

INGENIUM

noun: from Latin meaning natural talent or disposition (think "ingenious")

Benedictine College – School of Engineering Newsletter Vol 3, Issue 1 – Summer 2019

Chemical Engineering * Civil Engineering * Electrical Engineering * Mechanical Engineering



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A Message from the Chair



Dr. Darrin Muggli

Greetings from the Benedictine College School of Engineering. I hope you all are enjoying your summer. This past semester has been a time of growth as we continue to settle into the new parts of Westerman Hall and conduct a search for electrical engineering faculty members.

ABET Accreditation – After an exceptionally successful ABET visit last fall, I am excited to announce the ABET Accreditation of our chemical and civil engineering degree programs! This is a great achievement for the School of Engineering, and it will allow us to offer almost all engineering classes at Benedictine. The days of watching recorded classes at 2x speed are nearly behind us.

Electrical Engineering New Faculty – I am very pleased to announce that we have received approval to hire two new electrical engineering professors. Once hired, the first will start in the spring of 2020 and the second will start in the fall of 2020.

Facilities – The Westerman Hall construction has continued to wind down. Our 3D printer room is moving to a new space in the old machine shop, and one of our conference rooms is being split into two offices for the new electrical engineering faculty. The school is beginning to look more like home as the equipment emerges from storage and students remain cloistered in the study lounge. It is exciting to see our space so close to completion!

As always, we would love to have you stop by the school anytime and visit (or send an email, call, etc.).

On the Cover...

Center: Civil engineering student Ian Daly shows off the fruits of his aquaponics project. Read more on page 3.

Bottom right: Chemical engineering seniors Anastasia Kastl (*left*) and Caelan Doran present their plant design project. See page 11.

Calling All Alumni!

Stay in Touch!

Hearing from our engineering alumni simply makes our day. Please consider checking in with us and sharing your success story or important events in your life. We'd love to hear from you!

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Congratulations, Class of 2019!

May 2019 Engineering Graduates

Chemical	Civil	Electrical	Mechanical
Tyler Gochenour	Kyle Deters Margaret McKeon Kristy Nixon Calley Watters	Jeanne-Marie Potthast	Brett Burke Joe Gawdun Kienan McIntee Nicholas Olache

August 2019 Engineering Graduates

<u> </u>	•	
Civil	Mechanical	
Nick Bock Ben Suhr	Dan Freymuth Jake Thies	

December 2019 Engineering Graduates

Chemical	Civil	Mecha	anical
Joshua Caasi	Carlos Gonzales	Saige Baalman Stophon Crockett	Rachelle Regli
Alex Fogasic	Grant Lahm	Andrew Gormley	Riley Thielke
	John Perz	Tim Krieg	Matt Vogt
		Adam Kutney	Kevin Whiteside
		Richard McCoy	Denzel Young
		Frank Paolucci	

Discovery Day 2019

Aquaponics System

Aquaponics systems combine the rearing or harvesting of fish with hydroponics, which is the process of cultivating plants in a variety of media (e.g., water) without soil. Biology and civil engineering students worked together to start an aquaponics system in the Boshert Greenhouse and establish the trophic relationships among the fish, bacteria, and plants in the system.





Virtual Reality Chemistry

Joseph Barnes and Andrew Wuller, under the direction of Dr. Juan Araque, used a virtual reality (VR) environment to navigate and interact with molecular systems, searching for patterns of behavior only perceptible to human judgement. They considered how new insights could be made through VR and the possibility of acquiring and analyzing data from VR interaction with molecular systems.

Effect of Potato Cannon Barrel Length

This project investigated the effect of a potato cannon's barrel length on distance traveled by the average potato for a fixed supply pressure. Students Connor Muehler and Matt Conner sought to



achieve a balance between a barrel long enough to allow pressurized air to impart sufficient force for maximum acceleration but short enough to reduce the distance friction acting upon the potato within the barrel.



Engineers Stand Out

Air Dryer Lab Apparatus

Several Chemical Engineering seniors constructed a lab-scale air drier to be used in the Thermofluids



Lab course, ENGR-3410. Students will be able to study the properties of fluids firsthand and learn about a common industrial method. Air drying using forced, free, or heated air can prevent spoilage in food and can aid in concentrating a solids product.



