

# Master of Science in Chemical Engineering

## Mission Statement

KU Chemical & Petroleum Engineering integrates teaching excellence and research innovation to educate students and produce future leaders.

## Key Research Fields

- Biomedical and Biomolecular Engineering
- Catalysis (Electro-, Photo-, Heterogeneous, Homogeneous)
- Ionic Liquids
- Sustainability
- Energy Storage and Fuel Cells
- Alternative Fuels

## Associated Research Centers

- CEBC: Center for Environmentally Beneficial Catalysis (<https://cebc.ku.edu/>)
- ISE: Institute for Sustainable Engineering (<https://ise.ku.edu/>)

## New Program Options

- 1 year MS in Chemical Engineering with a Data Science focus

## Standard Admission Requirements for all Graduate Programs

- All applicants must meet the requirements outlined in the Admission to Graduate Study (<https://policy.ku.edu/graduate-studies/admission-to-graduate-study/>) policy.
- Bachelor's degree: A copy of official transcripts showing proof of a bachelor's degree (and any post-bachelor's coursework or degrees) from a regionally accredited institution, or a foreign university with equivalent bachelor's degree requirements is required.
- English proficiency: Proof of English proficiency (<https://gradapply.ku.edu/english-requirements/>) for non-native or non-native-like English speakers is required. There are two bands of English proficiency, including Admission and Full proficiency. For applicants to online programs, Full proficiency is required.

## Graduate Admission to the Department of Chemical & Petroleum Engineering

To qualify for study in any of the graduate programs in the Department of Chemical & Petroleum Engineering, a student generally must have earned an accredited bachelor's degree in chemical or petroleum engineering. However, a student with good preparation in another engineering discipline or a related science field, such as chemistry, physics, or geology, or other engineering disciplines may be qualified by taking the appropriate prerequisite undergraduate courses. This pathway

of courses is determined on a case-by-case basis by the Department's Graduate Admissions Committee/Director.

## Application Deadlines

- Fall Priority Deadline: January 5; final deadline March 1
- Spring Deadline: October 1

All application materials must be submitted before the final deadlines, March 1 for Fall semester and October 1 for Spring semester, to be considered for admission. All admitted students are considered for any funding opportunities for which they qualify. See our Graduate Admissions (<http://cpe.engr.ku.edu/graduate-admissions/>) page or the Graduate Studies website (<http://www.graduate.ku.edu/>) for the application procedure and fees. Additional resources for International applicants can be found on the International Support Services Website (<https://iss.ku.edu/>).

## Application Materials

- Statement of Purpose
- Resume or Curriculum Vitae
- Three letters of recommendation

The following documents are required only after a student has been admitted:

- Financial Statement (International students only if no department funding offered)
- One (1) Official Transcript sent directly from the applicant's university to the University of Kansas

## \*TOEFL Scores

- Institution Code – 6871
- Program Code – 64

## IELTS Scores

- Email the electronic version to [cpegrad@ku.edu](mailto:cpegrad@ku.edu).

\* As of October 2020, GRE scores are no longer required.

Students admitted with baccalaureate degrees in chemical or petroleum engineering enroll in the graduate core courses listed in our Graduate Program Manual (<https://cpe.ku.edu/enrollment-resources-and-course-listings/>). Up to 9 credit hours from an outside institution may be transferred into upon approval of both department and university offices. Learn more about the degree requirements on the CPE Graduate Degree webpage (<https://cpe.ku.edu/degrees/>).

All graduate applications must be submitted online (<https://gradapply.ku.edu/apply/>).

## Regular Status

For admission to regular status, the student must have an undergraduate grade point average of at least B (3.0 on a 4.0 scale). For students whose undergraduate GPA is below 3.0, admission on provisional status will be considered on a case-by-case basis. Graduate Record Examination scores are required.

## Non-native English Speakers

For up-to-date details about the University's English Proficiency Requirements, visit the Graduate Studies Website (<https://gradapply.ku.edu/english-requirements/>).

## Visit Us

Graduate program staff can assist prospective students in determining the fit between the student and the program. In order to determine this, we feel that visiting our campus in Lawrence is an important step. If you would like to schedule a visit, there are two main options:

The first, and most preferred, entails simply applying for admission to the program. All prospective students are welcome to attend our Open House in mid-October or mid-March. Eligible admitted students are invited to participate in Campus Visit Days in February (prior to the fall semester of your intended matriculation). These organized visits opportunities will allow you to gather a great deal of first-hand information which we hope will help you in making a final decision about whether to attend KU.

The second option is making arrangements to visit us on your own, outside of organized events. With early notification, we will do our best to work with you to provide information and schedule appointments with faculty when possible.

