NDSU College of Engineering

STEM Alliance
Today’s students are tomorrow’s workforce. They will imagine, design and construct the evolving world. They will be our students, your employees and the leaders who take your company in new, profitable directions.

To help them develop future innovations, we must provide them with the skills needed to succeed in science, technology, engineering and mathematics. The NDSU College of Engineering STEM Alliance is doing just that, and you can be part of making it a success.

The STEM Alliance is a partnership between NDSU and area businesses that work together to make a tangible difference in the lives of K-12 students. Its purpose is to increase the number and diversity of college- and career-ready students being introduced to STEM careers in our region.
As part of the STEM Alliance, you will:

• Build a sustainable long-term workforce.
• Positively impact youth in the community.
• Be recognized as a leader in advancing STEM education in our region.
• Boost your company’s brand recognition through exposure to students, families, educators and STEM professionals.
• Enhance your reputation for strong corporate citizenship.

We want to be your partner in nurturing America’s next generation of problem solvers and critical thinkers. Support the STEM Alliance today.
NDSU-supported Programs

Project Lead the Way

Project Lead the Way is the nation’s leading provider of K-12 STEM curricula. More than 6,500 elementary, middle and high schools in all 50 states offer courses to their students through the project.

As North Dakota’s only Project Lead the Way affiliate university, NDSU provides K-12 teachers with training and professional development opportunities, and as a result, gives students within the state and region greater awareness of and experience in STEM.

NDSU supports Project Lead the Way professionals by hosting annual conferences for school administrators and counselors, providing ongoing support to participating schools and offering a variety of student recognition opportunities.

BEST Robotics

Boosting Engineering, Science and Technology Robotics, or BEST Robotics, is a national program designed to inspire middle and high school students to pursue careers in STEM fields. The program challenges student teams to design and build a robot in six weeks. They compete against other teams in a sports-like science- and engineering-based robotics competition.

NDSU started the BEST Robotics program in 2007. It now attracts 60 teams and more than 1,200 students each year to the local competition hub site, Bison BEST, and one of four regional championship sites in the nation, Northern Plains BEST. More than 160 area business professionals and NDSU students, faculty and staff members volunteer at the events each year.

After-school STEM Clubs and Summer STEM Kids

NDSU engineering students, faculty and staff host after-school STEM Clubs at several area schools. In addition, NDSU hosts an annual series of classes for kids in grades 3-8 in a summer camp program called STEM Kids. Each class engages kids in fun, hands-on learning environments to stimulate their interest in STEM disciplines.

Summer STEM Bootcamp

Students in grades 9-12 participate in a variety of summer camps focused on STEM topics at NDSU. The camps help prepare students for high school STEM courses.

TEAMS

NDSU is a host site for the Technology Student Association TEAMS competition. TEAMS stands for Tests of Engineering Aptitude, Mathematics and Science. The annual one-day, two-part academic competition challenges students in grades 9-12 to work cooperatively and think creatively to solve real, everyday engineering problems. The experience introduces them to an engineering teamwork environment while they compete for local, state and national awards and recognition.
TechGYRLS

TechGYRLS is a 10-week after-school program that introduces girls in grades 3-7 to science and engineering concepts. The girls build and program robots, learn how rockets are designed and sent into space and discover the principles of polymers, structures and chemical properties. Sessions are held September-November and February-April.

TechBOYZ

TechBOYZ is a 10-week after-school program that introduces boys in grades 3-5 to science and engineering concepts. The boys are introduced to a different type of engineering each week and do a hands-on project related to that discipline. Sessions are held September-November and February-April.

Introduce a Girl to Engineering Day

Introduce a Girl to Engineering Day familiarizes girls with engineering concepts. Girls take part in hands-on activities at area engineering companies and on the NDSU campus. Female engineers, both college students and professionals, serve as mentors in the activities. Many of the students may not otherwise have considered engineering as a potential career.

Mommy, Me and SWE/Dads and Daughters Do science

Mommy, Me and SWE is a half-day STEM event for girls in grades K-12 and their mothers. Similarly, Dads and Daughters Do Science is a half-day STEM event for girls in K-12 and their fathers. Each event is hosted by the NDSU chapter of the Society of Women Engineers. Participants engage in fun, hands-on projects that introduce them to different types of engineering. Parents learn practical tips for how to encourage their children to follow their interests in STEM.

The NDSU College of Engineering regularly hosts tours to showcase the opportunities available in STEM. Hundreds of visitors walk through our classrooms and labs each year.
In the College of Engineering, our goal is to educate creative and innovative problem solvers who are prepared to meet the needs of a global society.

Gary Smith, NDSU Dean of Engineering

Computer Science Week

Computer Science Week is an annual program that shows K-12 students the importance of computer science education. NDSU partners Fargo-Moorhead students, industry professionals and teachers for a one-hour introduction to computer programming, designed to demystify code.

BrainSTEM

BrainSTEM is a daylong STEM career conference designed to introduce girls and boys to STEM fields. It begins with a hands-on workshop, led by industry professionals, faculty and engineering students, that highlights math and science fields and concludes with a focus on skills such as budgeting, critical thinking and public speaking that are important in STEM careers and everyday life. This event is co-hosted with the local chapter of the American Association of University Women.

FIRST LEGO League

NDSU hosts an unofficial local FIRST LEGO League scrimmage for students in grades 3-8. Guided by adult coaches, teams research a real-world problem and develop a solution. They also design, build and program a LEGO robot. The students apply STEM concepts, develop critical-thinking and team-building skills and present their solutions to judges.

Perry Initiative

NDSU hosts the one-day Perry Initiative in March for 40 high school sophomores, juniors and seniors. Laboratory-based workshops introduce surgical and engineering skills along with small-group mentoring from female surgeons, biomedical engineers and business professionals in orthopedics. Students perform mock surgeries on anatomical models and conduct basic biomechanics experiments.
Impact and Reach

In 2015, NDSU College of Engineering’s outreach programs impacted the following:

- **3,556 students impacted**
  - 66% middle school
  - 13% elementary
  - 21% high school

- **261 TEACHERS**

- **5 collaborative projects** with local universities and two-year schools

- **13 outreach programs**

- **serving 88 schools**

A total of **20 COMPANIES** participated with **523 EMPLOYEES** offering **3,034 VOLUNTEER hours**

**When You Give**

Your company’s contribution will be recognized on an annual basis for all NDSU College of Engineering STEM outreach activities that occur within the calendar year for which the gift was made.

**Target Your Giving**

Gifts will support all annual STEM outreach programs in the NDSU College of Engineering. If you want to target your company’s gift for a specific event or program, please contact Nancy Rossland at nancy.rossland@ndsu.edu or 701-231-7994.

**In-kind Gift**

In-kind donations are items or services that aid in the direct operation of NDSU College of Engineering STEM Alliance programs or administration. Needs range from printing and professional services to tools, equipment and supplies for students.
Current Partners

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