Go-Kart Redesign, Updates

Led by Josh Sullivan, two teams addressed distinct aspects of the go-kart: frame redesign, and suspension and control. The goal of the frame redesign team was to create and analyze CAD drawings for a new frame, fabricate the



proposed frame, and install it onto the 2015 Discovery Go-Kart project. The purpose of the suspension project was to learn and utilize methods of mechanical control systems to



increase the effectiveness of the go-kart in off-road conditions.

An Industrial Management Degree?

Freshman Matt Conner researched well-respected programs and created a tentative plan of study that was reviewed both by the School of Business and the School of Engineering. The results of his research strongly suggest that Industrial Management could be offered as a major at Benedictine without needing to offer any additional courses or hire new faculty members.



<bits & pieces>



Recent Grads Named Discovery Day Scholars

Congratulations to recent graduates **Samuel Anderson, Brett Burke, John Krishnan Myjak, Jeanne-Marie Potthast, Nicholas Olache**, and **Paul Wessel** for being awarded the 2019 Discovery Day Scholar medal. Our students work hard to explore and innovate, and the School of Engineering has been well represented at Discovery Day (see page 3). Last year's Discovery Day Scholars included Adam

Burke, Daniel Hayes, Matthew Johll, Katie Hirl, Michael Klein, and Austin Windsor. We congratulate them for their hard work and innovation.



Team Boron Carbide Wins ChemE Jeopardy

This past April, chemical engineering seniors Joseph Barnes and Anastasia Kastl and junior Kate Caughron attended the AIChE regional student conference hosted by Missouri S&T. There they entered the ChemE Jeopardy competition as Team Boron Carbide. Much to everyone's surprise, our brand-new chapter took first place among teams from six other state universities.

Samuel Anderson '19 is one of

2019 Discovery Day Medal for

their Discovery Day projects.

several recent engineering graduates to receive the

Their victory is a testimony to the quality of the Benedictine College Chemical Engineering program. Barnes commented, "Our program did a good job of covering a



Left to right: Kate Caughron, Joseph Barnes, and Anastasia Kastl —all from Benedictine College — and Brent Johnson (President of Missouri S&T Student Chapter).

wide variety of subject areas at a depth necessary to retain the material." Touching on opportunities unique to Benedictine College, Kastl added, "Some of the answers I knew just from talking with my professors outside of class time or from Discovery Day projects." The Benedictine College School of Engineering fosters excellence through academic commitment.

The winners of each regional competition qualify for the national competition, and the chapter plans to send a team of four students to compete in Orlando, Florida, this coming November. Want to learn more or get involved? Contact Kate Caughron, aiche.benedictine@gmail.com.

Civil Engineering Field Trip

On April 4, 2019, students in the Transportation Engineering and Hydraulic Engineering classes took a field trip to Lawrence, Kansas. Their first stop was the Bowersock Dam & Mill on the Kansas River. At a dam site originally completed in 1874, two hydropower plants generate up to 6 MW of electricity. Students saw first-hand the conversion of potential energy into kinetic energy for the generation of electric power. It was also demonstrated that the subject of Dynamics has more useful applications than a Rube Goldberg Machine on Discovery Day. Our thanks to Sarah Hill-Nelson, coowner, who provided a hands-on tour.



Benedictine civil engineering students on the construction site of the west campus of LMH Hospital with Michael Becker (PE of Professional Engineering Consultants, PA, structural engineer); Sam Parks (civil engineer for McCownGordon Construction); and Assistant Professor Mike Berry.

The next stop was a City of Lawrence arterial street construction site on 19th Street. Here, the students met with David Cronin, PE, City Engineer for the City of Lawrence. David explained the challenges involved with constructing pedestrian tunnels approximately 30 feet below grade under a state highway in a highly developed area. The students also witnessed installation of 30-inch storm sewer piping. Our thanks to David and to the City of Lawrence for hosting our students.

