



Science, Technology, Engineering & Mathematics (STEM) Career Cluster

| Pathway | OCCUPATIONS RELATING TO THIS CAREER CLUSTER |
|--------------------------|--|
| 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 |

| HIGH SCHOOL COURSE REQUIREMENTS | | | | |
|---|---|---|--|---|
| English | Math | Science | Social Studies | Physical Education |
| Four units required to graduate; including literature, composition, and speech. | Three units required to graduate | Three units required to graduate. | Three units required to graduate. | One unit required to graduate. |
| Choices may include: | Choices may include: | Required Units: | Required Units: | Required Units: |
| <input type="checkbox"/> English 9 05071 | <input type="checkbox"/> Algebra I 11031 | <input type="checkbox"/> Physical Science 13030 | <input type="checkbox"/> U.S. History 15085 | <input type="checkbox"/> Physical Education 1 unit 08030 |
| <input type="checkbox"/> English 10 05072 | <input type="checkbox"/> Geometry 11120 | <input type="checkbox"/> Biology 13020 | <input type="checkbox"/> American Government ½ unit AND 15111 | OR |
| <input type="checkbox"/> English 11 05073 | <input type="checkbox"/> Advanced Algebra 11032 | <input type="checkbox"/> One additional unit of Science | <input type="checkbox"/> Economics ½ unit 15060 | <input type="checkbox"/> Physical Education ½ unit AND 08030 |
| <input type="checkbox"/> English 12 05074 | | OR | OR | <input type="checkbox"/> Health ½ unit 18010 |
| | | <input type="checkbox"/> Biology 13020 | <input type="checkbox"/> Problems of Democracy 1 unit 15201 | |
| | | <input type="checkbox"/> Chemistry 13031 | | |
| | | <input type="checkbox"/> Physics 13042 | Additional units may include: | |
| | | | <input type="checkbox"/> Civics | |
| | | | <input type="checkbox"/> Geography | |
| | | | <input type="checkbox"/> Psychology | |
| | | | <input type="checkbox"/> World History | |

| Career & Technical Education Electives | | | Extended Learning Opportunities | |
|--|--|--|--|---|
| Three units of foreign or Native American language, fine arts, or career and technical education are required to graduate. | | | | |
| Technology & Engineering Education | | | School-Based: | Community Based: |
| <input type="checkbox"/> Foundations of Technology 10094 | <input type="checkbox"/> Biomedical Technology 10710 | | <input type="checkbox"/> TSA | <input type="checkbox"/> Mentorship |
| <input type="checkbox"/> Technology & Society 10096 | <input type="checkbox"/> Applying Technology 10093 | | <input type="checkbox"/> SkillsUSA | <input type="checkbox"/> Volunteer |
| <input type="checkbox"/> Advanced Design Applications 10338 | <input type="checkbox"/> Production Technology 10110 | | <input type="checkbox"/> FFA | <input type="checkbox"/> Part-time Employment |
| <input type="checkbox"/> Advanced Tech Applications 10339 | <input type="checkbox"/> Construction Technology 10111 | | <input type="checkbox"/> FBLA | <input type="checkbox"/> Service-Learning Project |
| <input type="checkbox"/> Technological Design 10410 | <input type="checkbox"/> Manufacturing Technology 10121 | | <input type="checkbox"/> FCCLA | <input type="checkbox"/> Job Shadow |
| <input type="checkbox"/> Engineering Design 10415 | <input type="checkbox"/> Communication Technology 10251 | | <input type="checkbox"/> DECA | <input type="checkbox"/> internship |
| <input type="checkbox"/> Invention and Innovation 10510 | <input type="checkbox"/> Design/Drafting 10259 | | <input type="checkbox"/> Career Research | |
| <input type="checkbox"/> PLTW Introduction to Engineering Design 10511 | <input type="checkbox"/> 3D Modeling & Design 10260 | | <input type="checkbox"/> Cooperative Work Experience | |
| <input type="checkbox"/> PLTW Digital Electronics 10512 | <input type="checkbox"/> Energy & Transportation Technology 10331 | | | |
| <input type="checkbox"/> PLTW Principles of Engineering 10513 | <input type="checkbox"/> Robotics Engineering 10411 | | | |
| <input type="checkbox"/> PLTW Civil Engineering and Architecture 10514 | <input type="checkbox"/> STEM Seminar 10610 | | | |
| <input type="checkbox"/> PLTW Computer Integrated Manufacturing 10517 | Trade, Industry & Technical Education | | | |
| <input type="checkbox"/> PLTW Principles of Biomedical Science 10730 | <input type="checkbox"/> Drafting Technology I 17130 | | | |
| <input type="checkbox"/> PLTW Principles of Medical Interventions 10734 | <input type="checkbox"/> Drafting Technology II 17131 | | | |
| <input type="checkbox"/> PLTW Principles of Human Body Systems 10732 | Agriculture Education | | | |
| <input type="checkbox"/> Technological Systems 10515 | <input type="checkbox"/> World Agricultural Science and Technology 01069 | | | |

