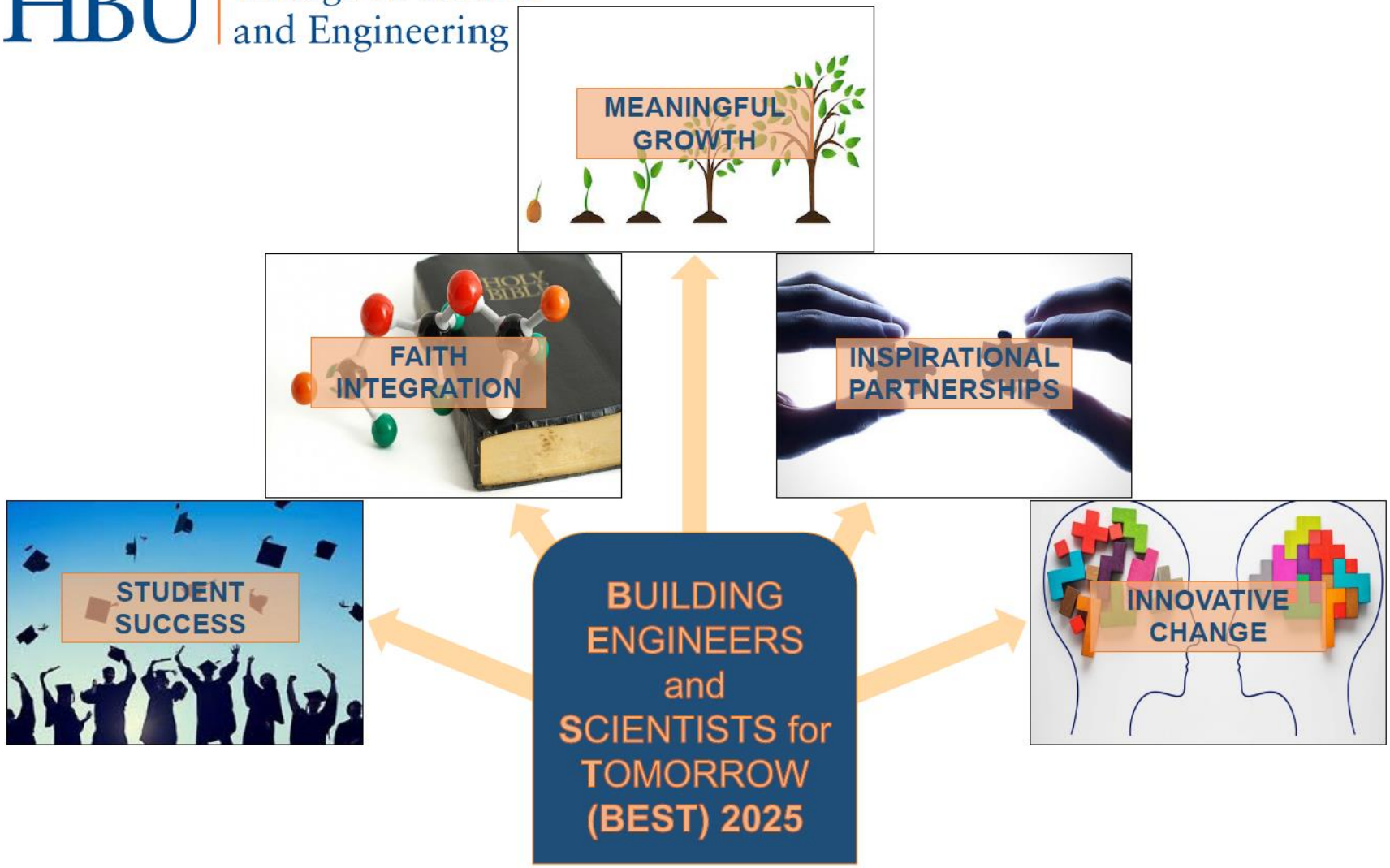
HBU | College of Science and Engineering



STRATEGIC PLAN

Version Date: 08-18-2020

Building Engineers and Scientists for Tomorrow (BEST) 2025
Strategic Plan for the College of Science and Engineering
Houston Baptist University
2020 - 2025

Purpose

The purpose of the Houston Baptist University College of Science and Engineering is to build engineers and scientists for tomorrow, who employ biblical principles for solving problems, discover truth in the created world, and serve God and Man.

Vision

The vision of the College of Science and Engineering at HBU is to be the best in the world at integrating fundamental principles of science, engineering, and mathematics (STEM) with historic Christian values and standards to serve God and mankind. This uniquely positions HBU as a preparer of ethical and highly qualified talent for the workforce, the community, and the world.

Mission

The mission of the College is to develop scientists and engineers who will utilize God-given resources and talents to serve humanity by solving scientific and technical challenges efficiently and effectively. The College will prepare students in a nurturing Christian environment for careers and further education that serve the Lord Jesus Christ and humanity by making the world healthier, more productive, and more secure. Graduates will be able to solve problems and communicate solutions effectively.

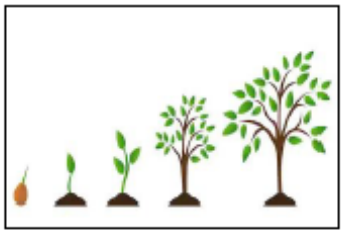
The College of Science and Engineering faculty members are deeply committed to undergraduate teaching and research. One-on-one interactions between faculty and students are the norm in this College, and research opportunities with faculty are available to undergraduates. Students are also encouraged to participate in summer internships and research programs at other universities and research institutions.

Version Date: 08-18-2020

BEST 2025 employs five key priorities (Student Success, Faith Integration, Meaningful Growth, Inspirational Partnerships, and Innovation), each with measurable goals and actions that the College of Science and Engineering at Houston Baptist University will aim to achieve by the end of 2025.