## Contact Information

Please contact the CPE Graduate Program Coordinator, [cpegrad@ku.edu](mailto:cpegrad@ku.edu) ([cpe@ku.edu](mailto:cpe@ku.edu)) or (785) 864-2900, if you would like to schedule a campus visit, or have questions about the program or the application process.

**The University of Kansas**  
**CPE Graduate Program**  
**4132 Learned Hall**  
**1530 W. 15th Street**  
**Lawrence, KS 66045**

## M.S. in Chemical Engineering

Two degree options, Option A or Option B, are available for the M.S. degree in chemical engineering.

**Option A** requires a thesis for graduation. Students in Option A are considered for departmental research assistantships, teaching assistantships, and fellowships.

**Option B** does not require a thesis. To satisfy graduation requirement, students can take one of two following actions: submitting a written report on a special project; or taking one additional 3-hour course. Students in Option B are not eligible for departmental research assistantships and fellowships, but may be considered for teaching assistantships, although priority is given to students in Option A.

Once admitted, students may change from one option to the other only with the Graduate Standards Committee approval.

For a M.S. in chemical engineering, the undergraduate prerequisite courses are C&PE 511, C&PE 512, C&PE 524, and C&PE 525. Depending on a student's academic background and proposed Plan of Study, additional undergraduate prerequisite courses may be required. Up to 3 credit hours of the undergraduate prerequisite courses (numbered 500 or above) may be counted toward the M.S. degree as elective hours.

## Enrollment Plans and Courses

The following tables represent typical plans of study that might be established by a student and their advisor(s).

The **five core** courses apply to all three degree options and are all three credit hours of enrollment:

Code	Title	Hours
C&PE 701	Methods of Chemical and Petroleum Calculations	3
C&PE 721	Chemical Engineering Thermodynamics	3
C&PE 722	Kinetics and Catalysis	3
C&PE 731	Convective Heat and Momentum Transfer	3
C&PE 732	Advanced Transport Phenomena II	3

### M.S. in Chemical Engineering: Option A

Code	Title	Hours
<b>Chemical Engineering Graduate Core Courses</b>		
C&PE 701	Methods of Chemical and Petroleum Calculations	3
C&PE 721	Chemical Engineering Thermodynamics	3
C&PE 722	Kinetics and Catalysis	3
C&PE 731	Convective Heat and Momentum Transfer	3
C&PE 732	Advanced Transport Phenomena II	3
<b>Electives</b>		<b>6</b>
It is recommended that part of the elective hours be from other departments.		
<b>Research</b>		
C&PE 800	Seminar	3
C&PE 803	Research (Only the first 6 hours of enrollment in C&PE 803 meet degree requirements.)	6
<b>Includes the thesis and final oral defense or examination</b>		
<b>Total Hours</b>		<b>30</b>

### M.S. in Chemical Engineering: Option B Project-based

Code	Title	Hours
<b>Chemical Engineering Graduate Core Courses</b>		
C&PE 701	Methods of Chemical and Petroleum Calculations	3
C&PE 721	Chemical Engineering Thermodynamics	3
C&PE 722	Kinetics and Catalysis	3
C&PE 731	Convective Heat and Momentum Transfer	3
C&PE 732	Advanced Transport Phenomena II	3
<b>Electives (maximum of 1 course can be below 700 level)</b>		<b>9</b>
<b>Research</b>		
C&PE 800	Seminar	3
C&PE 825	Graduate Problems in Chemical and Petroleum Engineering	3
<b>Total Hours</b>		<b>30</b>

### M.S. in Chemical Engineering: Option B Coursework-based

Code	Title	Hours
<b>Chemical Engineering Graduate Core Courses</b>		
C&PE 701	Methods of Chemical and Petroleum Calculations	3

C&PE 721	Chemical Engineering Thermodynamics	3
C&PE 722	Kinetics and Catalysis	3
C&PE 731	Convective Heat and Momentum Transfer	3
C&PE 732	Advanced Transport Phenomena II	3
<b>Electives (At least 3 courses are C&amp;PE courses, maximum of 1 course can be below 700 level; No more than 2 courses are in engineering management, business, or combination of both).</b>		<b>15</b>
<b>Total Hours</b>		<b>30</b>

At the completion of this program, students will be able to:

- Effectively communicate advanced chemical concepts in writing and orally at a professional level.
- Acquire new information, to learn new concepts, to build new skills, and to engage in life-long learning.
- Conduct original work in the Chemical Engineering. OR  
The ability to complete a 3-hour special project in Chemical Engineering.