The Capstone Partner Projects, the most recent addition to the College’s curricula, embody the College’s essential mission to educate tomorrow’s Technology Leaders for Career Success.

Beginning with the Fall 2014 semester, teams of undergraduate seniors (3-5 students on a team) will be challenged to apply critical thinking skills and engineering applications to real-world problems. These corporation-specific, Capstone Partner Projects will be undertaken throughout the senior year (i.e., both Fall and Spring semesters), allowing the participating students to apply critical thinking skills and in-depth analysis to real-world problems. Simulating real-world conditions, each Capstone Project will be comprised of up to two to three students, paired by a subject matter expert, mentored by an appropriate faculty member, and coordinated by a Capstone Project lecturer who will be responsible for up to two such projects. Through the nine months of interactions between the corporation’s subject matter expert and up to 15 students, the partner corporation will be afforded a prototypical time frame in which to evaluate the students’ performances on the project of their choosing, thus helping the company to better decide on whether to employ one or more of those students. While the individual Capstone Projects are identified by the partner company, the scope, scale and deliverables for each Project will be jointly determined by the company’s subject matter expert, the College’s assigned faculty mentor, and the College’s designated Capstone Project Lecturer. Once the Project has been thus detailed, the assembled student team will begin applying critical thinking skills and engineering applications to the task to produce workable, scalable solutions.

Currently, there are three prominent companies (Fortinet, Florida Power & Light, and Ryder System) that have each sponsored an annual project, underwriting this unique approach to integrating research and education in the design, development, and evaluation of workable and viable solutions for specific industrial concerns. In addition to the current three projects commissioned by the participating companies, future projects may include 3-D printing and prototyping that the company is actively working on or prototypes of real-world solutions for specific industrial concerns. In addition to the current three projects commissioned by the participating companies, future projects may include 3-D printing and prototypes of real-world solutions for specific industrial concerns.

Students such as Alexandria East (BME), Cody Morris (BME) and Alejandro Gonzalez (MAE) will work on Capstone Projects throughout their senior year.

As any successful student can tell you, college is a lot more than just showing up to class. It is a collection of experiences and industry can be and how to “learn how intense research and development into real-world teamwork can be and how to build engineering concepts to detail how these opportunities complemented their undergraduate program.

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The College of Engineering and its many constituents are excited to be part of this year's $1 Million United Way Campaign. As a College, we will once again aim to reach a $1M total contribution but will also endeavor to increase overall faculty and staff participation. The College stands ready and willing to make the UM 2014 community vow to:

• expand access to shared facilities, tools for desktop manufacturing, and scientific instrumentation to support making products that are both unique and advanced;
• encourage students to use senior design projects to experiment with making and maker-preneur ship;
• support education, outreach and service learning relevant to Making;
• support research that advances making technologies;
• facilitate the development of new tools for desktop design and manufacturing;
• expand access to shared facilities and scientific instrumentation to Makers; and
• foster a generation of Makers (undergraduate, graduate and postdoctoral) as they presented their research – software programs can be accessed through ViAComp, thus allowing our students and faculty to work on their projects anytime and from anywhere. More importantly, we have been able to close roomful of desktops, resulting in space and energy savings, together with instant and widespread access to new software versions. Perhaps the most visible Maker Movement initiative that we are proud of is the UM Capstone Partner Project effort; inaugurated this Fall, it offers seniors the unique opportunity to design, develop, and fabricate the prototype for an industry-sponsored project that engage the students in "making" products and processes which can address real-world challenges. These challenging projects, integrating research, service learning relevant to Making, and education; together, we can truly foster a generation of Makers.

The 7th annual Nano Florida 2014 NanoScience and Technology Symposium (NITS) was held September 25-26 at the Student Activity Center, with the College of Engineering participating as a Platinum sponsor. Other sponsors included the John T. MacDonald Foundation Biomedical NanoTechnology Institute (BioNUNM), the UM Graduate School, FIU’s Biomedical Engineering Department, and UF’s College of Engineering Research Service Centers, as well as corporate sponsors, J nightclub and Sale Partners.