North Dakota STEM Related Postsecondary Programs

| Pathway | Certificate or Associate's Degree | Bachelor's Degree | Master's Degree or More |
|-------------------------------------|---|--|---|
| Engineering & Technology | <input type="checkbox"/> Architectural Drafting & Estimating Technology (NDSCS) | <input type="checkbox"/> Agricultural and Biosystems Engineering (NDSU) | <input type="checkbox"/> Agricultural and Biosystems Engineering (NDSU) |
| | <input type="checkbox"/> Engineering Technology (BSC, DSU) | <input type="checkbox"/> Chemical Engineering (UND) | <input type="checkbox"/> Biomedical Engineering (UND) |
| | <input type="checkbox"/> Land Surveying and Civil Engineering (NDSCS) | <input type="checkbox"/> Civil Engineering (NDSU, UM, UND) | <input type="checkbox"/> Chemical Engineering (UND) |
| | <input type="checkbox"/> Nuclear Power Technology (BSC) | <input type="checkbox"/> Computer Engineering (NDSU) | <input type="checkbox"/> Civil Engineering (NDSU, UND) |
| | <input type="checkbox"/> Petroleum Production Technology (BSC) | <input type="checkbox"/> Construction Engineering (NDSU) | <input type="checkbox"/> Electrical Engineering (UND) |
| | <input type="checkbox"/> Engineering transfer (BSC, CCCC, NDSCS, NHSC, SBC, UTTC) | <input type="checkbox"/> Electrical Engineering (NDSU, UM, UND) | <input type="checkbox"/> Electrical/Computer Engineering (NDSU) |
| | <input type="checkbox"/> Robotics, Automation & Mechatronics Technology (NDSCS) | <input type="checkbox"/> Geological Engineering (UND) | <input type="checkbox"/> Energy Systems Engineering (UND) |
| | <input type="checkbox"/> Simulation Technology (LRSC) | <input type="checkbox"/> Industrial Engineering and Management (NDSU) | <input type="checkbox"/> Environmental Engineering (NDSU, UND) |
| | <input type="checkbox"/> Technical Studies (BSC, NDSCS) | <input type="checkbox"/> Manufacturing Engineering (NDSU) | <input type="checkbox"/> Geological Engineering (UND) |
| | | <input type="checkbox"/> Mechanical Engineering (NDSU, UJ, UM, UND) | <input type="checkbox"/> Industrial Engineering & Management (NDSU) |
| | <input type="checkbox"/> Petroleum Engineering (UND) | <input type="checkbox"/> Manufacturing Engineering (NDSU) | |
| | <input type="checkbox"/> Software Engineering (VCSU) | <input type="checkbox"/> Mechanical Engineering (NDSU, UND) | |
| | <input type="checkbox"/> Technology Education (DSU, VCSU) | <input type="checkbox"/> Petroleum Engineering (UND) | |
| | | <input type="checkbox"/> Software Engineering (NDSU) | |
| Science & Mathematics | <input type="checkbox"/> Biology transfer (BSC, DCB, DSU) | <input type="checkbox"/> Atmospheric Sciences (UND) | <input type="checkbox"/> Aerospace Sciences (UND) |
| | <input type="checkbox"/> Biotechnology transfer (NDSCS) | <input type="checkbox"/> Biochemistry and Molecular Biology (NDSU, UJ) | <input type="checkbox"/> Atmospheric Sciences (UND) |
| | <input type="checkbox"/> Chemistry transfer (BSC, DCB, DSU, NDSCS) | <input type="checkbox"/> Biology/Biological Science (DSU, MaSU, MiSU, NDSU, UJ, UM, UND, VCSU) | <input type="checkbox"/> Biochemistry (NDSU) |
| | <input type="checkbox"/> Environmental Science Transfer (NHSC, SBC, UTTC) | <input type="checkbox"/> Biotechnology (NDSU) | <input type="checkbox"/> Biological Sciences (NDSU, UND) |
| | <input type="checkbox"/> Environmental Tech - Lab & Field Technician (DCB) | <input type="checkbox"/> Chemistry (DSU, MaSU, MiSU, NDSU, UM, UND, VCSU) | <input type="checkbox"/> Biomedical Engineering (NDSU) |
