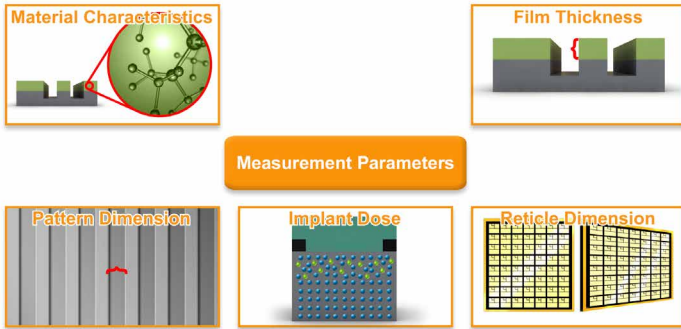


# SEMICONDUCTOR METROLOGY BASICS

eLearning courses designed to increase productivity and profits



## Learning Made Simple, Visual, and Interactive

The THORS *Semiconductor Metrology Basics* course introduces the learners to the significance of testing in semiconductor manufacturing. This course focuses on key measurements in semiconductor metrology for defect inspection and process control. Presented in THORS' highly visual and interactive learning format, this course will equip the learner with a foundational knowledge of semiconductor metrology.

Credit Hours **1.5**

## Learning Objectives

- Recognize the significance of metrology in semiconductor manufacturing.
- Identify the types and causes of defects.
- Classify defects based on the pattern of their occurrence on the wafer.
- Recognize the methods used for defect review.
- Explain the key parameters required to characterize and control semiconductor manufacturing processes.

## Table of Contents

### I. Defect Inspection

- Defect Identification
  - Types of Defects
  - Causes of Defects
    - Errors in Manufacturing Processes
    - Presence of Particles
- Defect Characterization
- Defect Review
  - Traditional Methods
  - Deep Learning

### II. Process Characterization

- Deposited Film Characterization
- Metalized Film Characterization
- Photolithography Characterization
  - Photoresist Thickness
  - Pattern Dimension
  - Alignment
- Etch Characterization
  - Critical Dimension (CD)
  - Etch Rate
  - Etch Selectivity

### III. Process Characterization (Continued)

- Chemical Mechanical Polishing (CMP) Characterization
- Ion Implantation Characterization
  - Ion Implant Dose and Depth
  - Ion Implant and Anneal Uniformity
  - Sheet Resistance
  - Doping Concentration