Invited speakers and student presentations created a forum for academic and industry researchers in Florida to discuss the latest and brightest of the challenges at the frontiers of nanoscience and technology and promote closer research ties within the Florida-based nanoscience community.

From the College of Engineering, faculty participants included Dr. Cherie Stabler (Associate Professor, BME), Dr. Onur Tigli (Assistant Professor, ECE) and Dr. Ashutosh Agarwall (Assistant Professor, BME). College graduate students involved in the event included BME Ph.D. students Amaris Genemaras, Anthony Frei, and Jordan Greenberg.

The Symposium also showcased the contributions of students (undergraduate, graduate and postdoctoral) as they presented their research and gained invaluable networking opportunities.

Homecoming 2014 (during the week of October 27) will offer all alumni the chance to experience “It’s Great to be a Hurricane” with scheduled traditional events such as the boat burning, parade, and college activities as well as Halloween-themed events.

Another year, another United Way campaign... and another year wherein the College of Engineering steps to the forefront in making products that are both unique and advanced construction. Our recently constructed Prototyping Facility – which will include a suite of 3D printers and other technologies for making products that are both unique and personalized. Likewise, the Industrial Engineering Manufacturing Laboratory and the decade-old Energy Assessment Center (which President Obama visited February, 2012) illustrate the College’s commitment to developing cutting-edge tools. The Civil, Architectural and Environmental Engineering (CAE) Department’s Structures and Materials Testing Laboratory was recently accredited as one of only 6 centers in the U.S. to meet ISO 17025 standards in testing and calibration.

In regard to education, the College is proud of the fact that it developed a Virtual Academic Computing (ViAComp) facility in 2008, before the words “cloud computing” were even introduced. Indeed, some 40 of our teaching – and research – software programs can be accessed through ViAComp, thus allowing our students and faculty to work on their projects anytime and from anywhere. More importantly, we have been able to close roomful of desktops, resulting in space and energy savings, together with instant and widespread access to new software versions. Perhaps the most visible Maker Movement initiative that we are proud of is the UM Capstone Partner Project effort; inaugurated this Fall, it offers seniors the unique opportunity to design, develop, and fabricate the prototype for an industry-sponsored project that engage the students in "making" products and processes which can address real-world challenges. These challenging projects, integrating research, service learning relevant to Making, and education; together, we can truly foster a generation of Makers.

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The College of Engineering is proud to be at the forefront in the national Maker Movement! We recognize the movement as an extension and elaboration of our core values and encourage our colleagues to promote and embed "making" as an integral part of higher education. Together, we can truly foster a generation of Makers.

The College of Engineering Homecoming Breakfast and Awards Ceremony will be held at the Bank United Center, Hurricane 100 Room on Friday, October 31 from 8-10 am. The keynote speaker at the CoE breakfast (formerly Hurricane) Miranda (BSME'82), the Vice President of Power Delivery at Florida Power & Light Company. Mr. Miranda emphasized what an honor it is to be the keynote speaker, especially since the University "holds a special place in my heart, having helped mold me both professionally and personally." To recognize these contributions for this event, the University thanked the Rob Cowan (BSME’88), Vice President of the CoE Alumni Association (arthur.weaver@gmail.com) or Ann Helmers (BSED’79 MBA’91), CoDirector of Alumni Relations (ahelmers@umiami.edu). More information on the event is also available at www.coe.miami.edu/homecoming/.

Other events of interest include: the Audrey R. Finkelstein UM Experience (http://www6.miami.edu/alumweekend/um_experience.htm) on Friday at the Student Activity Center, the Hurricane Howl Friday evening near Lake Okeechobee, and the highly anticipated ACC rivalry football game with North Carolina, on Saturday at Sun Life Stadium (time TBA).
The College of Engineering, under the leadership of Dr. Helena Solo-Gabriele (Associate Dean for Research and Professor, CAE) recently hosted the event which opened The Cuban Engineer exhibit at the Richter Library. This exhibit (which will run through December 2014) honors the Cuban contributions yesterday, today, and tomorrow, and examines both the history of engineering in Cuba as well as the many accomplishments of Cuban engineers throughout history.

