

# Program of Study Request

**Form Id: 16430**

**Form Status: Process**

***Please take action on the form.***

This service has been developed initially to support the conversion of the university's course inventory from a quarters to a semesters curriculum.

**Getting started ...**

## Type of Request:

☒ New ☐ Modify ☐ Deactivate ☐ Terminate ☐ Quarter to Semester

For *Deactivate*, the program must be terminated no later than the conclusion of 7 years from the deactivation and all students must complete degree requirements by this date. The Registrar's Office will notify the department when all students have completed degree requirements of the deactivated program.

## Client Info

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**Department:** Computer Science

**Location:** Russ Engineering Center 303, 3640 Colonel Glenn H

## Program of Study

CS - Info Tech & Cybersecurity

**Effective Term:** Fall 2017

**Level:** Undergraduate

College of Egr & Computer Sci

**Degree:** Bachelor of Science \*New

**Major:** Info Tech & Cybersecurity \*New

**Minor:**

**Program:** Info Tech & Cybersecurity \*New

**Concentration:**

**Add'l Info:**

## Approvals

| Activity             | Role                                      | Client               | Status  | Time                |
|----------------------|---|----------------------|---------|---------------------|
| <b>Primary Route</b> |   |                      |         |                     |
| Dept_Review          | Dept of Computer Science                  | Mateen M. Rizki      | Review  | 03/21/2017 13:16:28 |
| CCC_Eval             | UG Chair of College of Egr & Computer Sci | Vanessa Lynn Starkey | Approve | 03/21/2017 13:43:33 |
| Dean_Review          | Dean of College of Egr & Computer Sci     | Angela Jean Griffith | Review  | 03/21/2017 15:48:24 |
| UCAP_Eval            | UCAP Chair                                | Karen Meyer          | Approve | 03/23/2017 15:53:03 |
| <b>Office Route</b>  |   |                      |         |                     |
| Registrar_Proc       | Registrar Office                          |                      | Pending |                     |

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## **Proposal Major in Bachelor of Science in Information Technology and Cybersecurity**

**I. Title of Program:** Bachelor of Science in Information Technology and Cybersecurity  
**Department:** Computer Science and Engineering  
**College:** College of Engineering and Computer Science

### **II. Description:**

The B.S. in Information Technology and Cybersecurity prepares students for real-world problem solving, focusing on meeting the needs of organizations through the selection, creation, application, integration, and administration of computing technologies. Students will be educated on essential security knowledge in modern cyberspace addressing security issues across all layers including data, host, infrastructure, human, and economics.

### **III. Goals and Objectives:**

The goal of the program is to prepare students for post-graduation employment in information technology and cybersecurity related fields. This will be achieved through the attainment of the following student outcomes, as specified by the Computing Accreditation Commission of ABET.

- (a) An ability to apply knowledge of computing and mathematics appropriate to the program's student outcomes and to the discipline
- (b) An ability to analyze a problem, and identify and define the computing requirements appropriate to its solution
- (c) An ability to design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs
- (d) An ability to function effectively on teams to accomplish a common goal
- (e) An understanding of professional, ethical, legal, security and social issues and responsibilities
- (f) An ability to communicate effectively with a range of audiences
- (g) An ability to analyze the local and global impact of computing on individuals, organizations, and society
- (h) Recognition of the need for and an ability to engage in continuing professional development
- (i) An ability to use current techniques, skills, and tools necessary for computing practice.
- (j) An ability to use and apply current technical concepts and practices in the core information technologies of human computer interaction, information management, programming, networking, and web systems and technologies. [IT]
- (k) An ability to identify and analyze user needs and take them into account in the selection, creation, evaluation, and administration of computer-based systems. [IT]
- (l) An ability to effectively integrate IT-based solutions into the user environment. [IT]
- (m) An understanding of best practices and standards and their application. [IT]
- (n) An ability to assist in the creation of an effective project plan. [IT]

The program's coursework focuses on the fundamentals of networking, cybersecurity, programming, information management, web systems, system administration, system integration with advanced coursework to build on the fundamentals to provide depth.

This program will prepare students for careers in a variety of fields, including, but not limited to: computer system administration, network design and administration, web development, information and cybersecurity and computer support.

#### **IV. Admission Requirements:**

To be admitted to the BSIT Cybersecurity major, students must complete 24 or more semester hours of college-level coursework with a 2.25 GPA or higher, and complete the following courses:

- ENG 1100 (or any WSU Core First-Year Writing Course) with a C or higher
- CS1180 or CS1160 or CEG2170 (introductory programming) with a C or higher
- CEG 2350 with a C or higher
- MTH 2240, MTH 2280, CS 2200 OR EGR 1010 with a C or higher

#### **V. Program Requirements:**

The program requirements can be found in the attached program of study.

#### **VI. Program Quality:**

For undergraduate programs in the Department of Computer Science and Engineering, the continuous improvement process, which includes program assessment, evaluation, and actions, is under the charge of the Undergraduate Studies Committee, which is chaired by an elected faculty member and the Department Co-Chair. Consistent with ABET best practices, student outcomes in support of each program are assessed on a 6-year cycle. Outcomes are assessed by collecting student performance indicators from graded student work (e.g., quiz/exam problems, projects, lab reports) within classes required by the program that impact those outcomes or that have relevant course prerequisites. Data of student outcomes is collected each year prior to the ABET visit. That data is then evaluated by the Undergraduate Studies Committee and Department Chair and any curricular actions are implemented. At the point, a new data collection cycle will have begun, and data is collected of those same outcomes again to close the loop and check for improvements in student performance. As part of this process, the Undergraduate Studies Committee and Department Chair produce an annual report on program assessment and improvement actions that is distributed to the full department faculty for review and that is archived for future accreditation visits.

