



## HIGHLIGHTS

# College of Engineering Strategic Plan II

(For 1432-1437 H / 2011-2016 G)

TOWARDS EXCELLENCE IN ENGINEERING  
EDUCATION AND RESEARCH

college of Engineering



## INTRODUCTION

Four years ago, the College of Engineering (COE) at King Saud University (KSU) has developed its Strategic Plan and, with such undertaking, the College has become the first among the University's colleges to define its strategic direction for the following foreseeable future. Since then, many new developments have occurred both within the College and University-wide, including the development of KSU Strategic Plan 2030, which outlined the new strategic goals and objectives of the University. The remarkable transformation, which the University witnessed under its new leadership, has impacted significantly its academic and administrative processes and has consequently resulted in major improvements in both quality and volume of the University's products offered to the society. The College of Engineering has always been in the forefront of such transformation of KSU. The College currently houses – and participates in - many scientific research and advanced technology entities including centers of excellence, specialized scientific institutes and research chairs. In addition, the College has obtained the Accreditation Board for Engineering and Technology (ABET) accreditation for all academic programs as well as the ISO certificate for its administrative processes.

The changes that have occurred on the ground since the development of the College's first Strategic Plan have mandated a revision of this plan in view of the newly set strategic objectives of KSU as well as the changes that have occurred in the operating environment of the College. Nonetheless, our College, with its long tradition of excellence in research and teaching, will remain committed to taking and maintaining a leading role as one of the top premier engineering schools in the region. Therefore, a revised Strategic Plan for COE has recently been developed in order to set out our aims and priorities for the period to 1437 H (2016 G) as we strive toward excellence in engineering education and research. This brief document highlights the key elements of the revised Strategic Plan which is currently being implemented at COE.

## COE VISION AND MISSION

### *Vision*

To be a world class college and a pioneer in engineering education, innovative research and building knowledge community

### *Mission*

To provide high quality education programs that address the changing needs of future engineers, serve the profession and contribute to the advancement and well-being of the society by creating and disseminating knowledge and technology to future generations through teaching, research and partnership with industry and government

## COE STRATEGIC OBJECTIVES

1. Provide excellent academic programs that best reflect the current needs and requirements of the profession.
2. Recruit, nurture and retain outstanding students.
3. Recruit, nurture and retain outstanding faculty.
4. Empower the College research.
5. Establish a strong outreach and external business collaborations with industry, government and other entities in the society.
6. Establish and maintain effective and efficient support services, facilities, and infrastructure.

## STRATEGIC INITIATIVES AND KEY PERFORMANCE INDICATORS

The following tables outline the Key Performance Indicators (KPI's) associated with various initiatives of the COE Strategic Plan.

## Programs

| Initiative  | KPI's   |
|---|---|
| <b>ENG 1-A:</b> Provide curricula that accomplish the ABET eleven key learning outcomes   | <ol style="list-style-type: none"> <li>1. Student rating of course level achievement</li> <li>2. Instructor rating for course level achievement</li> <li>3. Weighted average of program achievement level</li> </ol>  |
| <b>ENG 1-B:</b> Develop and adopt appropriate assessment practices to ensure and enhance educational excellence.  | <ol style="list-style-type: none"> <li>1. Employer rating of program achievement level</li> <li>2. Alumni rating of program achievement level</li> <li>3. Percentage of students who successfully complete the undergraduate program at minimum time</li> <li>4. Percentage of engineering graduates that are employed</li> <li>5. Percentage of students entering post graduate programs within six months of graduation</li> <li>6. Percentage of graduates who have been self employed (not seeking employment)</li> </ol> |
| <b>ENG 1-C:</b> Encourage the continuous evolution of curricula.  | <ol style="list-style-type: none"> <li>1. Percentage of graduation projects related to industry and governmental agencies</li> <li>2. Average period of updating existing courses</li> <li>3. Average period of updating the program</li> </ol>   |
| <b>ENG 1-D:</b> Continue to enhance the English proficiency, the technical writing and communication skills of the college graduates.                             | <ol style="list-style-type: none"> <li>1. Employer rating of English achievement level</li> <li>2. Proportion of students passing college administrated exam</li> <li>3. Student rating of English course level achievement</li> <li>4. Instructor rating for achieving English course level</li> </ol>   |
| <b>ENG 1-E:</b> Assess preparatory year as well as integrated engineering first- and second-year experience and revise accordingly.                               | <ol style="list-style-type: none"> <li>1. Average grade of students entering the college after preparatory year</li> <li>2. Percentage of students entering program who successfully complete first year and second year within minimum time</li> </ol>   |
| <b>ENG 1-F:</b> Enhance the design and practical implementation handiness, teamwork and leadership skills for the college graduates.                              | <ol style="list-style-type: none"> <li>1. Percentage of multi-disciplinary capstone design projects</li> <li>2. Percentage of capstone design project sponsored</li> <li>3. Employer rating of Capstone design project achievement level</li> </ol>   |
| <b>ENG 1-G:</b> Promote motivation to excel and build up self dependability, critical and analytical thinking and problem-solving skills in the college students. | <ol style="list-style-type: none"> <li>1. Percentage of students on study-abroad program per year</li> <li>2. Percentage of summer visiting programs per year</li> <li>3. Proportion of students awarded by the college</li> <li>4. Number of awarded graduation projects per year</li> </ol>   |
| <b>ENG 1-H:</b> Revitalize engineering education to include experiential hands-on learning as an integral part of the education process.                          | <ol style="list-style-type: none"> <li>1. Percentage of students taking off campus educational lab experiences</li> <li>2. Number of agreements with computer aided learning (CAL) organization</li> </ol>  |
| <b>ENG 1-I:</b> Provide high quality graduate education.  | <ol style="list-style-type: none"> <li>1. Percentage of graduate students who complete their program within minimum time with respect to the student entering the program</li> <li>2. Percentage of interdisciplinary graduate programs</li> <li>3. Number of extracted publications from theses per year</li> </ol>  |