1. **Student Success:** Ensure that learning resources and programs provide knowledge and skills needed for life and profession.
   - A. Curriculum
   - B. Assessment
   - C. Student Success
   - D. Learning Resources
2. **Faith Integration:** Prepare graduates for faith-based, principle-driven, ethical decision-making as Christian scientists and engineers; demonstrate God's creative and redemptive activity in nature, science, and creative problem-solving
   - A. Faith in Classroom
   - B. Faith in Action
3. **Meaningful Growth:** Grow in impact on Houston, America, the World, and the Kingdom of God by increasing enrollment and graduation and resources that lead to more graduates who are prepared and motivated for powerful spiritual and professional impact
   - A. Enrollment and Graduation
   - B. Partnering for Student Success
   - C. Development/Enhancement
   - D. Communication and Organization
   - E. Faculty and Staff
4. **Inspirational Partnerships:** Develop and maintain partnerships that support student and faculty success, program growth, and awareness and impact in the community of stakeholders
   - A. Partnering for Academic Success
   - B. Partnering for Global Impact
   - C. Industry Engagement
5. **Innovation:** Develop and adopt new approaches to content delivery, degree management and development of new degrees, use of resources, and expanding opportunities for students to develop professionally
   - A. Academic Innovation
   - B. Research Innovation

HBU | College of Science and Engineering



MEANINGFUL GROWTH

Enrollment and Graduation
- 1000 COSE students by 2025 (100% growth)
- Increase in academic readiness of admitted students
- Increase % of underrepresented minority students

Partnering for Student Success
- # of college fairs, career events, presentations attended by HBU COSE faculty

Development/Enhancement
- # federal grants and private support for students scholarships, labs and facilities, and pedagogical improvements

Communication and Organization
- Faculty and SEAB satisfaction with COSE leadership

Faculty and Staff
- Attendance at national professional conferences
- Evaluate and recognize faculty achievements

FAITH INTEGRATION

Faith in Classroom
- COSE Mission reflects service to God
- Service learning activities integrated with course curriculum

Faith in Action
- # of classes in which faith is clearly integrated into the curriculum
- COSE-specific mission trip

INSPIRATIONAL PARTNERSHIPS

Partnering for Academic Success
- At least 3 SEAB meetings per year
- # internships and jobs offered per students
- # student chapters of professional organizations

Partnering for Global Impact
- Average student debt for COSE graduates
- # of invited memberships and key participation on Houston-area committees
- # of web page views
- # social media interactions

Industry Engagements
- Documented economic impact from senior ENG projects for industry partners

STUDENT SUCCESS

Curriculum
- # companies recruiting HBU COSE graduates / # HBU COSE graduates admitted to graduate school
- At least 3 extracurricular meetings and events

Assessment
- # of graduates with relative certifications

Student Support
- Graduation rates
- So-Jr, Jr-Sr retention rates

Learning Resources
- Prioritized list of lab needs
- % of lab needs actually funded
- Annual chemical inventory & regular inspections

INNOVATIVE CHANGE

Academic Innovation
- Development of specialized courses based on industry needs
- Development of a Pre-Health Post-Baccalaureate Certificate Program
- # COSE courses offered online

Research Innovation
- # students participating in on-campus research at the Fr-So level
- Establish graduate curriculum committees to measure market demand and needs

BUILDING ENGINEERS and SCIENTISTS for TOMORROW (BEST) 2025

Version Date: 08-18-2020

I. Student Success:

Ensuring that learning resources and programs provide knowledge and skills needed for life and profession.

Goals	Actions/Processes	Desired Outcomes	Measures/Diagnostics	Implemented and/or completed by:	COSE Responsibility (Resources)
A. <u>Curriculum:</u> employ project-based courses and curriculum, professional (industry-based) learning experiences	1. Schedule regular interdisciplinary curriculum discussions with COSE faculty to review syllabi, topics and assignments in order to offer better alignment and integration of all COSE courses and curricula	Exceptionally prepared problem-solvers for industry or advanced education Graduates will have skills and knowledge needed for immediate success and impact	# Companies recruiting HBU COSE graduates (through on campus means) # graduates in admitted to grad school (in chosen field)	2022	COSE Faculty, Professional eXperience Office (PXO); Administrative Analyst; Dean
	2. Align COSE curriculum with the Liberal Arts Core Curriculum to assure effective integration of STEM with humanities and general education	STEM graduates will have written and oral communication skills, teamwork skills, ethical decision making, critical thinking, and the ability to apply knowledge in real-world settings Students will be attentive to diversity which shapes the understanding of integration and interdisciplinary work	Measure students' ability to apply and integrate interdisciplinary knowledge through capstone course for each program Alumni surveys of integration	2023	COSE Faculty; Associate Dean for Undergraduate Studies; Dean; Program Coordinators (Dean and Chairs from School of Humanities)

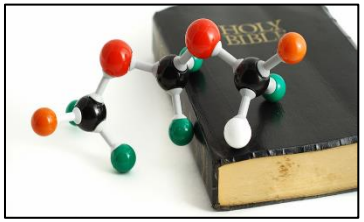
Goals	Actions/Processes	Desired Outcomes	Measures/Diagnostics	Implemented and/or completed by:	COSE Responsibility (Resources)
	3. Develop project-based learning outcomes and activities for upper level required courses; formation of COSE Active Learning Council	Exceptionally-prepared problem solvers, integrative and creative thinkers Compiled list of active learning resources	# companies recruiting HBU graduates (through on campus means) # of Active Learning Council meetings and presentations	2021	Active Learning Council; Associate Dean for Undergraduate Studies
FOCUS21	4. Enhance curricula with supplemental educational opportunities (e.g. Minors in Pre-Business, Pre-Med, Honors College, Pre-Education/Teaching, Pre-Law, Criminal Justice)	Students prepared to learn continuously and broadly	Information sheets for at least 2 opportunities available by 2021	2021	COSE Faculty; Leadership Team (Honors College Director)
FOCUS21	5. Supplement curricula with extracurricular learning and professional development (e.g. “Engineering Club”, student chapters of professional societies, speaker series, competitions)	Students prepared to work ethically and collaboratively with other professionals	At least 2 meetings / events per semester At least one active student organization for each degree program	2020	Faculty Advisors for Student Organizations; PXO; STEM Success Coach; Associate Dean for Strategic Initiatives (Academic Success Center)
	6. Obtain NSA CAE designation and work collaboratively with NSA CAE networks (for SAFE programs)	Expanded opportunities for students and faculty Relevant and current courses and programs in cybersecurity	Attend NICE conference annually Map learning outcomes in Cyber Engineering to NICE Cybersecurity Framework Submit NSA CAE application	2021 2022	Chair of Engineering; SAFE Faculty; Dean

