

AMEV01 PROBABILITY AND STATISTIC

UNIT-1 RANDOM VARIABLES

- 1.1 Discrete and continuous random variables
- 1.2 Moments- Moment generating functions
- 1.3 Binomial, Poisson, Geometric,
- 1.4 Uniform, Exponential, Gamma and Normal distributions.

UNIT-2 TWO- DIMENSIONAL RANDOM VARIABLES

- 2.1 Joint distributions- Marginal and conditional distributions
- 2.2 Covariance- Correlation and Linear regression
- 2.3 Transformation of random variables
- 2.4 Central limit theorem (for independent and identically distributed random variables).

UNIT-3 TESTING OF HYPOTHESIS

- 3.1 Sampling distributions- Estimation of parameters
- 3.2 Statistical hypothesis- Large sample test based on Normal distribution for single mean and difference of means- Tests based on t,
- 3.3 Chi-square and F distributions for mean,
- 3.4 Variance and proportion- Contingency table (test for independent) - Goodness of fit.

UNIT-4 DESIGN OF EXPERIMENTS

- 4.1 One way and Two way classifications
- 4.2 Completely randomized design
- 4.3 Randomized block design
- 4.4 Latin square design- 22 factorial design.

UNIT-5 STATISTICAL QUALITY CONTROL

- 5.1 Control charts for measurements (X and R charts)
- 5.2 Control charts for attributes (p, c and np charts)
- 5.3 Tolerance limits- Acceptance sampling.

References Books

- 1 Devore. J.L., "Probability and Statistics for Engineering and the Sciences", Cengage Learning, New Delhi, 8th Edition, 2012.
- 2 Walpole. R.E., Myers. R.H., Myers. S.L. and Ye. K., "Probability and Statistics for Engineers and Scientists", Pearson Education, Asia, 8th Edition, 2007.
- 3 Ross, S.M., "Introduction to Probability and Statistics for Engineers and Scientists", 3rd Edition, Elsevier, 2004.