According to Pete Martinez (BSEE’75), President-Elect of the Association of Cuban Engineers, the opening night event (on June 27, 2014) was especially moving and inspiring thanks to the speakers’ selection and extraordinary efforts of both Dr. Solo-Gabriele and Dr. Maria Estorino, the Esperanza Bravo de Varano Chair of the Cuban Heritage Collection; all of the speeches conveyed the impact and importance of Cuban engineering professionals throughout the world.

The event’s invited speakers included Maria Estorino, Pete Martinez, Delfín Molins, José Mitrani, and Helena Solo-Gabriele, all of whom presented various aspects of the engineering accomplishments by Cuban individuals and groups, as well as local educational institutions’ contributions to encourage students to pursue engineering careers. As Mr. Martinez pointed out, for instance, over 50 Cuban engineers contributed significantly to the development of the personal computer at IBM; the efforts of Cuban engineers in other fields were just as significant and noteworthy, with their main goal to always “work from within the system to make it better through hard work and imagination.”

Dr. Solo-Gabriele emphasized that this exhibit will both inspire and educate the public to the astounding impact the Cuban Engineer has made within science, technology, and engineering. She also highlighted the many accomplishments of Cuban engineers throughout history.

The event opened with the speeches of Corporate Spain, where his father (a civil engineer) worked for 29 years. The new class constitutes 29% of the total 2014 freshmen enrolled at UM for the Fall semester—typically it has been about 10 percent.

This increase in enrollment continues the continual upward movement in the College’s undergraduate student body, which has grown from 766 in 2007 to 1090 through 2013. The new class represents the usual breakdown by departmental major, with Biomedical Engineer- ing drawing the highest percentage among declared majors.

In his welcoming address to the new class, Dr. James M. Tien emphasized the increasing need for the engineering approach to today’s challenges and the importance of honing critical thinking skills in order to achieve career success. He added, “You need to maintain your enthusiasm, embrace your can-do attitudes and sharpen your critical thinking skills for solving the world’s problems.”

David Poole, CoE Director of Admissions, attributes the increased interest and enrollment in engineering in part to the relevance and unique research and educational vision of the College, the increased national exposure of the College (such as President Obama’s visit to the College in 2012), and the rise in the national rankings of UM. Poole also points out, “The VACoC cloud computing facility, the emphasis on technology to solve management problems,” the 270 engineering freshmen comprise approximately 15 percent of the total 2014 freshmen enrolled at UM for the Fall semester—typically it has been about 10 percent.
The number of extraordinary engineering student athletes continues to grow. The ability of these individuals to excel in both the classroom and on their respective field of competition is both amazing and noteworthy. Nine College of Engineering student athletes were among those recognized in the 58th annual Atlantic Coast Conference (ACC) Academic Honor Roll, which acknowledges the academic excellence of ACC student-athletes during the 2013-2014 academic year. The Honor Roll, comprised of student-athletes who participated in a varsity-level sport and achieved a grade point average of 3.0 or better for the full academic year numbered a record 3,967 student-athletes for their hard work in the classroom during the 2013-14 academic year.

The University of Miami ACC Academic Honor Roll totaled 152, including the following College of Engineering students:

- Grant Coffman (M.E. ’17) in football, Breanna Hayton (M.A.E. ’14) in rowing, and Jacee Jarnagin (C.A.E. ’17) in track and field.
- Anthony Wolliston (B.M.E. ’14) in track and field and Ryan Otero (E.E. ’15) in baseball.
- Jordan Tolson (E.I.E. ’14) in football, Jasmine Villarverde (E.I.E. ’14) in soccer, and Anthony Wolliston (B.M.E. ’15) in track and field.

Among the 32 student-athletes who earned ACC Honor Roll status for the fifth time is Garrett Nygren; also noteworthy are Anthony Wolliston and Jordan Tolson who have achieved the Honor Roll two years in a row.

The strenuous demands of their engineering disciplines, as well as their dedication to athletics, richly deserve this honor. Dean James M. Tien congratulated all of the College’s ACC Academic Honor Roll students for their hard work and commitment to both their educational and athletic pursuits.
The Graduate Student Awards program, initiated by Vice Provost for Academic Affairs and Graduate School Dean Brian Blake, seeks to recognize the extraordinary talents and performance of Graduate School students throughout the UM community. Five award categories, three nominees from the College of Engineering were chosen: Outstanding Research Assistant, Janice Dias (BME); Graduate Student Exemplar, DeLante Moore (IE), and Faculty Mentor of the Year, Dr. Herman Cheung (BME).