## Students

| Initiative   | KPI's  |
|--|--|
| <b>ENG 2-A:</b> Attract outstanding students to our undergraduate programs.  | <ol style="list-style-type: none"> <li>1. Percentage of students entering the engineering programs who successfully complete first year.</li> <li>2. Percentage of College promotional articles in the College's newsletters and website.</li> <li>3. Percentage of foreign students in the undergraduate student population in the College.</li> </ol>  |
| <b>ENG 2-B:</b> Nurture and retain undergraduate students throughout their course of study.  | <ol style="list-style-type: none"> <li>1. Proportion of students entering undergraduate programs who complete those programs in minimum time.</li> <li>2. Average IELTS grade attained by College graduates.</li> <li>3. Percentage of students satisfied with the College education programs (survey results)</li> <li>4. Percentage of budget allocated to students services in the College (with respect to total budget).</li> <li>5. Percentage of students participating in national and international design exhibitions and contests.</li> </ol> |
| <b>ENG 2-C:</b> Develop student-centered learning experiences through engineering curricular and extra-curricular activities.  | <ol style="list-style-type: none"> <li>1. Percentage of students in the College who participate in extra-curricular activities.</li> <li>2. Number of students in the College who publish or submit patents from their graduation projects.</li> <li>3. Number of self-learning clubs and/or forums furnished by the College.</li> </ol>   |
| <b>ENG 2-D:</b> Encourage students to join scientific, professional and honor societies and support their activities.  | <ol style="list-style-type: none"> <li>1. Percentage of College students who participate in self skills development and professional training activities.</li> <li>2. Number of yearly events organized by the College which include invitation and participation of potential employers.</li> <li>3. Number of yearly professional engineering exams conducted by the College.</li> </ol>   |
| <b>ENG 2-E:</b> Control the total undergraduate student population of the College consistent with the strategic objectives of the University and to suite the available facilities, the space and to achieve and maintain good student-to-faculty ratio. | <ol style="list-style-type: none"> <li>1. Ratio of students to teaching staff (based on full time equivalents)</li> <li>2. Ratio of students to administrative staff</li> <li>3. Average per-student yearly funding amount (from the College budget) allocated for curricular and extra-curricular activities.</li> </ol>  |
| <b>ENG 2-F:</b> Attract outstanding students to our graduate programs.   | <ol style="list-style-type: none"> <li>1. Percentage of students entering post graduate programs who complete those programs in specified time.</li> <li>2. Percentage of graduates from undergraduate programs who within six months of graduation are enrolled in further study.</li> <li>3. Percentage of foreign students in the graduate student population in the College.</li> <li>4. Number of Ph.D. graduate students in the College.</li> </ol>  |

## Faculty

| Initiative   | KPI's   |
|--|---|
| <b>ENG 3-A:</b> Attract, recruit and retain highly qualified faculty.                                | <ol style="list-style-type: none"> <li>1. Percentage of faculty with at least two publications in ISI-listed journals per year (on average).</li> <li>2. Percentage of teaching staff leaving the college for reasons other than retirement.</li> <li>3. Number of faculty awards for innovative ideas, remarkable activities and teaching excellence.</li> </ol> |
| <b>ENG 3-B:</b> Manage the faculty population to maintain the balanced between teaching and research | <ol style="list-style-type: none"> <li>1. Student-faculty ratio</li> <li>2. Ratio of teaching load for research-active faculty (engaged in more than one research project per year on average) to those with normal research activity.</li> <li>3. Percentage of faculty who are involved in administration work.</li> </ol>                                      |
| <b>ENG 3-C:</b> Improve the quality of teaching and research.  | <ol style="list-style-type: none"> <li>1. Percentage of faculty who use innovative teaching methods.</li> <li>2. Percentage of faculty who have research or teaching awards.</li> <li>3. Percentage of faculty participating in professional development programs.</li> </ol>   |
| <b>ENG 3-D:</b> Foster a comfortable and motivating environment for all faculty members.             | <ol style="list-style-type: none"> <li>1. Ratio of qualified administrative secretarial and support staff to the number of full time faculty.</li> <li>2. Percentage of faculty who are satisfied by KSU benefits.</li> </ol>   |

