



Applied Manufacturing Technology

Applied manufacturing technology includes the planning, management, and processing of materials into intermediate or final products as well as professional and technical support activities such as production planning and control, maintenance, and manufacturing process engineering. Demand for skilled employees is growing rapidly in this field.

Manufacturing Technology Occupations in Highest Demand

- Health, safety, environmental assurance
- Industrial engineering technician
- Manufacturing engineering technician
- Operations manager
- Quality control technician
- Production manager
- Team assembler

Potential Careers in Manufacturing Engineering Technology

- Product design
- 3-D CAD modeling
- Process planning
- Production scheduling
- Quality technician
- CNC programming and operation
- Automated production
- Technical sales

Graduates with a Bachelor of Science in Applied Manufacturing Technology (NIU), find careers at companies like

- AON
- Caterpillar
- Chrysler
- Conner-Winfield
- Hamilton Sundstrand
(UTC Aerospace Systems)
- Ideal Industries
- Ingersoll
- Motorola
- Siemens
- Underwriters Labs
- Woodward

2015 median pay for an industrial engineer technician is \$53,780

Integrated Work-Based Learning Components

<p>Career Awareness Activities Workplace Tours, Guest Speakers, or Career Fairs</p>	<p>Career Exploration Activities Job Shadowing, Site Visits, or Informational Interviews</p>	<p>Career Practice Activities Student Camps and Challenges, Student Enterprises, or Service Learning</p>	<p>Professional Learning Internships and Industry Credentials</p>
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Did you know...

Analysts project **1,000,000 manufacturing vacancies** by the year 2020.

Source: 2014 Boeing Pilot & Technician Outlook

The average US Manufacturing worker earns more than \$77,000... **almost 25% more** than other sectors.

Source: National Association of Manufacturers

The **fastest-growing jobs** in the Rockford area are in the manufacturing of transportation equipment, electrical equipment, appliances, and components.

Source: Regional P-20 Network Emerging Jobs Report

Manufacturing is responsible for 9% of the employment, 60% of exports and 69% of private funding for research and development.

Source: treasury.gov

Manufacturing productivity has **grown 15%** in the United States since 2009.

Source: treasury.gov

For every \$1.00 spent in manufacturing, another **\$1.37 is added** to the economy.

Source: mfgtalkradio.com

All required 300-400 courses in NIU's Applied Manufacturing Technology program are **offered online**.

