



DO YOU SEE WHAT WE SEE?

ENGINEERING

HOUSTON.

ENGINEERING THE WORLD.

THE UNIVERSITY OF HOUSTON
CULLEN COLLEGE OF ENGINEERING

STRATEGIC PLAN
2015 - 2025

UNIVERSITY of **HOUSTON** | ENGINEERING

THE UNIVERSITY OF HOUSTON
CULLEN COLLEGE OF ENGINEERING

STRATEGIC PLAN 2015-2025

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OUR



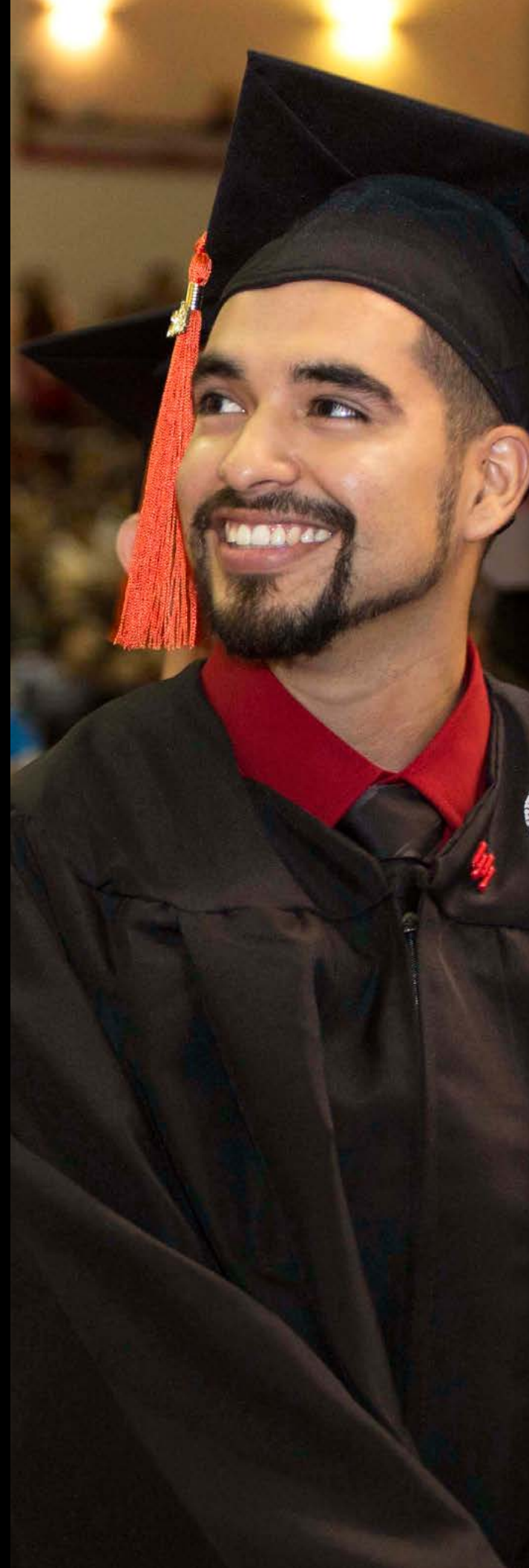
**BY 2020 THE UNIVERSITY OF HOUSTON
CULLEN COLLEGE OF ENGINEERING WILL BECOME A
“TOP 50”**

**ENGINEERING PROGRAM AS DEFINED BY
U.S. NEWS AND WORLD REPORT.**



ABOUT THE PLAN

THIS PLAN WAS DEVELOPED BY A TEAM OF CULLEN COLLEGE OF ENGINEERING FACULTY, STAFF, ADMINISTRATORS, STUDENTS AND ALUMNI, CHARTERED BY THE DEAN. THE INSTRUCTIONS WERE TO THINK **BOLDLY** AND BE **MINIMALLY CONSTRAINED**.



