

AMPT21 PRINT STATISTICS

UNIT-1 QUALITY, PROCESS, CONTROL AND PROCESS VARIABILITY

- 1.1 Basic concepts, TQM, Processes and SPC System, Basic tools, Information about process,
- 1.2 Process mapping and flowcharting, process analysis, Variation, types and causes of variation

UNIT-2 DATA COLLECTION AND DATA DISTRIBUTION

- 2.1 Approach, Sampling, sampling distribution and unbiasedness, determining the sample size, collection of data, bar charts, Normal distribution, Binomial and multinomial distribution,
- 2.2 Poisson distribution, Geometric distribution, Exponential distribution, Uniform distribution, areas under normal curve

UNIT-3 EXPLORATORY DATA ANALYSIS

- 3.1 Histogram , Scatter diagram, amount of variability of data set, Box and whisker plot,
- 3.2 Empirical quantiles, quartiles and the IQR, The central limit theorem, standardizing averages,
- 3.3 Application of central limit theorem, Measures of accuracy or centering,
- 3.4 The centre of a data set, the amount of variability of a data set, Measures or precision or spread

UNIT 4: PROCESS ANALYSIS, CONTROL AND IMPROVEMENT

- 4.1 Run charts, Control charts for variables such as X bar-R chart, X bar-S chart, X-MR,
- 4.2 Zone chart; Process problem solving, Pareto analysis, cause and effect analysis,
- 4.3 Use of control charts for managing out of control processes,

UNIT-5 BASIC STATISTICAL MODELS

- 5.1 Random samples and statistical models, distribution features and sample statistics,
- 5.2 Estimating true distribution, simple linear regression and correlation model,
- 5.3 Correlation coefficient, Introduction to multiple linear regression

UNIT-6 SIX SIGMA PROCESS QUALITY

- 6.1 Process Capability Analysis, SPC and management system,
- 6.2 Defining six sigma, benefits, and problem solving process (DMAIC), six sigma and role of design of experiments, Break through management

Reference Books:

1. John S. Oakland, (2003), Statistical Process Control, 5th Edition, ButterworthHeinemann
2. Thomas Pyzdek, (2003), The Six Sigma Handbook: A complete guide for Green Belts, Black Belts and Managers at all levels, McGraw-Hill Companies, Inc.
3. Modi S. M., Statistical Process Control and Related Quality Tools, D. L. Shah Trust