ABSTRACT

Wafer Inspection in Photolithography*

MODULE 045 *Full Title: *Wafer Inspection in the Photolithography Process*

Learning Activities	Time in Class	Outside Time
4	2.0 hrs	2.5 hrs

OVERVIEW

In this module, your students begin to master the sensitive After Develop Inspection (ADI) methods that follow photolithography. As the "shrink" on feature size continues, the need for precise inspection grows both more difficult and more critical. MATEC describes macro- and micro-inspection techniques and distinguishes qualitative (inspection) from quantitative (metrology) methods. The chief focus is on teaching students to examine wafers under an optical microscope; a simulated microscope is also provided in a computer-based training (CBT) format. The module covers edge bead inspection and provides extensive practice in flash boundary inspection, including evaluating Nikon crosses, overlay boxes, scanning electronic microscope features, resolution bars, Verniers, and product identification numbers.

MODULE CONTENTS

Narrative
Overview
Learning Activity 01: Associate human scale with microscopic scale of semiconductor manufacturing
Learning Activity 02: Lecture on After Develop Inspection (ADI)
Learning Activity 03: Lecture on Manual After Develop Inspection (MADI)
Learning Activity 04: Inspect a wafer
Slide Show 01: After Develop Inspection
Slide Show 02: Manual After Develop Inspection
Supplemental Activity 01: Demonstration of an optical microscope
Supplemental Activity 02: Practice using of an optical microscope
Performance Assessment 01:
Student Handout 01: Scaling: *Microscopic Scale of Semiconductor Manufacturing*
Student Handout 02: The Inspector's Tools
Student Handout 03: Manual After Develop Inspection
Student Notes 01: After Develop Inspection (ADI)
Student Notes 02: Manual After Develop Inspection (MADI)
Appendix 01: The Optical Microscope
Appendix 02: Operation of the Optical Microscope

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