

From: noreply@wsu.edu
To: [curriculum.submit](#)
Subject: 670062 Electrical Engineering and Computer Science Requirements New : Add Graduate Certificate
Date: Monday, October 4, 2021 11:22:59 AM
Attachments: [2021.10.04.11.19.58.17.FormData.html](#)
[2021.10.04.11.19.57.20.currentCatalogFile_New_Certificate_CySER_Advanced.docx](#)

Paul Wilmoth has submitted a request for a major curricular change. His/her email address is: paul.wilmoth@wsu.edu.

Request (from selection dropdown): Add Graduate Certificate

Department: Electrical Engineering and Computer Science

New Graduate Certificate: CySER Advanced

CIP Code: 11.0701

Requested Effective Date: Fall 2022

Campus: Pullman,

Dean: Field, David - Assoc Dean - VCEA - Grad

Chair: Pande, Partha – Director – Electrical Engineering and Computer Science

Catalog Subcommittee
Approval Date

AAC, PHSC, or GSC
Approval Date

Faculty Senate
Approval Date

From: [Pande, Partha Pratim](#)
To: [curriculum.submit](#)
Cc: [Field, Dave](#)
Subject: Re: 670062 Electrical Engineering and Computer Science Requirements New : Add Graduate Certificate
Date: Monday, October 4, 2021 2:54:22 PM
Attachments: [image001.png](#)

I approve this proposal in its current form.



Partha Pratim Pande, FIEEE
Director and Professor
Boeing Centennial Chair in Computer Engineering
School of EECS, WSU
Voiland College of Engineering and Architecture
Washington State University
Office: 509-335-5055
Email: pande@wsu.edu

From: "curriculum.submit@wsu.edu" <curriculum.submit@wsu.edu>
Date: Monday, October 4, 2021 at 11:22 AM
To: "Pande, Partha Pratim" <pande@wsu.edu>
Cc: "Field, Dave" <dfield@wsu.edu>
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Both Chair and Dean approval is required to complete the submission process.

From: [Field, Dave](#)
To: [Pande, Partha Pratim](#); [curriculum.submit](#)
Subject: Re: 670062 Electrical Engineering and Computer Science Requirements New : Add Graduate Certificate
Date: Monday, October 4, 2021 3:19:43 PM
Attachments: [image001.png](#)

I approve this proposal in its current form.

Dave Field

From: Pande, Partha Pratim <pande@wsu.edu>
Sent: Monday, October 4, 2021 2:54 PM
To: curriculum.submit <curriculum.submit@wsu.edu>
Cc: Field, Dave <dfield@wsu.edu>
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Rationale for certificate programs in cybersecurity

WSU recently received an award from Department of Defense (DOD) to establish the Northwest Virtual Institute for Cybersecurity Education and Research (CySER) whose goal is to develop an innovative education and research program in cybersecurity for ROTC as well as DoD-aligned civilians at the undergraduate and graduate level, with primary emphasis on undergraduate education. The CySER program is specifically funded through the DOD Air Force Military Command's Virtual Institutes for Cyber and Electromagnetic Spectrum Research and Employ (VICEROY) initiative.

The VICEROY CySER Institute is a consortium of five institutions in the Northwest led by WSU. The other four partner institutions are: Montana State University, University of Idaho, Columbia Basin College, and Central Washington University.

While positioning itself for designation as a Center of Academic Excellence in Cyber Operations (CAE-CO), WSU leads the CySER consortium by bringing together unique strengths in and diversity of populations served by each partner institution. The CAE-CO designation is given by the National Security Agency (NSA) upon satisfying a set of knowledge unit requirements in cybersecurity.

With the longer-term goal for WSU to become an CAE-CO institution in mind, the CySER program is designed to offer a wide-ranging training in cybersecurity, formalized under three proposed certificate offerings:

- **CySER CAE-CO Fundamentals Certificate:** this is targeted for BS in Computer Science (or Software Engineering) students interested in specializing in cybersecurity.
- **CySER Basic Certificate:** this is targeted for non-CS majors and ROTC cadets interested in acquiring some cybersecurity knowledge and skills.
- **CySER Advanced Certificate:** this is targeted for MS and PhD students (in computer science, computer engineering, electrical engineering, or other science or engineering disciplines) whose research has significant focus on cybersecurity.

To meet the requirements for these certificate offerings, the CySER program incorporates a variety of elements, including:

- Three new cybersecurity courses
- Senior design (capstone) projects focused on cybersecurity
- Internships at DOD-based installations, national labs, and cyber-security related industry
- Two-week long summer workshop
- Seminars during academic semesters featuring research, current trends, and industry speakers
- Research – realized via class projects, senior design projects, independent study projects, and graduate theses
- Service and community outreach

The three mandatory cybersecurity courses (the first bullet item in the list above) are designed to meet as many of the knowledge unit requirements set by NSA for CAE-CO Fundamental (undergraduate) designation and CAE-CO Advanced (graduate) designation as possible. The

courses are at the same time designed to best align with and enhance our current computer science degree programs at the School of Electrical Engineering and Computer Science (EECS) under available resources (including faculty) at EECS.

The CySER CAE-CO Fundamental and CySER Advanced certificates will be led by the School of EECS. The CySER Basic certificate will be led by the Department of Management, Information Systems, and Entrepreneurship (MISE). Assefaw Gebremedhin (EECS, assefaw.gebremedhin@wsu.edu) serves as the contact person for the former two certificates and Robert Crossler (MISE, rob.crossler@wsu.edu) serves as the contact person for the Basic certificate.

Additional information about the CySER institute is available at: <https://cyser.wsu.edu/>

General Certificate Information

Credits Required: 9

Course Requirements: listed below

Campus Offerings: Pullman

CIP Code: 11.0701

CySER Advanced Certificate

Students participating in the CySER Advanced Certificate will receive wide-ranging training that integrates cybersecurity research and education with professional skills in teamwork, communication, leadership, and lifelong learning. A core principle in CySER is training that organically merges advanced level theoretical knowledge with experiential learning in cyber operations and cyber defense.

This certificate is targeted for graduate students from Computer Science or Electrical Engineering and choose between Option 1 and Option 2. Computer Science graduate students should choose Option 1 and Electrical Engineering graduate students should choose Option 2. The requirements for this certificate include:

- Option 1
 - CptS 515 or CptS 516
 - CptS 528
 - CptS 575 or CptS 427
- Option 2
 - CptS 528
 - Two courses from: CptS 427, EE 501, 503, 507, 521, 524, 586, 596
- Thesis research work should have cybersecurity focus
- Engaging in cybersecurity related internship experience or equivalent
- Mentor undergraduates in research