The final stop was the construction site for the new west campus facility of Lawrence Memorial Hospital. The students were hosted by Sam Gibbs and Sam Parks of the design-builder McCownGordon Construction (Kansas City, Missouri) This project consists of a new campus providing >200,000 square feet of medical facility space at a cost of \$100 million. The students had a great opportunity to discuss the structural elements of the building (foundation, retaining walls, structural steel, and composite deck construction) with one of the structural engineers of record, Michael Becker, PE, of Professional Engineering Consultants, P.A. Michael explained the design constraints and solutions provided to build this facility on a steep and rocky site. Our thanks to Sam, Sam, and Michael for their hospitality.



<concrete canoe>



Concrete Canoe Stays Afloat, Despite the Odds

The Benedictine College student chapter of the American Society of Civil Engineers (ASCE) sent a team to this year's regional Concrete Canoe Competition on April 12-13 at the University of Oklahoma. This time, the canoe was built with an innovative mix design that utilized silica fume,

which increased the strength of the concrete. The team's hard work paid off with a perfect score on the design report.

In transit to Norman, Oklahoma, a huge lateral crack formed in the canoe, which would have discouraged many other teams from participating in the races. Undaunted, the Benedictine team spent two hours repairing their canoe with Gorilla Tape. They were one of two teams willing to race despite the cold and wind. Ultimately, the judges called off the races because of the weather, so the team waited for a sunny day back in Atchison to test the canoe. Out on Atchison City Lake #1, the fully repaired canoe held a maximum of 7 students.



This year's concrete canoe was built using an innovative mix. The team gets perfect score for design report.

The team's efforts extended beyond the competition and the canoe itself. Brett Burke led the design of a strongback optimized for concrete canoe construction and presented at Discovery Day on April 10. Also, modifications on the recently constructed cart for cradling and transporting the canoe are underway. The concrete canoe project offers a great opportunity for hands-on application of engineering skills and leadership. All interested students (including freshmen) and even alumni are encouraged to get



involved. Since this year's races were cancelled, there is all the more excitement and anticipation to come back and sweep the competition next year! To get involved, email Nathan Kabat at kaba1739@ravens.benedictine.edu.

< AIChE student chapter>

First Year Successes of New AIChE Chapter

The Benedictine College student chapter of AIChE (American Institute of Chemical Engineering) chartered in June 2018, enjoyed a successful first year. Under the leadership of president Joseph Barnes, the chapter hosted workshops on resume writing and Microsft Powerpoint skills. Nearly half of the members attended the annual student outreach meeting of the local

professional chapter in Kansas City. Benedictine College was also well represented at AIChE student conferences. Student chapter member Anastasia Kastl notes that attending conferences "... helps you get excited about chemical engineering and see the bigger picture of what you are learning in class."

AIChE®

Seniors Joseph Barnes, Alex Pogasic, and Caelan Doran traveled to Pittsburgh for the national student conference in late October 2018. Barnes recommends AIChE conferences for several reasons: "The networking, professional development opportunities, and just the overall experience are invaluable for an engineering student." For undergraduate students considering graduate studies, the national conference hosts a number of graduate schools for a "Grad School Career Fair," allowing students to explore their options.

This past April, Barnes along with senior Anastasia Kastl and junior Kate Caughron attended the regional student conference hosted by Missouri S&T. As **Team Boron Carbide**, they took first place in the ChemE Jeopardy competition. Kastl entered the poster competition, showcasing her summer research. The Benedictine College student chapter was also recognized for bringing the highest proportion of their student chapter among the dozen universities in the Mid-America region.

Interaction with other institutions emphasizes the relatively small size of Benedictine College's Chemical Engineering program. While smaller numbers limit the chapter's initiatives, student involvement is strong. "It highlights the fact that everyone in the Benedictine College chapter wants to be there, and so they participate," Doran comments. Barnes also points out, "This small size enables us to have personal interaction between students and faculty, something that seemed to be lacking in other schools." Kastl touches on another unique feature of the program: "Our professors all have industry experience that they regularly share to help us understand and apply the concepts we are learning."

The chapter plans to host more workshops in the 2019-2020 academic year. With support

from nearby chapters, it hopes to organize a team for the ChemE car competition. In November, the chapter will send a team to the ChemE Jeopardy competition at the National AIChE Student Conference. To find out more or get involved, email Kate Caughron at aiche.benedictine@ gmail.com.



