Frank H. Dotterweich College of Engineering

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Mission Statement

The Frank H. Dotterweich College of Engineering:

- Graduates engineers who become productive participants in industry, the profession, and society;
- Conducts research and significantly contributes to the well-being and sustainable development of communities and industries in South Texas, the state of Texas, and the nation; and
- Provides meaningful service to the profession and the communities that surround us.

The Frank H. Dotterweich College of Engineering comprises the following academic units:

- Department of Civil and Architectural Engineering
- Department of Electrical Engineering and Computer Science
- Department of Environmental Engineering
- Department of Industrial Management and Technology
- Department of Mechanical Engineering and Industrial Engineering
- Wayne H. King Department of Chemical and Natural Gas Engineering
- Eagle Ford Center for Research, Education, and Outreach
- Institute for Architectural Engineering Heritage
- Institute for Sustainable Energy and the Environment

The College offers programs leading to Bachelor of Science degrees in architectural engineering, chemical engineering, civil engineering, computer science, electrical engineering, environmental engineering, industrial engineering, industrial management and applied engineering technology, mechanical engineering, and natural gas engineering. The Architectural, Chemical, Civil, Electrical, Environmental, Mechanical, and Natural Gas Engineering programs are accredited by the Engineering Accreditation Commission of ABET, http://www.abet.org.

The Bachelor of Science in computer science program is accredited by the Computing Accreditation Commission of ABET, http://www.abet.org.

The Bachelor of Science in industrial management and applied engineering technology program is accredited by the Association of Technology, Management and Applied Engineering (ATMAE).

The undergraduate engineering programs are designed to give the student an understanding of the fundamental principles underlying engineering science and practice. Each curriculum contains basic courses to develop a solid foundation in mathematics, chemistry and physics and includes a general background in humanities and social sciences. Building on this background, the engineering science courses provide application of basic principles and the analysis of engineering systems. The engineering design component of the curriculum provides the student with methods and techniques for solution of the technological problems of society. The curricula in computer science and in industrial management and technology are similarly structured to provide students a solid base in their fields.

Laboratory facilities are equipped to facilitate learning. Students will become familiar with the instruments, procedures, and processes employed in industry. A computation center is available for students' use throughout their course of study.

The College offers graduate programs of study leading to both the Master of Science and the Master of Engineering degrees along with a Ph.D. in Environmental Engineering and a Ph.D. in Sustainable Energy Systems Engineering. Individuals interested in graduate programs should review the requirements listed in the graduate catalog.

Entering Freshmen

Entering freshmen are required to have a minimum composite score of 21 on the ACT (with a minimum mathematics score of 22), 970 on the old SAT (with a minimum mathematics score of 530), or a 1050 on the new SAT (with a minimum math score of 560).

Students whose test scores fall below the minimum scores for full admission but have 18 or above on the ACT (with a mathematics score of 19 or above), 810 or above on the old SAT (with a mathematics score of 500 or above), or an 890 on the new SAT (with a minimum math score of 530) will be

admitted to the Pre-Engineering (PPEN) program in order to complete preparatory coursework. Students who do not meet either of these requirements will be admitted to the Alternate Pre-Engineering (APEN) program.

PPEN students completing 24 or more credit hours with a minimum cumulative GPA of 2.0 and a minimum cumulative GPA of 2.0 in all coursework including mathematics and science will be transferred to an engineering program. (Coursework must include MATH 1348 or higher and CHEM 1111/CHEM 1311 except for students that transfer to the industrial management and technology program.)

Students who fall below the minimum pre-engineering test scores will not be allowed entry into the College of Engineering before completing 36 or more credit hours with a minimum cumulative GPA of 2.5 and a minimum cumulative GPA of 2.5 in all included mathematics and science coursework. Once these criteria have been met, the student may reapply for admission to the College of Engineering. (Coursework must include MATH 1348 or higher and CHEM 1111/CHEM 1311 except for students that transfer to the industrial management and technology program.)

Transfer Students

Transfer students will be accepted in the college unconditionally if their overall grade point average from the previous institution(s) is *2.5 or greater*. Texas A&M University-Kingsville students desiring to change their major to engineering must also meet this requirement.

Non-engineering majors may take one lower-level (1000-2000) engineering course a semester. Upper-level engineering courses (3000-4000) may not be taken by non-engineering or pre-engineering majors. Exceptions to the above policy must be approved in writing by the dean of the student's college and the dean of engineering. Students who enroll in engineering courses without approval will be dropped from the course.

