2023-2025

Program, Policies, and Guidelines

Graduate Program in Chemical Engineering

University of Texas at San Antonio

Graduate Program for Ph.D. Degree

Chemical Engineering program policies and guidelines are in compliance with those established by the UT System (http://www.utsystem.edu/) Board of Regents (http://www.utsystem.edu/bor/rules/).

The policies of the Chemical Engineering Program are regularly reviewed and updated; therefore, this copy may not be the most current.

Accreditation

The Ph.D. Program in Chemical Engineering was approved by the Texas Higher Education Coordinating Board in July 2023, and our first batch of students matriculated in the fall 2023 semester.

The Ph.D. in Chemical Engineering is also accredited by the Southern Association of Colleges and Schools Commission on Colleges (SACSCOC) since the Summer of 2023.

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DISCLAIMER

The information contained in this handbook does not constitute a contract, expressed or implied, between any applicant, student, or faculty member and the UTSA Ph.D. Program in Chemical Engineering. The Graduate Program in Chemical Engineering reserves the right to alter course offerings at any time, or change the curriculum or any other procedures leading to the awarding of a degree and any other requirements affecting students. Changes will become effective whenever the proper authorities so determine. The changes will apply to prospective students and may apply to those already enrolled in the Program.

REVISIONS

Recommendations for improving the content of this handbook are welcomed from the students and any members of the faculty of the Graduate Program in Chemical Engineering.

PROGRAM OVERVIEW

The objectives of the Graduate Program in Chemical Engineering are to: 1) prepare students to become leaders in chemical engineering industries and academia through strong academic preparation, and 2) equip students with skills to solve current engineering grand challenges. The educational goals of this program are founded on the belief that the basic scientific and engineering approaches are critical to the fundamental understanding of human health, energy, materials and the environment.

The Graduate Program in Chemical Engineering is designed to build on the scientific interactions and cooperation between the engineering faculty at UTSA, non-academic R&D, industry and/or government institutions. It is felt that this distinctive type of research environment offers the students maximum opportunity to develop into well-rounded, competitive chemical engineering professionals. Because engineers, scientists and professional participate in the education and training of each student, graduates from this program would be uniquely trained in the fundamental sciences and engineering related to chemical engineering. The Graduate Program in Chemical Engineering has outstanding faculty, many of whom are leaders in their respective fields, nationally and internationally recognized.

SUMMARY AND OUTLOOK FOR THE FUTURE

Talented and productive faculty members from Chemical Engineering have embraced the Ph.D. program enthusiastically, and interest among the faculty in other disciplines will continue to grow. The Graduate Program in Chemical Engineering is positioned to attract well-qualified students from not only local institutions (San Antonio and Texas), but also institutions across the United States and internationally. More active recruitment of students will continue, and it is expected that the caliber of our matriculating students will increase as a result. Both the students and faculty bring new ideas and additional energy to the chemical engineering industry environment in San Antonio and South Texas.

PROGRAM PURPOSE

The Chemical Engineering Ph.D. program aligns to the three "bold destinations" described in the UTSA Strategic Plan (https://www.utsa.edu/strategicplan/).

Destination 1: UTSA will be a Model for Student Success

UTSA puts students first by cultivating an environment focused on their success. As a next generation Hispanic-thriving, multicultural institution where students from all backgrounds can excel, UTSA serves as a prosperity engine, graduating world-engaged civic leaders of tomorrow. UTSA will continue the dramatic momentum of the last decade to retain and graduate more students and will emphasize experiential learning and classroom-to-career educational opportunities. The Chemical Engineering Ph.D. program contributes to these goals by:

- Strengthening and enhancing graduate educational experiences and by preparing students to be leaders in Chemical Engineering.
- Provide student mentoring to ensure that all the students are successful and that they complete the program in the timeline suggested in this proposal.
- Develop marketable skills by training graduate students to address a variety of engineering problems in the local and global environment.
- Capitalize on existing UTSA resources intended to enhance the student experience, including the Graduate School, the Teaching and learning Center, the Thomas Rivera center, the Writing Center and the UTSA library.
- Give graduate students access to the outstanding Chemical Engineering faculty members who have active research programs in medical technologies, energy, materials and the environment. In addition, the students will benefit from their interaction with faculty members from the other CEID departments, as well as researchers from the SwRI.
- Provide teaching assistantships that will expose graduate students to instruction under the supervision of a faculty member. Students who have an interest in pursuing academic careers and have demonstrated a thorough knowledge of a subject area may be allowed to serve as instructors to a freshman or sophomore engineering course in their area of expertise. If so, they will be mentored by an experienced faculty member and be provided with the necessary curriculum and course material. In addition, they will be mentored on how to interact with the students inside and outside the classroom and be advised on the way to evaluate student performance and learning outcomes. This will both provide support for our undergraduate students and introduce graduate students to teaching in the college environment and potentially attract some of them to a career in academia.

- Increase the number of research opportunities for undergraduate students interested in chemical engineering.

- Develop the next generation of student mentors through TA positions and overseeing undergraduate research experiences.

- Increase the number of under-represented minority students entering research careers.

- Increase opportunities in experiential learning through internship and research experiences.

Destination II: UTSA will be a Great Public Research University

UTSA is a nationally-recognized research university, attaining National Research Support Fund (NRSF) eligibility and R1 designation by the Carnegie Commission. These designations will position UTSA to align with members of the prestigious Association of American Universities. UTSA is an urban-serving university focused on driving San Antonio's knowledge economy, living out the notion that great universities need great cities and great cities need great universities. The Chemical Engineering Ph.D. program contributes to these goals by:

- Expanding research and innovation in critical areas of chemical engineering.

- Assist in attracting and retaining high research caliber faculty and graduate students.

- Provide graduate students to support faculty research. Graduate students are critical for meeting university metrics in regard to publications, research funding, intellectual property and technology transfer, and rankings.

- The existing and new Chemical Engineering faculty hires that will be made over the coming five years will contribute to increasing the overall research expenditures of the Department, which currently stands at just under $4 Million per year. This has grown from $730,000 (>5X increase) in the year prior to the addition of the Chemical Engineering program to the department. The new faculty and support from a robust and productive graduate program will solidify our goal of maintaining R1 and NRSF status.

- The proposed program will enhance teaching and research interaction within the College of Engineering and with the College of Science, as well as between the Department and the SwRI. The interactions will range from sharing of graduate courses to mentoring students. The proposed Chemical Engineering Ph.D. program will encourage our CME doctoral students to interact with their counterparts at other CEID departments, offering them a unique multi-disciplinary research experience.

Destination III: UTSA will be an Exemplar for Strategic Growth and Innovative Excellence

UTSA will realize its full potential as a university by growing enrollment and infrastructure while focusing on innovation and continuous improvement. UTSA actively cultivates the excellence of its people, and places an emphasis on increasing the diversity of its leadership and faculty in order to reflect the community it serves. The Chemical Engineering Ph.D. program contributes to these goals by:

- Promoting a community of respect to advance the university's commitment to promoting an environment where all members of the UTSA community can engage, learn and thrive. Attracting and retaining high research caliber faculty and graduate students who are the innovative leads for growth.

- Fostering partnerships in the community, specifically enhancing collaboration with the SwRI.

- Stimulation of social and economic development through activities such as collaborative research and commercialization programs that respond to community needs and align with the UTSA mission.

- The labor provided by students in the program will benefit the community in several important ways. Students working as graduate interns will be able to use their quantitative and methodological skills to assist in a variety of research projects.