Left to right: Alex Pogasic, Caelan Doran, & Joseph Barnes at the National AIChE Student Conference in Pittsburgh.

<congratulations!>

2019 Senior Project of the Year

Foste

Utility Truck Cable Spooling Shop Aid

Our hearty congratulations go out to a team of senior mechanical engineering students who earned Benedictine College's School of Engineering 2019 Senior Project of the Year. This year's winning team designed and built a utility truck cable spooling shop aid for Custom Truck One Source of Kansas City (CTOS).

The winning team consisted of Timothy Krieg, Kienan McIntee, Rachelle Regli, and Jake Thies. According to Scott Lang, lead design engineer at CTOS, "This team was well balanced, with everyone contributing and working hard. In the end, they developed an excellent device that we are ready to use."

CTOS, the customer for this year's winning project, is a single-source provider of



The winning design team and their CTOS customer (*from left*): Jake Thies, Kienan McIntee, Scott Lang (Custom Truck One Source), Rachelle Regli, and Timothy Krieg.

specialized truck and heavy equipment solutions. The team's task involved designing and constructing a powered device capable of unspooling and spooling cable on a utility truck crane. The goal was to reduce the time and effort mechanics spend changing cable on utility truck cranes and winches.

<2019 capstone projects>

Accessibility Studies for St Benedict's

Two senior civil engineering teams took on the challenge of redesigning access to St. Benedict Church. It is one of the oldest buildings standing in the Atchison community, and as such, this historic structure is not readily accessible to individuals with restricted mobility. Each team's challenge was to determine what would be needed to create ADA-compliant parking, pathways, and entrances for the church.



Problem:

Entrance to St. Benedict Church is either

via a three-tiered set of exterior stairs on the south or via a noncompliant ramp to a side entry on the west. Available parking on the west is on-street parallel parking, without a nearby curb ramp. On the south, an existing paved area is used for parking 'valet style,' with no access aisles or backing room provided. No marked space is available for patrons using a ramp-equipped accessible van.

Design Team 1: Canaan Knigge, Johnny Perz, Ben Suhr

This team proposed modifying the east parking area for accessibility; adding an elevator lift from

St. Hildegard's Room to the main level; adding parking to the south lawn; and improving restroom accessibility.

Design Team 2: Nick Bock, Carlos Gonzales, Grant Lahm, Calley Watters

This team proposed that the south stairs be reconstructed to provide accessibility and improve exterior gathering space; that parking be added to the south lawn; and that restroom accessibility be improved.



Current south entrance to church that students evaluated for potential access changes for those with mobility limitations.

Some Special Displays on Presentation Day



Left: In a special display, students from the ergonomics class demonstrate a selection of student-designed handles that help solve everyday problems for a range of situations.

> *Right:* For an electrical engineering project, a student demonstrates a new filter under development for electric guitars.



<2019 capstone projects>

Chemical Engineering

Facility for the Production of Aniline from Benzene via the Nitrobenzene Pathway

Design Team Members: Caelan Doran, Anastasia Kastl, Alex Pogasic



Chemical Engineering Process Train for the Production of Solid Urea Granules from Natural Gas



Solid Urea Granules team: (*from left*) Kaitlyn Miller, Joseph Barnes, & Joshua Caasi.

Design Team Members: Joshua Caasi, Joseph Barnes, Kaitlyn Miller

Urea has a wide variety of chemical uses, with the largest percentage of the market being in fertilizer. It is found both in large farms and as a supplement in household potting mix. The



team was tasked with designing a world-scale processing facility to produce urea as well as performing an economic analysis on the lifetime of the plant to determine if it was economically attractive.

<2019 capstone projects>

Mechanical Engineering

Tank Implosion and Electrostatic Discharge Demonstrations

Design Team Members: Saige Baalman, Adam Kutney, Matt Vogt, & Denzel Young Customer: MGP Ingredients Inc.

The purpose of this project is to develop training units that accurately demonstrate two common nationwide issues facing companies:

- how tank implosions occur due to atmospheric pressure.
- how humidity levels can affect electrostatic discharge.



Tank Implosion team: (*from left*) Adam Kutney, Denzel Young, Saige Baalman, & Matt Vogt.

