

# Doctor of Philosophy in Computer Science and Engineering

كلية العلوم والهندسة  
College of Science & Engineering  
جامعة حمد بن خليفة  
HAMAD BIN KHALIFA UNIVERSITY



# Doctor of Philosophy in Computer Science and Engineering

The PhD in Computer Science and Engineering provides students with a solid, fundamental, and advanced education, as well as strong research experience and a broad understanding of aspects related to computer science and engineering that will translate into exciting, challenging, and well-compensated job opportunities in this high-demand field.

The program aims to equip students with up-to-date knowledge of computer science and engineering, as well as the methods, tools, and technologies needed to explore this rapidly evolving field.

The program provides a broad, multidisciplinary, and research-intensive education at the boundary of computer science and engineering while providing specialization streams in contemporary fields that are globally important and relevant to Qatar. These fields include systems and computer security, software engineering, computational sciences, computer systems, architecture and very-large-scale integration (VLSI), robotics, machine perception, sensing technologies, human-computer interface (HCI), 'big data' and data analytics, machine learning and artificial intelligence, computer vision and graphics, technology and behavior, software engineering, as well as wireless and mobile computing and networking, bioinformatics and health informatics.

## Program focus

- ▶ This program focuses on the core skills needed to build a successful, advanced career in computer science, engineering, and technology-related areas. It explores research methods, applied data analytics, advanced algorithms and data structure, computer architecture and VLSI, ethics, technical writing, and a number of relevant specialties.
- ▶ Students are required to conduct original and guided research with faculty supervision that concentrates on the contemporary issues in computer science and engineering which are globally important and also relevant to Qatar.
- ▶ The program provides our students with a broad understanding of the field, together with the flexibility to specialize in contemporary and up-to-date areas of computer science and engineering.

## Curriculum

This program comprises a minimum of 60 credits taught in English, which are typically completed in three to four years. It requires a master's degree in computer science, computer engineering, electrical engineering, or other related fields.

- ▶ Two core courses to provide students coming from diverse backgrounds with a coherent learning environment that enables them to tackle complex issues in computer science and engineering. The courses are:
  - ▶ Research Methods and Ethics in ICT
  - ▶ Applied Data Analytics

## One of the following two courses is required to complete the three-core course requirement, depending on whether the student is interested in a hardware or software research area:

- ▶ Principles of Computer System Design
- ▶ Advanced Algorithms and Data Structures
- ▶ Three elective courses covering some engineering and science fundamentals plus a variety of computer science and engineering electives, which provide students with a solid base to fully understand different aspects of computer science and engineering and the interrelations between them
- ▶ Two semesters of graduate research seminars.
- ▶ A research thesis with a minimum of 36 credits under the supervision of an adviser and a PhD dissertation committee

## PhD students should additionally:

- ▶ pass a qualifying examination in their third semester.
- ▶ successfully defend their thesis proposal to the committee.
- ▶ successfully complete a PhD dissertation.

## Admission and application requirements

Applicants seeking admission to the PhD in Computer Science and Engineering program should have a master's degree from a recognized university. They should have a strong academic record (minimum 3.0 GPA out of 4) and must have majored in one of the following disciplines: Computer science, computer engineering, electrical and electronic engineering, information systems, mathematics, and related fields. Prior research experience will be seen as favorable.

Applicants are required to submit an IELTS score of 6.5 or TOEFL score of 79 to demonstrate their proficiency in English. Further details about the language proficiency requirement and the process to seek exemption (where this is an option) are available from [admissions.hbku.edu.qa](https://admissions.hbku.edu.qa).

Submitting a valid GRE or GMAT test score at the time of application is optional for the PhD program in Computer Science and Engineering program.

Further information about admission requirements is available at: [admissions.hbku.edu.qa](https://admissions.hbku.edu.qa)

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## Application requirements

A completed online application form:

[admissions.hbku.edu.qa](https://admissions.hbku.edu.qa)

### Academic transcripts

Official electronic copies of transcripts should be submitted as part of the online application. Final transcripts and graduation statements are required for all previous university studies. All transcripts submitted should include an explanation of the grading system. For those who have not completed their current studies, transcripts must include results from the last completed semester of coursework. Transcripts in languages other than English or Arabic must be accompanied by an official translation. Applicants who are admitted to the program based on copies of or incomplete transcripts will be required to provide original transcripts upon enrollment in order to register for courses.

### Standardized test results

Official copies (where required) must be sent directly to HBKU. Please refer to the institutional codes below:

- ▶ GRE: 7551
- ▶ GMAT: H6S
- ▶ TOEFL: 4981
- ▶ IELTS: No code required. Students should ask the IELTS center where they tested to send the IELTS TRF to Hamad Bin Khalifa University.

Applicants should also submit copies of their test scores with the online application.

### Letters of recommendation

Applicants should submit two letters of recommendation, one of which must be from an academic referee. Please visit [admissions.hbku.edu.qa](https://admissions.hbku.edu.qa) for further information about the submission process.

### Personal statement of interest

Applicants should submit a personal statement (300-500 words) as part of the online application. The statement should explain why the candidate is applying to the program, and how their studies will contribute to the achievement of their personal objectives, including information about the applicant's research interests and achievements. Personal statements that are incomplete or below the minimum word count will not be accepted.

### Resume/Curriculum vitae

Applicants should submit a copy of their current resume or curriculum vitae as part of the online application.

This should include the following information:

- ▶ Academic qualifications
- ▶ Professional experience
- ▶ Publications
- ▶ Research projects
- ▶ Academic awards or honors
- ▶ Conference presentations

### Identification document

All applicants should submit an electronic copy of their passport as part of the online application. Nationals and residents of Qatar should also submit their valid Qatari ID.

### Student funding

The College of Science and Engineering provides opportunities for funding on a competitive basis. Further information will be provided to applicants who are admitted to the program.