Doctor of Engineering

Engineering with a Concentration in Cybersecurity (DEng)

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Doctor of Engineering, Cybersecurity

The Department offers a Doctor of Engineering (D.Eng.) degree with concentration in Cybersecurity in accordance with the admission criteria and degree requirements specified in the Frank Batten College of Engineering and Technology section in this catalog.

Doctor of Engineering Program

The College offers an interdisciplinary Doctor of Engineering (D.Eng.) program to provide the Commonwealth and the nation with exceptionally educated engineering practitioners. These individuals will have developed the highest possible capability to provide innovative solutions in specialized engineering endeavors. The graduates of the program will meet the highest standards for advanced level engineering and leadership positions in industry and government.

Admission Criteria

Consideration for admission to the Doctor of Engineering program with a concentration in Cybersecurity requires the following:

1. A master of science degree from an accredited university in the United States or an equivalent foreign institution;
2. Official copies of all transcripts
3. Coursework or a minimum of two years' work experience in cybersecurity and/or related areas;
4. Two letters of recommendation from individuals familiar with the applicant's professional and/or academic background;
5. A current resume;
6. A statement of professional goals;
7. GRE Scores, with a 50% or better attainment on quantitative reasoning;
8. English proficiency requirement if the applicant's native language is not English.

Curriculum Requirements

A minimum of 48 hours of graduate work beyond the master's degree is required including:

- 18 credit hours of core courses
- At least 18 credit hours of graduate coursework in the student's area of specialization as determined by the department
- At least 12 credit hours of applied doctoral project

At least three fifths of the course work must be at 800-level. Exceptions to the credit-hour distribution requirements at any level must be approved in writing by the graduate program director, the dean or his or her designee, and the provost or his or her designee.

Cybersecurity Concentration

The curriculum of this concentration consists of 18 credit hours of CYSE, ECE, MSIM, or ENMA 600 and 800 level courses as core courses, 18 credit hours of graduate coursework in the area of specialization and 12 credit hours of applied doctoral project. The courses need approval of the advisor and the graduate program director. Of the total 36 credit hours of

coursework, 15 credit hours need to be completed at the 800 level, and no more than 15 credit hours can be taken from disciplines other than CYSE, ECE, MSIM, or ENMA.

Additional Requirements

Continuation and Graduation Requirements

The continuation requirements are the same as the continuation requirements for the Doctor of Philosophy programs. The graduation requirements for the Doctor of Engineering degree are as follows:

1. Satisfactory completion of a minimum of 48 credit hours of approved graduate work beyond the master's degree, including the doctoral project.
2. Satisfactory performance on a diagnostic examination at the completion of nine credit hours of coursework. The purpose of this examination is to determine if the student has adequate background to pursue a doctoral degree. The diagnostic examination may only be repeated once.
3. Satisfactory completion of a written and oral candidacy examination before the advisory committee. The student will take the candidacy examination when he/she is within six credit hours of completing all the required coursework. The candidacy examination may only be repeated once.
4. Prepare and successfully defend a project concept proposal in written and oral formats. The student will be required to prepare and present a concept proposal related to the work that will be undertaken for the doctoral project. The concept proposal will be defended before the doctoral project committee.
5. Submission of progress reports as deemed necessary by the doctoral project committee.
6. Written report of the project results. The doctoral project shall be documented in a manner consistent with advanced, professional work. The project report will follow the standard format for Old Dominion University dissertations and theses.
7. Comprehensive oral defense of the doctoral project before the student's doctoral project committee and a general audience.

Once a student has completed the coursework, passed the candidacy examinations, and gained approval for the project proposal, the student advances to candidacy. The applied doctoral project must successfully demonstrate the student's mastery of the subject area and ability to apply advanced technical knowledge to identify, formulate, and solve novel and complex engineering problems. The project must address a complex but practical problem currently faced by the public, industry, or government, and it must provide a solution that satisfies all the technical, social, political, economic, safety, sustainability, and environmental requirements and/or constraints. The advisory and doctoral project committees need at least three members certified for graduate instruction; two faculty members must be from the ECE department. The committee chair must be an ECE faculty member or a faculty member with an ECE degree from the BCET college. A faculty member who is not in the BCET college but has expertise in Cybersecurity-related areas needs the graduate program director's approval to serve as a project advisor or the committee chair. The committee must also have at least one non-ECE faculty member who is knowledgeable about the project subject area.