Mechanical Engineering CO₂ Winterization Project

Design Team Members: Joshua Riley Thielke, Kevin Whiteside, Richard McCoy, & Jared Sommers Customer: MGP Ingredients Inc

This project is an offshoot of a project we did for MGP several years ago. In that first project, we built a pilot system that utilized CO_2 to neutralize some of their caustic wastewater. That system proved very successful at MGP and it was incorporated into their workflow. What they didn't anticipate was that CO_2 was mixed with a lot of water vapor, which would freeze in the winter. This shut down the CO_2 neutralization process, and forced MGP to go back to their old approach. Therefore, this design team took on the task of drying that CO_2 stream so it would not freeze in the winter. MGP



CO2 Drying team: (*from left*) Jared Sommers, Kevin Whiteside, Richard McCoy, & Riley Thielke.

Mechanical Engineering Process Trainer and Stirred Chemical Reactor

Design Team Members: Stephen Crockett, Andrew Gormley, Brett Burke, & Frank Paolucci Customer: Benedictine College School of Engineering

The team designed a system for use by the Chemical and Mechanical Engineering Departments at Benedictine College for training students in process control.



Process Trainer team: (*from left*) Stephen Crockett, Andrew Gormley, Frank Paolucci, & Brett Burke.

<engineering missions>



Ravens on Mission in Ecuador

In March 2019, the Benedictine College Engineering Missions group sent 17 missionaries to Chontapunta, Ecuador, to serve with Family Missions Company for the 10-day Spring Break. Chontapunta is a small town in the Ecuadorian jungle that is a hub for about 25 smaller surrounding communities. The engineering students spent their time renovating a local woman's bathroom, building a new septic tank, rewiring the electrical circuits to a mission house, and installing a water pump and water tank to provide running water to the Family Missions Company facilities. Along with the work projects, the group prayed with the locals at holy hours, attended daily Masses, and performed Ash Wednesday services in the surrounding communities. The students and faculty were blessed with such a beautiful experience with God's love and the people of Ecuador.



The Heart of Engineering

By Josh Caasi (2019)

In the National Society of Professional Engineer's Code of Ethics, the first duty of any engineer is to "hold paramount the safety, health, and welfare of the public." While good and noble on its own, this line seems to be impersonal and empty. If someone were to ask me what I believed in or what gets me going in the morning, "the safety, health, and welfare of the public" are the last words that come to mind.

The Code of Ethics is meant to apply to <u>all</u> engineers, regardless of beliefs, culture, etc. But the issue still stands: engineering seems to be a profession for corporations and governments, not communities and individuals. It seems like we innovate and design without paying attention to the people we do it for, and maybe that's how our culture has shaped it out to be. This isn't a doom and gloom sort of idea or a rage against the machine rant; I think the Code is just missing some pieces. The beauty of attending a Catholic institution for higher education is that you get all the puzzle pieces you need.

During the Ecuador Mission Trip, amidst the backbreaking work and development of calluses on every visible inch of my palms, I kept wondering what we were working for. Why are we digging this sewage tank? Why are we installing this water pump? For a good chunk of the week, I pondered these ideas. Engineers have a duty to society, yes of course. It was on this mission trip where I found that *Catholic* Engineers have a duty to the human person as well.

We dug and built a new sewage tank for a family not just because they needed it, but because they



deserved to live better than walking through their own sewage. We installed a water pump for a family not just because they needed it, but because they deserved to live better than bucket showers and clogged toilets. We built and designed, not out of sympathy and first-world condescension, but because we have a faith which teaches that all human beings have an innate dignity, a right to life, and an inheritance to happiness.

"Do you know what I have done to you? You call me Teacher and Lord—and you are right, for that is what I am. So if I, your Lord and Teacher, have washed your feet, you also ought to wash one another's feet. For I have set



you an example, that you also should do as I have done to you." -Matthew 8:12-15

The disconnect between our profession and the human individual can only be resolved in the directive of Christ: human dignity is only upheld in love, sacrifice, and self-gift. For an engineer, the point is to remember that we build and design for people, not to fill a quota or demand. The Lord created you for your own sake out of love, and not for the benefits you give to society. Our responsibility is to people, but our motivation should be for love of the other.

