ENGINEERING PATHWAY

Our MISSION
Educating all learners for tomorrow's world.

Pathway Experience

The Academy of Manufacturing, Engineering, and Technology offers pathways in engineering, construction technology, computer programming, network systems. Learners in this academy have many opportunities to gain real world experience in their classes through simulations, job shadows, and a capstone experience. Learners may earn dual credit or industry certifications to prepare them for college or careers.

HIGH-WAGE, HIGH-SKILL, AND HIGH-DEMAND CAREERS

Engineering & Technology	Aerospace Engineer · Architectural Engineer · Automotive Engineer · CAD Technician · Civil Engineer · Computer Programmer · Electrical Engineer · Mapping Technician · Mining Engineer · Metallurgist · Petroleum Engineer · Survey Technician · Biomedical Engineer · Agricultural Technician · Application Engineer
Science & Mathematics	Anthropologist · Astronomer · Chemist · Geneticist · Ecologist · Environmental Scientist · Geologist · Research Technician · Economist · Analytical Chemist · Meteorologist · Nuclear Chemist/Technician · Statistician · Atmospheric Scientist · Zoologist · Astrophysicist · Quality-Control Scientist

PROGRAM OF STUDY: ENGINEERING

SUBJECT	9th Grade	10th Grade	11th Grade	12th Grade
Choice Ready Planning	Freshman Experience HS 101	Choice Ready Career & Financial Literacy	Cybersecurity & College Ready	Senior Experience & Profile of a Graduate
Pathway Courses	**PLTW Intro to Engineering**	**PLTW Principals of Engineering**	**Robotics I/Robotics II**	**Capstone**
English Language Arts	**4 Credits required:** core academic, electives, and dual credit are available			
Math	**3 Credits required:** core academic, electives, and dual credit are available			
PE/ Health	**1.5 Credits required:** core academic, electives, and dual credit are available			
Science	**3 Credits required:** core academic, electives, and dual credit are available			
Social Studies	**3.5 Credits required:** core academic, electives, and dual credit are available			
Other Electives	Other electives for pathway preparation: Aviation, Biomedical, Business, Construction, Digital, Manufacturing, World Language			

Student Leadership and Career and Technical Student Organization(s) – TSA

The Technology Student Association is a local, state, and national student organization created to develop skills in science, technology, engineering, and mathematics as well as business education. TSA aims to develop leadership, academic, and business management skills in the workplace among students and leaders within the community. Students currently or previously enrolled in Technology & Engineering courses join TSA and extend their learning and leadership through intra-curricular activities, and competitions. Contact your school's TSA Advisor to get involved.

College & Career Experiences – Accessible to ALL Academy Program of Study Students

4-year rolling plan, Classroom Guest Speakers, Campus and Industry Tours, Career Interest Inventory, College Application, R U Ready ND exploration, Compass Tool Profiles, College & Career Research, College and industry representative visits during advisory and lunch and learn session, Job Shadow/ Professional Interview/CareerViewXR, Scholarship & Financial Aid, Senior Capstone/Profile of a Graduate Reflection

Aligned Early Postsecondary Courses – Accessible to ALL Academy Program of Study Students

Review the West Fargo Course Catalog for dual credit course and advanced placement course offerings. (link)

Professional Certification(s)

Part 107A, OSHA 10,

Technology & Engineering Coordinated Plan of Study – ND Scholarship

Engineering and Manufacturing Production

Course Name	Cr	Course Name	Cr
Robotics	.5	Metals I & II	.5/1
Intro to Engineering	1	Woods I & II	.5/1
Principles of Engineering	1	Construction Technology	.5
Drafting & Architecture	.5	Energy in Motion	.5
Cooperative Work Experience	½ to 4	Robotics	.5

Is This Pathway for You?

- Are you curious about how things are made or how they work?
- Do you like to interact with all kinds of people?
- Do you enjoy creating, inventing, or imaging new and different ways to do things?
- Do you consider yourself a leader who could be part of a team?
- Are you curious to work in a laboratory?
- Are you interested in technology and its ongoing innovation?
- Have you ever dreamed of owning your own business?
- Do you like to follow directions and use precise detail to complete a task?
- Are you curious how math/science can be applied to build things or solve problems?

