – 1 lecture Transformations of random vectors – 1 lecture Sampling distributions – 2 lectures
7.	<ul style="list-style-type: none"> Descriptive statistics – 2 lectures Point estimation – 2 lectures
8.	<ul style="list-style-type: none"> Point estimation – 2 lectures Confidence intervals – 2 lectures



NP-TEL

NPTEL

<http://nptel.ac.in>

Mathematics

Pre-requisites:

Must have good knowledge of Differential and Integral Calculus, sequences and series, Basic Linear/Matrix Algebra (usually students who have completed Mathematics-I and II at first year undergraduate level).

Coordinators:

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9.	<ul style="list-style-type: none">• Testing of Hypothesis – 4 lectures
10.	<ul style="list-style-type: none">• Testing of Hypothesis – 4 lectures

References:

1. An Introduction to Probability and Statistics by V.K. Rohatgi & A.K. Md. E. Saleh
2. Introduction to Probability and Statistics by J.S. Milton & J.C. Arnold
3. Introduction to Probability Theory and Statistical Inference by H.J. Larson
4. Introduction to Probability and Statistics for Engineers and Scientists by S.M. Ross
5. Probability and Statistics in Engineering by W.W. Hines, D.C. Montgomery, D.M. Goldsman, C.M. Borror
6. Probability and Statistics for Engineers and Scientists by R.E. Walpole, R.H. Myers, S.L. Myers, Keying Ye
7. Modern Mathematical Statistics by E.J. Dudewicz & S.N. Mishra