<a world of thanks>

Once again, Ed Ciarniello '70 is donating CNC machines to the School of Engineering. Ed was responsible for getting us our main CNC milling machine, and now he has donated two proLIGHT[™] milling machines. These machines were designed to train machinists in using CNC. They are capable of working with aluminum and softer materials, making them ideal for use in our Manufacturing Processes lab as well as reducing the backlog on the main machine. With students working on numerous projects for Junior Design, Senior



Design, Discovery Day, and Manufacturing Processes, the two new CNC milling machines are a very welcome addition to our machine shop.

Ed has not only been a supplier of milling machines, he has been a fundamental pillar in the development of our engineering program at Benedictine. He is one of the founding fathers of the program, but he has not stopped there. He has been a long-term member of our Board of Industrial and Academic Advisors (BIAA), and he continually supports us with his time, expertise, experience, and generosity. Thanks again, Ed!

<remember when...>

10 years ago (2009)

Ten years ago, enrollment in Benedictine college's new engineering program jumps from five to 16 students. Dr. Muggli is the only instructor in the fall semester, and Steve Spencer begins teaching his first class in the spring. A few of our first classrooms were "cages" — makeshift spaces surrounded by wire frames (a safety precaution for others roaming the basement halls). The machine shop consisted of used tools and equipment that Benedictine acquired in the mid-1960s from a



2014 Mechanical Engineering seniors working to completing their capstone project — a CO2 neutralization unit for MGP.

Five years ago (2014)

The department's enrollment continues to grow to about 160 students. We are ecstatic! All students continue to get dual degrees from Benedictine and the University of North Dakota. Our third graduating class has 11 students. The first concrete canoe is constructed and enters regional competition. We are so proud of this team. As our staff grows, the first engineering trailer is moved in to house them. For a short time during the fall semester, the trailer's entry becomes home to a small flock of "classy" plastic pink flamingos.

Students attending class in the old "cages." (2009)





<behind the scenes>

Board Members Ensure Program Success

The Board of Industrial and Academic Advisors (BIAA) works closely with Benedictine's School of Engineering to improve the instructional program and afford its students every opportunity to succeed.

Sixteen members represent a cross-section of Engineering disciplines — academia, design professionals, and industry. Current Board Officers consist of Steve Glaser, Secretary, MGP Ingredients; Ray Gragg, Vice-Chair, Certus Structural Engineers; and Mike Odrowski, Chair, CDM Smith.

One charge of BIAA is in the area of Advancement. BIAA members, along with the college's Engineering staff, current students, and recent graduates, have presented "Preparing for Engineering as a Career" to hundreds of local high school students attending Hayden, Bishop Miege, Rockhurst, St. James Academy, and St. Thomas Aquinas. These presentations have proven to be a great avenue to recruit and attract new students to Benedictine.



Mike Odrowski Chair of the Board of Industrial and Academic Advisors

Another area of BIAA assistance involves ABET accreditation for the specific engineering discipline degrees. Members help develop educational objectives, identify areas of continuous improvement, and provide institutional support. The Board also determines and communicates necessary aptitude, knowledge, competencies, and performance levels for target occupations for new graduates ready to start an engineering career. The networking of the Board, as well as the growing number of Benedictine Engineering graduates firmly established in the profession, has become an active source to help place current students for internships and permanent placement.

Did you know that there are now >100 graduates from Benedictine's School of Engineering? TJ Anderson has been named Chair of the Advancement Committee with the challenge to start networking social activities. The committee is looking for recent grads willing to help out. If interested, please contact TJ, TJAnderson@mgpingredients.com, for more information, or to stay in touch and learn about upcoming School of Engineering events during the fall 2019 semester.



<alum update>



"For a number of reasons, I have Benedictine College to thank for my post-graduation success. Whether during Chemical Plant Design or Christian Moral Life classes, I was challenged in the classroom by my professors to tackle difficult questions and think critically. I grew tremendously in my ability to learn <u>how to learn</u> and appreciate the extra effort they put into ensuring I was prepared for my future career."