DeLante E. Moore, an MS student of Dr. Nurcin Celik (Assistant Professor, IE), won the 2014 Graduate Student Exemplar Award which recognizes a graduating student who has excelled academically while making consistent contributions that benefit others. According to Dr. Celik, “DeLante is not only an outstanding Master’s student who was able to produce 5 peer-reviewed publications (2 book chapters, 1 journal paper, and 2 conference proceedings) during his studies at CoE, but he is also a great role model and a leader to students coming from underprivileged communities. We are very proud of him.” Likewise, Dr. Noel Ziebarth (Assistant Professor, BME) praises the dedication and superior work of Janice Dias, an Outstanding Research Assistant awardee. “Janice’s professional performance is truly worthy of recognition.”

The Faculty Mentor of the Year award for Dr. Herman Cheung is also well deserved. He is believed by his students and colleagues for his collegiality and mentoring skills. Veronica Fortino (Ph.D. candidate, BME) elaborated in her introduction on Dr. Cheung’s amazing concern for his students and professional advancement. “His care for students and mentorship...it embodies the cradle of capabilities to students to solve problems...we also need to expose students to broader business topics and issues...this enables them to hone their critical thinking skills and use their engineering knowledge to solve problems that go beyond traditional technical challenges...this can give engineering students a huge advantage in the workplace.”

He also mentioned that many consumers would be surprised to know that Ryder provides a wide range of outsourced solutions for some of the world’s most recognizable companies. Through these solutions, Ryder touches peoples’ lives in ways they probably don’t realize. For an example, he added, “the coffee you drink in the morning, the cereal you eat for breakfast, the car you drive, and the computer you use, have all likely been packaged, moved or delivered through a Ryder keeping the logistics or logistics network work supported by a set of complex technologies, including one of North America’s largest fleets of trucks, an expansive infrastructure of maintenance facilities and warehouses, and some of the most talented technicians, drivers, and engineers in the industry. Engineering plays a significant role in our ability to provide the most effective solutions. In our current complex business environment, we optimize global logistics networks. In our Fleet Management Solutions business, we maintain more than 500,000 commercial vehicles of almost every make, model, and class. But these are not your grandfather’s trucks...these are highly sophisticated pieces of equipment. Five years ago, there were two electric forklifts on the road. Today, there are 26. It’s our job to better be than anyone in the industry at understanding how to develop an optimum vehicle configuration that can yield the best fuel efficiency and reliability and maximize performance, said Mr. Sanchez for our purposes.

Mr. Sanchez emphasized that Ryder is in the outsourcing business. “It’s our job to solve our customers’ problems...and even though we are very good at what we do, operating a fleet or a supply chain has become more complex than ever. Vehicle technology and road infrastructure are complex, supply regulations have increased, the industry is faced with major talent shortages, and companies have limited access to capital. Despite these challenges, we must continue to expect us to do things better, faster, smarter, and cheaper. So it is imperative that we become more innovative.” He believes the Capstone Partnership will enable Ryder to engage seniors on solving real-world problems, a win-win for both the students and Ryder. “For example, we have 5,000 technicians, maintaining more than 200,000 commercial vehicles, across 800 locations. We have to keep these vehicles running at the most effective cost. We have a lot of data based on the work we do that can help us identify ways to continue to improve the reliability and performance of these vehicles. Any small improvement that can be replicated across our entire network would be highly valuable to Ryder and our customers. Just imagine what a process improvement we see. This is the type of work we are doing to work with participants in the Capstone Partnership.”

Mr. Sanchez’s interest and involvement with the College began with his undergraduate studies and is further evidenced in his long term participation on the CoE Visiting Committee.

Dr. Herman Cheung (Professor, BME) and Dr. Andrew Schally (Miller School of Medicine), along with their collaborators at the Chinese University of Hong Kong (CUHK) Queen Mary Hospital, received a $1,250,000 donation from the Li Ka Shing Foundation.