## Research

| Initiative  | KPI's  |
|---|--|
| <b>ENG 4-A:</b> Impact the national and global science and technology program.  | <ol style="list-style-type: none"> <li>1. Number of research chairs, centers of excellence and research groups.</li> <li>2. Funds for research chairs, centers of excellence and research groups as percentage of the college budget.</li> <li>3. Number of ISI publications by faculty member.</li> <li>4. Number of patents.</li> </ol>              |
| <b>ENG 4-B:</b> Increase interdisciplinary research   | <ol style="list-style-type: none"> <li>1. Number of multi-disciplinary projects with other departments, industry, government and the community.</li> </ol>   |
| <b>ENG 4-C:</b> Expand the research enterprise  | <ol style="list-style-type: none"> <li>1. Number of collaborative research projects.</li> <li>2. Number of graduate students coming from the industry.</li> <li>3. Number of personnel from the industry involved in research cooperation with the college.</li> </ol>   |
| <b>ENG 4-D:</b> Support the creative discovery process.   | <ol style="list-style-type: none"> <li>1. Amount of funds from government sources and/or from private sources dedicated to creative discovery.</li> <li>2. Number of graduate students.</li> <li>3. Number of postdoctoral researchers.</li> <li>4. Number of hired research technicians.</li> </ol>   |
| <b>ENG 4-E:</b> Foster an environment for encouraging leadership in research and that rewards all discovery activities. | <ol style="list-style-type: none"> <li>1. Number of faculty serving on editorial boards of international ISI journals.</li> <li>2. Number of faculty who served as editors or sessions' chairs in international conferences.</li> <li>3. Number of faculty invited for key note addresses or plenary lectures at international conferences.</li> </ol> |
| <b>ENG 4-F:</b> Establish expertise and unique capabilities.  | <ol style="list-style-type: none"> <li>1. Number of faculty involved in providing consultancy for international agencies.</li> <li>2. Number of authoritative books or book chapters compiled by faculty members.</li> </ol>   |

## Outreach

| Initiative  | KPI's   |
|---|---|
| <p><b>ENG 5-A:</b> Secure long-term research funding through establishing partnerships with the industry.</p> | <p>1. Number of new sponsored college laboratories per year.</p>  |
| <p><b>ENG 5-B:</b> Establish mechanisms for improving interactions with industry.</p>                         | <p>1. Number of college's students joined training programs that contribute to society<br/>           2. The proportional of the value of donated gifts from college customers to total revenues of the college<br/>           3. Number of employers participating in mentorship programs.</p>                                   |
| <p><b>ENG 5-C:</b> Facilitate College services directed at local industry.</p>                                | <p>1. Percentage of faculty members involved in external consultations.<br/>           2. Proportion of faculty members formally associated with industry to the total number employed.<br/>           3. Proportion of the number of training activities offered to the society / year.</p>                                      |
| <p><b>ENG 5-D:</b> Launch a marketing campaign to improve the reputation of the College.</p>                  | <p>1. Number of reported news items about college on the various media channels such as websites, reports, etc. per year.<br/>           2. Proportion of reported news items about college on the university website to the total reported news.<br/>           3. Number of articles of engineering news in national media.</p> |
| <p><b>ENG 5-E:</b> Create a strong sense of loyalty to the College among alumni..</p>                         | <p>1. Proportion of alumni who participate in establishing endowed and industry chairs as well as sponsored labs with respect to the total alumni.<br/>           2. Number of university graduates participating in engineering activities.</p>  |

## Facilities

| Initiative   | KPI's   |
|--|---|
| <b>ENG 6-A:</b> Effectively manage the available space and land resources for learning, living, and work.                          | 1. Number of square meters per student.<br>2. Number of square meters allocated for faculty and staff activities.<br>3. Proportion of space allocated for teaching and learning activities (class rooms, labs, ...) |
| <b>ENG 6-B:</b> Achieve adequate quality of space and infrastructural facilities.  | 1. Proportion of smart classrooms to the total number of classrooms.<br>2. Number of accessible computer terminals per student.<br>3. Annual expenditure on IT per student.   |
| <b>ENG 6-C:</b> Enhance health and safety operations to support the college's research, learning, and engagement endeavors.        | 1. Number of safety training programs provided for College of Engineering per year.<br>2. Number of safety related incidents in the College of Engineering per year.  |
| <b>ENG 6-D:</b> Advance and implement initiatives to improve administration operational efficiencies and enhance customer service. | 1. Proportion of stockholder satisfied with administrative processes based on survey results.<br>2. Proportion of paper work not completed within the required dead line.   |
| <b>ENG 6-E:</b> Attract, develop, and retain quality support staff.  | 1. Number of training and development programs per staff per year<br>2. Number of support staff awarded for quality performance per year.   |





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