MISSION OF THE UH CULLEN COLLEGE OF ENGINEERING

THE MISSION OF THE CULLEN COLLEGE OF ENGINEERING (CCE) AT THE UNIVERSITY OF HOUSTON IS

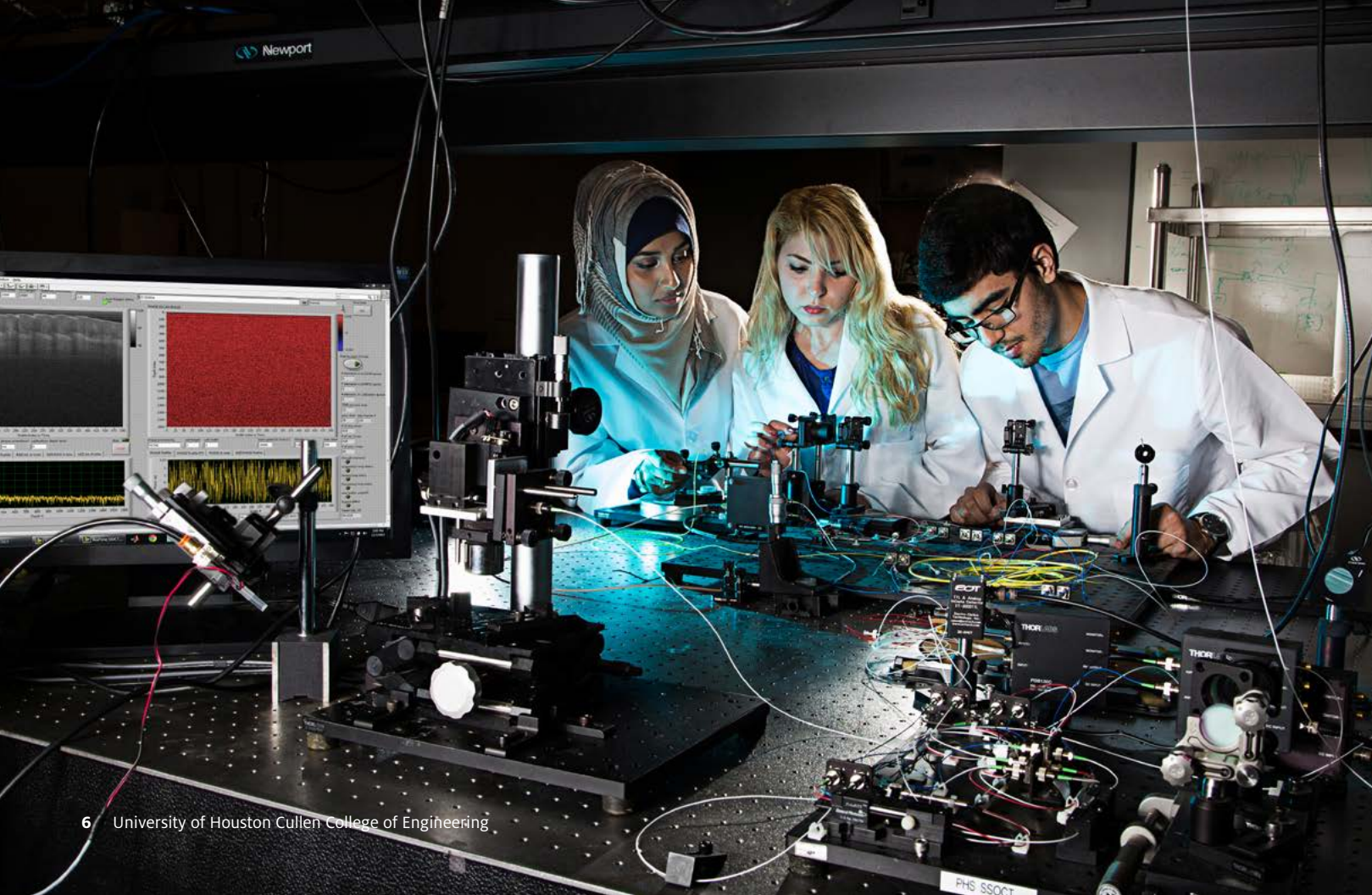
- **TO SERVE** the Greater Houston community, Texas and the nation by educating engineers to assume leadership positions in the identification and solution of the complex technical challenges of society,
- **TO ADVANCE** the state of knowledge through pioneering research and scholarly work,
- **TO FACILITATE** the transfer of new technology to Texas and U.S. industries,
- **TO PLAY A KEY ROLE** in economic development for the Greater Houston region and the State of Texas, and
- **TO BENEFIT THE PUBLIC** sector through service to the university, community, industry, government and the engineering profession.