REPORTING/ADMINISTRATIVE STRUCTURE

The Deans of the Graduate School and the Klesse College of Engineering and Integrated Design at UTSA have overall responsibilities for the Ph.D. Program in Chemical Engineering. The graduate faculty of the Chemical Engineering program, along with the Program Director are responsible for curriculum development and ongoing missions of the program.

The Program Director advise all graduate students, maintain records, and represent the program. The day-to-day administrative operation of the Graduate Program in Chemical Engineering is the responsibility of the Program Director. The Chemical Engineering graduate committee advises and makes recommendations to the Program Director on all educational aspects of the program. The composition of the graduate committee is at least three faculty members of the Chemical Engineering graduate program. The committee is chaired by the Program Director. This committee is responsible for the development and modification of Ph.D. program policies, processes, courses, companion procedure and operations manuals or guidelines to implement the requirements of the Chemical Engineering Graduate Student Administration Agreement. Addenda are reviewed regularly by the committee and updated as needed.

The Chemical Engineering graduate committee is also responsible to lead various programmatic activities such as recommending student admission to the program, overseeing academic curricula, monitoring student progress in the program, and attesting eligibility for admission to candidacy for a degree. Recommendations are made by the committee, which then advises the Program Director and Chair of the department for implementation and/or, if warranted, seeking the Graduate Dean for final approval.

Program direction, overview, and student success is managed by the Program Director, who reports directly to the Chair of the Department of Biomedical Engineering and Chemical Engineering, and the Deans of the Graduate School and the Klesse College of Engineering and Integrated Design at UTSA. The Deans and Chair solicit nominations from the graduate program faculty for the Program Director position. The Deans and Chair confirm and appoint the Program Director for a period of three years. Upon the expiration of terms, the graduate program faculty elects a new Program Director every three years. After each election, the credentials of newly elected Director are forwarded to the Deans and Chair for final approval.

ALIGNMENT OF PROGRAM WITH INSTITUTIONAL MISSION/GOALS

UTSA is dedicated to the advancement of knowledge through research and discovery, teaching and learning, community engagement and public service. As an institution of access and excellence, UTSA embraces multicultural traditions and serves as a center for intellectual and creative resources as well as a catalyst for socioeconomic development and the commercialization of intellectual property for Texas, the nation and the world. To be a premier public research university, UTSA provides access to educational excellence and prepares citizen leaders for the global environment. An environment of dialogue and discovery is encouraged, where integrity, excellence, inclusiveness, respect, collaboration and innovation are fostered.

The UTSA's Commitment: Title IX of the Education Amendments of 1972 (20 U.S.C. § 1681) is a federal law that prohibits discrimination based on gender in educational institutions which receive federal financial assistance. Title IX also prohibits sexual harassment, which includes sexual assault and sexual violence. Please see the following links:

https://www.utsa.edu/eos/titleix.html http://www.utsa.edu/eos/policy.html

http://catalog.utsa.edu/informationbulletin/administrativepoliciesandprocedures/studentgriev ances/

PROGRAM CHARACTERISTICS

Curriculum (sequence, courses, length, etc.)

As the Graduate Program in Chemical Engineering is multidisciplinary, the program's curriculum is designed to be flexible and provide a synergistic combination of formal courses, seminars, teaching opportunities, interactions with non-academic institutions, and individualized chemical engineering research experiences in the laboratories of the Chemical Engineering program faculty.

The present curriculum requires all PhD students to complete 7 courses distributed as: 4 core courses, and 3 in-depth elective courses related to their specific research. The courses are listed in the Tables below. The required and elective courses are intended to focus and support the student's mastery of a particular area of expertise. Students can complete a one-semester internship in a non-academic R&D center for credit. Four semesters of seminar credits are also required. Seminars involve academic, industry, or government experts presenting the latest knowledge in the field. Grades of B or better are required in all courses, except the research seminar, which is graded on a 'Credit/No-Credit' basis.

Table 1. Required/Core Courses

Prefix and Number	Required/Core Course Title	SCH
CME 6103	Chemical Engineering Kinetics and Reactor Design	3
CME 6203	Advanced Chemical Engineering Thermodynamics	3
CME 6303	Transport Phenomena	3
CME 6403	Mathematical and Numerical Methods in Chemical Engineering	3
CME 6601	Chemical Engineering Research Seminar	4

Table 2. Prescribed Research Elective Courses

Prefix and Number	Prescribed Elective Course Title	SCH
BME 6033	BME Engineering Analysis	3
BME 6043	Critical Thinking and Writing for BME	3
BME 6093	Topics Biomedical Engineering	3
BME 6123	Medical Device Design	3
BME 6213	Cellular Engineering	3
BME 6703	Biomedical Imaging	3
BME 6743	Biophotonics	3
BME 6803	Experimental Biomechanics	3
BME 6843	Tissue Mechanics	3
BME 6893	Topics in Biomechanics	3
BME 6903	Biomaterials	3
BME 6933	Tissue-Biomaterial Interaction	3
BME 6963	Fundamentals to Polymer Science	3

BME 6303	Intro to Python for Biosciences and Bioengineering	3
BME 6403	Biomedical Terminologies	3
CME 5503	Chemical Engineering Ethics and Leadership	3
CME 6703	Electronic and Local Atomic Structure using Synchrotron Methods	3
CME 6803	Introduction to Polymer Science and Engineering	3
CME 6813	Self-healing Polymers	3
CME 6903	Fundamentals of Interfaces, Nanoparticles, and other Colloids	3
CME 6113	Heterogeneous Catalysis and Surface Science	3
CME 6823	Membrane Technology and Applications	3
CME 6123	Electrochemical Engineering	3
CME 6133	Biochemical Engineering	3
CE 5673 / ES 5063	Environmental Microbiology	3
CE 5613	Environmental Chemistry	3
CE 5623	Advanced Treatment Processes for Water Quality Control	3
CE 5643	Sustainable Energy Systems	3
CE 5733	Spec Topics Enviro Engineering	3
CE 5383	Water Resources Planning and Management	3
CE 6603	Fate and Transport of Contaminants in the Environment	3
CE 6383 / ES 5043	Global Change	3
ME 5653	Computational Fluid Dynamics	3
ME 5453	Advanced Strength of Materials	3
ME 5483	Finite Element Methods	3
ME 5473	Viscoelasticity	3
ME 5743	Composite Materials	3
ME 5273	Alternative Energy Sources	3
ME 5643	Green and Sustainable Manufacturing and Enterprise Systems	3
ME 5503	Lean Manufacturing and Lean Enterprises	3
ME 5233	Advanced Quality Control	3
ME 6613	Advanced Fluid Mechanics	3
MATE 5103	Principles of Materials Engineering: Fundamentals of Structure, Chemistry, and Physical Properties	3
MATE 5113	Functions, Evaluations and Synthesis Technology of Advanced Materials	3
MATE 5213	Sensing and Sensor Materials	3
MATE 5223	Structure-Chemistry-Property Relations in Materials Science and Engineering	3
MATE 5253	Magnetic Materials and Electromagnetic Engineering	3
CHE 5483	Inorganic Solid State Materials	3
CHE 6973	Special Problems	3

Ph.D. Requirements for admission to candidacy

Students seeking a doctoral degree from the Graduate Program in Chemical Engineering must be admitted to candidacy. In order to be admitted to candidacy, the student must comply with the following requirements:

- Fulfilled the requirements for unconditional admission as a Ph.D. degree-seeking student in the Ph.D. program in Chemical Engineering, which entails the removal of any conditions assigned at the time of admission.
- Be in good standing with the Graduate School (minimum GPA of 3.0).
- Passed the oral comprehensive examination prepared by the student's Dissertation Committee (description below).
- Submitted an updated program of study to the Graduate School.

