IT9353   STATISTICS AND LINEAR PROGRAMMING

L T P C
3 1 0 4

AIM:

To provide the required skill to apply the statistical and Linear Programming tools for engineering problems.

OBJECTIVES:

To make the students acquire a fundamental knowledge in Statistical inference and Linear programming tools for engineering applications.

UNIT I   TESTING OF HYPOTHESIS   12

Sampling distributions - Tests for single mean , proportion and difference of means (large and small samples) – Tests for single variance and equality of variances – Chi-square-test for goodness of fit – Independence of attributes – Non-parametric tests: Test for Randomness and Rank-sum test (Wilcoxon test).

UNIT II   DESIGN OF EXPERIMENTS   12

Completely randomized design – Randomized block design – Latin square design - 2^2 - factorial design.

UNIT III   STATISTICAL QUALITY CONTROL   12

Control charts for measurements ($\overline{X}$ and R charts) – Control charts for attributes (p, c and np charts) – Tolerance limits - Acceptance sampling

UNIT IV   LINEAR PROGRAMMING   12

Formulation – Graphical solution – Simplex method – Big-M method - Transportation and Assignment models

UNIT V   ADVANCED LINEAR PROGRAMMING   12

Duality – Dual simplex method – Integer programming – Cutting-plane method.

L: 45, T: 15, TOTAL= 60 PERIODS

TEXT BOOKS:

1. Johnson, R.A. and Gupta, C.B., "Miller and Freund's Probability and Statistics for Engineers", Pearson Education, Asia, 7th edition, (2007).
2. Taha, H.A., "Operations Research", Pearson Education, Asia, 8th edition, (2007).

REFERENCES:

1. 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).
2. Devore, J.L., "Probability and Statistics for Engineering and the Sciences", Thomson Brooks/Cole, International Student Edition, 7th edition, (2008).
3. Winston, W.L.,"Operations Research – Applications and Algorithms", Thomson, 1st Indian Reprint, 4th edition, (2007).