

## **EC6005 ELECTRONIC TESTING**

### DETAILED SYLLABUS

#### **OBJECTIVES:**

- To understand the basics of testing and the testing equipments
- To understand the different testing methods

#### **UNIT I INTRODUCTION**

Test process and automatic test equipment, test economics and product quality, fault modeling

#### **UNIT II DIGITAL TESTING**

Logic and fault simulation, testability measures, combinational and sequential circuit test generation.

#### **UNIT III ANALOG TESTING**

Memory Test, DSP Based Analog and Mixed Signal Test, Model based analog and mixed signal test, delay test, IIDQ test.

#### **UNIT IV DESIGN FOR TESTABILITY**

Built-in self-test, Scan chain design, Random Logic BIST, Memory BIST, Boundary scan test standard, Analog test bus, Functional Microprocessor Test, Fault Dictionary, Diagnostic Tree, Testable System Design, Core Based Design and Test Wrapper Design, Test design for SOCs

#### **UNIT V LOADED BOARD TESTING**

Unpowered short circuit tests, unpowered analog tests, Powered in-circuit analog, digital and mixed signal tests, optical and X-ray inspection procedures, functional block level design of in-circuit test equipment

#### **TEXT BOOK:**

1. Michael L. Bushnell and Vishwani D. Agarwal, "Essentials of Electronic Testing for Digital, Memory & Mixed-Signal VLSI Circuits", Springer, 2006.

#### **REFERENCE:**

1. Dimitris Gizopoulos, "Advances in Electronic Testing", Springer 2006.