Oral Comprehensive Examination

Students must take their oral comprehensive examination within four long semesters of entering the program. The oral comprehensive examination is a dissertation proposal defense and will also serve as a qualifying exam. The dissertation proposal should describe the topic, the literature review, the proposed methodology and experimental approach, as well as highlight the novelty and potential contribution of the topic of the scientific field.

The student's *Dissertation Committee* will consist of a chair from the faculty, approved to supervise Chemical Engineering dissertation work, two additional faculty from the department, one UTSA faculty member from outside the department, and one external member. No more than two attempts to pass the comprehensive examination are permitted. The results of the comprehensive examination are reported to the Dean of the Graduate School.

Advancement to Candidacy

Upon successful completion of all the requirements above, students advance to the Ph.D. candidacy and are allowed to take Doctoral Dissertation credit hours.

Requirements for the degree

The following requirements must be satisfied for graduation with a Ph.D. degree in Chemical Engineering:

- *Residency Requirement*: A student must spend at least two consecutive semesters (fall and spring, summer Terms I and II and fall, or spring and summer Terms I and II) in residence as a full-time student. During the residency period, the student must be registered for a minimum of 9 semester credit hours each regular semester, and 6 semester credit hours during the summer semester.

- *Grade Point Average*: A cumulative grade point average of "B" (3.0 on a 4.0 scale) must be maintained. Transferred grades from other institutions are not used in the computation of cumulative GPA.

- *Course Requirements*: The Ph.D. program in Chemical Engineering consists of at least 72 semester credit hours beyond the bachelor's degree. Undergraduate courses, general education courses, and prerequisites for graduate courses are not counted toward this total. Course requirements are 12 semester credit hours of Required Core Courses, 4 semester credit hours of research, a minimum of 9 semester hours of Prescribed Electives, and a minimum of 47 semester hours of Doctoral Dissertation, and Doctoral Research.

- *Support Work:* In addition to courses and research in the field of specialization within Chemical Engineering, support work will be performed by students to broaden or supplement the student's preparation. Support work may consist of conference attendance, writing of abstracts and manuscripts, and presentations at national conferences. Additionally, as these students mature while in the program, support work can also be in the form of student mentoring, where these students are learning to become a research supervisor. In many of these instances, students may be given the opportunity to mentor and supervise Master's level and undergraduate students in their research.

- *Language Proficiency*: Chemical Engineering students are required to possess a competent command of English.

- *Transfer of Credits*: Students in the Ph.D. Program in Chemical Engineering are expected to complete all coursework at UTSA. However, UTSA's Graduate School allows up to 30 credit hours to be transferred from an accredited Master's program.

- *Undergraduate Credit*: Credits earned for undergraduate-level courses are not applied towards the Ph.D. Program in Chemical Engineering. At the recommendation of the Research Advisor, Graduate Program Committee, or Admissions Committee, such courses may be taken to enhance a student's ability to successfully complete graduate courses or to provide the necessary knowledge to initiate a student's research.

- *Not Accepted*: Courses completed by correspondence or extension may not be applied towards the Ph.D. Program in Chemical Engineering.

- *Completing the Degree*: Before admission to candidacy, the student's Program of Study is under the direction of the Program Director, Dissertation mentor, and the Graduate Advisor of Record. Upon admission to candidacy and the formation of the student's dissertation committee, the Program of Study comes under the purview of the Dissertation Committee, which reviews the proposed program of study. The final Program of Study, is then recommended to the Dean of the Graduate School where the student conducts his/her dissertation work for approval. Approval of the final Program of Study by the Dean of the Graduate School is a degree requirement. All completed coursework included in the final Program of Study must have been taken within the preceding eight years. No more than 2 courses for which a grade of less than "C" can be earned while in the Ph.D. Program in Chemical Engineering.

- *Doctoral Dissertation*: A dissertation is required of every candidate and must be an original contribution to scholarship, based on independent research investigation in the field of Chemical Engineering. It must be approved by the Dissertation Committee. The format of the dissertation must follow the doctoral degree regulations of the Graduate School as documented under the most recent Graduate Catalog. Registration for the dissertation hours must be for a period of more than one semester. During each semester that a student receives advice and/or assistance from a faculty member or supervision by the Dissertation Committee or uses University resources, the student is required to be enrolled in the appropriate dissertation course.

- *Final Oral Dissertation Defense:* The final oral defense consists of a public presentation of the dissertation work by the Doctoral candidate followed by a question/answer period by his/her Dissertation Committee. The student must notify the Graduate School in writing three weeks prior to the final scheduled oral defense. In addition, the posting of the examination at least 3 weeks prior to the day of the examination, the student is also required to provide his/her dissertation to the committee members at least two weeks before the day of the examination. All defenses will be open to the public, followed by a closed-door examination. The examination covers the dissertation and other parts of the student's program as determined by the Dissertation Committee. All members of the Dissertation Committee must be satisfied that the student has fulfilled the following:

    1. Completed the work assigned by the Dissertation Committee;

    2. Passed all examinations required by the program's Graduate Program Committee, including the final oral examination;

    3. Completed a dissertation that is an independent investigation in Chemical Engineering, and that itself constitutes a contribution to a body of knowledge; and

4. Submitted an abstract for publication in Dissertation Abstracts International that meets with the approval of the Dissertation Committee.

5. Have published at least one paper in a peer-reviewed scientific journal. Exceptions can be granted for special cases upon request and approval from the Ph.D. Advisor and Program Director.

Once the above is completed, the Dissertation Committee members sign the approval forms for the Doctoral dissertation and make an official recommendation to the Dean of the Graduate Schools that the Ph.D. degree in Chemical Engineering be awarded. Approval from the Dissertation Committee must be unanimous.

- *Submission and Publication of Dissertation:* When the student has successfully defended the dissertation, he or she must arrange for its publication. Students submit the dissertation via ProQuest while coordinating submission and meeting deadlines provided by the Graduate School.

Admissions requirements

Transcripts: Official transcripts from all institutions attended. All international transcripts must be recorded in English or officially translated to English.

Graduate Studies Application: Required

Department Application: Not required

Test Scores: General GRE (Optional)
Mean Verbal Reasoning GRE of new entrants: 153
Mean Quantitative Reasoning GRE of new entrants: 160

Resume or CV: Required

Letters of Recommendation: 3 letters of recommendation are required attesting to the applicant's readiness for doctoral study

Statement of Purpose: Must include applicant's research experience, interests and goals

English proficiency: Required
Minimum TOEFL Score (for International Applicants): 550 paper/79 internet
Minimum IELTS Score (for International Applicants): 6.5
Duolingo Score: 100

Additional Requirements: International students and those with international degrees may be required to submit additional documents per our admissions policies and procedures. The Graduate School reserves the right to request any additional documents needed to fairly and consistently evaluate applicant credentials.

Full-Time or Part-Time Attendance Requirement: Full-Time

The admissions committee will also take into consideration the student's research interest within the Chemical Engineering program to ensure that it matches with the current faculty research interest.

Recruitment

The Graduate program in Chemical Engineering has an active recruitment program to continuously grow enrollment, including Hispanic and women students. One of the main goals of the recruitment plan is to reach out to qualified students that do not have opportunities to further their engineering education due to financial constraints.

