

*Chemical Vapor Deposition Overview*

**Course Description:**

This course is developed for the Semiconductor Processing Industry to provide professional development for a broad audience of employees working for semiconductor manufacturers and suppliers. The intended audiences are those who require a broad overview of the specific process to understand in general terms the potential relationship of this particular process both to upstream and downstream processes. While this course is technical in nature, it does not focus on specific process related information, merely, on general principles of the specific process.

**Chapters**

Introduction

- Identify a simplified multi-step fab sequence.
- Identify three applications of thin films.
- List three methods of thin film deposition.
- List four methods of chemical vapor deposition.
- Identify one advantage and one disadvantage of each method of chemical vapor deposition.

Process Fundamentals

- Define the chemical vapor deposition process.
- Identify two types of CVD reaction rate control.
- Identify three methods of heat transport.

APCVD Fundamentals

- Identify the most common use of APCVD in semiconductor processing.
- Identify key components of a typical APCVD continuous belt reactor.
- Identify the deposition area boundaries of a typical APCVD continuous belt reactor.
- Identify the major characteristics of the APCVD process gases.
- Identify the two major equipment variations of a typical APCVD continuous belt reactor.

LPCVD Fundamentals

- Identify the pressure and temperature characteristics of the LPCVD process.
- Identify key components of a typical LPCVD system.
- Identify two practical advantages of LPCVD processing.
- Identify the two major types of LPCVD reaction chambers and the advantages and disadvantages of each.

PECVD Fundamentals

- Identify the definitions of the terms plasma, ion, RF, radical, excitation, relaxation, ionization, recombination, plasma potential and plasma shielding.
- Identify the major regions of a DC plasma discharge.
- Identify the major regions of an RF plasma discharge.
- Identify the characteristics of a typical RF plasma system.
- Identify the characteristics of PECVD film formation.
- Identify key components of a typical PECVD system.
- Identify two major areas of safety concern with PECVD systems.

- ♦ SEMICONDUCTOR  
TECHNICAL TRAINING
- ♦ ELECTRONICS TRAINING
- ♦ MANAGEMENT TRAINING
- ♦ MANUFACTURING  
ASSISTANCE
- ♦ INSTRUCTIONAL DESIGN
- ♦ TECHNOLOGY  
COMMERCIALIZATION
- ♦ COMMUNITY  
DEVELOPMENT
- ♦ STRATEGIC BUSINESS  
PLANNING/MARKET  
RESEARCH
- ♦ WORKFORCE  
DEVELOPMENT
- ♦ TRAINING  
ASSESSMENTS
- ♦ COMPUTER-BASED  
TRAINING
- ♦ BUSINESS PROCESS  
RE-ENGINEERING