North Dakota STEM Related Post-Secondary Programs

Pathway	Certificate or Associate's Degree	Bachelor's Degree	Master's Degree or More
Engineering & Technology	♦ Architectural Drafting & Estimating Technology (NDSCS) ♦ Engineering Technology (BSC) ♦ Land Surveying and Civil Engineering (NDSCS) ♦ Nanoscience Technology (NDSCS) ♦ Nuclear Power Technology (BSC) ♦ Petroleum Engineering Technology (BSC) ♦ Petroleum Production Technology (BSC, NHSC, WSC) ♦ Engineering transfer (BSC, CCCC, DCB, NDSCS, NHSC, SBC, TMCC, WSC) ♦ Robotics, Automation & Mechatronics Technology (NDSCS) ♦ Simulator Maintenance Technology (LRSC) ♦ Technical Studies (BSC, NDSCS)	♦ Agricultural and Biosystems Engineering (NDSU) ♦ Chemical Engineering (UND) ♦ Civil Engineering (NDSU, UND) ♦ Computer Engineering (NDSU) ♦ Construction Engineering (NDSU) ♦ Electrical Engineering (NDSU, UND) ♦ Engineering Science (UM) ♦ Geological Engineering (UND) ♦ Industrial Engineering and Management (NDSU) ♦ Industrial Technology (UND) ♦ Manufacturing Engineering (NDSU) ♦ Mechanical Engineering (NDSU, UJ, UND) ♦ Petroleum Engineering (UND)	♦ Aerospace Sciences (UND) ♦ Agricultural and Biosystems Engineering (NDSU) ♦ Chemical Engineering (UND) ♦ Civil Engineering (NDSU, UND) ♦ Electrical/Computer Engineering (NDSU, UND) ♦ Environmental Engineering (NDSU, UND) ♦ Geological Engineering (UND) ♦ Industrial Engineering & Management (NDSU) ♦ Manufacturing Engineering (NDSU) ♦ Mechanical Engineering (NDSU, UND) ♦ Software Engineering (NDSU) ♦ Sustainable Energy Engineering (UND) ♦ Technology (UND)
Science & Mathematics	♦ Biology transfer (BSC, DCB, TMCC, WSC) ♦ Biotechnology transfer (NDSCS) ♦ Chemistry transfer (BSC, DCB, NDSCS, TMCC, WSC) ♦ Environmental Science Transfer (CCCC, NHSC, TMCC, WSC) ♦ Environmental Technology (DCB) ♦ Mathematics transfer (BSC, DCB, NDSCS, NHSC, TMCC, WSC) ♦ Natural Science transfer (NDSCS, TMCC) ♦ Pharmacy transfer (WSC) ♦ Physical Science transfer (NDSCS, WSC) ♦ Physics transfer (BSC, WSC) ♦ Science transfer (CCCC, NHSC) ♦ Tribal Environmental Science (UTTC	♦ Atmospheric Sciences (UND) ♦ Biochemistry and Molecular Biology (NDSU) ♦ Biology/Biological Science (DSU, MaSU, MiSU, NDSU, UJ, UM, UND, VCSU) ♦ Biotechnology (NDSU) ♦ Botany (NDSU) ♦ Chemistry (DSU, MaSU, MiSU, NDSU, UJ, UM, UND, VCSU) ♦ Computer Science (DSU, MiSU, RC, UM, UND) ♦ Earth Science (MiSU) ♦ Environmental Science (DSU, NHSC, SBC, UND) ♦ Forensic Science (UND) Geology (MiSU, NDSU, UND) ♦ Horticulture (NDSU) ♦ Mathematics (DSU, MaSU, MiSU, NDSU, UJ, UM, UND, VCSU) ♦ Microbiology (NDSU) ♦ Molecular and Integrative Biology (UND) ♦ Physics (NDSU, UND) ♦ Statistics (NDSU) ♦ Unmanned Aircraft	♦ Atmospheric Sciences (UND) ♦ Biochemistry/Biomedical Sciences (NDSU) ♦ Biology/Biological Science (NDSU, UND) ♦ Botany (NDSU) ♦ Cellular and Molecular Biology (NDSU) ♦ Chemistry (NDSU, UND) ♦ Coatings and Polymeric Materials (NDSU) ♦ Entomology (NDSU) ♦ Environmental & Conservation Science (NDSU, SBC) ♦ Geology (UND) ♦ Materials and Nanotechnology (NDSU) ♦ Mathematics (NDSU, UND) ♦ Microbiology (NDSU) ♦ Physics/Astrophysics (NDSU, UND) ♦ Plant Pathology (NDSU) ♦ Plant Sciences (NDSU) ♦ Space Studies (UND) ♦ Statistics (NDSU) ♦ Zoology (NDSU)