

OBJECTIVES:

- To understand software metrics and measurement.
- To emphasize the use of product and quality metrics.
- To explain quality assurance and various tools used in quality management.
- To learn in detail about various quality assurance models.
- To understand the audit and assessment procedures to achieve quality.

UNIT I INTRODUCTION TO SOFTWARE METRICS 9

Fundamentals of measurement-Scope of software metrics-Measurement theory-Software measurement validation software metrics data collection – Analysis methods.

UNIT II PRODUCT AND QUALITY METRICS 9

Measurement of internet product attributes-size and structure-external product attributes measurement of quality- Software quality metrics-product quality-process quality- metrics for software maintenance.

UNIT III FUNDAMENTALS OF SOFTWARE QUALITY ASSURANCE 9

SQA basics-Software quality in business context – Planning for software quality assurance – Product quality and process quality – Software process models -Total Quality Management- 7 QC Tools and Modern Tools.

UNIT IV QUALITY ASSURANCE MODELS 9

Models for Quality Assurance-ISO-9000 – Series- CMM- CMMI-Test Maturity Models, SPICE, Malcolm Baldrige Model- P-CMM.

UNIT V SOFTWARE QUALITY ASSURANCE TRENDS 9

Software Process- PSP and TSP - OO Methodology, Clean-room software engineering, Defect injection and prevention -Internal Auditing and Assessments-Inspections & Walkthroughs.

OUTCOMES:

- Knowledge on how to choose which metrics to collect and use them to make predictions.
- Ken on product and quality metrics.
- Understand how to detect, classify, prevent and remove defects.
- Choose appropriate quality assurance models and develop quality.
- Ability to conduct formal inspections, record and evaluate results of inspections.

TOTAL: 45 PERIODS**REFERENCES:**

1. Norman E-Fentor and Share Lawrence Pflieger.” Software Metrics”. International Thomson Computer Press, 1997.
2. Stephen H.Kan,”Metric and Models in software Quality Engineering”, Addison QWesley 1995.
3. S.A.Kelkar,”Software quality and Testing, PHI Learning, Pvt, Ltd., New Delhi 2012.
4. Watts S Humphrey, “Managing the Software Process”, Pearson Education Inc, 2008.
5. Mary Beth Chrissis, Mike Konrad and Sandy Shrum, “CMMI”, Pearson Education(Singapore) Pte Ltd, 2003
6. Philip B Crosby, " Quality is Free: The Art of Making Quality Certain ", Mass Market, 1992.