Recruitment is driven by UTSA's institutional strategy using Salesforce CRM, managed by the Graduate School. Recruitment for all institutions in the state of Texas include campus site visits which are coordinated with the Klesse College on Engineering and Integrated Design and the Graduate School. These visits include an informational meeting about UTSA and the Chemical Engineering Ph.D. program. A standard slide deck is used by faculty members to present when they visit other campuses as part of invited research seminars. In addition, we engage with local engineering student chapters, community colleges and other university campuses through an email advertising campaign. Materials and emails about our programs are also provided at annual society meetings.

FACULTY

There are faculty affiliated with the Graduate Program in Chemical Engineering, with primary appointment at UTSA. These faculty members hold academic ranks (Professor). Program faculty belong to the Klesse College of Engineering and Integrated Design (Departments of Biomedical Engineering and Chemical Engineering, Electrical and Computer Engineering, Civil and Environmental Engineering, and Mechanical Engineering) and the College of Sciences (Departments of Biology, Physics, and Chemistry). In addition, program faculty members may also belong to local companies and research institutes involved in chemical research. The Ph.D. Program in Chemical Engineering has a number of outstanding faculty, several of whom are leaders in their respective fields and internationally recognized.

Faculty qualifications

The faculty qualifications to be involved with the Ph.D. Program in Chemical Engineering are:

- A Ph.D., M.D. or an equivalent degree
- Postdoctoral training
- Research (publishing and grant) experience and teaching (undergraduate or graduate level teaching) experience

Guidelines for Appointment to UTSA Faculty

UTSA faculty desiring a formal relationship with the Chemical Engineering Ph.D. Program will be appointed as joint program faculty. The criteria to be used in determining the appointment are delineated below.

An appointment to the faculty entitles the faculty member to serve as a mentor for a Chemical Engineering Ph.D. student and chair his/her dissertation committee, but also carries with it the responsibility to actively participate in the ongoing activities of the program. This would include, but is not limited to, participating as guest lecturer in graduate courses and speaker in seminars, participation in preparing, administering, and grading of Qualifying Exams, and serving on dissertation committees or as Graduate Advisor.

Criteria that will be considered for appointment to the faculty will include evidence of an ongoing and active interest in some area of chemical engineering for the last three years. Each request for appointment will be considered on its own merit, but the faculty member's performance related to chemical engineering will be of major importance. This will include past and current grant funding, publications, commitment to teaching activities and course development in chemical engineering, membership in chemical engineering-related professional societies, and prior successful mentorship of graduate students in

other programs. Faculty will be encouraged to supplement their request with any information they believe is relevant and which supports their application for appointment to the core faculty.

The graduate faculty members are responsible for reviewing each application and then forwarding a recommendation to the Program Director and the Graduate Dean for approval. Applications will be reviewed as received. Upon appointment to the program faculty, a separate application for appointment to the Graduate Faculty, if not currently a member, must be submitted to the Dean's office.

The graduate committee will review the performance of existing faculty every three years based on the criteria above and then recommend appropriate reappointment action.

Guidelines for Appointment to the External Faculty

An appointment to the external faculty entitles the faculty member to serve as a dissertation committee member for a Chemical Engineering Ph.D. student, but not chair the dissertation committee.

Criteria that will be considered for appointment to the external faculty will include evidence of an emerging or developing interest in some area of chemical engineering. Each request for appointment will be considered on its own merit, but the faculty member's past and current grant funding, newly submitted grants that include work in chemical engineering, abstracts and publications of work in the developing area, giving lectures in courses taken by Chemical Engineering students, membership in chemical engineering-related professional societies, and prior successful mentorship of graduate students in other programs will be considered.

Faculty will be encouraged to supplement their request with any information they believe is relevant and which supports their application for appointment to the associated faculty.

The program faculty is responsible for reviewing each application and then forwarding a recommendation to the Program Director and Graduate Dean for approval. Applications will be reviewed as received. Upon appointment to the program faculty, a separate application for appointment to the Graduate Faculty, if not currently a member, must be submitted to the Dean's office.

The graduate committee will review the performance of existing faculty every three years based on the criteria above and then recommend appropriate reappointment action.

RESOURCES

Facilities and equipment

Chemical engineering faculty are primarily housed in the new Science and Engineering building (SEB), a $95 million facility completed in 2021. The SEB provides cutting-edge research laboratories, instructional laboratories, and an expansive collaboration space for UTSA's academic and research programs. The chemical engineering program has over 10,000 square feet of research space and over 2,500 square feet of instructional space. Included in the instructional space is the Margie and Bill Klesse Chemical Engineering Unit Operations Lab that includes: Zweton two story lab-scale distillation unit, reverse osmosis, continuous stirred tank reactor (CSTR), absorption column, heat conduction experimental unit. heat exchanger unit, flowmeters (Rotameter, Venturi Nozzle, Orifice plate), heat transfer in a fluidized bed, experiments with a centrifugal pump, fuel cell system, trainer level, flow and pressure control, trainer temperature control, pH-Value Control Trainer, pressure Distribution on an Aerofoil, water cooling tower, free and forced convection, heat Transfer by radiation, coriolis force demonstrator, module for the study of diffusion in liquids and gasses.

The department has over 5,240 square feet in laboratory instructional space. This space includes equipment used for graduate and undergraduate courses. The equipment includes the following for biomedical engineering experiments: Eleven Class 2 Biological Safety Cabinets used in Cell Biology for BME, Three chemical fume hoods, twenty phase contrast or inverted microscopes, one refrigerated centrifuge, three spectrometers, Genesys 10s UV-vis spectrophotometer, Hermle Z400k centrifuge, Fisher isotemp 208A water incubator, Fisher brand refrigerator 4^{o}C and -18^{o}C, PASCO scientific Force sensor, PASCO scientific CO2 sensor, PASCO scientific Spirometer, PASCO scientific Conductivity sensor, PASCO scientific Motion sensor, Fisher brand micro-pipettor, MTS servo hydraulic testing frames, one direct drive compression and torsion testing equipment, two extensometers, three viscometers, a Brookfield viscometer, a Biochrom LibraS22 plate reader, a Ney ULTRASonik 208H ultrasound water bath, a Fisher 280A Isotemp vacuum oven, and a Genesys 10S UV-Vis reader.

Facilities Run by Chemical Engineering Faculty

- Leica DMI 6000 B inverted Brightfield, Color Bright field and Fluorescent microscope with Differential Interference Contrast (DIC).
- Leica TCS SP8 confocal scanning microscope
- The nanowizard IV atomic force microscope (AFM) with a Zeiss inverted optical microscope (Bruker AXS, Santa Barbara, CA and JPK, Berlin, Germany).
- Steris SV-136H Prevac Steam Sterilizer from Amsco Century.
- LabRAM HR Evolution Raman microscope (Horiba, Irving, CA)
- KSV NIMA Langmuir-Blodgett trough by (Nanoscience Instruments, Phoenix, AZ)
- Physical property measurement system (PPMS) VersaLab with vibrating sample magnetometer (VSM) attachment (Quantum Design, San Diego, CA)

Research Core Facilities

UTSA Research Core Facilities are managed through the iLab Core Facility Software. This online system streamlines the process of ordering and billing for core service requests. The UTSA Research Core Facilities are:

Stem Cell Core: The instrumentation available in this core includes:

- 4D-Nucleofector Electroporator system
- Beckman Optima XPN ultracentrifuge
- Panasonic MDF-C2156VAN-PE Cryogenic Freezer
- Leica TCS SPE confocal microscope
- Deltavision PV Microscope
- MEA Multi-channel systems
- Eclipse FN1 Electrophysiology
- Freezerworks biorepository management software

