



Mechanical Engineering Pathway Model

Mechanical engineers design, develop, build, and test mechanical and thermal sensors and devices, including tools, engines, and machines.

Potential Careers in Mechanical Engineering

- Astrophysicist
- Biomedical engineer
- CAD technician
- Quality engineer
- Structural engineer
- Survey technician
- Systems engineer
- Rail Engineer
- Design Engineer
- Fluid Dynamics Engineer

Where Mechanical Engineers Work

National Companies

- The Boeing Company
- Ford Motor Company
- GE Aviation
- Google
- National Aeronautics and Space Administration (NASA)
- US Department of Energy
- Walt Disney Company

Illinois Companies

- John Deere
- Fermilab
- Siemens
- State of Illinois
- Caterpillar

Local Companies

- Aerotek
- Exelon
- UTC Aerospace Systems
- Fehr Graham
- Ballard Engineering
- Larson and Darby
- Chrysler Belvidere Plant
- UTC Aerospace Systems

2014 median pay nationwide - **\$83,060** annually for mechanical engineers

Did you know...

Industries that use mechanical engineers are involved in robotics, computer aided design/manufacturing (CAD/CAM), automotive/transportation, air-conditioning and refrigeration, and machine-to-machine interaction or machine-to-human interaction.

Source: Department of Mechanical Engineering, College of Engineering and Engineering Technology, Northern Illinois University

Mechanical engineering is one of the broadest engineering disciplines.

Source: Bureau of Labor Statistics

In 2014, there were **3,919** open mechanical engineering jobs in Chicago

Source: Career Builder

Mechanical engineers are designing the next generations of vehicles and vehicle systems, such as hybrid-electric cars and clean diesel automobiles.

Source: Occupational Outlook Handbook

NIU College of Engineering and Engineering Technology awards more than 25 scholarships for engineering students.

Integrated Work-Based Learning Components

See back panel for more specific program requirements >>

Career Awareness Activities

Workplace Tours, Guest Speakers or Career Fairs:

Career Exploration Activities

Job Shadowing, Site Visits, or Informational Interviews

Career Practice Activities

Student Camps and Challenges, Student Enterprises or Service Learning

Professional Learning

Internships and Industry Credentials

Recommended Mechanical Engineering Pathway

4 Semesters Rockford Public Schools – Engineering, Manufacturing, Industrial and Trades Technology (EMITT) Academy Engineering Pathway				4 Semesters Rock Valley College Associate in Engineering Science				4 Semesters Northern Illinois University Bachelor of Science in Mechanical Engineering			
EMITT Academy Manufacturing Engineering Pathway				RVC - Manufacturing Engineering Technology				NIU - Bachelor of Science, Aviation Management Technology			
Year 1	Year 2	Year 3	Year 4	Year 1		Year 2		Year 1		Year 2	
Grade 9	Grade 10	Grade 11	Grade 12	Semester 1	Semester 2	Semester 3	Semester 4	Semester 1	Semester 2	Semester 3	Semester 4
Freshman Seminar	Intro to Engineering Design	Principles of Engineering	Computer Aided Design	Planning for Success (STU 100)	Mechanics, Wave Motion, Thermodynamics (PHY 215)	Electric, Magnetism, Light, Modern Physic (PHY 225)	Elementary Mechanics of Deformable Bodies (EGR 221)*	Mechanism Design and Analysis (MEE 320)	Dynamic Systems & Control I (MEE 322)	Experimental Methods in Mechanical Engineering I (MEE 390)	Senior Mechanical Engineering Design Project (MEE 482)
Math	Math			Intro to Computers & Info Systems (CIS 102)	Introduction to C/C++ Programming (CIS 276)	Statics (EGR 206)*	Dynamics (EGR 207)*	Mechanical Vibrations I (MEE 321)	Manufacturing Processes (MEE 331)	Computational Methods in Eng. Design (MEE 380)	Dynamic Systems & Control II (MEE 421)
				Introduction to Engineering (EGR 101)	Engineering Graphics (EGR 135)		Engineering Circuit Analysis (EGR 231)*	Materials Science (MEE 330)	Fluid Mechanics (MEE 340)	Computer Aided Design & Manufacturing (MEE 430)	Mechatronics System Design (MEE 426)
								Engineering Thermodynamics (MEE 350)	Design of Machine Elements (MEE 470)	Heat Transfer (MEE 352)	Design of Thermal Systems (MEE 452)
								Probability & Statistics for Engineers (ISYE 335)	Engineering Economy (ISYE 220)	Engineering Design Seminar (MEE 481)	Mechanical Engineering Competency (MEE 494)
Students must earn 48 total credits in order to graduate from Rockford Public Schools.										Tech Elective*	
Dual Credit, Advanced Placement or Articulated Credit AP Chemistry, AP Physics or AP Biology,				Prerequisite Information *These courses have specific course prerequisites that are not shown above and may require additional credit hours to be taken by the student.				Prerequisite Information			
Recommended Math/Science Pre-Calculus, Trigonometry or AP Calculus, Biology				Recommended Math/Science Calculus W/Analytic Geometry I (MTH 135), Calculus W/Analytic Geometry II (MTH 235), Calculus W/Analytic Geometry III (MTH 236), Differential Equations (MTH 240)				Recommended Math/Science			
Recommended English/Social Studies				Recommended English/Social Studies Composition I (ENG-101)				Recommended English/Social Studies			
Recommended Electives				Recommended Electives				Recommended Technology Electives *Choice of more than 20 electives based on area of emphasis			
Professional Learning/Internships Career-related and workplace experiences after school, weekends, and summers.				Professional Learning/Internships				Professional Learning/Internships			
Industry Credentials Earned				Industry Credentials Earned				Industry Credentials Earned			
Degree Completion Information For more information about Rockford Public Schools – EMITT Academy Manufacturing Operations Pathway, contact Heidi Houy Executive Director College and Career Readiness heidi.houy@rps205.com 815-966-3123				Degree Completion Information For more information about the Rock Valley College Manufacturing Engineering Technology program, contact Ron Geary, Vice President, Career and Technical Education/Outreach r.geary@rockvalleycollege.edu 815-921-3101				Degree Completion Information For more information about NIU's Bachelor of Science, Applied Manufacturing Technology program, contact Amanda Walsh, Director, Academic Advising for College of Engineering and Engineering Technology awalsh8@niu.edu 815-753-8071			
Local Entry Level Positions after Degree				Local Entry Level Positions after Degree				Local Entry Level Positions after Degree			

Key

- Career-focused instructional sequence
- Academic Competencies
- Professional Learning