

UNIVERSITY OF MIAMI

COLLEGE of  
ENGINEERING

2016



# TRANSFORMING THE FUTURE OF ENGINEERING

*A Strategic Plan for  
the College of Engineering*



**Jean-Pierre Bardet**  
Professor and Dean  
College of Engineering

## DEAN'S MESSAGE

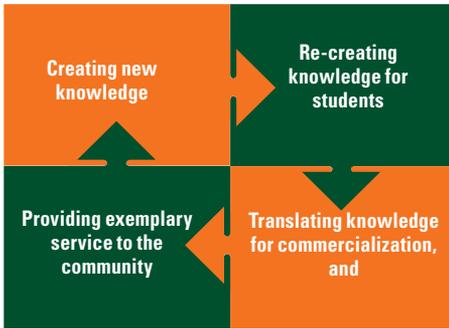
The College of Engineering (CoE) is pleased to share its strategic plan. This plan is the result of nearly a year of effort by working groups of faculty, students, staff and alumni. In preparing this strategy, I emphasized that it must be ambitious yet achievable. UM President Julio Frenk has stated that the College of Engineering will play a central role in achieving the “Roadmap to Our New Century,” the University of Miami’s Strategic Plan. As the University invests in new talents, interdisciplinary intersections, STEM, innovation and entrepreneurship, research, diversity and inclusion, educational innovation, and value-based health care, the College’s plan supports the University’s goals with bold thinking.

This strategic vision and plan articulates five “big focus areas” in research, education, innovation, administration and a culture of belonging – each of which has the potential to transform the College, make us a catalyst for realizing the University’s vision and have a dramatic impact on society as a whole. It will position the College as a place of innovation, intellectual vitality and national academic leadership.

These high aspirations are achievable. The resources that will be invested will fuel the drive toward our goals and future. The input and feedback provided by members of the College community have guided the strategic planning process and led us to a set of strategies that will define the College’s future. Thus, through our commitment to transform our College through innovation, excellence and quality, we are educating and inspiring tomorrow’s leaders. These leaders will make a difference and have a global impact.

# MISSION

The College of Engineering transforms lives by:

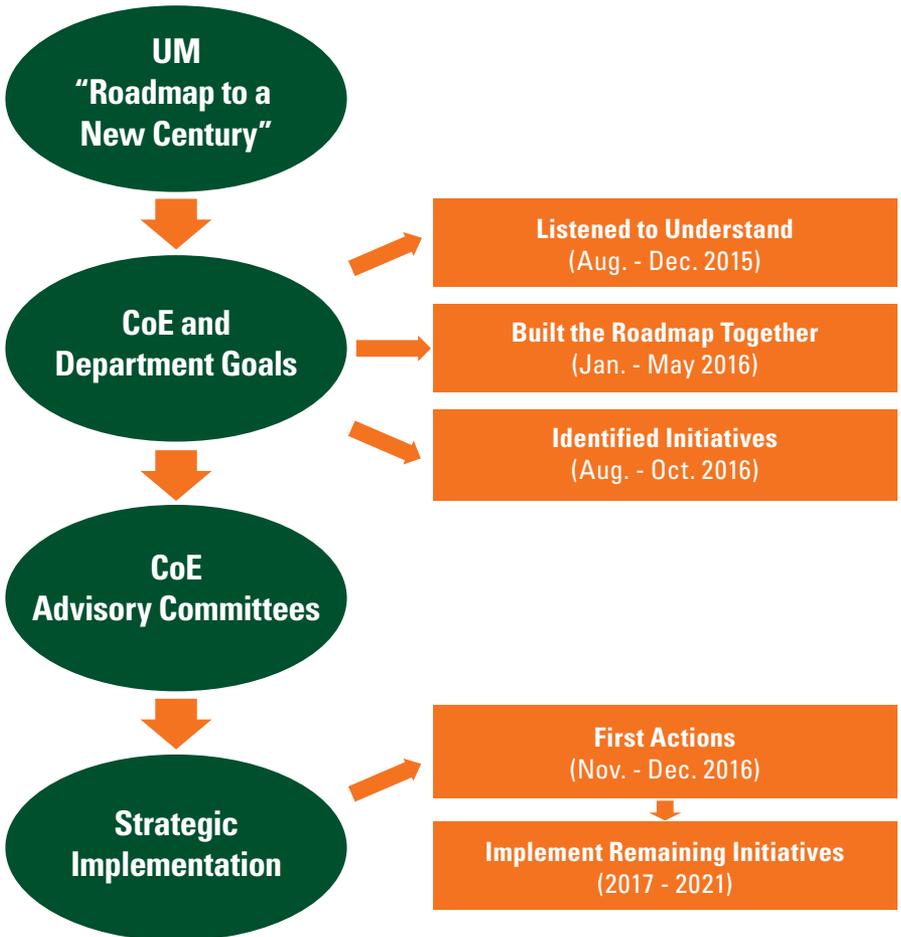


## STRATEGIC INITIATIVES

- 1. Nurture Excellence in Research** – encourage interdisciplinary research that addresses 21st-century global challenges, including technological, economic and social issues; enhance our ability to play a leading role in collaborative efforts and join forces with other schools and colleges at the University to push the boundaries of knowledge forward and leave a lasting impact on the world.
- 2. Redefine Engineering Education** – establish and maintain active learning classrooms and instructional laboratories, as well as powerful interdisciplinary alliances that enrich our core strengths and help prepare our graduates for global leadership roles.
- 3. Become the Innovation Hub of Miami** – establish a creative environment allowing for the free exchange of ideas to solve global social and economic issues; lead collaborative civic and international engagement, turning dreams and ideas into the reality of tomorrow.
- 4. Implement an Agile and Transparent Administration** – improve communication and customer service by ensuring integrity and transparency in all administration processes; foster development of each staff member's talent; and emphasize growth and efficiency.
- 5. Create a Culture of Belonging** – celebrate diversity within the strong, vibrant College community; expand and deepen the College's relationships with the larger community.



## STRATEGIC PLANNING PROCESS



# FIRST ACTIONS

## 1. Excellence in Research

**a. Hire Faculty:** Job postings for six new faculty positions have been posted. Phillip and Patricia Frost recently endowed 13 faculty positions at the University, which gives the CoE unprecedented opportunities to attract exceptional talent.

**b. Create the Miami Institute for Urban Resilience Solutions (MIURS):** We have developed a proposal for this University-wide institute, which has a mission to improve the resilience of urban communities through structured partnerships between the private sector, public sector and academia.

## 2. Redefine Engineering Education

**a. Enable Makerspace Opportunities:** Build-out of the 5,850-square-foot collaborative lab is underway, in partnership with Johnson & Johnson. When it is completed early next year, it will include high-tech additive manufacturing equipment, advanced 3-D printers and fabricating equipment. A full-time engineer/scientist will staff the lab.

**b. Use Flipped Classrooms:** Two flipped classrooms will be completed. These classrooms reverse the traditional learning environment: instructional content is delivered online outside the classroom, and the classroom is used for teamwork activities.

**c. Reform Freshman Introductory Courses:** CoE faculty and staff will discuss the curriculum for introductory courses that all freshmen engineering students will take – regardless of discipline.

**d. Expand Professional Master of Science Programs:** We will begin adapting our curriculum to launch new industry-driven professional Master of Science degree programs in all departments.

## 3. Become the Innovation Hub of Miami

**a. Develop Innovation Partnership (IP):** The CoE, the UM School of Business and The Launch Pad are creating this program to help faculty and students turn ideas and innovations into businesses. The first step is to build the IP website, which will identify existing resources and faculty, help prepare students for innovation

competitions, and position the University in Miami's innovation ecosystem.

**b. Train in Innovation/Entrepreneurship Through CTSI and ICORPS:** Ensure that CoE faculty members have the opportunity to benefit from full programs, which train faculty and students to translate research into commercial technologies and products.

#### 4. Implement an Agile and Transparent Administration

**a. Deploy Student Advising Tool:** CoE will implement a new web-based system for monitoring student performance, alerting staff to students who might be academically at-risk, and communicating with them.

