

SYLLABUS
PART I
EDISON STATE COMMUNITY COLLEGE
MFG 150S INTRODUCTION TO SEMICONDUCTOR PROCESSES
3 CREDIT HOURS

COURSE DESCRIPTION

Explores career opportunities within the semiconductor industry and how people effectively work in a cleanroom environment and adhere to chemical safety best practices. Students will be introduced to how semiconductor wafers are manufactured and processed to become an integrated circuit used in a variety of industries.

COURSE GOALS

The student will:

Bloom's Level		Program Outcomes
1	1. Demonstrate the capability of working safely in a cleanroom environment.	3, 4, 8
2	2. Explain how a semiconductor wafer is manufactured into an integrated circuit.	3, 4
1	3. Explore career opportunities in the semiconductor industry.	3, 8
2	4. Understand how to work efficiently and safely in a microelectronic manufacturing environment of on-time delivery with digital checklists.	3, 4, 8
3	5. Articulate chemical and safety awareness in semiconductor manufacturing, including chemicals used in cleaning and gases used in thin film and plasma.	3, 4
2	6. Explain key concepts used in etching, diffusion, and vacuum systems.	3, 4, 7, 9
2	7. Explain the purpose and maintenance of a cleanroom atmosphere in processing.	3, 4, 9

CORE VALUES

The Core Values are a set of principles that guide in creating educational programs and environments at Edison State. They include communication, ethics, critical thinking, human diversity, inquiry/respect for learning, and interpersonal skills/teamwork. The goals, objectives, and activities in this course will introduce/reinforce these Core Values whenever appropriate.

TOPIC OUTLINE

1. Introduction to semiconductors
2. Cleanroom gowning and safety
3. History of transistor applications
4. Introduction to nanofabrication
5. Cleanroom best practices
6. Silicon and dopants
7. Wafer fabrication and thin film deposition
8. Semiconductor lithography and etching
9. Diffusion processes
10. Dicing and packaging