STRATEGIC GOALS AND INITIATIVES

TO ACHIEVE OUR VISION OF BECOMING A **TOP 50 ENGINEERING PROGRAM**, WE WILL PURSUE A STRATEGIC PLAN TO TRANSFORM THE CULLEN COLLEGE OF ENGINEERING (CCE) THROUGH:

- **EXCELLENCE AND UNPRECEDENTED GROWTH** in the Cullen College's academic programs, with an overarching emphasis on student success
- Development of **STRATEGIC COMMUNITY PARTNERSHIPS**
- Building **STATE-OF-THE-ART** research and classroom facilities





STRATEGIC INITIATIVES

I. EDUCATING HOUSTON'S ENGINEERS

II. CONDUCTING RESEARCH WITH IMPACT

**III. BRANCHING OUT:
NEW BUILDINGS, NEW CAMPUSES**

IV. PARTNERING WITH HOUSTON



2015

2016

2017

2018

2019

2020

2021

2022

2023

2024

2025

STRATEGIC PLAN

WHERE WE ARE,
WHERE WE WANT TO BE,
AND HOW WE'LL GET THERE



I. EDUCATING HOUSTON'S ENGINEERS



HOUSTON IS THE MOST DIVERSE, DYNAMIC AND ENTREPRENEURIAL CITY IN THE WORLD.

The UH Cullen College of Engineering is part of the DNA of the city of Houston. As such, the Cullen College will recruit and retain more women, underrepresented minorities and other high-achieving, diverse undergraduate and graduate students who more closely represent the makeup of the Houston community. The Cullen College will also expand its academic offerings to accommodate both traditional and non-traditional students, offering courses at satellite campuses across the Houston region as well as online courses and industry-led certification courses.

With an overarching goal of student success, the UH Cullen College of Engineering will:

- **RE-TOOL** THE ACADEMIC MODEL TO RECRUIT AND RETAIN MORE HIGH-QUALITY, DIVERSE UNDERGRADUATE STUDENTS
- **INCREASE** THE NUMBER AND QUALITY OF FACULTY, WITH A PARTICULAR FOCUS ON RECRUITING WOMEN AND UNDERREPRESENTED MINORITY FACULTY MEMBERS
- **IMPROVE** THE QUALITY OF UNDERGRADUATE PROGRAMS
- **DEVELOP** AND LEVERAGE ONLINE COURSES
- **STRENGTHEN** AND EXPAND GRADUATE PROGRAMS AND INDUSTRY-SERVING CERTIFICATE PROGRAMS
- **PREPARE** DIVERSE UNDERGRADUATE AND GRADUATE STUDENTS FOR FUTURE CAREERS AS LEADERS IN INDUSTRY, GOVERNMENT OR ACADEMIA

LOOKING AHEAD:

ACADEMICS AT THE UH CULLEN COLLEGE OF ENGINEERING IN 2025

STUDENTS

8,000

TOTAL STUDENTS

5,600

UNDERGRADUATE STUDENTS

2,400

GRADUATE STUDENTS

FACULTY

160

TOTAL FACULTY BY 2020

UNDERGRAD STUDENT DEMOGRAPHICS

15%

AFRICAN AMERICAN

35%

HISPANIC

30%

FEMALE

FACULTY DEMOGRAPHICS

20%

FEMALE FACULTY

22

NAE MEMBERS

IMPACT IN HOUSTON

2,000 WORLD-CLASS ENGINEERS

will graduate from the Cullen College each year

80%

of these graduates will be employed in the state of Texas within one year of graduation

20%

will continue their education at UH or another university

600 FEMALE ENGINEERS, 700 HISPANIC ENGINEERS AND 300 AFRICAN AMERICAN ENGINEERS

will earn their engineering degrees and enter Houston's STEM workforce each year

450 ENGINEERS

will earn their master's degrees and enter into Houston's STEM workforce each year

150 ENGINEERS

will earn their doctoral degrees and enter into Houston's STEM workforce each year

THE CITY OF HOUSTON IS THE HEARTBEAT OF THE UNITED STATES.

As the energy, medicine and space capital of the world, what happens here in Houston has reverberations that can be felt across the globe. Engineers and other STEM professionals are driving forces behind Houston's position as an economic powerhouse. In fact, more jobs were created in Houston last year than in any other major U.S. city thanks to its booming energy and engineering industries.

The future of our city depends on engineers and engineering, and that's why the work we do at the UH Cullen College of Engineering profoundly and directly benefits the lives of Houstonians each and every day. As a college, we have an obligation to ensure that the city of Houston remains a global economic leader for many, many years to come.