Goals	Actions/Processes	Desired Outcomes	Measures/Diagnostics	Implemented and/or completed by:	COSE Responsibility (Resources)
B. **<u>Assessment</u>: continually assess and improve student learning outcomes and learning experiences**	1. Evaluate degree programs using performance data to improve	Increased retention and graduation rates for COSE majors	Graduation rates above 50% (6 year completion for traditional students, in major) (see Appendix Table B) Learning outcomes assessment data	2025	Associate Dean for Undergraduate Studies; Chairs and Program Coordinators (Institutional Research)
	2. Assess achievement of learning outcomes, mapped to key academic goals	Increased retention rates and decreased D/F/W rates for COSE courses	Placement data D/F/W rates ETS MFAT (Exit Exam) data	2022	Academic Directors; Admin Analyst (Institutional Research)
	3. Prepare curriculum and assessment plans which satisfy SACS, ABET criteria and other national standards or benchmarks	Assessment data will be available to faculty and administration External assessment becomes annual and routine activity All faculty will document continuous improvement in student learning	Web—based documentation of assessment (all courses and learning outcomes) Post-graduation placement data Submit ABET Self-Study for Engineering and Computer Science at earliest	2022 Annually 2022 (July 1)	Associate Dean for Undergraduate Studies; COSE Faculty; Administrative Analyst; PXO; Chair of Engineering; SAFE Faculty (HBU Assessment Officer)
	4. Become a recognized source of certification training in relevant domains	Graduates and visiting students obtain skills and knowledge for immediate service and impact	# of graduating students with relevant certifications : Current: 0 Goal: 50% of SAFE graduates # of non-students seeking training through HBU	2024	Chair of Engineering; SAFE Faculty

Goals	Actions/Processes	Desired Outcomes	Measures/Diagnostics	Implemented and/or completed by:	COSE Responsibility (Resources)
C. <u>Student Support</u> **FOCUS21**	1. Identify required COSE courses resulting in highest D/F/W rate; develop strategies for improving student outcomes in these courses	Active learning will be implemented in many COSE courses to improve student learning and lower D/F/W rates	Measure D/F/W rate in all COSE courses Select highest 10% of courses each year and evaluate curriculum	2021	Active Learning Council; STEM Success Coach; COSE Faculty (Title V Project Director)
	2. Support students to graduation and post-graduation goals	Dedicated COSE staff member that partners with the Office of Career & Calling to provide COSE-specific job-finding guidance for Juniors and Seniors; Professional eXperience Office	Improvement of graduation rates Increase So-Jr, Jr-Sr retention	2023	STEM Success Coach; PXO
D. <u>Learning Resources</u>	1. Assess current and long-range lab needs and develop plan for maintenance and modernization	COSE labs will be optimally utilized and strategically maintained	Current, prioritized list of lab needs % of COSE students 'very satisfied' with lab experiences % of lab needs ($) actually funded $ of lab spaces that are state-of-the-art, adequate, or obsolete/deficient by faculty survey	2025	Lab Managers, Associate Dean for Strategic Initiatives; Dean
FOCUS 21	2. Provide safe lab environment through monitoring, training, inventory, and evaluations	COSE labs will be safe for all users and visitors	Annual chemical inventory Regular inspections (internal and external)	2020	Lab Managers; Space Utilization Team (VP Facilities and Campus Operations)

II. Faith Integration:

Prepare graduates for faith-based, principle-driven, ethical decision-making as Christian scientists and engineers; demonstrate God's creative and redemptive activity in nature, science, and creative problem-solving

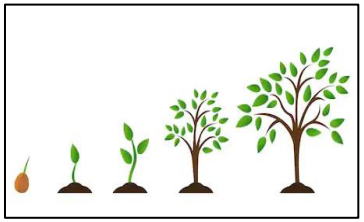


Goals	Actions/Processes	Desired Outcomes	Measures/Diagnostics	Implemented and/or completed by:	COSE Responsibility (Resources)
A. <u>Faith in Classroom (Mission):</u> prepare graduates for faith-based, principle-driven, and ethical professional decision-making	1. Communicate biblical principles that support problem-solving, awe of God's creative sovereignty, and lifelong vocation and service	Clear and frequent integration of faith and learning Graduate students with awareness of social, ethical and legal issues relating to their faith and profession	COSE mission reflects service to God # guest speakers that integrate Christian worldview with COSE discipline vocations	2021	COSE faculty; Student organization sponsors; COSE seminar series organizers (HBU Spiritual Integration Committee)
FOCUS21	2. Establish and support COSE Christian clubs/groups for each discipline	Opportunity for student-directed integration of faith and profession	Increase # of Christian club opportunities for COSE students	2020	COSE student organization leaders and faculty sponsors
	3. Recruit faculty with expressive, evident faith in the Lord Jesus Christ, excellent qualifications, and outstanding communication and teaching skills	Highly qualified faculty with evident faith in the Lord Jesus Christ	# COSE faculty hired, each with a commitment to their faith in Jesus Christ	2025	Faculty Search Committee; Chairs; Leadership Team (Director of the Institute for Christianity and Scholarship)

