# Graduate Certificate in Computational Fluid Dynamics

This certificate will provide knowledge and education in the area of computational fluid dynamics (CFD). Completing this certificate will enable the student to use CFD tools effectively in the design process. The certificate requires 12 credits of coursework, and some of the courses may be available online. Courses offered online will consist of recorded lectures delivered using streaming media technology as well as teacher-student interaction via chat room, e-mail, and phone conversations.

## 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 Aerospace Engineering

The program will be most appropriate for those individuals with a bachelor's degree in a scientific and engineering discipline, who are pursuing a professional career, and who already have a strong base of engineering skill, including an understanding of fluid mechanics or aerodynamics. Applicants must meet all admissions requirements for certificate-seeking graduate admission as defined by the University's policy on Admission to Graduate Study (http://policy.ku.edu/graduate-studies/admission-to-graduate-study/).

In addition, applicants must have earned a previous degree in Aerospace Engineering or a closely related field and must demonstrate a GPA of at least a 3.0 (on a 4.0 scale). Candidates may be considered for admission by the Computational Fluid Dynamics supervisory committee if they do not meet all of these requirements, but otherwise show clear potential. However, all students must meet the university's minimum requirements for admission to graduate study.

Admission into the certificate program will not guarantee admission into the master's or doctoral programs. If a student who earns a certificate wishes to obtain admission into the master's or doctoral programs, the student will need to apply for admission and gain acceptance by meeting the admission requirements as established by KUAE and the University admissions policies.

## Application Requirements

In order for applications to be considered complete, the following materials must be submitted online with the application by the posted deadline:

1. Resume or CV
2. Statement of Financial Resources *may* be required for International students

** Please note: All application materials must be received before any decision is made. Do not send paper documents unless requested.*

Admission into the certificate program will not guarantee admission into the master's or doctoral programs. If a student who receives a certificate wishes to obtain admission into the master's or doctoral programs, the student will need to apply for admission and gain acceptance by meeting the admission requirements of KUAE and KU graduate programs.

# Certificate Requirements

To earn the certificate, students must complete one mandatory course and three elective courses.

| Code | Title | Hours |
|---|---|---|
| One Mandatory Course | | |
| AE 746 | Computational Fluid Dynamics | 3 |
| Three Elective Courses (9 credits) from | | 9 |
| AE 743 | Compressible Aerodynamics | |
| AE 846 | Advanced Computational Fluid Dynamics and Heat Transfer | |
| EECS 639 | Introduction to Scientific Computing | |
| EECS 739 | Parallel Scientific Computing | |
| **Total Hours** | | **12** |

Courses offered online will be assessed in the same way as regular graduate courses. Home work, exams, and projects will be used as assessing tools. The completion requirements of the graduate certificate in Computational Fluid Dynamics include:

a. Students must have a GPA of 3.0 or better in the required courses

b. Grades of C- and below do not count toward fulfilling requirements and cannot be counted toward certificate completion

c. No credits may be transferred from another institution for this certificate

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

- Acquire and apply new knowledge as needed, using appropriate learning strategies.
- Develop and conduct either 1) appropriate analytical approaches, 2) simulation, or 3) experimentation; analyze and interpret data; and use engineering judgment to draw conclusions.
- Communicate effectively with a range of audiences.