



TOGETHER, WE DO **DRIVE THE FUTURE**

UND College of Engineering & Mines

21/22 ACADEMIC YEAR

UND UNIVERSITY OF
NORTH DAKOTA
COLLEGE OF ENGINEERING & MINES

UND COLLEGE OF ENGINEERING & MINES SNAPSHOT

Distinguishing Factors

Fields of study

Aerospace Engineering
 Biomedical Engineering
 Chemical Engineering
 Civil Engineering
 Computer Science
 Cyber Security
 Data Science
 Earth Science
 Electrical Engineering
 Energy Systems Engineering
 Engineering
 Engineering Science
 Environmental Engineering
 Environmental Geoscience
 Geological Engineering
 Geology
 Mechanical Engineering
 Petroleum Engineering
 Systems Engineering

Online Programs

UND CEM has been recognized by the U.S. News & World Report and other university ranking sites for its top-notch online programs.

| | Total | | On-Campus | | Online | |
|------|-------|-----|-----------|-----|--------|-----|
| | UGRD | GRD | UGRD | GRD | UGRD | GRD |
| CEM | 1728 | 419 | 759 | 239 | 969 | 180 |
| BME | – | 27 | – | 17 | – | 10 |
| CHE | 218 | 38 | 90 | 29 | 128 | 9 |
| CE | 368 | 50 | 97 | 16 | 271 | 34 |
| EECS | 477 | 110 | 238 | 49 | 239 | 61 |
| GGE | 31 | 16 | 29 | 16 | 10 | 0 |
| ME | 528 | 34 | 262 | 22 | 266 | 12 |
| PE | 78 | 94 | 23 | 23 | 55 | 71 |
| ENG | 20 | 80 | 20 | 21 | 0 | 59 |

OUR VISION

To produce world-class leaders in computer science, engineering and geology.

UND COLLEGE OF ENGINEERING & MINES BY THE NUMBERS

OUR STUDENTS

1,728
UNDERGRAD
STUDENTS

419
GRADUATE
STUDENTS

OUR COLLEGE

82
FACULTY
MEMBERS

4
ENDOWED
POSITIONS

7
ABET-ACCREDITED
ACADEMIC UNITS

4
DEPARTMENTS

64
CERTIFICATES
AND DEGREES

20+
ENGINEERING STUDENT
ORGANIZATIONS & SOCIETIES

OUR SCHOLARSHIPS

\$1,164,097

IN SCHOLARSHIPS AWARDED TO 477 CEM
STUDENTS IN THE 20/21 ACADEMIC YEAR

“Graduates of the College of Engineering & Mines are **known for being hands-on, well-rounded and entrepreneurial** – exactly what the world needs to keep moving forward.”

BRIAN TANDE
DEAN, COLLEGE OF ENGINEERING & MINES



STUDENT SUPPORT

Supporting students like Jonathan is a necessity. By funding educational programs like the Grand Challenge Scholar Program, our future engineering leaders have more opportunities to advance in their education and careers.

WE DO CHANGE THE WORLD

Engineering from a distance

JONATHAN WIRKKALA, '22 took his first in-person class at UND in 2019, two years after starting online courses while serving in the U.S. Air Force. Shortly after arriving at UND, the electrical engineering major joined Engineers Without Borders (EWB).

He and a group of UND peers from a variety of engineering disciplines embarked on a five-year project to build a water storage system for a small village in north-central Guatemala that lacked access to clean water.

"I really enjoy working with people and trying to solve basic human needs issues," Jonathan said, adding that he worked on details such as the electronic control of water chlorination.

The team initially visited Pambon, Guatemala to assess the community's

needs, but continued working through a local contractor who erected the water storage purification system using the UND team's blueprints.

In June of 2021, the project was completed.

Jonathan is using his work with EWB as part of UND's Grand Challenge Scholar Program, a scholarship-based program supported by the Edson and Margaret Larson Foundation that is designed to prepare students to be world changers. Grand Challenge Scholars are required to take on a project addressing one of 14 pressing issues facing society today, access to clean water being one of them.

"Being a Grand Challenge Scholarship recipient has meant that I've been able to create a formal partnership between UND and the Engineers Without

Borders organization," Jonathan said. UND is one of the only schools in the nation to have such a partnership. "This couldn't have been possible without the donors who have allowed these programs to function."



LEADERS IN ACTION

Scan with your phone's camera app to learn more about Jonathan's story at UND.edu/leaders

WE DO TEACH THE TEACHERS

ExCEEDing expectations



DR. FRANK BOWMAN has been a huge asset to UND as an inspiring professor for the College of Engineering & Mines (CEM) over the past 16 years. He now serves in dual roles as Chair of the Department of Chemical Engineering and holds an endowed faculty position named after Dr. Tom Owens.