Cell Analysis and Genomics Cores: The equipment available at this facility includes:

- 10X Genomics Single-Cell NGS Library Prep
- Fluidigm C1 Auto Prep Single-Cell system
- Milo Single-Cell Western Blot System
- LSR-II Flow Cytometer
- FACS Celesta with High Throughput Sampler (HTS)
- ImageStreamX-Imaging Flow Cytometer-ISX-MKII
- FACS Aria Cell Sorter

RCMI Proteomics and Protein Biomarkers Cores: The equipment available at this facility includes:

- Thermo-Fisher LTQ-Velos-Orbitrap-Elite w/CID & HCD
- Bruker microTOFMS
- Bruker Daltonics Ultraflextreme MALDI-TOF/TOF Mass Spectrometer
- BIO-RAD ExQuest Spot Cutter
- NanoIndenter XP by MTS
- Veeco Multimode V Scanning Probe Microscope and Piezoresponse Force Microscope (SPM/PFM)
- Thermo-gravimetric analyzer (TGA, Perkin Elmer Pyris 1)
- Bruker Tensor 27 Fourier transform infrared spectrometer (FTIR) with Seagull grazing angle and liquid ATR
- Micromeritics ASAP 2020 Physisorption Analyzer
- Beckman Z2 Coulter Particle and Size Analyzer
- High performance liquid chromatography system (Waters 1515 Isocratic HPLC)
- Gel permeation chromatography system (1260 Infinity, Agilent Technologies)
- Zeiss Evo 40 Scanning Electron Microscope (SEM) with nano-manipulator capability

- Joel 1570 portable SEM with Energy Dispersive Spectroscopy (EDS)
- Micro-computed tomography system (microCT, Skyscan 1076)

Kleberg Advanced Microscopy Center

- Hitachi SU 1510 Scanning Electron Microscope
- Hitachi S 5500 Field-Emission Scanning Electron Microscope with STEM Mode
- Horiba/Jobin Yvon iHR320 Raman Imaging Spectrometer
- Horiba SA-9600 Surface Area Analyzer
- JEOL JEM-ARM 200 F Transmission Electron Microscope with STEM Cs-Corrector
- JEOL JEM-1230 Transmission Electron Microscope
- JEOL JEM-2010 F Transmission Electron Microscope
- Olympus DSX500 Opto-Digital Microscope
- Panalytical Empyrean X-Ray Diffractometer
- Rigaku Ultima IV X-Ray Diffractometer
- Shimadzu AA6200 Atomic Absorption Spectrometer
- Veeco (Bruker) Innova Atomic Force Microscope
- Veeco (Bruker) Nanoscope Multimode V Atomic Force Microscope
- Zeiss Crossbeam 340 Focused Ion Beam Scanning Electron Microscope

Makerspace Facility (17,000 square feet)

- Project Area (7,000 square feet)
  Project Assembly space
  80 benches
  Hand tools and equipment
  Lockers
  conference rooms for meetings
  CAD design studio with 10 computer stations

- Machine Shop (6000 square feet)
  Manual mills and lathes
  HASS CNC mill and lathe
  Drill presses
  Band Saws
  Welding
  Electronic virtual benches, oscilloscopes, signal generators, soldering and more

- Plastic 3D Printers
  27 plastic 3D printers
  Lulzbots – Mini and Workhorse
  Raise3D – Raise 3
  Formlabs – Form 3
  Markforged – Mark 2
  Stratsys – Dimension 1200 and Mojo
  Makerbot – Replicator Z18s

- Metal 3D Printer
    - Renishaw AM400
    - Stainless Steel
    - Titanium
    - Aluminum

Financial resources

A number of mechanisms are used to financially support graduate students in the Program. Students are supported through research grants to individual PI's or Teaching Assistantships provided by the Klesse College of Engineering and Integrated Design. Support from individual PI's includes a number possible mechanisms such as NIH and NSF research assistantships or training grants, fellowships, industry-sponsored projects, and other sources of discretionary funding available to the supervising professor. There is an expectation that all eligible PhD students will submit a fellowship application, but the Chemical Engineering program will also allow the students the opportunity to "opt-out" of the expectation if the situation warrants and the program approves.

All doctoral applicants applying for full-time status will automatically be considered for a stipend per year plus full-tuition and fees and health insurance. Supplemental stipends ($1,000 to $5,000) for outstanding students are also available. Stipends offered to our current students are of $26,000 per year.

Klesse Scholarship

The Klesse Chemical Engineering Ph.D. Fellowship is a one-year fully paid graduate research assistantship administered by the Department of Biomedical Engineering and Chemical Engineering. The fellowships are awarded on merit to two incoming Ph.D. Application and award criteria is detailed in the Appendix D.

Other Financial Assistance

Teaching and research assistantships may also be available from research mentors. There are also financial aid opportunities such as the Beldon Scholarship, Mcnair & others.

Student Housing

At UTSA students have a choice of on-campus housing options. The newest on-campus residences are Laurel Village and Chaparral Village. These two complexes offer apartment-style living with a choice of either two or four private bedrooms in an apartment with a living room and a kitchenette with a microwave, sink and full-size refrigerator (no stove/oven). These complexes are owned and managed by UTSA and residents are required to purchase meal plans.

ADMISSIONS

Application Method

The Chemical Engineering Ph.D. program is for students with a bachelor's or advanced degree (MS, PhD, MD, or DDS) who want to obtain a Ph.D. degree in Chemical Engineering.

Students will apply to the Chemical Engineering Ph.D. program through a central application process through UTSA. All applications must be reviewed by the Admissions Committee, which makes recommendations to the Program Director. All admissions must be approved by the Program Director, the Chair of the Department of Biomedical Engineering and Chemical Engineering, the Dean of the Graduate School, and the Dean of the Klesse College of Engineering and Integrated Design at UTSA.

Adherence to Admission Requirements

Since application to the Chemical Engineering Ph.D. program is centralized and is managed by UTSA, all applicants are required to follow UTSA's admission requirements as described above.

Leave of Absence

All students are not permitted to be absent from the program without applying for a Leave of Absence. Leave of Absence will not be permitted for more than two consecutive semesters. Leave of Absence requires approval from the director of the program and the Graduate Dean.

Re-Admission

Former admitted students seeking re-admission after a break in enrollment of more than two consecutive semesters must re-apply under the same requirements, procedures, and considerations that applied to the initial application for credit or non- credit admission. Reapplication is not required if the absence is approved.

Student Orientation

A student orientation will be offered each semester. Each orientation will provide general and graduate school specific information, as well as information on mentorship, peer advising, course selection as appropriate and relevant to the student's needs and

respective Chemical Engineering program emphasis. Chemical Engineering program orientation will be provided by the program director and will emphasize academic advising. Chemical Engineering students will also attend UTSA-specific orientation.

MATRICULATION PROCEDURE

Interruption/Changed Matriculation

Add Class(es) - Students may add a class(es), subject to individual program guidelines, and the deadline set by UTSA, but not after the official census date noted by UTSA.

Drop Class(es) - Students may drop a class(es), subject to the deadline or conditions of UTSA. Students must bear in mind any impacts these drops have on their financial aid and/or visa status. UTSA must be notified immediately and no later than one business day following the graduate dean's approval to withdraw.

Program Withdrawal - Students may withdraw from the program based on consultation with the Program Director. The timing of said withdrawal will determine whether the course is eligible for a refund to the original payment account.