See back panel for more specific program requirements >>

Recommended Applied Manufacturing Technology Pathway

Expected Time at NIU: 3-4 semesters

Sterling High School				Sauk Valley Community College						Northern Illinois University		
Illinois High School Diploma				Associate in Applied Science (A.A.S.) - Multicraft Technology with Emphasis in Alternative Energy, Electrical, Electronics, HVAC, or Welding						Bachelor of Science (B.S.) - Applied Manufacturing Technology		
Year 1	Year 2	Year 3	Year 4	Year 1*		Year 2*		Year 3		Professional Courses		
Tech Zone	Tech Zone	Tech Zone	Tech Zone	Intro to Digital Electronics EET 110	Programmable Controllers EET 245	Electrical Controls ELT 262	Photovoltaics ENE 130	Sheet Metal HRS 114	Introduction to Physics PHYS 175	Industrial Quality Control TECH 391	Industrial Project Management TECH 496	
			Technical Math	Fundamentals of Electricity ELT 120	Industrial & Agriculture Writing ELT 259	Fluid Power IND 218	Shielded Metal Arc Welding WLD 102	Industrial Communications IND 239	Emphasis Elective 3 hours	Supervision in Industry TECH 404	Human Factors in Ind Accident Prevention TECH 434	
Courses at Whiteside Area Career Center (WACC)				Engineering Graphics EGR 103	Mechanical Systems IND 118	OSHA Standards IND 131	Emphasis Elective 3 hours	Emphasis Elective 3 hours		Facilities Management Technology TECH 406	Manufacturing Distribution Applications TECH 492	
		Introduction to CAD IND 108***	Welding and Manufacturing Technology WLD 106***	First Year Experience FYE 101	Introduction to CAD IND 108***	Welding Fundamentals WLD 106***				Disaster Preparedness TECH 432	Plant Location, Layout, Materials Management TECH 429	
				* After enrollment, one Summer must be used for an Industrial Internship (IND 250) of at least one hour.						Tech Elective 3-4 hours	Tech Elective 3-4 hours	
Recommended Math/Science Biology, Chemistry, Conceptual Physics, Physics, College Readiness Math, Algebra I, Geometry, Algebra 2, Algebra 3 and Trigonometry				Recommended Math/Science College Algebra (MAT 121), Trigonometry (MAT 122)			MAT 121 or Higher♦	Statistics MAT 240♦	Chemistry I CHM 103♦	General Education Requirements A total of 120 credit hours is required for a bachelors degree. Upon successful completion of this planning information, 87 credit hours can be transferred. This totals 117 credits accomplished on this pathway. However, 3 additional credit hours are required for graduation.		
Recommended English/Social Studies English I and 2, Speech, Creative Writing, World History or Accelerated, Statistical Analysis in Current Events, United States History, Economics, Sociology, Government				Recommended English/Social Studies			Composition I ENG 101	Composition II ENG 103	Oral Communications SPE 131♦			
Recommended Electives Please consult your advisor on specific course listings, but examples are: Graphic Design, Image and Sound, Interactive Media, Motion Graphics				Recommended Electives For elective credits, please refer to the NIU Articulation tables in order to obtain the following credits, following the courses listed at (http://catalog.niu.edu/preview_program.php?poiid=9211). Parenthesis () denote SVCC equivalents.						Recommended Electives <ul style="list-style-type: none"> TECH 305: Green Technologies TECH 402: Industrial Training & Evaluation TECH 435: Legal Aspects of Safety TECH 442: Work Simplification & Measurement TECH 444: Manufacturing Control Systems TECH 484: Energy Management 		
Dual Credit, AP, or Articulated Credit Chemistry 2 (CHE 103), AP Chemistry, AP Biology, Dual Enrolled College Algebra (MAT 121), AP Statistics, AP Calculus, Dual Enrolled Trigonometry (MAT 122), AP Language & Composition, Introduction to CAD (IND 108), Welding and Manufacturing Technology (WLD 106)				Creativity and Critical Analysis or Society and Culture Elective (Humanities and Fine Arts or Social and Behavioral Sciences) 3-4 credits		Creativity and Critical Analysis Elective 6-8 credits♦	Society and Culture Elective 6-8 credits♦					
Prerequisite Information Students must be at least 16 years of age and have junior or senior status to take courses at WACC. Students will work in a machine/welding shop approximately 75% of the time while at WACC. Students must be able to work in the confines of a welding booth (3'x4'), have the ability to lift 40 pounds, must be able to stand for an hour and forty-five minutes, and must have the strength and mobility to operate machines such as lathes, grinders, and welding torches. Welding 2 students must have their own transportation.				Prerequisite Information There are no specific prerequisite requirements for SVCC's Multicraft Technology Program. As such, please refer to (https://www.svcc.edu/students/future/get-started/new.html?navRef=3010305) for the New Student checklist to aid in applying to Sauk Valley Community College.						Prerequisite Information Complete an AAS in one of the following programs: <ul style="list-style-type: none"> Electronic Engineering Technology Heating, Refrigeration and Air Conditioning Multicraft Technology Sustainable Technologies 		
Professional Learning/Internships				Emphasis Information Emphasis in Alternative Energy, Electrical, Electronics, HVAC, or Welding should be chosen by the end of Semester 4. Please see (http://catalog.svcc.edu/preview_program.php?catoid=&poiid=1242)						Prof Learning/Internships		
Industry Credentials Earned				Industry Credentials Earned OSHA 10 certificate, SET - Student Electronics Technician (if Electronics emphasis).						Industry Credentials Earned		
Degree Completion Information				Degree Completion Information Joshua West, Multicraft Technology Program Director of Business, Career, & Technical Programs joshua.j.west@svcc.edu 815-835-6334						Degree Completion Information Stacey Deegan, Technology Program Advisor, College of Engineering and Engineering Technology sdeegan@niu.edu 815-753-9943		

- Key**
- Career-focused instructional sequence
 - Academic Competencies
 - Professional Learning
 - ◆ NIU Specific Requirement

Note: This information is meant to be a guide. It assumes that students take 15-18 credit hours per semester at the community college level. Professional courses and estimated time at NIU reflect the department's typical student course load and availability. Please contact a counselor at the appropriate institution for the most up to date information and to plan your own Pathway.



