What do you want to do with your life?

This year, CoRe redoubled its efforts to help MSU’s first-year engineering students begin to answer that difficult question. While we continued many of the discipline and career exploration activities we have done in the past, we enacted a number of new academic and co-curricular activities, including extending our collaboration with The Center for Spartan Engineering, the College of Engineering’s career services office. New facets of our collaboration included holding weekly “Center in South Neighborhood” drop-in opportunities for resume critiques, assistance with job searches, and general career advice. The early success of this collaboration makes me excited for where we can go with it in the future.

Our corporate partners are also essential in supporting our efforts to bring real-world experiences to our CoRe students, helping them to decide how they can make an impact with their work going forward. This year, we had the pleasure of welcoming Tenneco as our newest Theme Partner, joining Consumers Energy, GE, and Bosch. We celebrated the partnership with their 18-wheeler showing off how Tenneco engineers improve vehicle ride performance and air quality all over the world. We also welcomed BP as a new Project Partner, resulting in our first-ever partner collaboration in EGR 102: Introduction to Engineering Modeling. This partnership gave our students the chance to analyze real data from a BP facility and make recommendations about operational improvements. We know that these connections with real engineering practice engage our students and help them identify how they will help create the future we will all enjoy.

This year saw us continuing to identify new strategies to apply in both our academic and co-curricular activities to help students connect their studies to their professional development outside the classroom. Working with MSU’s Hub for Innovation in Learning and Technology, we undertook a design thinking exercise to evaluate how our programs can better connect our students to each other and to professional practice. Two ideas arose from this process, the CoRe IDEA Fellows workshop and CoRe Theme Communities. While these are in their infancy, exciting things are on the horizon.

CoRe is also central to a new initiative in the College, the SEE Scholars program. This program, funded by the National Science Foundation’s S-STEM initiative, will provide scholarship support to academically-talented students beginning in their second year, while also supporting their efforts to obtain internship and co-op positions. We know that targeted support for this talented group of students will help them persist and succeed.

Another highlight for the year was the addition of new members to the CoRe team. Our academic program was bolstered by the addition of two new instructors, Drs. Janet Lam and Jenahvive Morgan. In addition, Aimee Reynolds joined us to support CoRe and the first-year advising team in South Neighborhood.

While we know we can always get better, this was an exciting year of growth and innovation for CoRe, with the professional development of our students as the driving force. We know that our students are beginning their journeys, but we hope that CoRe has shown them that the journey…and the destination…are both worth the effort.

S. Patrick Walton, Sc.D.
Director, College of Engineering CoRe Experience
www.egr.msu.edu/core
Michigan State University

The CoRe Experience is committed to “building the whole engineer”.

From the Director
Welcome to the CoRe Experience!

The CoRe Experience integrates first year engineering academics and co-curricular/residential activities to support the academic, professional, and personal growth of engineering students during their first year at Michigan State University.

CoRe seeks to demonstrate to students the importance of engineering and the positive impact that engineers make on society and the world around them. Along with community and corporate partners, we bring real-world expertise and challenges into the classroom and residential environment, reinforcing the relevance of studies in engineering to solving global challenges.

“CoRe is an effective solution for incoming freshmen to identify new opportunities available to them as engineers.”

“CoRe puts you on the right track.”

CoRe Experience Mission

- Provide early engineering students with unmatched learning opportunities within a supportive community that encourages academic, professional, and personal achievement
- Foster life-enriching connections between students and their peers, faculty members, advisors, and corporate representatives
- Cultivate students’ skills that encourage lifelong learning
- Demonstrate to the students the critical roles of engineers in contributing to society

CoRe’s mission is to help first-year engineering students succeed.
Co-Re’s co-curricular activities focus on students’ professional development, academic achievement, and social connections. We want students to begin establishing their career goals, have a strong connection to the University and its resources, succeed in the classroom, and develop close friendships with their classmates. In support of these goals, CoRe hosted a variety of co-curricular activities.

**Move-In Day:** Our 2016-17 co-curricular theme of “Get Connected and Stay Connected” started at South Neighborhood move-in with a warm welcome from the CoRe team, CoRe Theme Partners, and College faculty.

**College Colloquium:** College Colloquium at the Breslin Center brought new students together with Engineering faculty and staff, CoRe Theme Partners, and student organizations, helping students get connected even before classes began.

**Professional Development**

From the very beginning of their college experience, we encourage CoRe students to envision themselves as Spartan engineers. To help them make that transition, we invited students to participate in career exploration activities. Professional development events included corporate site visits, a mid-semester success seminar, a sustainability competition, and a mock career fair.

**Corporate Site Visits, Field Trips, and Lab Tours:** Keeping with the theme of “Get Connected and Stay Connected”, students attended corporate site visits hosted by Bosch, Consumers Energy, and US Steel. CoRe also took a group to the North American International Auto Show. Faculty also opened the doors of their labs, teaching our students about industrial diamond coatings, robotic fish, renewable energy, and computer security. CoRe students got behind-the-scenes views of engineering, helping them define their own career options.

**“Breaking the Glass Ceiling”**: Speaker Jereshia Hawk, a pipeline engineer with Consumers Energy, shared her successes and struggles as an undergraduate engineering student and spoke to students about the value of asking for help.
CoRe Sustainability Competition: Thanks to a grant from the MSU Federal Credit Union, CoRe introduced its first Sustainability Competition. Students investigated various campus departments and presented their plans for improvement to a panel of Engineering faculty, staff, and MSUFCU judges. Students submitted technical and business plans with their proposals and were judged on their communication skills, PowerPoint presentations, and ability to answer questions posed by the judges. The top three teams took home cash prizes, and their presentations were sent to the relevant departments for consideration.