Students who transfer into the Frank H. Dotterweich College of Engineering having attempted 60 credit hours or less and that have a cumulative GPA of 2.0-2.49 on a 4.0 grading system will be placed into the Pre-Engineering (PPEN) major. After one semester, the student's academic performance will be re-evaluated by his/her adviser. If the student has maintained satisfactory progress, the student will be transferred out of PPEN and placed into a permanent engineering major. A change of major form will be completed and signed by the chair of the department and the dean of the college. Students who do not achieve satisfactory progress will remain in PPEN and will be re-evaluated after the completion of one (1) academic year.

Candidates for a bachelor’s degree in engineering or computer science must have a minimum of 45 semester hours required for the degree completed in residence at the university. Of the 45 hours earned at the university, 36 hours must be earned within the College of Engineering. Exceptions to the above policy require permission of the department chair and dean.

Students planning to transfer to the Frank H. Dotterweich College of Engineering from another four-year university should apply for admission as early as possible. Once accepted, the student is encouraged to contact the appropriate department chair during the semester prior to enrolling at Texas A&M University-Kingsville. Course transferability and course prerequisite requirements can be determined to allow a smooth transition into the program at Texas A&M University-Kingsville.

Community college transfer students should complete English, mathematics and science courses as early as possible. The basic engineering courses required for a specific degree should also be completed. If some of these courses are not available at the college the student is attending, early transfer or a summer session at Texas A&M University-Kingsville may be advisable to enable the student to stay on schedule.

Specific articulation and joint admission agreements are available for multiple community colleges. These agreements can be viewed at College of Engineering Homepage.

Transfer of Credit

The university has established course equivalencies from the majority of Texas community colleges and universities. The Texas Higher Education Coordinating Board has established guidelines on course transferability from two-year colleges to four-year universities in engineering. In addition to the university policies controlling the granting of credit for course work taken at other institutions where equivalency has not been established, the following policies apply to students entering the Frank H. Dotterweich College of Engineering from such institutions:

1. All courses taken at another institution are subject to approval by the dean of the Frank H. Dotterweich College of Engineering and the chair of the degree granting department. Courses are approved on a case-by-case basis to ensure their acceptability in fulfilling requirements for a degree. In making this evaluation, the student may be required by the dean and/or department chair to produce catalogs and other supporting material from the institution from which the student is transferring.
2. Degree credit will not be granted for any mathematics, science, engineering, or other technical course taken at another institution in which the student’s grade in that course was not the equivalent of at least a *C* and an overall 2.0 on a 4.0 grading system.

A maximum of 72 semester hours may be transferred from institutions that do not have engineering programs accredited by the Engineering Accreditation Commission of ABET. Advanced (3000- or 4000-level) engineering courses from four-year institutions that do not have ABET accredited programs may be applied toward degree requirements only if approved by the department chair and the dean.

The student is responsible for timely processing of all course substitutions. This action should be completed during the first semester of work at Texas A&M University-Kingsville.

Academic Advising

Students accepted into the Frank H. Dotterweich College of Engineering including pre-engineering (PPEN) and alternate pre-engineering (APEN) are assigned to a specific professional academic advisor located in the Javelina Engineering Student Success Center (JESSC) based on their chosen program of study. Students are assigned a faculty advisor once they progress through their program of study and meet the criteria to continue into more advanced coursework. The student is then advised by the faculty advisor until graduation. Each semester, all engineering students are required to schedule appointments with their advisor to review their academic progress and plan their schedule for the next semester. Students are required to see their adviser before they will be permitted to register. Students should also consult their adviser for approval of academic matters such as choice of electives, course substitutions, course overloads and adding or dropping courses. The dropping of key courses in a curriculum may delay the student's progress toward the desired degree.

Policy on Electronic Devices During Examinations

It is the policy of the TAMUK College of Engineering that no electronic devices are permitted in all examinations without the permission of the instructor.

Requirements for the Bachelor of Science Degree in the Frank H. Dotterweich College of Engineering

The basic requirements for the Bachelor of Science degree is 120-132 semester credit hours of academic work, depending upon the program of study. Students coming from high school with adequate preparation will be able to satisfy this requirement in eight semesters. Students requiring preparatory work or choosing to take lighter loads will take longer to complete degree requirements.

Engineering is a rapidly changing profession and the departmental curricula are updated continuously to keep pace with these changes. Students entering the university under this catalog will be required to comply with such curriculum changes in order to earn their degree. However, the total number of semester hours required for the degree may not be increased except for accreditation requirements, and all work completed in accordance with this catalog prior to the curriculum change will be applied toward the student's degree requirements. Courses that are modified or added to a curriculum and incorporated into the curriculum at a level beyond that at which a student is enrolled may become graduation requirements for that student. Courses that are incorporated into the curriculum at a level lower than the one at which the student is enrolled are not required for that student. Former students of the college who have been out of school for two consecutive semesters must meet the curriculum requirements in effect at the time of their readmission.