Nursing includes the promotion of health, prevention of illness, and the care of ill, disabled, and dying people. Advocacy, research, education, promotion of safety, participation in shaping health policy, and patient and health systems management are also key nursing roles. Strong demand for nurses will continue.

Potential Careers in Nursing

- Registered nurse
- Licensed practical nurse
- Nurse practitioner
- Medical and health services management

Where Nurses Work

- General and surgical hospitals
- Doctor's offices
- Nursing care facilities
- Outpatient facilities
- Home health services
- Pharmaceutical companies

Recent nursing school graduates enjoy some of the highest starting salaries among their peers in other industries

- \$86,470 – Personal Care Services
- \$74,940 – Pharmaceutical and Medical Manufacturing
- \$74,930 – Colleges, Universities, and Professional Schools
- \$74,180 – Medical Equipment and Supplies Manufacturing

Did you know...

The job outlook for Registered Nurses is projected to grow at a rate of 19% between 2012 and 2022 (faster than average growth rate of occupations - 11%) .
Source: Bureau of Labor Statistics

Registered Nurses receive an annual median pay of \$65,470 per year with an Associate's degree
Source: Bureau of Labor Statistics

581,500 more nursing jobs are expected by 2018
Source: Bureau of Labor Statistics

NIU's Bachelor of Science in Nursing (BSN) program ranks 21 out of the top 50 schools offering BSN degrees that "...offer the best combination of cost and return on investment so you can know you're getting a degree that is worth your time and tuition."
Source: www.vahiecolleges.com

Integrated Work-Based Learning Components

See back panel for more specific program requirements >>

<p>Career Awareness Activities Workplace Tours, Guest Speakers, or Career Fairs</p>	<p>Career Exploration Activities Job Shadowing, Site Visits, or Informational Interviews</p>	<p>Career Practice Activities Student Camps and Challenges, Student Enterprises, or Service Learning</p>	<p>Professional Learning Internships and Industry Credentials</p>
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Recommended Nursing Pathway

