NANOFABRICATION MANUFACTURING TECHNOLOGY, Associate in Applied Science Degree - 4690

Technology Division

The skills learned in this program are used in chip manufacturing, pharmaceuticals, micro-electromechanical systems, sensors, biomedicine, opto-electronics, and cutting-edge computer displays. Students gain those hands-on skills in the laboratory at HACC and the Pennsylvania State University. The Nanofabrication Manufacturing Technology program uses a resource-sharing approach to "high-tech" workforce development. After successfully completing three semesters of background work with a minimum 3.0 GPA and a letter of recommendation from a HACC electronics faculty, students go to the PSU Electronic Materials and Processing Research Laboratory (EMPRL), located in State College, Pa. The complete three semesters are available only at the Harrisburg Campus; several courses are available at the Lancaster and Lebanon Campuses.

Career Opportunities
Graduates of the program enter the job market as clean-room technicians in the semiconductor manufacturing industry.

Competency Profile
This curriculum is designed to prepare students to:

- Assist a technical team in the clean-room environment
- Operate and maintain clean-room equipment
- Work in a micro- or Nanofabrication environment
- Demonstrate proper safety when working in a chemical environment
- Demonstrate knowledge of clean-room procedures
- Write and speak effectively
- Appreciate accomplishment in the arts and sciences

PROGRAM REQUIREMENTS (TOTAL CREDITS = 71)

General Education		Major		Other Required Courses	
ENGL 101 English Composition I	3	CAD 154 Computer Aided Drafting and Design	2	CHEM 100 Principles of Chemistry **or**	
ENGL 104 Report and Technical Writing	3	ELEC 101 Equipment Utilization	1	CHEM 101 General Chemistry I	3 (4)
SPCH 104 Interpersonal Communication	3	ELEC 106 Fundamental of Electronics	4	MATH 103 College Algebra	3
Core A Elective	3	ELEC 111 AC/DC Circuits I	4	MATH 104 Trigonometry	3
Core B Elective	3	ELEC 125 Introduction to PC Technology	3	MATH 202 Statistics (Core C Elective)	3
Free Elective	3	ELEC 213 Digital Electronics	4	PHSC 113 Introduction to Physical Science	3
Physical Education & Wellness	1	GTEC 111General Technology Orientation	1		15
	19	NFAB 211 Material, Safety & Equipment Overview	3		
		NFAB 212 Basic Nanofabrication Procedures	3		
		NFAB 213 Thin Films	3		
		NFAB 214 Lithography	3		
		NFAB 215 Materials Modification	3		
		NFAB 216 Characterization, Packaging and Testing	3		
			37		

RECOMMENDED SEQUENCE FOR FULL-TIME STUDENTS

Part-time students can complete this program by taking one or more courses each semester.

Fall Semester		Spring Semester		Summer Session		Fall Semester		Spring Semester	
ELEC 101	1	ELEC 111	4	Core A Elective	3	CHEM 100 or 101	3 (4)	(Capstone Semester at EMPRL)	
CAD 154	2	SPCH 104	3	Core B Elective	3	ELEC 106	4	NFAB 211	3
ELEC 125	3	MATH 104	3	PE & W	1	MATH 202	3	NFAB 212	3
GTEC 111	1	ENGL 104	3			PHSC 113	3	NFAB 213	3
MATH 103	3	ELEC 213	4			Free Elective	3	NFAB 214	3
ENGL 101	3							NFAB 215	3
								NFAB 216	3

Effective Fall 2008 all Associate Degree Programs must meet Diversity (D) and Physical Education and Wellness (W) requirements.