Goals	Actions/Processes	Desired Outcomes	Measures/Diagnostics	Implemented and/or completed by:	COSE Responsibility (Resources)
B. <u>Faith in Action</u>: Provide opportunities for students to demonstrate faith in action and in profession	1. Integrate a Christian worldview into every course and extracurricular learning experience	Clear and frequent integration of faith and learning. Students graduate with an awareness of a Christian worldview and how it relates to their profession	Increase # of classes in which faith is clearly integrated into the curriculum, assessed by a combination of assignments, discussions, syllabi, Christian resources Goal: 100% # of guest speakers who communicate Christian faith in presentations Measure impact of faith integration on students' Christian worldview via survey distributed to COSE students each May	2022	COSE faculty; Associate Dean for Strategic Initiatives, Administrative Analyst (HBU Spiritual Integration Committee)
FOCUS21	2. Organize and conduct a COSE mission trip	Students graduate with a broad appreciation for other cultures, sharing the love of Christ, having implemented aspects of their chosen profession during the missions trip (ex: medical missions trip)	Implement a COSE-specific mission trip; independently or collaboratively with other mission organizations	2021	COSE faculty and COSE student organization leaders (HBU Spiritual Integration Committee)

III. Meaningful Growth

Grow in impact on Houston, America, the World, and the Kingdom of God by increasing enrollment and graduation and resources that lead to more graduates who are prepared and motivated for powerful spiritual and professional impact



Goals	Actions/Processes	Desired Outcomes	Measures/Diagnostics	Implemented and/or completed by:	COSE Responsibility (Resources)
A. <u>Enrollment and Graduation</u> recruit, retain and graduate outstanding students **FOCUS21**	1. Increase enrollment in COSE degree programs by 100% by 2025	Maintain a low student to faculty ratio by hiring more faculty to account for growth in student enrollment in order to maintain a standard of excellence in the classroom.	568 students enrolled in Fall 2020 (Goal of 1000) 427 students in SMART programs in Fall of 2020 (Goal of 550) 141 students in SAFE programs in Fall of 2020 (Goals of 450)	2025	Recruiting & Retention Committee; Associate Dean for Undergraduate Studies (Admissions Office)
	2. Monitor, and increase, the average academic readiness of admitted students (e.g. SAT, ACT scores, HS GPA, HS class rank)	Successful college experience and graduates Increase in quality of enrolled students Increase competitiveness of COSE in undergraduate education	Average ACT/SAT of incoming students; Current = 1140, Goal = 1175 Average Class Rank of incoming students; Goal is top 40% Retention: Fr to So Current Range = 52-75% Goal = at least 60% for all (specific for each major, see Appendix - Table A) 6-Yr Graduation; Current: 7-45%; Goal = at least 40% for all (specific for each major, see Appendix - Table B) [Note: National average for overall 6-yr graduation (not major-specific) for private non-profit universities is 67%]	2025	Recruiting & Retention Committee; STEM Success Coach; Administrative Analyst; Associate Dean for Undergraduate Studies (Admissions Office; Admissions Review Board)

Goals	Actions/Processes	Desired Outcomes	Measures/Diagnostics	Implemented and/or completed by:	COSE Responsibility (Resources)
	3. Recruit qualified students from diverse demographics	Increase % of female and minority students Distribution of minority students near general population Diverse faculty in order to help underrepresented minority students identify as scientists, mathematicians, and engineers.	% female SAFE students; Current: 21.3% Goal: 50% % female SMART students: Current = 71%, Goal = 70% % URM COSE students Current: 68.9% Goal: 70% % URM faculty members; Current = <20%; Goal: 50% See Appendix – Table C.	2025	Faculty Search Committee; Recruiting & Retention Committee; STEM Success Coach; Associate Dean for Undergraduate Studies
B. <u>Partnering for Student Success:</u> Impact K12 community to promote STEM careers and courses, generally, and Christian STEM education at HBU, specifically	**1.** Visit and distribute information on HBU COSE with target schools and school leaders (e.g. Engineering Academy, STEM coordinators, computer science instructors, Christian private schools)	Greater awareness by key school influencers, more students enrolled from target schools	# college fairs, career events, competitions, presentations attended by HBU COSE faculty # students from target schools who apply and enroll # target schools	2023	Recruiting & Retention Committee; PXO; Associate Dean for Undergraduate Studies
	2. Establish partnerships and specific information on transfer opportunities with local community colleges	Academically prepared transfer students Time to graduate after transfer $\underline{<}$ 3 years	# transfer students with $\underline{>}$ 60 hours from community college	2024	Recruiting & Retention Committee

Goals	Actions/Processes	Desired Outcomes	Measures/Diagnostics	Implemented and/or completed by:	COSE Responsibility (Resources)
C. Development/ Enhancement	1. Seek federal grants and private support for scholarships (e.g. CyberCorps, education grants for HSI)	More students able to enroll Students graduate with low student debt Endowment for scholarships Endowment for student research projects	Amount of scholarship $ received # individual/corporate gifts $ value of gifts (total, average)	2022	Associate Dean for Strategic Initiatives; Dean (HBU Grants Office)
	2. Assess long-range space needs (including equipment and furnishings), and develop plan to meet those needs	Federally-funded grants and private support to outfit labs with high quality lab equipment and active learning furnishings High quality, state of the art teaching facilities New/renovated 100,000 sq ft STEM building in construction or in operation by 2025	Amount of investments and grants received Faculty/staff satisfaction with space and equipment utilization Needed equipment purchased with external funds (list of unmet needs and met needs) Funds needed for new STEM Building (~$50M)	2022 2025	Dean; Associate Dean for Strategic Initiatives; Lab Managers; Research Council; Space Utilization Team (HBU Advancement)
FOCUS 21	3. Design and fund mentoring, social and other support programs specifically for our students (i.e. STEM Summer Bridge, Generation Z, First-Generation, etc)	COSE students asked about their mentoring, social, and other support needs Faculty training to equip them with skills to effectively mentor students	# mentoring appointments # social events # support programs	2021	Recruiting & Retention Committee; STEM Success Coach; Associate Dean for Undergraduate Studies, Dean (HBU Grants Office; Academic Success Center)