Graduation Requirements

*A candidate for a degree in the College of Engineering must satisfy the university's "*General Education Requirements*" as set in the catalog. A candidate for a degree from the College of Engineering must also meet the following requirements in fulfilling one of the degree plans prescribed on the following pages.*

- Attain a minimum 2.25 GPA in all engineering and computer science courses; and
- Attain a minimum 2.25 GPA in all mathematics and science courses.

Candidates for the Industrial Management and Applied Engineering Technology degree must also possess a grade point average of 2.50 in all course work specified for their major as well as a 2.25 for all business administration course work and a 2.25 for all math/science course work specified for the degree.

Each department in the College may have more stringent requirements. Check with your academic adviser. *It is the candidate's responsibility to ensure that all degree requirements are met.*

Distinguished Graduates

Degree candidates meeting the following criteria will be named Distinguished Graduates in the College of Engineering:

- Attain a minimum 3.0 GPA in all engineering, computer science and industrial management and technology courses;
- Attain a minimum 3.0 GPA in all mathematics and science courses;
- Pass the Fundamentals of Engineering Examination, or an equivalent recognition endorsed by the student's department; and
- Complete an internship or research project occurring over at least one semester and with a culminating experience such as an oral presentation to faculty and students.

This distinction will be awarded after all degree requirements are certified to be complete, although it may be tentatively announced prior to this with the caveat that all degree and distinction requirements must be met.

Minors

Students receiving a Bachelor of Science degree may have a recognized minor. A minor consists of a minimum of 18 hours in a field related to the major. Certain minors require more, see “Recognized Minors” below, but the total required hours should not exceed 24. Six hours in the minor field must be on the advanced level.

Recognized Minors

The following minors are available to the College of Engineering majors:

- Aerospace Engineering
- Computer Science
- Cyber Intelligence
- Environmental Engineering
- Industrial Technology
- Natural Gas Midstream Engineering, Minor
- Nuclear Engineering
- Security Engineering

Any minor offered by the College of Arts and Sciences (e.g., Mathematics) is subject to approval by the student’s major department and the dean.

An interdisciplinary or other specialized minor that meets the minimum requirements indicated above may be recognized in individual cases, subject to approval by the student’s major department, the dean and any department in which at least 9 hours of the proposed minor will be taken. The dean’s office will circulate a list of minors that has been approved under either of these conditions.

Special conditions apply to the following:

- Aerospace Engineering – see Department of Mechanical and Industrial Engineering
- Arts and Sciences – see College of Arts and Sciences
- Interdisciplinary or Specialized Minors: student’s adviser must be consulted for required courses.
- Nuclear Engineering – see Department of Mechanical and Industrial Engineering

- Wayne H. King Department of Chemical Engineering and Natural Gas Engineering
  - Chemical Engineering, B.S.
  - Chemical Process Industry, Certificate
  - Natural Gas Engineering, B.S.
- Department of Civil and Architectural Engineering
  - Architectural Engineering, B.S.
  - Civil Engineering, B.S.
- Department of Electrical Engineering and Computer Science
  - Computer Science, B.S.
  - Computer Science, B.S. with Teacher Certification
  - Cyber Intelligence, Certificate
  - Electrical Engineering, B.S.
  - Mobile Applications Development, Transcripted Certificate
- Department of Environmental Engineering
  - Environmental Engineering, B.S.
- Department of Industrial Management and Technology
  - Industrial Management and Applied Engineering Technology, B.S. with a Certificate in Business Administration
- Department of Mechanical Engineering and Industrial Engineering
  - Industrial Engineering, B.S.
  - Mechanical Engineering, B.S.
  - Standards for Material Testing, Characterization and Applications, Certificate

A

- Aerospace Engineering, Minor

C

- Computer Science, Minor
- Cyber Intelligence, Minor

E

- Environmental Engineering, Minor

I

- Industrial Technology, Minor

N

- Natural Gas Midstream Engineering, Minor
- Nuclear Engineering, Minor

S

- Security Engineering, Minor
- Supply Chain Standards, Minor

C

- Chemical Process Industry, Certificate
- Cyber Intelligence, Certificate

F

- Facilities Management, Certificate

M

- Mobile Applications Development, Transcripted Certificate

S

- Standards for Material Testing, Characterization and Applications, Certificate