Expected Time at NIU: 3-4 semesters

 Sterling High School Illinois High School Diploma				 Sauk Valley Community College Associates of Applied Science (A.A.S.) – Nursing					 Northern Illinois University Bachelors of Science (B.S.) - Nursing			
Year 1	Year 2	Year 3	Year 4	Year 1	Year 2	Year 3*	Professional Courses					
			Chemistry 2 Credit for CHE 103**	Introductory Biology BIO 103♦	Fundamentals of Nursing Practice NRS 140	Medical Surgical Nursing I NRS 142	Advanced Medical Surgical Nursing NRS 243	Psychiatric/Mental Health Nursing NRS 246	Concepts of Professional Nursing NURS 347	Genetics and Human Genomics for Nurses NURS 408	Practicum in Leadership and Population-Focused Nursing NURS 463	
				Introduction to Chemistry CHE 103♦***	Pharmacology for Nursing NRS 141	Introductory Microbiology BIO 111♦	Pediatric Nursing NRS 244	Transition into Practice Capstone NRS 247	Health Assessment NURS 304	Nursing Research NURS 312	Nursing, Ethics and the Law NURS 488	
Courses at Whiteside Area Career Center (WACC)				First Year Experience FYE 101	Human Anatomy and Physiology I BIO 109	Human Anatomy and Physiology II BIO 110	Reproductive Health NRS 245	Human Growth & Development PSY 200♦****	Health Assessment Laboratory NURS 307	Population-Focused Nursing NURS 419	Gerontological Nursing NURS 435	
			Health Occupations - CNA	Nutrition and Diet Therapy PED 115♦****					Alterations in Biological Systems NURS 308	Nursing Leadership NURS 432	Basic Nutrition FCNS 201, testing, or PED 115****	
									Nursing Informatics NURS 425		Lifespan Development FCNS 281, testing, or PSY 200****	
				* An additional 12 credit hours are required for the B.S.N. These credits may be able to be met with additional SVCC coursework.								
Recommended Math/Science Anatomy and Physiology, Accelerated Biology, Accelerated Chemistry, Chemistry 2 (Dual Enrollment), Algebra 3 and Trigonometry, Calculus, Statistics				Recommended Math/Science College Algebra (MAT 121), Trigonometry (MAT 122)			MAT 121 or Higher♦	Elementary Statistics MAT 240♦	General Education Requirements A total of 120 credit hours are required for a bachelors degree. General requirements have been reflected in additional classes taken at SVCC. Please refer to (http://www.chhs.niu.edu/nursing/_pdf/RN-Info.pdf) and the SVCC Nursing program limited transfer information from NIU for the most up to date information (http://niu.edu/admissions/transfer/plan/credits/limited/ageneric/saukvalley/svcc-nursing.pdf).			
Recommended English/Social Studies Accelerated English 1 and 2, AP Language & Composition, Speech, Creative Writing, World History or Accelerated, Statistical Analysis in Current Events, United States History, Economics, Sociology, Government				Recommended English/Social Studies		Composition I ENG 101	Composition II ENG 103♦	Intro to Oral Communication SPE 131♦				
Recommended Electives 2 years of Foreign Language (French or Spanish), Service Learning				Recommended Electives For elective credits, please refer to NIU articulation tables to obtain the following credits, following the courses listed at (http://catalog.niu.edu/preview_program.php?poid=9211).								
Dual Credit, AP, or Articulated Credit Chemistry 2 (CHE 103), AP Chemistry, AP Biology, Dual Enrolled College Algebra (MAT 121), AP Statistics, AP Calculus, Dual Enrolled Trigonometry (MAT 122), AP Language & Composition, AP English Literature & Composition, Health Occupations - CNA (WACC)				Creativity and Critical Analysis Elective 3-4 credits♦	Society and Culture Elective 3-4 credits♦	Introduction to Psychology PSY 103	Introduction to Logic and Formal Reasoning PHL 101					
Prerequisite Information Student must be at least 16 years of age and have junior or senior status to take courses at WACC. In addition, the Health Occupations program is a state regulated program, and requires students to have updated immunizations, TB test, and possibly flu shots if required by the clinical site. Student must also be able to lift 25 pounds as it is a state mandated CNA skill to perform a two person lift on residents who are 119 pounds or less.				Prerequisite Information TEAS Testing required for all applicants (valid for 3 years). Active CNA certificate on file with IDPH required. GPA of 2.5 or above. ACT Writing (8 or above). Four semesters of high school Algebra with grade of "C" or better. Completion of two semesters of high school Chemistry with grade of "C" or better. Completion of four semesters of high school Biology with grade of "C" or better. OR grade of "C" or better in BIO 105 or BIO 108 at SVCC.				Prerequisite Information Before the RN to BS NIU Degree, students must achieve/maintain licensure as a RN in the state of Illinois. If not enrolling directly from SVCC, student must: be currently employed as a RN; OR have worked as a RN within the past 5 years and have a current license; OR have taken a refresher course and have a current license.				
Professional Learning/Internships				Professional Learning/Internships				Professional Learning/Internships				
Industry Credentials Earned Certified Nursing Assistant (CNA)				Industry Credentials Earned Upon completion of National Council Licensure Examination for Registered Nurses (NCLEX-RN): Registered Nurse (RN)				Industry Credentials Earned				
Degree Completion Information				Degree Completion Information				Degree Completion Information Jan Strom Chair, School of Nursing and Health Studies College of Health and Human Services jstrom@niu.edu 815-753-6550				

Key

- Career-focused instructional sequence
- Academic Competencies
- Professional Learning
- ◆ NIU Specific Requirement

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