Goals	Actions/Processes	Desired Outcomes	Measures/Diagnostics	Implemented and/or completed by:	COSE Responsibility (Resources)
	4. Provide excellent stewardship and recognition for external gifts (and for student tuition)	Recognize donors with annual COSE Awards Banquet Allocate COSE-specific student fee (student tuition) to lab supply and lab safety costs	Annual COSE Awards Banquet $ spent from COSE-student fee toward lab supplies and lab safety costs	2021	Lab Managers; Resource Utilization Team; Dean; Administrative Analyst, Associate Dean for Strategic Initiatives (HBU Advancement)
	5. Develop revenue generation programs (e.g. cyber training program for public, credit or non-credit; leverage investments in campus resources)	HBU being recognized as an innovator in cyber engineering, offering workshops to the public Creation of relevant cyber classes Creation of a state-of-the-art cyber range reflecting various industries	# of partnerships formed for use of cyber range # of workshops offered # completion certificates earned # of press releases reflecting this program $ revenue each year	2024	Dean; Chair of Engineering; SAFE Faculty (Greater Houston Partnership; Pampell Online Division; Cyber Houston)
D. **<u>Communication and Organization:</u>** **COSE organization and communication plan and processes will be examined to ensure alignment with HBU mission and COSE vision, and represent needs of students and industry partners**	Weekly COSE LT meetings to include mission and strategic plan; Regular COSE faculty meetings	Faculty and staff will be active participants in strategic and operational decisions	Faculty and SEAB satisfaction with COSE leaderships (survey) Annual review of LT performance (faculty survey)	2020	Dean, Associate Dean for Strategic Initiatives; Administrative Analyst (Science & Engineering Advisory Board - SEAB)

Goals	Actions/Processes	Desired Outcomes	Measures/Diagnostics	Implemented and/or completed by:	COSE Responsibility (Resources)
E. <u>Faculty and Staff</u>: recruit and employ skilled educators with professionally-relevant and academically – qualified experience	1. Develop hiring processes that recruit outstanding new faculty with professional experience, Christian faith and worldview, and diverse backgrounds	Full-time faculty teaching loads balanced and considerate of professional development Highly qualified faculty (full-time and adjunct)	% of ENG/COSC faculty with > 1 year of industry experience; Current = 75%, Goal: 75% % of SMART faculty with professional (post-doctoral) experience; Current estimate – 33%, Goal – 50%	2025	Faculty Search Committee; Dean; Chairs
	2. Support faculty in professional development and continuous learning	All faculty and staff engage in annual professional development for individual and college improvement	Each faculty member attends at least one national professional conference every other year	2024	Dean; Associate Dean for Strategic Initiatives
	3. Evaluate the faculty, and the faculty evaluation process	Faculty will be recognized and rewarded and encouraged in pursuit of their professional goals and college mission Faculty evaluation process will be consistently applied and be consistent with COSE vision, mission and strategic plan	Satisfaction of faculty with evaluation and recognition (survey)	2023	Dean; Leadership Team
FOCUS21	4. Evaluate faculty workload assignments, evaluation, and acknowledgement	Workload determined fairly and accurately, accounting for full range of responsibilities and courses	Satisfaction of faculty and LT COSE Time and Effort guidelines established and implemented	2020	Dean; Leadership Team; Chairs

IV. Inspirational Partnerships

Develop and maintain partnerships that support student and faculty success, program growth, and awareness and impact in the community of stakeholders

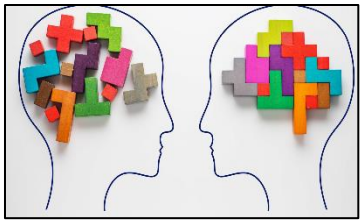
Goals	Actions/Processes	Desired Outcomes	Measures/Diagnostics	Implemented and/or completed by:	COSE Responsibility (Resources)
A. **Partnering for Academic Success: working with professional and industry leaders, employers and managers**	1. SEAB and SEAB committees meet regularly to evaluate and improve curriculum (e.g. program level boards)	Bi-annual review of COSE programs by the SEAB and implementation of approved changes	At least 3 structured meetings per year of the S&E Advisory Board	2021	Dean; Administrative Analyst; SEAB
	2. Establish relationships with corporate executives and hiring managers to place students in internships and post-graduate employment	Multiple internships and job opportunities for students Students prepared to enter the workforce and function in a global, secure environment	# internships offered per student # jobs offered per student	2025	Associate Dean for Strategic Initiatives; PXO; Dean; SEAB (HBU Career & Calling; HBU Advancement)
	3. Plan, sponsor, and conduct partnership networking events (e.g. special speakers, presentation of student projects, hosting training programs and professional society meetings)	COSE students and faculty learn from industry and professional leaders	# of external partners that attend special events (speakers, evaluate student projects, provide training, etc.)	2023	Associate Dean for Strategic Initiatives; Dean; SEAB

Goals	Actions/Processes	Desired Outcomes	Measures/Diagnostics	Implemented and/or completed by:	COSE Responsibility (Resources)
FOCUS21	4. Establish student chapters of professional organizations and participate in Houston chapter meetings	Provide unique opportunities for students to network, mentor and bond over common interests. Strengthen ties within the student and local community Increase community outreach	Number of new external relationships and partnerships Number of hours spent on professional development, community service, and chapter-related activities	2020	Associate Dean for Strategic Initiatives; Associate Dean for Undergraduate Studies; Dean; STEM Success Coach
B. **Partnering for Global Impact: working with Houston and National leaders to Secure America's Future through Engineering**	1. Create and manage student placement opportunities across a wide variety of employment sectors. Encourage non-local company recruiting.	Low average student debt for COSE graduates	Decreased average student debt for COSE graduates ($32,600 as of 2019)	2024	PXO; Associate Dean for Undergraduate Studies; Associate Dean for Strategic Initiatives (HBU Financial Aid Office)
	2. Work with SEAB to increase impact and awareness of College in Houston public and corporate leadership	COSE's programs, students, and faculty will be recognized as leaders in their respective fields	# of times HBU faculty or students are contacted by public and corporate leadership; Goal: Increase by 50% # of local news stories focusing on HBU faculty expertise # of invited memberships and key participation on area committees	2023	Dean; Associate Dean for Strategic Initiatives; SEAB (HBU Marketing)

