

## ST4 C16: STATISTICAL QUALITY CONTROL

### UNIT I

Statistical process control, theory of control charts, Shewhart control charts for variables- $\bar{x}$ , R, s charts, attribute control charts - p, np, c, u charts, modified control charts.

### UNIT II

O.C and ARL curves of control charts, moving average control charts, EWMA charts, CUSUM charts, process capability analysis, process capability indices –  $C_p$  and  $C_{pk}$ .

### UNIT III

Acceptance sampling for attributes, single sampling, double sampling, multiple sampling and sequential sampling plans, rectifying inspection plans, measuring performance of the sampling plans- OC, AOQ, ASN, ATI curves.

### UNIT IV

Acceptance sampling plans by variables, designing a variable sampling plan with a specified OC curve, sampling plan for a single specification limit with known and unknown variance.

#### Text Books:

1. Montgomery D. C. (2005) Introduction to Statistical Quality control, 5<sup>th</sup> edition, Wiley.
2. Grant E. L. and Leavenworth R. S. (1980) Statistical Quality control, McGraw Hill.

#### Reference books:

1. Duncan A. J. (1980) Quality control and Industrial Statistics, Irwin Homewood.
2. Schilling E. G. (1982) Acceptance Sampling in Quality Control, Marcel Decker.
3. Ott E.R. (1975) Process Quality Control, McGraw Hill.
4. Mittag H. J. and Rinne, H. (1993) Statistical Methods for Quality Assurance, Chapman and Hall.
5. Chin-knei Cho (1987) Quality Programming, John Wiley.