**b. Deploy Instructional Management Tool (IMT):** Early versions of IMT are being created for each department. It aims to bring transparency to the allocation of human and financial resources to educational programs, thereby helping balance course loads for professors and teaching assistants, while improving the quality of education.

**c. Enhance Website:** In August 2016, the CoE launched a new website, which we will continue to enhance to promote academic and research programs.

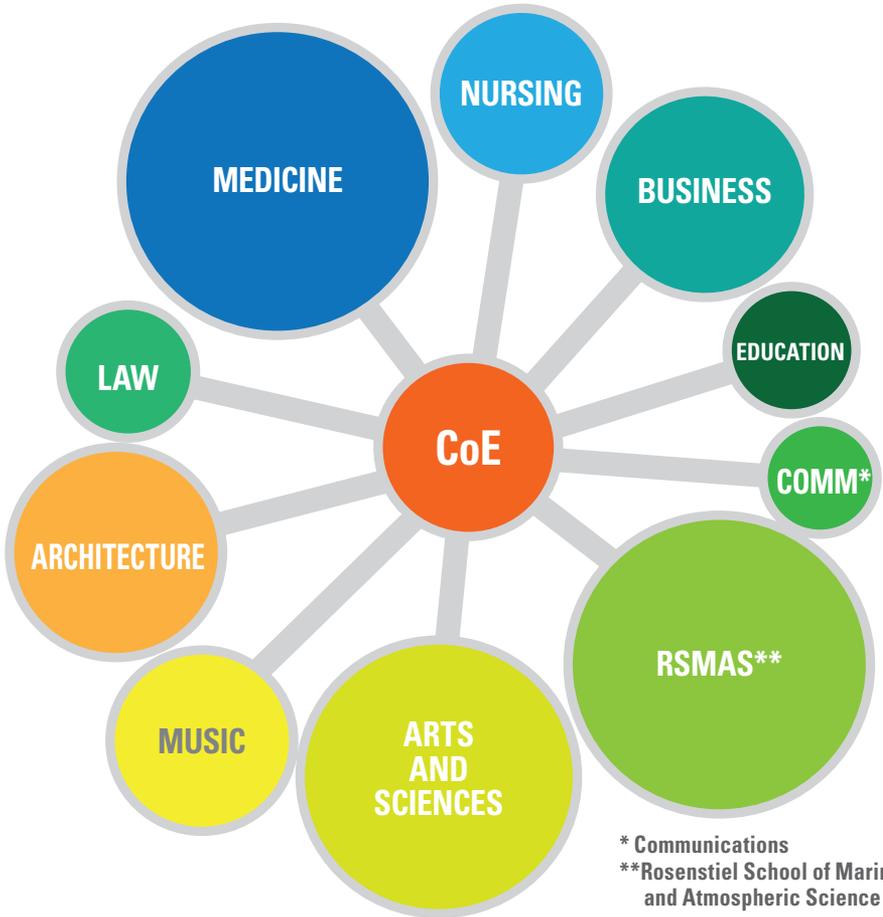
#### 5. Develop a Culture of Belonging

**a. Hire Diverse Faculty:** During the ongoing faculty hiring, the CoE will put in place proactive procedures to recruit faculty from diverse backgrounds.

**b. Raise Diversity Awareness:** Experts from the University's human resources department and external consultants will offer diversity training for CoE staff and faculty.



## PARTNERSHIPS WITH UM COLLEGES AND SCHOOLS



\* Communications  
\*\*Rosenstiel School of Marine and Atmospheric Science



## POINTS OF DISTINCTION

- **15:1** APPROXIMATE STUDENT-FACULTY UNDERGRADUATE RATIO
- **51%** OF STUDENTS PARTICIPATE IN RESEARCH
- **31%** OF UNDERGRADUATES ARE FEMALE  
THAT'S **12% HIGHER** THAN THE NATIONAL AVERAGE
- **89%** OF GRADUATES SECURE JOBS OR PURSUE EDUCATIONAL OR FULL-TIME VOLUNTEER OPPORTUNITIES WITHIN SIX MONTHS

- **CoE GRADUATES WORK AT LEADING FIRMS, INCLUDING:**