| | <input type="checkbox"/> Environmental Tech – Natural Resource Mgmt. (DCB) | <input type="checkbox"/> Computer Science (DSU, MiSU, NDSU, RC, UM, UND) | <input type="checkbox"/> Chemistry (NDSU, UND) |
| | <input type="checkbox"/> Geology (DSU) | <input type="checkbox"/> Data Science (UND) | <input type="checkbox"/> Computer Science (NDSU, UND) |
| | <input type="checkbox"/> Mathematics transfer (BSC, DCB, NDSCS, NHSC) | <input type="checkbox"/> Earth Science (UND) | <input type="checkbox"/> Data Science (UND) |
| | <input type="checkbox"/> Natural Resource Management (TMCC) | <input type="checkbox"/> Earth Science (UND) | <input type="checkbox"/> Earth System Science and Policy (UND) |
| | <input type="checkbox"/> Natural Science transfer (NDSCS) | <input type="checkbox"/> Environmental Science (DSU, NHSC, SBC, UTTC, UND, VCSU) | <input type="checkbox"/> Entomology (NDSU) |
| | <input type="checkbox"/> Pharmacy transfer (DCB) | <input type="checkbox"/> Forensic Science (UND) | <input type="checkbox"/> Environmental/Conservation Science (NDSU, SBC) |
| | <input type="checkbox"/> Physical Science transfer (DSU, NDSCS) | <input type="checkbox"/> Geology (MiSU, NDSU, UND) | <input type="checkbox"/> Geology (UND) |
| | <input type="checkbox"/> Physics transfer (BSC) | <input type="checkbox"/> Horticulture (NDSU) | <input type="checkbox"/> Horticulture (NDSU) |
| | <input type="checkbox"/> Science transfer (NHSC) | <input type="checkbox"/> Mathematics (DSU, MaSU, MiSU, NDSU, UJ, UM, UND) | <input type="checkbox"/> Materials and Nanotechnology (NDSU) |
| | | <input type="checkbox"/> Medicinal Plant Chemistry (MiSU) | <input type="checkbox"/> Mathematics (NDSU, UND) |
| | | <input type="checkbox"/> Microbiology (NDSU) | <input type="checkbox"/> Microbiology (NDSU) |
| | | <input type="checkbox"/> Molecular and Integrative Biology (UND) | <input type="checkbox"/> Microbiology (NDSU) |
| | | <input type="checkbox"/> Natural Resources Management (NDSU) | <input type="checkbox"/> Physics (NDSU, UND) |
| | | <input type="checkbox"/> Physics (NDSU, UND) | <input type="checkbox"/> Plant Pathology (NDSU) |
| | | <input type="checkbox"/> Statistics (NDSU) | <input type="checkbox"/> Plant Sciences (NDSU) |
| | | <input type="checkbox"/> Scientific Computing (UND) | |
| | | <input type="checkbox"/> Statistics (NDSU) | |

North Dakota Postsecondary Institutions Offering STEM Related Programs

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|--------------|------------------------------------|--|-------------|-----------------------------------|--|
| BSC | Bismarck State College | www.bismarckstate.edu | NHSC | Nueta Hidatsa Sahnish College | http://nhsc.edu |
| CCCC | Cankdeska Cikana Community College | www.littlehoop.edu | SBC | Sitting Bull College | www.sittingbull.edu |
| DCB | Dakota College at Bottineau | www.dakotacollege.edu | TMCC | Turtle Mountain Community College | www.tm.edu |
| DSU | Dickinson State University | www.dickinsonstate.edu | UTTC | United Tribes Technical College | www.uttcc.edu |
| LRSC | Lake Region State College | www.lrsc.edu | UJ | University of Jamestown | www.ui.edu |
| MaSU | Mayville State University | www.mayvillestate.edu | UM | University of Mary | www.umary.edu |
| MiSU | Minot State University | www.minotstate.edu | UND | University of North Dakota | www.und.edu |
| NDSCS | ND State College of Science | www.ndscs.edu | VCSU | Valley City State University | www.vcsu.edu |
| NDSU | ND State University | www.ndsu.edu | WSC | Williston State College | www.willistonstate.edu |