"Outside the classroom, I was given the opportunity to participate in unique programs such as Discovery Day and Gregorian Fellows. These programs built on my classroom experience and enabled me to develop intellectual and interpersonal skills in my particular areas of interest. One of my Discovery Day projects even led to a summer internship and eventually allowed me to pursue a career in water and wastewater process engineering."



"Most importantly, though, I was surrounded by people in the Benedictine College community who helped me enliven my faith, grow in virtue, and realize the greatness for which I was made."

Ryan Spellman graduated from Benedictine College in December 2018 and now works as a Water/Wastewater Process Engineer for Donohue & Associates. He lives with his wife, Stephanie, in Minnesota near the Twin Cities.

Left: President Minnis presents Ryan with his diploma in 2018.

<sleep in heavenly peace>



Building a Better Community

Benedictine College's chapter of Sleep in Heavenly peace has been hard at work to ensure that "no kid sleeps on the floor in our town." To date in 2019, Benedictine has hosted six build days and built 127 beds. They have also recruited volunteers from the Atchison community as well as Benedictine campus. Middle school and high school students in the St. Joseph Youth Volunteer Corps participated in three builds and helped with multiple bed deliveries. The Atchison Dental Associates sponsored the chapter's first corporate build day, bringing their staff and families along to help.

On June 15, Benedictine participated in a national build day, **Bunks Across America**. Through the work of 108 chapters in 38 states and one Canadian chapter, a total of 5459 beds were built on that day. Our chapter built 30 beds on that day.

Since May 2018, the Benedictine College chapter of Sleep in Heavenly Peace has converted more than 17,000 feet of lumber into beds for kids. Check out their latest news at https://www.facebook.com/ SHPBenedictineCollege/





<miles of smiles>



Our Raven engineering students can be found making a difference in the Atchison community and beyond. There's always something for us to smile about.

- *Top left:* Sophomore Anna Arensburg shares a laugh with Miss Lin Cameron at her retirement party.
- *Top right:* Junior Julia Betzig volunteers with Hunger Coalition to provide sack lunches for locals.
- *Center left:* A young driver is thrilled with his new electric car customized by Circuits students to help overcome developmental challenges as part of the *Go, Baby, Go* project.

Center right: Junior Emma Hanson pauses during her spring break mission trip to Minnesota.

Bottom left: Dr. O'Malley and his son enjoy the reception for engineering students during Senior Week.

<go ravens!>

Congratulations to Benedictine's Raven **Men's Basketball Team!** With a 31-4 season overall, they reached the second round of the 2019 NAIA National Championship. They went down fighting in double overtime. Way to go! The **Men's** and **Women's Lacrosse Teams** also made it to the playoffs. Great job!

The School of Engineering has many student athletes participating in various sports. We appreciate their dedication and skill in balancing sports and academics. Our professors work hard to help these students balance classroom requirements with the teams' busy schedules.



<ask Deb>

As many of you remember, Deb Scherer has kept our facilities in ship-shape condition. She also has been "in" on many a prank and witnessed many happenings around here — academic and otherwise.

Dear Deb,

I'm having trouble concentrating at my new job. My coworkers are as quiet as mice who've fallen into an energy drink, and it's too quiet for me to focus. I simply cannot work without the soothing sounds of jackhammers and drills. How can I regain productivity?





Dear Westoration Veteran,

There are plenty of videos on YouTube available as background noise to soothe your construction sounds itch. My personal favorite is **10 Hours of Relaxing Jackhammer Sounds For Sleeping and Meditation** (https://

www.youtube.com/watch?v=DALdj77W_8k). You may also be interested in trying out **Demolition videos**, such as (https://www.youtube.com/watch? v=V9x86Ind880).

Happy listening and sweet dreams! Just make sure you don't fall asleep at work.

Signed, Deb Scherer

<making it happen>

Our most sincere thanks to the marvelous students who gave so much of their time and talents to this issue of *Ingenium*, including Kate Caughron (writer/editor extraordinaire), Josh Caasi, Ben Suhr, Kienan McIntee, Adam Kutney, and Jared Sommers.