Leave of Absence - Students may request a Leave of Absence up to a maximum period of one year. Authorization and approval of such a leave is granted by the Graduate Dean, in consultation with the Program Director. Leave of absence requires approval from director and must adhere to the policy of UTSA. A copy of the letter will be provided to the Graduate Dean.

Change of Major or Program Emphasis - Students may request a change only between semesters or prior to the census date of the new semester. All such changes must be accomplished with approval of the Graduate Dean, consultation of the Program Director and completion of requisite documentation and subsequent submission of the information to the Graduate Dean.

IMPORTANT NOTE: All students who are currently here on a non-immigrant visa must consult the Office of International Programs at UTSA before making any changes in their enrollment status. It is imperative to comply with policies and procedures from the international offices.

Additional Interruption/Changed Matriculation Clarification

Drop Class(es) - Students may drop a class in which a passing grade is currently being earned. Students may not drop a class for which they are on academic probation. This is to preclude withdrawal to avoid receiving an "F" grade.

Withdrawal - Students who successfully withdraw from a class before the first-class grade posting will receive a "W" for that class. Thereafter, subject to the guidelines of UTSA, withdrawal may be precluded or an assignment of a "WP" (Withdraw Pass) or a

"WF" (Withdraw Fail) may be assigned.

Interruption Caveats

Student Status - Any student who is **receiving financial aid, has a visa status other than permanent resident, or is receiving military educational benefits** must contact and receive written clearance from the applicable **Financial Aid Office, Veteran Services Office, or International Services Office before** the requested "interruption" is approved by the program director and subsequently by the Graduate Dean.

Grading System/Academic progress

UTSA measures academic achievement via an alphabetical, pass/fail or satisfactory/unsatisfactory designation as determined by the Graduate School. Regardless of the system used, students must maintain a "B" or equivalent average at all times. For an alphabetical system, a numeric grade on a 4.0 scale, a "B" average, an 80 or above score, or 3.0 GPA, that same system must be maintained for all coursework in that system. Regardless of the system, failure in a core class in any measurement system requires a successful one- time repeat of the failed class or an equivalent class in that domain. Failure in an elective class allows a successful one time repeat of that failed class or another class of equal credit hours so long as curriculum guidelines within the individualized degree plan are met. The procedure to address a student's failure in more than one core class will be determined by program director and program faculty if appropriate. **All students are required to meet with their mentor at least once a year to evaluate academic progress. Meetings should be documented.**

Program Completion/Graduation Time Limit

The target time of completion should be five (5) years for a Ph.D. degree. Any student whose time to completion exceeds those standards must meet with his/her mentor and program director as appropriate to ensure that 1) coursework or major examinations taken more than five (5) years prior to the end of the candidate's final semester have not been rendered obsolete in light of changes and program content and industry knowledge, and 2) that the learning outcomes achieved prior are reflective of those in place at the time of program completion. In scenarios where the mentor and/or program and school administrators determine that program content, industry knowledge or learning outcomes have evolved, those individuals will collaborate on a plan for repetition of course work and/or examinations. Said plan must specifically be approved by the program faculty and program director.

Graduation Criteria

The Ph.D. degree is awarded upon satisfactory completion of a minimum of 72 semester credit hours and satisfactorily completed all the requirements for the dissertation. Each student will apply to and be approved for the degree and graduation at UTSA. Degrees are awarded on the official graduation date and published. Students wishing to participate in their graduation ceremony should register. Graduation fees, as appropriate, will be assessed by UTSA.

Program Coursework Publication (Paper and/or Online)

Full Chemical Engineering Ph.D. program coursework including detailed Plans of Study will be published in the official catalog. All coursework, wherever taken, will be officially recorded.

Registration Procedure

1. Admitted students may be eligible for transfer credits. To qualify, an admitted student must submit official college level transcripts from all attended colleges/universities and request an evaluation for such prior to the deadline for admission of transfer students. Credit must have been earned from a previous institution with an earned grade of "B," or its equivalent, in other grading systems. No more than 30 credit hours Admitted students must register for Chemical Engineering Ph.D. program classes by the deadline(s) of UTSA, or prior to the beginning of the first day of classes for the term.

2. A student is eligible to register if he/she is in good standing. Good standing includes the following: GPA of 3.0 or better, having no unpaid institution debts, and/or having no institution holds or any other restrictions that would not allow registration.

3. PhD students must enroll for at least a minimum of 32 SCH total of Doctoral Research and Doctoral Dissertation (when appropriate a minimum of 6 SCH).

Financial Aid and Veteran Benefits Procedure

Each student will have an academic curriculum (Plan of Study) established in consultation with faculty advisor and shared with UTSA graduate school before matriculation begins.

1. Students receiving any form of financial aid that may not be automatically or fully distributed by UTSA to cover the payment of all tuition and fees, will be personally responsible for the payment of tuition and applicable fees from aid.

2. UTSA will be responsible for the following:

a. Determine if a Consortium Agreement is required. If yes, initiate, maintain and complete the agreement process;

b. Award and disburse all eligible aid to the student;

c. Report enrollment to the National Student Clearinghouse or National Student Loan Data System (NSLDS);

d. Track and return Title IV funds as applicable;

e. Provide financial literacy training as appropriate.

IMPORTANT NOTE: International students are not eligible to receive state or federal financial aid.

Tuition and Fees Procedure

1. ***In-state vs. Out-of-State Tuition:*** Generally, rates for in-state (resident) and out-of-state (non-resident) student tuition and applicable fees are determined by UTSA's tuition and fees policy and are subject to adjustment.

2. ***Residency:*** Tuition and fees will be based on the student's domicile residency status for the purpose of assessing tuition and fees. This residency is to be distinguished from the residency determination involving non-immigrant visa status. Initial charges for tuition and fees will be calculated by UTSA using the applicable Texas Education Code, the THECB rules, UTSA regulations, and applicable HOP procedures. Students who do not qualify for in-state tuition, may seek tuition waivers. Institutional requirements must be met for waivers.

3. ***Tuition:*** Students will be billed *tuition* and *applicable fees* by with UTSA's published tuition and fee schedule. Tuition will be based on semester credit hours of enrollment. Students who receive financial aid, veteran benefits, or other supportive funding will be effectively advised and reminded of their payment responsibility. Students who receive a competitive scholarship/stipend are required to enroll full-time. These students are eligible for the Non-Resident Tuition waivers.

4. ***Compulsory Student Service Fees:*** Payment of compulsory student services fees shall be governed by Section 54.503(g) of the Texas Education Code, which specifies that compulsory student services fees will be paid to UTSA.

5. Students will follow UTSA's policies and procedures in regard to payment schedule dates, refund dates, late fees, non-payment designation, etc.

6. Once tuition and fees are established by UTSA, they are not subject to challenge.

International Student Procedure

1. ***Definition of International Student and Visa Sponsorship.*** International students shall be defined as applicants for the program who are non-U.S. citizens or permanent residents and require sponsorship for an F-1 (or J-1 in limited circumstances) student non-immigrant visa to legally enter or remain in the United States. Such students shall be eligible for admission to the Chemical Engineering Ph.D. program subject to the same admission and registration criteria applied to domestic students. Any international student accepted into the Chemical Engineering Ph.D. program will generally be required to have an F-1 student visa, which mandates full-time enrollment for all academic terms required by the program for each year. Some applicants may be eligible for initial or continued sponsorship for a J-1 visa under the specific eligibility requirements set out by federal regulations.

