



Syllabus		
Unit No.	Contents	Mapped CO
I	<b>Fundamentals of Measurement:</b> Measurement: what is it and why do it?: Measurement in Software Engineering, Scope of Software Metrics, <b>The Basics of measurement:</b> The representational theory of measurement, Measurement and models, Measurement scales and scale types, meaningfulness in measurement	CO1
II	<b>A Goal-Based Framework For Software Measurement:</b> Classifying software measures, Determining what to Measure, Applying the framework, Software measurement validation, Performing Software Measurement validation <b>Empirical investigation:</b> Principles of Empirical Studies, Planning Experiments, Planning case studies as quasi-experiments ,Relevant and Meaningful Studies	CO1,CO2
III	<b>Software Metrics Data Collection:</b> Defining good data ,Data collection for incident reports, How to collect data, Reliability of data collection Procedures <b>Analyzing software measurement data:</b> Statistical distributions and hypothesis testing, Classical data analysis techniques, Examples of simple analysis techniques	CO2
IV	<b>Measuring internal product attributes: Size</b> Properties of Software Size, Code size, Design size, Requirements analysis and Specification size, Functional size measures and estimators, Applications of size measures <b>Measuring internal product attributes: Structure:</b> Aspects of Structural Measures, Control flow structure of program units, Design-level Attributes, Object-oriented Structural attributes and measures	CO3
V	<b>Measuring External Product Attributes:</b> Modelling software quality, Measuring aspects of quality, Usability Measures, Maintainability measures, Security Measures <b>Software Reliability: Measurement and Prediction:</b> Basics of reliability theory, The software reliability problem, Parametric reliability growth models, Predictive accuracy	CO3,CO4

### Learning Resources

#### Text Books

1. Software Metrics A Rigorous and Practical Approach, Norman Fenton, James Bieman , Third Edition, 2014

#### References

1. Software metrics, Norman E, Fenton and Shari Lawrence Pfleeger, International Thomson Computer Press, 1997
2. Metric and models in software quality engineering, Stephen H.Kan, Second edition, 2002, Addison-Wesley Professional.
3. Measuring the Software Process, William A. Florac and Areitor D. Carletow, 1995, Addison – Wesley.
4. Practical Software Metrics for Project Management and Process Improvement, Robert B.Grady, 1992, Prentice Hall.