Mock Career Fair: CoRe Theme Partners and other partner companies held a mock career fair in South Neighborhood. The low-stress environment provided an opportunity for students who had never attended a career-networking event to learn how to communicate with future employers, market their skill set, and learn about potential engineering careers.

Academic Engagement

From the beginning of the academic year, students were encouraged to participate in CoRe organized study groups, review sessions offered by their course faculty members, final exam study groups hosted by engineering student organizations, and CoRe tutoring. CoRe also hosted sessions on “How to get Admitted to the College of Engineering”, “Stress Management”, and “Effective Test Taking Skills”. Students were guided through exercises where they set academic goals and made realistic plans for accomplishing them.

916 students (CoRe and non-CoRe) participated in academic engagement activities throughout the academic year.

Spartan Success Scholars: CoRe also partnered with student support staff from South Neighborhood in the Spartan Success Scholars’ program, a program developed to provide consistent support for potentially at-risk students. CoRe connected students with supplemental learning resources in the College and throughout the University. Study skills and time management were emphasized to assist Scholars in building good habits.

- CoRe assisted 30 Spartan Success Scholars during their first year of transition to MSU.
- 75% of the Spartan Success Scholars used at least one neighborhood or CoRe support service during Fall Semester.

The annual assessment of the Spartan Success Scholars program showed that students who engage in academic tutoring and professional networking services have better grades and are more likely to return to MSU for additional semesters.

Spartan Success Scholars who used support services at least six times earned an average Fall Semester GPA of 3.01.

Social Connections

Wacky Tuesday events brought engineering students together for fun activities such as pizza study breaks, video game tournaments, and jazz in the Union. CoRe students hung out together, played fun games, learned of upcoming engineering events, and discovered academic resources. Each week, students also received information about academic and health resources in the Neighborhood and throughout the College of Engineering.

From our kick-off at College Colloquium through the last day of Spring Semester finals, CoRe co-curricular activities connected our students with professional engineering corporations, College and University faculty and staff - and their futures as engineers.

976 students (including upper-level engineering students) participated in professional development activities throughout the academic year.
In CoRe’s academic program, students become engaged in meaningful engineering experiences early in their undergraduate careers. We know that this supports their success and persistence to graduation. In EGR 100: Introduction to Engineering Design and EGR 102: Introduction to Engineering Modeling, we strive to engage students across the disciplines in team-based projects that pique their interest and give them a window into what professional engineering really is. This year saw us bring new faculty and their energy to the courses and allowed us to undertake new opportunities to engage with campus and community partners.

New Faculty: We welcomed two new CoRe faculty members this past year. Dr. Jenahvive Morgan (an MSU BS chemical engineering alumna) joined us from Rowan University. Her primary responsibility is teaching EGR 100. Dr. Ji Ye (Janet) Lam, from the University of Toronto, is now teaching the EGR 102 course. Both new instructors bring experience and enthusiasm and are motivated to improve our program.

New Course and Lab Format: One of our new academic initiatives has been in the implementation of “bring your own laptop” lab sections. This new approach has given our students greater scheduling flexibility while creating a more innovative learning environment. We have successfully integrated these sections into the EGR 102 course and will expand to EGR 100 in the fall. We also introduced EGR 102 as a fully on-line course for the summer semester, allowing students from around the globe to gain these important computing skills.

Partner Course Projects: We continued our project partnerships with ArcelorMittal (annealing furnace gas sampling system and parking lot safety optimization), Delphi (hybrid vehicle design), and Tenneco (heat pipe design and pothole reporter projects). We also formed a new relationship with BP (turbine optimization project).

Service-learning: We continued our service-learning relationship with the MSU Adaptive Sports and Recreation Club (ASRC). Teams of CoRe students were challenged to design an athletic wheelchair transfer aid and support systems. Our students also worked with MSU Residence Education and Housing Services (REHS) to design systems to facilitate residence hall move-in and move-out.

Engineering and Art: Our partnership with the Residential College in the Arts and Humanities (RCAH) continued, with financial support from the Ford Foundation Community Corps. Our students designed and built straw bale structures for Peckham, Inc., a Lansing-based vocational rehabilitation firm.

CoRe wants students to know where they are going next...
Academic & Co-curricular Support

Employees

Tutoring Services: Through the generous support of our Theme Partners and industry sponsors, we offer tutoring in calculus, chemistry, and physics to our first-year students. The CoRe Tutoring Center is a constant buzz of activity with students getting regular assistance with courses and targeted exam preparation.

Experiential Education: This past year, we partnered with the College of Engineering career services office, The Center, to begin an informational and mentoring program to encourage all first-year engineering students to complete an initial experiential education experience (internship, co-op, summer job or research lab position) prior to the beginning of their sophomore year. We have big plans to grow these efforts going forward.

Telling the world: We were also busy collecting and analyzing data, presenting a paper at the American Society for Engineering Education (ASEE) annual conference in New Orleans, LA, and participating in the First Year Engineering Experience (FYEE) conference in Columbus, OH. Much of this work focused on our design and analysis courses, and our continuing efforts to assess students’ spatial visualization skills, as a means of supporting their success in engineering academic careers.

“CoRe offers great communication with students.”
“CoRe is important.”
“CoRe is interactive and hands-on.”

Graduate Teaching Assistants - 22
Undergraduate Learning Assistants - 36
Academic Tutors - 18
Peer Leaders - 16

Stay Connected: www.egr.msu.edu/core
Many Thanks to Our Partners!

Theme Partners

Consumers Energy
- Count on Us

GE

Bosch
- Invented for life

Tenneco

Project Partners

ArcelorMittal

BP

Delphi
- Innovation for the Real World

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Michigan State University
- Federal Credit Union
- Building Dreams Together

Michigan State University
- Residential College in the Arts and Humanities

Resource Center for Persons with Disabilities

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