With an overarching goal of growing its research enterprise, the UH Cullen College of Engineering will:

- **RESTRUCTURE** THE RESEARCH ENTERPRISE TO INCREASE RESEARCH ACTIVITY, PRODUCTIVITY AND VISIBILITY
- INCREASE **TECHNOLOGY** TRANSFER AND TRANSLATIONAL RESEARCH
- INCREASE **RESEARCH EXPENDITURES** PER FACULTY MEMBER
- INCREASE RESEARCH EXPENDITURES TO **\$50 MILLION**
- INCREASE **INDUSTRY-SPONSORED** RESEARCH TO 30% OF TOTAL SPONSORED RESEARCH



II. CONDUCTING RESEARCH WITH IMPACT



IMPACT IN HOUSTON

\$630 MILLION INCREASE

in economic activity in the city of Houston as a result of the Cullen College's research activities

UH Engineering Faculty and Students will conduct research to solve some of the most pressing engineering challenges facing the city of Houston, including:

LOOKING AHEAD:

RESEARCH AT THE UH CULLEN COLLEGE OF ENGINEERING IN 2020



\$50 MILLION

in total research expenditures

\$15 MILLION

in total industry-sponsored research

\$35 MILLION

in total federally-sponsored research

\$350,000

in research expenditures per faculty member each year



Protecting the Gulf Coast from hurricanes and other natural disasters



Identifying and fixing failing infrastructure



Boosting medical research taking place within the Texas Medical Center



Developing new methods and technologies to identify harmful air and water pollutants



Leading national research centers to ensure safe and efficient offshore energy production

III. BRANCHING OUT: NEW BUILDINGS, NEW CAMPUSES



IN ORDER TO ACCOMMODATE THE **DOUBLING** OF STUDENT ENROLLMENT, THE UH CULLEN COLLEGE OF ENGINEERING WILL:

- **ADD NEW CLASSROOM SPACES** AND RENOVATE CURRENT CLASSROOMS ON THE MAIN CAMPUS
- BEGIN OFFERING ITS PROGRAMS AT THE **UH SUGAR LAND** BRANCH CAMPUS AS WELL AS NEW FACILITIES IN **KATY AND THE WOODLANDS**
- **ESTABLISH PARTNERSHIPS WITH INDUSTRY** TO CREATE MUTUALLY BENEFICIAL EDUCATIONAL FACILITIES LOCATED WITHIN LOCAL CORPORATIONS AND BUSINESSES
- EXPAND ONLINE COURSE OFFERINGS AND DEVELOP INNOVATIVE CERTIFICATE PROGRAMS TO **MEET THE DEMANDS FOR SPECIALIZED, INDUSTRY-LED CERTIFICATIONS**



LOOKING AHEAD:

FACILITIES AT THE UH CULLEN COLLEGE OF ENGINEERING IN 2025



The Multidisciplinary Research and Engineering Building (MREB), a \$51 MILLION, 120,000 square foot engineering research facility, will support academic and research programs at the Cullen College.

The Cullen College will offer engineering courses and programs at the UH Sugar Land campus as well as at new facilities in Katy and The Woodlands.

IMPACT IN HOUSTON

By partnering with industry, the Cullen College will offer innovative and flexible online course offerings and certification courses that will provide local engineering professionals with affordable options for continuing their education.



IV. PARTNERING WITH HOUSTON

2025

THE MISSION OF THE UH CULLEN COLLEGE OF ENGINEERING IS TO **SERVE** THE GREATER HOUSTON COMMUNITY BY EDUCATING THE NEXT-GENERATION OF **GLOBAL ENGINEERS** WHO WILL SOLVE THE COMPLEX TECHNICAL CHALLENGES FACING OUR SOCIETY. IN ACHIEVING THIS GOAL, THE CULLEN COLLEGE WILL PLAY **A KEY ROLE** IN THE **ECONOMIC DEVELOPMENT** OF THE HOUSTON REGION AND THE STATE OF TEXAS BY:

FACILITATING

THE TRANSFER OF NEW TECHNOLOGIES TO LOCAL AND INTERNATIONAL INDUSTRIES

ADVANCING

THE STATE OF KNOWLEDGE THROUGH RESEARCH AND SCHOLARLY WORK

BENEFITTING

THE PUBLIC SECTOR THROUGH SERVICE TO THE UNIVERSITY, COMMUNITY, INDUSTRY, GOVERNMENT AND THE ENGINEERING PROFESSION

DEVELOPING

A PROACTIVE APPROACH TO ENGAGE INDUSTRY, PROMOTE UNIVERSITY-INDUSTRY COLLABORATIONS, AND BETTER SERVE THE CONTINUING EDUCATIONAL NEEDS OF PROFESSIONALS

STRENGTHENING

OUTREACH PROGRAMS IN HOUSTON'S ELEMENTARY, MIDDLE AND HIGH SCHOOLS

UNIVERSITY of **HOUSTON** | ENGINEERING

UH Cullen College of Engineering
Office of Communications
E301 Engineering Bldg. 2
Houston, TX 77204-4009



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