2. ***Eligibility for and Maintenance of F-1 Nonimmigrant Status.*** To be eligible for an F-1 visa, an international student must have and must maintain affiliation to UTSA for the entire duration of his/her time in the Chemical Engineering Ph.D. program. UTSA will issue a Form I-20, which allows the student to apply for and maintain F-1 status. UTSA will adhere to and inform the student of all requirements per federal regulations for issuance of the Form I-20, including the submission of documentation from the student of financial resources to cover the costs of attendance for at minimum one academic year. UTSA shall be responsible for the maintenance of all Student Exchange Visitor Information System (SEVIS) reporting. As part of SEVIS compliance, all F-1 students must also maintain full-time enrollment. Per federal regulations, enrollment in a full course of study is as certified by the SEVIS Designated School Official (DSO). The DSO will rely on institutional policy to advise the international student of the number of credit hours required for full-time enrollment in alignment with the official program requirements and the rules of UTSA Registrar.

3. ***Admission of International Students.*** The admission of international students shall initiate with the graduate school at UTSA in close collaboration with the international office. All enrollments must be verified each term by the DSO prior to the census date.

4. ***On-Campus Employment.*** An international student in F-1 nonimmigrant status may engage in on-campus employment at UTSA for which s/he receives a stipend pursuant to the terms of a scholarship, fellowship, or assistantship. This stipend may be provided

for on-campus work, not to exceed a total of 19 hours per week while school is in session and full-time when school is not in session (i.e. vacations). The international student must maintain full-time enrollment status in order to be eligible for on-campus employment.

5. *Off-Campus Employment*. The international student may not under any circumstances engage in employment at a work location other than UTSA without the specific authorization from the DSO as required by federal regulations.

Intellectual Property Procedure

a. One of the goals of the Chemical Engineering Ph.D. program is to promote collaboration among faculty, students, and staff which will generate new intellectual property to help mankind. The collaborations are multi-disciplinary and sometimes multi-institutional.

b. UTSA policies for IP and revenue sharing shall apply to Chemical Engineering Ph.D. program graduate students ("CME student(s)") who are mentored by UTSA faculty at the time of invention. These policies are described in the UTSA Handbook of Operating Procedures (Chapter 2.27, Intellectual Property) and the UTSA Guide to Invention, Innovation, and Commercialization (2009). Questions regarding IP can be directed to the UTSA Office of Commercialization and Innovation (210-458-6963).

General Procedure Preface

Parking

a. Students will be eligible for parking permits. All students in this program are expected to know and follow the parking rules and regulations of UTSA. Such rules include, but are not limited to, campus speed limits, parking zones, police citation and warnings, parking fines and fine appeal procedures, schedule and payment of parking fees, etc.

b. Parking fees will be paid to UTSA.

Student Security and Identification

UTSA establishes and maintains its own protocol, system, and procedure for protecting and identifying official matriculated students. Such identification is normally provided in the form of a numbered picture identification card/badge that must be carried by all registered students and presented to campus police upon request. This card/badge also allows access to certain campus facilities. Authority to issue such identification by campus police is generally part of the enrollment process of UTSA. A small fee is normally assessed for the processing and creation of the card/badge.

Technology, Technology Support

a. Technology is heavily used by students and faculty whether classes are on site or online. It becomes even more crucial for students and faculty who are involved in concurrent enrollment or a combination of onsite and online or distance classes. Such technology requires ready and speedy access to technical support for the faculty and students. UTSA have technical support through the Tech Cafe. Assistance maybe required to access web portal or other date with personal laptops.

b. Communication with students is paramount. The current standard of communication is an institution generated email process. All students are assigned UTSA Microsoft account, t o access to email, wireless internet, and Library resources.

c. All policies and procedures must be published as downloadable PDF files on the official Chemical Engineering website. It is the responsibility of UTSA to maintain the website. The Chemical Engineering website must be updated at least once per year.

Physical Fitness, Wellness, and Recreational Activities

UTSA has a fitness facility and recreational activities. Monetary support of these facilities/services is usually supported by an approved mandatory student services fee paid with tuition and/or through auxiliary enterprises. The fitness fee is a mandatory fee and will be assessed each semester. Auxiliary fitness services are self-supporting.

Student Health and Counseling Services

UTSA provides student health and student counseling services through UTSA's Wellbeing Services portal.

UTSA provides institution sponsored student health insurance from UT System contracted carrier made available to those students who do not have their own private insurance. The student is required to provide proof of insurance.

Conduct and Discipline

The Chemical Engineering Ph.D. program follows UTSA conduct and discipline policies.

UTSA's Student Conduct and Discipline Policy http://catalog.utsa.edu/informationbulletin/appendices/studentcodeofconduct/

UTSA's Grievance Policy http://catalog.utsa.edu/informationbulletin/appendices/studentgrievances/

Library Services

All students in the Chemical Engineering Ph.D. program are expected to utilize and seek services from the UTSA's library. Students may pay library fees.

Admissions/Recruitment Committee

The Admissions/Recruitment Committee consists of a committee chair plus Chemical Engineering Ph.D. program faculty. Membership terms are three years. The Admissions/Recruitment Committee is responsible for organizing, and executing all recruiting activities related to the Graduate Program in Chemical Engineering. This includes, but is not limited to, recruiting activities at conferences, undergraduate campuses as well as interactions with program directors and faculty members at the undergraduate campuses.

The Admissions/Recruitment Committee will review all applications for admission to the Chemical Engineering Ph.D. program, identify the most highly qualified students to interview and/or recommend for admission such applicants to Program Director. All admissions decisions will be based on a standard rubric created to evaluate multiple factors of the students' applications. The Admissions/Recruitment Committee should report recommendations to all program faculty. All recommendations for admission in the PhD program must be approved **by the Dean of the Graduate School at UTSA.**

Curriculum Committee

The Curriculum Committee consists of a committee chair and faculty members from the Chemical Engineering Ph.D. program. Membership terms are three years. The Curriculum Committee will be responsible for all aspects of the curriculum: identification, development, and oversight of core courses applicable to all Chemical Engineering Ph.D. students; elimination of redundant courses; request new course approvals, coordinated scheduling of all courses; and evaluation of all courses at both institutions. This committee will interact with all program faculty in developing programs of study and an academic plan-to-degree for the Ph.D. in Chemical Engineering.

Course Catalog

The Department of Biomedical Engineering and Chemical Engineering offers the Doctor of Philosophy degree in Chemical Engineering. Please use the following link to view the 2023-2025 catalog for the Department of Biomedical Engineering. https://catalog.utsa.edu/graduate/engineeringintegrateddesign/biomedicalengineering/#degreestext

APPENDIX A

DEFINING STUDENT AND MENTOR RESPONSIBILITIES AND EXPECTATIONS

Frequency and Methods of Communication between Mentor and Student (How often will student and mentor meet? How should updates or changes in expectations and issues be communicated?)

Research/Training Related and Professional Development of the Student (What is the student's project? Is there a specific person that will oversee training other than the PI and to what degree will the student assist with other projects in the lab? What constitutes professional development?)

Common Laboratory Responsibilities (Which tasks and duties are shared among all lab members, including the student?)

Notebooks and Data (What is the policy of the laboratory related to the storage of data and laboratory notebooks?)

Work Hours/Attendance in the Laboratory (How many hours per week is the student expected to work in the laboratory?)

Authorship Policies (What is the policy that constitutes authorship in the lab? How is the order of authors determined in a manuscript or abstract?)