Goals	Actions/Processes	Desired Outcomes	Measures/Diagnostics	Implemented and/or completed by:	COSE Responsibility (Resources)
	3. Diversify industry partnership network to include multiple sectors.	COSE faculty and students will develop partnerships with industry professionals that will benefit students from all COSE majors	# of students earning internships or jobs with industry, clinical, research, or other career partners Goal: 50% of COSE students (internships) or graduates (jobs)	2023	Dean; Associate Dean for Strategic Initiatives; SMART and SAFE Faculty; SEAB (HBU Career & Calling)
FOCUS21	4. Participate in national networks for science and engineering education (e.g. ASBMB, NABT, NSTA, ACS, ASEE, ACM, NICE/NIST)	COSE faculty remain current in educational, scientific, and accreditation trends which affect our degree programs and graduates Degree programs continue to innovate and relate to external demands	% of faculty who have attended professionally relevant conference in most recent year; Goal = 50%	2021	Dean; Associate Dean for Strategic Initiatives; Administrative Analyst
FOCUS21	5. Establish and maintain processes for regular newsletters, annual reports, web pages, public relations, and social media	Stakeholders will be aware of the COSE successes and needs	Total # pieces distributed electronically and physically # views of web pages (google analytics) (weekly analysis) # tweets, posts, shares, and views (weekly analysis)	2020	Administrative Analyst; Dean; Leadership Team, STEM Success Coach (HBU Web Development Team; HBU Marketing)
C. **Industry Engagement**: engage industry leaders in learning activities, projects and off-campus experiences	1. Work with STEM industry leaders to incorporate relevant projects and learning outcomes	Students achieve learning outcomes using professional standard resources and practices	# of field trips to Houston-area industrial partners; Goal: 2 per year # of field trips to Houston area professional schools and health/clinical sites; Goal 2 per semester	2022	Associate Dean for Undergraduate Studies; STEM Success Coach; Dean; Chairs

Goals	Actions/Processes	Desired Outcomes	Measures/Diagnostics	Implemented and/or completed by:	COSE Responsibility (Resources)
	2. Document the economic impact of senior projects for industry partners	Students apply realistic constraints and evaluate impacts of their designs and research	$ revenue impact and $ cost savings of SAFE senior design projects	2023	Engineering Faculty; Chair of Engineering; Administrative Analyst
FOCUS21	3. Recognize partners in annual awards ceremony/celebration	Annual COSE Awards Banquet	# of industry partners attending COSE Awards Banquet Goal: 50 per year	2021	Dean; Associate Dean for Strategic Initiatives; Administrative Analyst, SEAB (HBU Advancement)
FOCUS21	4. Participate with HX (Houston Exponential) GHP (Greater Houston Partnership), Cyber Houston, and other community initiatives to grow the technology base of the metro area.	HBU serves the talent needs of Houston (formal academic and informal continuing education or professional development)	# COSE faculty appointed to local working committees # of programs (speakers, courses, workshops) offered to Houston area professionals Certificates (KSAs and learning outcomes) available to Houston market e.g. GHP Digital Generalist Certificate	2020	Dean; AD Strategic Initiatives; Chair of Engineering; COSE Faculty, SEAB (HBU Advancement)

V. **Innovation:** Develop and adopt new approaches to content delivery, degree management and development of new degrees, use of resources, and expanding opportunities for students to develop professionally



Goals	Actions/Processes	Desired Outcomes	Measures/Diagnostics	Implemented and/or completed by:	COSE Responsibility (Resources)
A. **Academic Innovation**	1. Evaluate the need for specialized courses that are unique to the Houston area	Expand unique course offerings that will fill a niche in the Houston area. Anticipates and meets the needs of incoming students.	Develop a Pre-Health Post-Bac Certificate program	2023	Associate Dean for Strategic Initiatives; SMART Faculty; Chair of BIOL/BCMB; SEAB (Greater Houston Partnership)
FOCUS21	2. Develop comprehensive method of advising, mentoring, and communicating with students	Enhance student success and communication with students, fostering lasting relationships with COSE alumni. Improved graduation rates and time to completion	Student satisfaction with faculty advising (survey) Time to completion Graduation exit survey	2020	Recruiting & Retention Committee; Associate Dean for Undergraduate Studies; PXO; STEM Success Coach (HBU Academic Success Center)
FOCUS21	3. Evaluate need for additional degrees at BS or MS level (e.g. CIS, Cyber Security, Health Analytics, Facilities Management, Engineering Management, Pre-Health Post-Bac)	COSE anticipates and meets needs of industry Expanded career opportunities for students	Jobs, salaries and employment trends Prospectus for new BS in Information Systems submitted for HBU Academic Affairs and SACS approval	2021	Dean, Associate Dean for Undergraduate Studies; Chair of Engineering; SEAB; COSE Faculty

Goals	Actions/Processes	Desired Outcomes	Measures/Diagnostics	Implemented and/or completed by:	COSE Responsibility (Resources)
	4. Evaluate need for specialized courses, certificates (e.g. technology, healthcare security, analytics, biotechnology)	Enhanced relevance and industry impact	# of specialized courses offered # of certificates awarded	2023	COSE Faculty; Associate Dean for Undergraduate Studies (Greater Houston Partnership)
	5. Evaluate use of online learning for one or more of the degrees offered in COSE	Select COSE courses or degree programs (existing or new) will be accessible via an online format for distance learners and/or non-traditional students	Review of current degrees and courses for online potential	2021	Dean; Associate Dean for Strategic Initiatives; Associate Dean for Undergraduate Studies; SEAB
FOCUS21	6. Employ teaching methods that support learning by Gen Z students (e.g. electronic, active, technology-based, project-based)	Better learning and academic success through methods that match learning styles and patterns	Student evaluation of teaching Reduced DFW rates	2020	Active Learning Council (HBU Professional Development Committee; QEP committee)
B. **Research Innovation**	1. Expand research activity	HBU faculty and student mentees become nationally recognized as experts in COSE domains	# of awards granted to faculty and/or students # of research-based grants awarded to faculty # of national conference presentations # of faculty and student publications # of newspapers/news stories quoting COSE faculty	2023	Research Council; COSE Faculty; Associate Dean for Strategic Initiatives; Dean

