NANOSCIENCE TECHNOLOGY

Delivery: Daytime Classes
Start: Fall Semester, Full- or Part-Time
Location: Rosemount Campus (Semester 1-3), University of Minnesota (Semester 4)

Outcome

Nanoscience Technology A.A.S. Degree . . . . . 72 cr.

Major Description

This program prepares students for careers in nanobiotech, nanomaterials and nanoelectronics industries. The program also provides a strong foundation applicable to environmental, energy and agricultural industries. The curriculum is a combination of classroom and laboratory experiences, with hands on use of nanoscale equipment in all 4 semesters. Students have several opportunities for individual research and exploration of nanoscale concepts. Offered in partnership with the University of Minnesota, the program provides skills and knowledge required for employment in a large number of companies. The DCTC program also provides a starting point to four year degrees at multiple institutions in many degree programs. Processes of scientific inquiry, experiment and research design, critical thinking, and communication are aspects that are woven into each course.

Work Environment

Nanoscience technologists work in multiple business environments including research, production, testing, training and marketing. Often this role is a bridge between scientists, engineers and other technicians. Program graduates may work independently in some aspects but most often are part of a team. Your job will include some desk work but most of your time will be spent in a laboratory environment preparing test samples, microscope operation and testing, documentation and analysis and communication of your results. These technologists do not usually do the same thing for many months at a time. Finally, although nanoelectronics related jobs may occur in a clean room, most of these jobs are in traditional company research environments and labs. The options and work environments are varied and expanding with the United States nanotech market expected to $1 trillion by 2015.

Potential Job Titles

- Chemical Technician
- Lab Technician
- Manufacturing Technician
- Nanobiotech Research Assistant
- Nanomaterials Research Associate
- Nanoscale Fabrication Technician
- Nanotechnologist
- Quality Control Technician
- Research Assistant

Salary Data

- Average Wage (U.S.): $21.29/hour
- Top Earners (U.S.): $29.10/hour

NANOSCIENCE TECHNOLOGY – A.A.S. DEGREE

This is a sample course sequence.
Please contact your program advisor regarding your academic plans.

First Year - First Semester

NANO1100	Fundamentals of Nanoscience I	3
PHYS1100	College Physics I	4
BIOL1500	General Biology	4
SPEE1020	Interpersonal Communication	3
MATS1300	College Algebra	4
	Total Credits	**18**

First Year - Second Semester

NANO1110	Student Research	3
NANO1200	Fundamentals of Nanoscience II	3
NANO1210	Computer Simulation	1
CHEM1500	Introduction to Chemistry	4
MATS1251	Statistics	4
PHYS1200	College Physics II	4
	Total Credits	**19**

Second Year - First Semester

NANO2101	Nanoelectronics	3
NANO2111	Nanobiotechnology/Agriculture	3
NANO2121	Nanomaterials	3
NANO2131	Manufacturing Quality Assurance	2
NANO2140	Interdisciplinary Lab	3
NANO2151	Career Planning and Industry Tours	1
ENGL1150	Composition I	3
	Total Credits	**18**

Second Year - Second Semester

At the University of Minnesota		
MT 3111	Elements of Microelectronic Manufacturing	3
MT 3112	Elements of Micro & Nano Manufacturing Lab	1
MT 3121	Thin Films Deposition	3
MT 3131	Introduction to Materials Characterization	3
MT 3132	Materials Characterization Laboratory	1
MT 3141	Principles & Applications of Bionanotechnology	3
MT 3142	Nanoparticles and Biotechnology Laboratory	1
NANO2970	Industry Internship & Observation	2
	Total Credits	**17**
	TOTAL PROGRAM REQUIREMENTS	**72**

DAKOTA COUNTY
TECHNICAL COLLEGE

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2013-2014 CATALOG

DCTC IS A MEMBER OF THE MINNESOTA STATE COLLEGES AND UNIVERSITIES SYSTEM AND AN AFFIRMATIVE ACTION, EQUAL OPPORTUNITY EMPLOYER AND EDUCATOR.