Manuscripts expected for Graduation (Are there specific expectations for the number of manuscripts (published, submitted and/or in preparation), and the student's authorship position (e.g. first) on these manuscripts, required for the student to graduate?)

Intellectual Policy Issues: Disclosure, Patent Rights and Publishing Research Discoveries (What is the policy for patents that come out of the student's work?)

Selection of a Dissertation Committee (What is the process for determining the subject of the thesis/dissertation and the composition of the thesis/dissertation committee?)

Attendance of Professional and Scientific Meetings (Under which conditions can a student travel to a Regional, National, or International scientific meeting? For example, only if the student or student's work is presenting? Who covers the cost and what will be covered?)

Career and Professional Development / Job Search and Placement / Individualized

Career Development Plan (What is the career choice of the student and what arrangements can be made to allow the student to participate in courses, workshops, etc. for their particular interests without compromising their research training?)

Time off for Illness or University Holidays – Vacation Policy (HOP 4.3.5; 4.7.14) (What is the laboratory policy for vacations, holidays, and personal days?)

Conflict Resolution and Student Complaint Policies (refer to Student Catalogue; GSBS website)

Additional Topics

APPENDIX B

Milestone Agreement Form

(insert the approved Milestone Agreement for the student's program)

We have discussed all the above topics and made the mutually agreed upon additions, specifications and changes.

We acknowledge our joint intention to re-evaluate the compact, the agreed upon milestones and the degree completion date at least once a year throughout the student's period of academic standing.

_____

Student's Name

_____

Signature of Student Date

_____

Supervising Professor's Name

_____

Signature of Supervising Professor Date

APPENDIX C
PhD Student Annual Evaluation Form

For the period of _____

STUDENT NAME:

EVAULATION DATE:

DEADLINE to SUBMIT: TBD

SUPERVISING PROFESSOR(S):
Professor(s) Name:

STUDENT THESIS COMMITTEE:

SUPERVISING PROFESSOR(S) FEEDBACK (attach additional page if needed)

(Sign after review and discussion with the student)

Professor(s) Signature: _____Date: _____

GOALS OF THE ANNUAL STUDENT SELF-EVALUATION PROCESS ARE TO:

A. Create a document for review by the student's supervising committee and by the CME Graduate Program Faculty.
B. Provide the student with a critique of past performance and accomplishments.
C. Establish concrete goals to clarify performance expectations.
D. Identify research and career development options.

INSTRUCTIONS:

A. Fill out all sections of the self-assessment and all questions in each section as informative as possible.
B. Expand the tables under each question if more space is needed.
C. Attach your updated Program of Study for the Doctoral Degree.
D. Meet with your research advisor(s) to discuss the content of your self-assessment and program of study forms; Afterwards, have the research advisor(s) sign the form in the designated area.
E. Return the completed form and Program of Study by the deadline date to:

Dr. Gabriela Romero Uribe
Graduate Advisor of Record (GAR)
Director of CME Ph.D. Program
SEB 4.188D

** Note: Supervising professors may request semi-annual evaluation whenever necessary. Students with unsatisfactory performance will be required to follow up with a semi-annual evaluation.*

Section I: Student Self-Assessment

Brief Overview of student's research project and major accomplishments:

- **Publications:** ☐Yes ☐No

  If yes, please list. (Include for each listing: author(s), title, journal, volume, page number.)

- **Presentations at Local/National/International Meetings:** ☐Yes ☐No

If yes, please list. (Include for each listing: Presentation title, meeting, date, location.)

- **Seminar Presentations (Local/National/International):** ☐Yes ☐No

  If yes, please list. (Include for each listing: Presentation title, seminar, date, location.)

- **Honors/Awards:** ☐Yes ☐No

  If yes, please list. (Include for each listing: date, name/title, and description.)

- **Intramural Funding:** ☐Yes ☐No

  If yes, please list. (Include for each listing: submitted and/or funded applications.)

- **Extramural Funding:** ☐Yes ☐No

  If yes, please list. (Include for each listing: submitted and/or funded applications.)

- **Patents:** ☐Yes ☐No

  If yes, please list.

- **New areas of research or technical expertise acquired:** ☐Yes ☐No
  If yes, please describe.

- **Supervisory activity:** ☐Yes ☐No
  If yes, please describe. (*i.e.,* oversight of undergraduate or visiting students - include name, academic level, and project title.)

- **Teaching:** ☐Yes ☐No
  If yes, please describe. (*i.e.,* lectures or lab sessions, and hours - include Department, course name, section title.)

- **Committee or other service activity:** ☐Yes ☐No
  If yes, please describe. *(Indicate if you held and office.)*

- **Other professional activity not identified above:** ☐Yes ☐No
  If yes, please describe.

- **Other activities (community, etc.) with professional relevance:** ☐Yes ☐No
  If yes, please describe.

- **Are there any obstacles to your research productivity?** ☐Yes ☐No
  If yes, please describe.

- **Were there any courses taken in this performance period?** ☐Yes ☐No
  If yes, please list below along with the grade obtained for each course.

- **What was the approximate allocation of time of coursework and research for this performance period?**
  Please estimate as average weekly hours dedicated to each activity.

Section II: Student Research and Other Training Plans for the Next Six (6) Months – One (1) Year

- **Research project and professional development goals:**

- **Anticipated publications (indicate project authors, titles, and journal):**

- **Anticipated meeting(s) or workshop(s) to be attended:**

- **Fellowship or other grant applications planned (indicate funding agency type of award, and application date):**

- **Other professional training (*e.g.,* course work):**

Section III: Student Career Goals

- **Describe your long-term career goals (For example, Do you intend to enter academia, industry or private or public research institutes as a post-doctoral fellow or scientist and if so in what capacity?):**

- **Describe what further research activity or other training is needed to prepare you for your long-term goals?**

Section IV: Miscellaneous

- **Please insert here any additional comments you may have about your performance during this evaluation period:**

APPENDIX D
Klesse Chemical Engineering Ph.D. Fellowship

The Klesse Chemical Engineering Ph.D. Fellowship is a one-year fully paid graduate research assistantship administered by the Department of Biomedical Engineering and Chemical Engineering. The fellowship will be awarded on merit to two incoming Ph.D. applicants per year for the next 5 years. The following policy will be applied to all applicants and recipients.

Eligibility

The Klesse Fellowship is only available for first-year Ph.D. students in Chemical Engineering.

Application

All applicants considered for admission into the Chemical Engineering Ph.D. program will be evaluated for the Klesse Fellowship. No additional application will be required.

Review Process

The application package of all applicants will be reviewed by the Chemical Engineering Doctoral Program Committee on the applicant's merit in the following categories:

- Undergraduate and/or Master's degrees GPA
- Ranking of previous institutions
- Strong recommendation letters
- Master's or other professional experience
- Scientific publications, if available
- Leadership skills
- Potential of the candidate to secure competitive national fellowships

Selection Criteria

In addition to the applicant's merit, the following criteria will be followed for selection:

- The faculty receiving the awardee must be willing to offer a GRA position regardless of the availability of this fellowship.
- Preference will be given to applicants joining the lab of a faculty member with a primary appointment in the Department of Biomedical Engineering and Chemical Engineering
- Preference will be given to Assistant Professors.
- The faculty receiving the awardee should not have had a Klesse Fellow within the last three years.

Requirements

- The fellowship does not require teaching assistant duties.
- Awardees must acknowledge this fellowship in all contributions (poster or oral presentations, publications, etc.) resulting from this award.
- The award will also include $2,500 to attend a conference (national or international) or other professional development activity during the year of the award.