Goals	Actions/Processes	Desired Outcomes	Measures/Diagnostics	Implemented and/or completed by:	COSE Responsibility (Resources)
	2. Deliver high quality graduate programs in face-to-face and online settings	At least one pathway for continuous learning and graduate education of HBU COSE graduates or for public professional development	Establish graduate curriculum committee measure market demand estimate needed resources	2025	Associate Dean for Strategic Initiatives; COSE Faculty

BEST 25 Focus Areas for 2020-21

I. Student Success
   a. Enhance curricula with supplemental educational opportunities (e.g. Minors in Pre-Business, Pre-Med, Honors College, Pre-Education/Teaching, Pre-Law, Criminal Justice)
   b. Supplement curricula with extracurricular learning and professional development (e.g. “Engineering Club”, student chapters of professional societies, speaker series, competitions)
   c. Identify required COSE courses resulting in highest D/F/W rate; develop strategies for improving student outcomes in these courses
   d. Provide safe lab environment through monitoring, training, inventory, and evaluations

II. Faith Integration
   a. Establish and support COSE Christian clubs/groups
   b. Organize and conduct a COSE mission trip

III. Meaningful Growth
   a. Increase enrollment in COSE degree programs by 100% by 2025
   b. Design and fund mentoring, social and other support programs specifically for our students (i.e. STEM Summer Bridge, Generation Z, First-Generation, etc)
   c. Evaluate faculty workload assignments, evaluation, and acknowledgement

IV. Inspirational Partnerships
   a. Establish student chapters of professional organizations and participate in Houston chapter meetings
   b. Participate in national networks for science and engineering education (e.g. ASBMB, NABT, NSTA, ACS, ASEE, ACM, NICE/NIST)
   c. Establish and maintain processes for regular newsletters, annual reports, web pages, public relations, and social media
   d. Recognize partners in annual awards ceremony/celebration
   e. Participate with HX (Houston Exponential) GHP (Greater Houston Partnership), Cyber Houston, and other community initiatives to grow the technology base of the metro area.

V. Innovation
   a. Develop comprehensive method of advising, mentoring, and communicating with students
   b. Evaluate need for additional degrees at BS or MS level (e.g. CIS, Cyber Security, Health Analytics, Facilities Management, Engineering Management, Pre-Health Post-Bac)
   c. Employ teaching methods that support learning by Gen Z students (e.g. electronic, active, technology-based, project-based)

BEST 25 Focus Areas for 2020-21

	STUDENT SUCCESS	FAITH INTEGRATION	MEANINGFUL GROWTH	INSPIRATIONAL PARTNERSHIPS	INNOVATIVE CHANGE
Fall-1 (August – October 15)	Provide safe lab environment through monitoring, training, inventory, and evaluations *Lead: Space Utilization*	Establish and support COSE Christian clubs or groups *Lead: Resource Utilization*	Increase enrollment in COSE degree programs by 100% by 2025 (Fall 2020 at 563, Fall 2021 goal of 675) *Lead: Recruiting and Retention*	Establish and maintain processes for regular newsletters, annual reports, web pages, public relations, and social media *Lead: Strategic Planning*	Develop comprehensive method of advising, mentoring, and communicating with students *Lead: Strategic Planning*
Fall-2 (October 16 – December)	Supplement curricula with extracurricular learning and professional development (e.g. "Engineering Club", student chapters of professional societies, speaker series, competitions) *Lead: Research Council*	Establish and support COSE Christian clubs/groups *Lead: Resource Utilization*	Increase enrollment in COSE degree programs by 100% by 2025 (Fall 2020 at 563, Fall 2021 goal of 675) *Lead: Recruiting and Retention* Evaluate faculty workload assignments, evaluation, and acknowledgement *Lead: COSE Leadership Team*	Establish student chapters of professional organizations and participate in Houston chapter meetings *Lead: Research Council*	Employ teaching methods that support learning by Gen Z students (e.g. electronic, active, technology-based, project-based) *Lead: Active Learning*
Spring-1 (January – March 15)	Identify required COSE courses resulting in highest D/F/W rate; develop strategies for improving student outcomes in these courses *Lead: Chairs*	Organize and conduct a COSE mission trip *Lead: COSE Spiritual Integration Committee Representatives*	Increase enrollment in COSE degree programs by 100% by 2025 (Fall 2020 at 563, Fall 2021 goal of 675) *Lead: Recruiting and Retention* Design and fund mentoring, social and other support programs specifically for our students (i.e. STEM Summer Bridge, Generation Z, First-Generation, etc) *Lead: Title V*	Participate in national networks for science and engineering education (e.g. ASBMB, NABT, NSTA, ACS, ASEE, ACM, NICE/NIST) *Lead: All Faculty* Participate with HX (Houston Exponential) GHP (Greater Houston Partnership), Cyber Houston, and other community initiatives to grow the technology base of the metro area. *Lead: Engineering Faculty*	Evaluate need for additional degrees at BS or MS level (e.g. CIS, Cyber Security, Health Analytics, Facilities Management, Engineering Management, Pre-Health Post-Bac) *Lead: Recruiting and Retention*
Spring-2 (March 16 – May)	Enhance curricula with supplemental educational opportunities (e.g. Minors in Pre-Business, Pre-Med, Honors College, Pre-Education/Teaching, Pre-Law, Criminal Justice) *Lead: Chairs*	Organize and conduct a COSE mission trip *Lead: COSE Spiritual Integration Committee Representatives*	Increase enrollment in COSE degree programs by 100% by 2025 (Fall 2020 at 563, Fall 2021 goal of 675) *Lead: Recruiting and Retention* Design and fund mentoring, social and other support programs specifically for our students (i.e. STEM Summer Bridge, Generation Z, First-Generation, etc) *Lead: Title V*	Recognize partners in annual awards ceremony/celebration *Lead: Dean's Office*	Evaluate need for additional degrees at BS or MS level (e.g. CIS, Cyber Security, Health Analytics, Facilities Management, Engineering Management, Pre-Health Post-Bac) *Lead: Recruiting and Retention*