<calendar>

Year Plannet Fall Semester Begins	August 28, 2019
Family Weekend	September 20-22, 2019
Homecoming	October 25-26, 2019
AIChE National Student Conference & National ChemE Jeopardy Competition	November 8-10, 2019
Winter Semester Begins	January 15, 2020
Scholarship Ball	February 29, 2020
Spring Break & Engineering mission trip	March 7-15, 2020
Commencement	May 16, 2020

<help wanted>

HELP WANTED - MECHANICAL ENGINEERS

Needed: Senior Design Reviewers (volunteer)

Duties: Review final designs for Benedictine mechanical engineering senior projects.

- **Commitment**: Review reports and/or be part of the Web presence for their presentations on May 1, 2020. This requires a few hours per report and two or more hours for all presentations. Just reviewing one report and/or one presentation would be appreciated.
- **Reward**: This is an opportunity to make a direct hands-on difference in these senior design projects. These are all mechanical devices that will be used in the real world. Your insights are invaluable and greatly appreciated.

Interested? Contact Steve Spencer (913) 360-7121; SSpencer@Benedictine.edu

HELP WANTED - CONCRETE CANOE

Needed: Concrete Canoe Team ... please join us for the construction and/or come to the regional competition. Contact Scott Newbolds. SNewbolds@Benedictine.edu

HELP WANTED - FINANCIAL SUPPORT

Needed: Engineering Missions Endowment

...Visit Benedictine.edu and click "Give" in the top right corner. Indicate the Designation: "Engineering Mission" and enter the remaining necessary information

Needed: Sleep in Heavenly Peace

...Contact Dr. O'Malley, (913) 360-7960 or POmalley@Benedictine.edu.

Needed: Engineering Club

...make check payable to Benedictine Engineering Club and send to Benedictine College Advancement, 1020 North Second St., Atchison, KS 66002

HELP WANTED - MISSIONS TEAM

Needed: Engineering Missions Team ... we can always use another hand on our team. Contact Scott Newbolds. SNewbolds@Benedictine.edu

HELP WANTED - BUILDING BEDS FOR KIDS IN NEED

Needed: Sleep in Heavenly Peace ... need volunteers to help with workshops and bed deliveries. Contact Patrick O'Malley. POmalley@Benedictine.edu



<show your support>

2019 Engineering Club T-Shirts for Sale

SALE! Prices Reduced



Check out these smart-looking Engineering Club T-shirts that are available for you to order! This year's winning design is by mechanical engineering student Rachelle Regli (2019). All proceeds benefit the many activities of the Engineering Club.



Prayer and Work

Adult Short-Sleeve T-shirt: \$22 \$12 Available in sizes M and XL

Adult Long-Sleeve: \$30 \$15 Available in sizes M, L and XL

Flat Fee Delivery Charge of \$5.00 (Fill as Many as Will Fit in the Box!)



Future Benedictine College "Engineer"

Youth Short-Sleeve T-shirt: \$18.50 \$12 Available in sizes S, M, L, and XL

Adult Short-Sleeve T-Shirt: \$18.50 \$12 Available in sizes S, M, and L

Flat Fee Delivery Charge of \$5.00 (Fill as Many as Will Fit in the Box!)

Contact: JMcgregor@Benedictine.edu or Send Request to: Benedictine College Attn: Jann McGregor School of Engineering 1020 North Second St Atchison, KS 66002

Please make checks payable to *Benedictine College School of Engineering*.

Thanks for Your Support!

New Engineering

Alumni Shirt

Coming

Soon!

<the view from here>





Before you go, let us leave you with a few parting shots from Benedictine's School of Engineering.

Top right: Senior Jeanne-Marie Potthast at work in the Electrical Engineering lab.

- *Top left:* Jacob Deschler uses the drill press in the new machine shop.
- *Bottom left:* Model trucks cast and constructed by students in the Manufacturing Processes lab.





Benedictine College - School of Engineering Newsletter

Ingenium signifies intelligence, character, genius — all of which describe Benedictine College engineers. The use of the Latin language shows solidarity with the Church, whose official language is Latin, and with the scientific community, which for many years communicated primarily through Latin. *Ingenium* is a proud testament to our history and character as engineers and as members of the Benedictine College community.

> Benedictine College School of Engineering 1020 North Second St., Atchison, KS 66002 Benedictine.edu/engineering (913) 360-7961