The gift will fund a project to investigate the growth hormone-releasing hormone receptor as a potential target for the treatment of retinoblastoma (a type of ocular tumor). A total of $175,000 will be awarded directly to Dr. Cheung to support his work on the project. The project, “Advanced Engineering at the University of Miami” in collaboration with the College of Engineering is led by Dr. Ada Yonath, Nobel Laureate in Chemistry.

STUDENTS GARNER TRAVEL GRANTS

Sen Huang and Wei Tian, both Ph.D. students in the Civil, Architectural and Environmental Engineering (CAE) department, have been awarded National Science Foundation (NSF) Travel Awards and American Society of Heating, Refrigerating, and Air Conditioning Engineers (ASHRAE)/International Building Performance Simulation Association (IBPSA)/Travel Scholashhips. They are students of Dr. Wangta Zuo (Assistant Professor, CAE) who explained that the NSFTravel Awards, awarded based on their research and potential in building energy simulations, allowed them to attend the ASHRAE/IBPSA Building Simulation Conference in Atlanta, Georgia in September. Zuo added, “The support from the NSF has increased exponentially in order to provide the best...and in order to provide the best...and to continue on the NSF Symposium on Building Energy Uncertainty and Risk Analysis at Georgia Tech in September, 2014. Dr. Zuo com- mmented, “We are so pleased that these students’ work has been recognized and rewarded. Their success are noteworthy and we anticipate they will continue to be successful.”

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Veronica Fortino (Ph. D. student in BME) attended the 64th Nobel Laureate meeting in Lindau Germany in June, 2014, the first graduate student at UM to be invited and so honored. She joined over 100 Nobel Prize-winning researchers in this unique opportunity to meet and interact with over 30 Nobel Laureates in the fields of medicine and physiology. Veronica comments, “This was definitely a life-changing experience, not only because of the intense discussions with the Laureates, but also the networking and educational opportunities with the invited student participants. We formed invaluable collaborations which are significant for both our research and our professional careers.” Veronica also mentions the support and encouragement provided to her by both Dr. Herman Cheung (Professor, BME) and Dr. Helena Solo-Gabriele (Professor, CAE) and Asisate Dean for Research in her application, from over 4000 applicants, only 600 invitees were chosen. “I am so honored and thrilled to have been given this opportunity. It was extraordinary.”

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2014 NATIONAL SCIENCE FOUNDATION Awardee

Kimberley MacDonald (BSC/CAE/MSCA 14) has been awarded a prestigious 2014 National Science Foundation (NSF) Graduate Research Fellowship based on her “outstanding abilities and accomplishments, as well as her potential to contribute...and to strengthening the vitality of the U.S. science and engineering enterprise.” This fellowship, which will enable her to pursue graduate studies for five years at the institution of her choice, provides tuition, fees, travel allowance, and stipend. Kimberly has more than a decade of working with Dr. Giancagno (Associate Professor, CAE) on testing and detection techniques for carbon and epoxy fabric composites. Dr. Antonio Nanni (Professor and Chairman, CAE) commented that “even NSF recognizes that Kim is a rising star and we are honored that she has chosen to continue her studies with CAE.”
The College’s Engineers Without Borders (EWB) organization, with the ultimate goal of implementing sustainable housing systems for the community of Las Mercedes in Huacueal, Ecuador, completed several key steps this summer.

EWB team members from the College spent two weeks, May 10 – 24, 2014, working with the local Non-Governmental Organization (NGO) partners Dana Rasch and Edward Duarte, surveying the village’s homes for eventual connection to the newly-built primary and secondary water systems. These efforts contributed to the community’s ability to maintain the new systems.

The entire EWB team worked six days a week on this phase of the on-going project. From 7 a.m. to 11 a.m. in the front row, clockwise are: Dana Rasch (NGO partner), Jessica Chabot, Natasha Koermer, Miguel Melo, Raul Velarde, Joel Mojlo, Rob Weaver, Josh Allbee, and Laurent Elievene. Miguel, Rob, Joel, and Laurent recently moved to New Orleans, LA, as a liaison engineer for the Corps of Engineers.

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