#### **VII. Student Performance:**

Students must maintain a GPA consistent with college and university policies and requirements for graduating with a degree from the College of Engineering and Computer Science. In addition, individual course grades must meet the minimum prerequisite requirements for any follow-on course in the curriculum. During their academic program, individual student performance is tracked through the normal system of course grades. The Department of Computer Science and Engineering employs Academic Advisors that meet with students to monitor and review their progress throughout their program of study. At the conclusion of each student's program, an exit survey is conducted to obtain feedback on their complete academic experience and to collect information on any career plans. The results of student exit interviews are shared with the department chair. The Department of Computer Science and Engineering maintains an External Advisory Board comprised of members of industry and a Student Advisory Board comprised of a cross-section of current students that meet twice per year to advise the department on curricular and strategic matters.

#### **VIII. Curriculum Coordination:**

Courses offered in this program will be taught by current faculty members in the Department of Computer Science and Engineering. The curriculum is reviewed by the Undergraduate Studies Committee and Undergraduate Program Director. The department will seek to establish articulation pathways with community colleges.

#### **IX. Resource Coordination:**

This program requires the development and regular annual offering of one new course and the modification of several existing courses. The expertise to teach these courses already exists in the department faculty. The course may also count as elective course in the existing computer science and computer engineering program, and thus the cost of offering the new course could be somewhat mitigated by a corresponding decrease in offerings of other existing CS/CEG electives. All advising, laboratory equipment, and office support required for this program can be covered with the existing CS/CEG program

resources. Therefore, minimal new expenses are anticipated aside from that would similarly exist with an increase in the number of students in either of the existing programs.

**X. Program Staffing:**

This program will be taught by existing faculty within the Department of Computer Science and Engineering.

### Program of Study

|  |   |
|--|---|
| College                                      | <b>Engineering and Computer Science</b>                 |
| Department                                   | <b>Computer Science and Engineering</b>                 |
| Degree (A.A. B.S., B.F.A., etc.) & Title     | <b>B.S. in Information Technology and Cybersecurity</b> |
| Concentration, Track, Option, Specialization | <b>n/a</b>  |
| Minor Program Title                          | <b>n/a</b>  |
| Certificate Program Title                    | <b>n/a</b>  |

| Previous Program | Hours |
|------------------|-------|
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| Proposed Program  | Hours      |
|---|------------|
| <b>I. Wright State Core</b>   | <b>40</b>  |
| <b>Communications:</b>  | <b>6</b>   |
| ENG 1100 (3)  |            |
| EGR 3350 (3) – Technical Communication for Engineers and Scientists   |            |
| <b>Mathematics:</b> MTH 2240(4) or 2280(4) Calculus or EGR 1010(4) Math for Engineering Applications or CS 2200 Discrete Structures & Algorithms(4) | <b>4</b>   |
| <b>Global Traditions:</b>   | <b>6</b>   |
| CS1000 Technology & Society (3)   |            |
| Additional course (3)   |            |
| <b>Arts/Humanities:</b> 3 hours   | <b>3</b>   |
| <b>Social Science:</b> 6 hours  | <b>6</b>   |
| <b>Natural Science:</b>   | <b>8</b>   |
| CS 1150 – Intro to Computer Science(4)  |            |
| Additional Course(4)  |            |
| <b>Additional Core Courses</b>  | <b>7</b>   |
| STT 1600 Statistical Concepts (4)   |            |
| Additional Course (3)   |            |
| <b>II. Computer Science and Engineering Core Courses</b>  | <b>41</b>  |
| <b>A. Required Computer Science Courses</b>   |            |
| CS 1180 Computer Science I (4) or CS 1160 Intro to Comp Programming (4) or CEG 2170 Intro to C (4)  | <b>4</b>   |
| CS 2800 Web Design Fundamentals   | <b>3</b>   |
| CS 3170 Mobile Application Dev  | <b>3</b>   |
| CS 3700 Intro to Oracle/SQL Databases   | <b>3</b>   |
| <b>B. Required Computer Engineering Courses</b>   |            |
| CEG 2350 OS Concepts and Usage  | <b>4</b>   |
| CEG 2400 Intro to PC Networking   | <b>3</b>   |
| CEG 3120 Intro to the Design of Inf.Tech Systems  | <b>3</b>   |
| CEG 3400 Intro to Cybersecurity   | <b>3</b>   |
| CEG 3410 Intro to Forensics Analysis  | <b>3</b>   |
| CEG 4424 Security Attacks & Defenses  | <b>3</b>   |
| CEG 4430 Computer Networks & Security   | <b>3</b>   |
| CEG 4980 Team Projects I  | <b>3</b>   |
| CEG 4981 Team Project II  | <b>3</b>   |
| <b>III. Computer Science and Engineering Elective Courses</b>   | <b>18</b>  |
| Choose CS or CEG 2000, 3000 or 4000 level technical electives   |            |
| At least 9 hours must be at the 4000 level  |            |
| <b>IV. General Electives</b>  | <b>21</b>  |
| Electives may be from any area of study approved by the Department of Computer Science and Engineering  |            |
| <b>Total</b>  | <b>120</b> |