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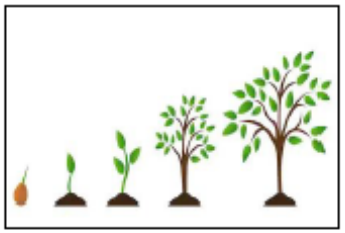
HBU | College of Science and Engineering



MEANINGFUL GROWTH

Enrollment and Graduation
- 1000 COSE students by 2025 (100% growth)
- Increase in academic readiness of admitted students
- Increase % of underrepresented minority students

Partnering for Student Success
- # of college fairs, career events, presentations attended by HBU COSE faculty

Development/Enhancement
- # federal grants and private support for students scholarships, labs and facilities, and pedagogical improvements

Communication and Organization
- Faculty and SEAB satisfaction with COSE leadership

Faculty and Staff
- Attendance at national professional conferences
- Evaluate and recognize faculty achievements

FAITH INTEGRATION

Faith in Classroom
- COSE Mission reflects service to God
- Service learning activities integrated with course curriculum

Faith in Action
- # of classes in which faith is clearly integrated into the curriculum
- COSE-specific mission trip

INSPIRATIONAL PARTNERSHIPS

Partnering for Academic Success
- At least 3 SEAB meetings per year
- # internships and jobs offered per students
- # student chapters of professional organizations

Partnering for Global Impact
- Average student debt for COSE graduates
- # of invited memberships and key participation on Houston-area committees
- # of web page views
- # social media interactions

Industry Engagements
- Documented economic impact from senior ENG projects for industry partners

STUDENT SUCCESS

Curriculum
- # companies recruiting HBU COSE graduates / # HBU COSE graduates admitted to graduate school
- At least 3 extracurricular meetings and events

Assessment
- # of graduates with relative certifications

Student Support
- Graduation rates
- So-Jr, Jr-Sr retention rates

Learning Resources
- Prioritized list of lab needs
- % of lab needs actually funded
- Annual chemical inventory & regular inspections

INNOVATIVE CHANGE

Academic Innovation
- Development of specialized courses based on industry needs
- Development of a Pre-Health Post-Baccalaureate Certificate Program
- # COSE courses offered online

Research Innovation
- # students participating in on-campus research at the Fr-So level
- Establish graduate curriculum committees to measure market demand and needs

BUILDING ENGINEERS and SCIENTISTS for TOMORROW (BEST) 2025

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Appendix.

Table A. Retention

Major	Current Fr-So Retention SAME MAJOR (Fall 2018-Fall 2019)	Goal	Current Fr-So Retention still COSE MAJOR (Fall 2018-Fall 2019)	Goal
BCMB	63.4% (n=59)	68%	72% (n=67)	80%
BIOL	52.6% (n=111)	65%	59.2% (n=125)	80%
CHEM	75% (n=9)	75%	75% (n=5)	80%
COSC	0% (n=0)	At least 60%	0% (n=0)	80%
CYEN	0% (n=0)	At least 60%	0% (n=0)	80%
ELEN	100% (n=1)	At least 60%	100% (n=1)	At least 80%
MATH	26.7% (n=4)	60%	33.3% (n=5)	80%

Table B. Six Year Graduation Rate

Major	Current Six Year Graduation Rate SAME MAJOR (entering Fall 2013 Cohort)	Goal	Current Six Year Graduation Rate still in COSE (entering Fall 2013 Cohort)	Goal
BCMB	45.3% (n=10)	60%	60.9% (n=14)	70%
BIOL	16.8% (n=16)	35%	22.1% (n=21)	55%
CHEM	7.7% (n=1)	20%	7.7% (n=1)	45%
COSC	N/A	60%	N/A	70%
CYEN	N/A	60%	N/A	70%
ELEN	N/A	60%	N/A	70%
MATH	0% (n=0)	20%	0% (n=0)	45%

Table 3. COSE Demographics

Fall 2019 Undergraduates	All	Sex				Ethnicity																	
		Female		Male		Ethnicity Unknown		White		African American/ Black*		Asian		American Indian or Alaskan Native*		Native Hawaiian or Pacific Islander*		Two or More Races*		Hispanic*		Non-Resident Alien*	
	N	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Biochemistry/Molecular Biology	95	68	71.6	27	28.4	2	2.1	11	11.6	15	15.8	21	22.1	1	1.1	.	.	1	1.1	41	43.2	3	3.2
Biology	246	169	68.7	77	31.3	8	3.3	29	11.8	50	20.3	39	15.9	2	0.8	.	.	9	3.7	106	43.1	3	1.2
Chemistry	17	9	52.9	8	47.1	.	.	3	17.6	5	29.4	5	29.4	.	.	.	.	.	.	3	17.6	1	5.9
Computer Science	32	7	21.9	25	78.1	1	3.1	2	6.3	6	18.8	5	15.6	.	.	1	3.1	1	3.1	3	9.4		
Cyber Engineering	28	6	21.4	22	78.6	.	.	6	21.4	8	28.6	1	3.6	1	3.6	.	.	.	.	9	32.1	3	10.7
Electrical Engineering	34	7	20.6	27	79.4	2	5.9	1	2.9	11	32.4	3	8.8	.	.	.	.	1	2.9	15	44.1	1	2.9
Mathematics	10	4	40.0	6	60.0	.	.	4	40.0	1	10.0	.	.	.	.	.	.	.	.	4	40.0	1	10.0
Physics	7	2	28.6	5	71.4	.	.	2	28.6	1	14.3	1	14.3	.	.	.	.	.	.	3	42.9	.	.
All	437	265	60.6	172	39.4	12	2.7	56	12.8	91	20.8	70	16.0	4	0.9	1	0.2	11	2.5	181	41.4	12	2.7

* Indicated Underrepresented Minority group