Bowman has used the Tom Owens Endowment to launch Project ExCEED (Exploring Culturally relevant Engineering Education Design), a joint research study between UND's College of Education & Human Development and CEM, funded by the National Science Foundation. This project benefits elementary and middle school teachers who teach Native American and rural students in North Dakota. The main goal of this project is to help teachers integrate culturally relevant engineering tasks into their classrooms, benefitting underserved communities in our state.

The project launched last spring with eight teachers participating in the professional development sessions. In these sessions, they learned to incorporate the engineering design process into their existing curriculum. Bowman is proud of the creativity and

adaptability of the teachers and hopes that students begin to see applications of engineering in relevant aspects of their lives.

"Engineering is about addressing some sort of real-world problem and finding a solution. In order to do that, you need to understand the community and cultural concerns of the people involved, and that's what we're doing with this project," Dr. Bowman said.

He is honored to hold the endowed faculty position named after Dr. Owens, an influential leader within CEM who served the college for 33 years before retiring. Owens had many accomplishments at the university and served as chair of the Department of Chemical Engineering for 23 years.

"Obtaining the endowed faculty position is a great honor because Tom was amazing! Even in his retirement, he's still active in helping the department. As we bring in alumni, they'll still talk about him and the great experiences they had with him as a teacher and mentor." Bowman said. Through projects like ExCEED, Bowman is carrying on his predecessor's influence on future generations of engineers.

FACULTY EXCELLENCE

One chair or professor can touch the lives of many through the opportunities they create for students. An endowed chair position for professors like Dr. Bowman will help recruit and retain the best of the best. Right now, you have an opportunity to help the Tom C. Owens Endowed position rise from a professorship to a chair.

To participate, visit UNDalumni.org/owens.



TERRY SEVERSON

Scan with your phone's camera app to get know the 2020 Sioux Award recipient.

WE DO IGNITE THE FUTURE

Passing the torch

UNTIL 2020, they only knew each other on paper. A face-to-face meeting connected UND's Shahmeer Kanwar, '21 to his scholarship donor, Terry Severson, '65. Both call Western North Dakota their home and chose to pursue electrical engineering at UND.

In 2017, Severson and his late wife, Diane, established an endowment at UND. Their investment is supporting scholarships for students like Kanwar.

"I'm a big believer in the small things," said Kanwar, who was also a Grand Challenge Scholarship recipient. "If I didn't have these scholarships, I'd have to worry about having money for the next week for groceries or next month for rent."

The electrical engineering graduate and first-year UND medical student hopes to become a surgeon or create medical devices to improve patient health.

A former UND football player and retired Air Force colonel, Severson spent the last 16 years helping build Trace

Systems Inc., a telecommunications business that supports the U.S. Department of Defense, and employs more than 300 people around the world. Severson is also a founding member of the CEM Executive Board, which he has chaired since 2014. For his years of loyal commitment to the success of multiple areas within UND, Terry was named a 2020 Sioux Award recipient.

"I'm at a point in life where I can offer some help to people who are starting out and dreaming of things that I can't even comprehend," said Severson, who has helped create several scholarships for engineering students.

He referred to these scholarships as "passing the torch" in hopes that, one day, students like Kanwar will pay it forward.



OPPORTUNITIES FOR **IMPACT**

STUDENT SCHOLARSHIPS

\$25,000 - \$100,000

Endowed Scholarship

\$250,000

Leadership Scholarship (full ride)

FACULTY EXCELLENCE

\$500,000

Endowed Fellowship

\$1 million

Endowed Professorship

\$2.5 million

Endowed Chair

COLLEGE SUPPORT

\$300,000

Naming of the MakerSpace Lab

\$250,000

Department Office Suite

\$250,000

National Security Corridor Lab

\$50,000

Bench or Study Area

**GIFTS CAN BE MADE IN
FIVE-YEAR PLEDGES.**

ENDOWMENT **BASICS**

Endowments can be created with gifts of cash, securities and other assets. They can be established through one-time gifts, estate gifts and multi-year pledges. Although the minimum amount required to create an endowment fund is \$25,000, larger amounts are recommended or required for certain purposes. Gifts at these levels may offer donors naming opportunities.

UNDalumni.org/cem



“To the UND community, it would be impossible to repay what you all have given me. I wish I could shake your hand or give you a hug – maybe someday I will get that opportunity.... To you, the UND alumni, thank you. You have helped me improve, overcome and grow. I am grateful for you.”

HUNTER PINKE, '21
MECHANICAL ENGINEERING

Excerpt from a letter Hunter wrote, published in the Summer 2021 UND Alumni Magazine.



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