AMTE-1 PROBABILITY AND STATISTICS

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,

1.5 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

3.3 Large sample test based on Normal distribution for single mean and difference of means- Tests based on t,

3.4 Chi-square and F distributions for mean, 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 - 2^2 factorial design.

UNIT-5 STATISTICAL QUALITY CONTROL

5.1 Control charts for measurements (X and R charts)- Control charts for attributes (p, c and np charts)

5.2 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.