

# **Part 1: Course Details**

**Division/Department requesting change: BCIT**

**Course developer name and contact information: Don Easton (eastond@lanecc.edu/541.463.5532)**

**Division Dean: Chris Rehn**

**Academic year (e.g., 2018-19) change will take effect: 2018-2019**

**TYPE OF COURSE**

**Lower Division Collegiate**  **Professional/Technical** **Developmental, numbered below 100**

**CHANGES TO COURSE**

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| **Enter Current Course Information**  **(fill out this column completely)** | **Proposed Change type  (check all that apply)** | **Proposed Course Changes** |
| Course number: CS285 | **Course number** |  |
| Course title: OS Hardening | Checkmark **Course title** | Cybersecurity Operations |
| Credits  \_2\_\_ Lecture  \_1\_\_ Lecture/Lab  \_1\_\_ Lab  \_4\_\_ Total Credits | **Credit change** | \_\_\_ Lecture  \_\_\_ Lecture/Lab  \_\_\_ Lab  \_\_\_ Total Credits |
| Contact hours per week  \_\_2\_ Lecture  \_\_2\_ Lecture/Lab  \_\_3\_ Lab  \_\_7\_ Total Contact Hours/Week | **Contact hours per week (see formula below)**  **1 lecture = 1 contact hour per week**  **1 lecture/lab = 2 contact hours per week**  **1 lab = 3 contact hours per week** | \_\_\_ Lecture  \_\_\_ Lecture/Lab  \_\_\_ Lab  \_\_\_ Total Contact Hours/Week |
| **Prerequisites (current) CS240W, CS284,** | **Prerequisites** | **Prerequisites (proposed): CS284, CS189 (new proposed course)** |
| **Placement test and code (**e.g., 4cpa score of 75-120; contact testing for codes) | **Prerequisite placement test/score** |  |
| **Co-requisites: CS240U** | **Co-requisites** | **None** |
| **Grade option (letter or P/NP):** | Grade option (letter or P/NP) | **Grade option (proposed):** |
| **Copy/paste current course description.** If this course is repeatable for credit, please include a sentence in your description. E.g., “This course is repeatable for up to \_\_\_ credits.”  This course gives the students a real world understanding of the vulnerabilities that exist in today's operating systems and gives practical, hands-on experience resolving and/or mitigating the vulnerabilities. We will use real systems (like Windows Server and Linux), the latest security resolution guidance, industry accepted tools to apply the resolutions, and industry accepted tools to measure the effectiveness of the resolutions. When the student finishes this course, they will have a solid understanding of actual threats to computer systems and the resolutions to mitigate those threats and vulnerabilities. This course has a hands-on focus. | **Course description (300 characters). For examples, see** [Sample Course Descriptions](https://www.lanecc.edu/currsched/sample-course-descriptions)**.** | **Enter revised description (aim for 300-400 characters/approximately 60-70 words):**  **This course is designed to teach students basic incident response and incident handling, including identifying sources of attacks and security breaches, analyzing security logs and network traffic, performing postmortem analysis, and implementing and modifying security measures. It will provide them with the fundamental knowledge and core skills needed to begin working in a Security Operations Center (SOC) as a junior analyst.** |
| **Copy/paste current learning outcomes:**  **Upon successful completion of this course, the student should be able to:**  **1. Create baselines of various Windows and Linux services**  **2. Generate vulnerability reports**  **3. Discuss domain controller, file, database, and print server vulnerabilities and resolutions**  **4. Discuss DNS and DHCP server vulnerabilities and resolutions**  **5. Discuss mail, FTP, and Web server vulnerabilities and resolutions**  **6. Compare baseline and post resolution vulnerability reports**  **7. Apply appropriate resolutions to the baseline**  **8. Install and utilize various industry accepted tools** | **Course learning outcomes, Core Learning Outcomes, and assessments** | **Enter new outcomes, assessments in chart below**  **Upon successful completion of this course, the student should be able to:**   1. **Learn basic incident analysis and methods, using industry standard tools.** 2. **Explain basic event correlation, normalization, and metrics of event data.** 3. **Describe common attack vectors against networks and hosts.** 4. **Understand SOC workflow management system and automation.** 5. **Interpret log data to identify malicious activity on Windows and Linux hosts.** 6. **Develop knowledge in security monitoring, including identifying sources and types of data and events.** |
|  | **Other (please explain)** |  |

# **Part 2: Rationale, Equity, Library Resources, Course Overlap**

**RATIONALE: Describe the rationale for this course revision**

**This course was developed when it was common for computer operating systems to come with multiple insecure services enabled by default in order to provide usability. As the systems have developed and security has become a bigger issue, the operating system vendors have been forced to provide more secure systems. Because this course was designed to combat that insecurity and the issue is not as great, we decided this course number would be much better addressing more important security issues. We decided to rename the course as Cybersecurity operations and update the outcomes to better address the related to modern security problems and how they are being addressed in industry.**

**CURRICULUM EQUITY STATEMENT** Please do not copy/paste the [COPPS equity statement](https://www.lanecc.edu/copps/documents/curriculum-equity). Reflect how your course supports equity. **To promote an environment where all learners are encouraged to develop their full potential, this course will support Lane’s Curriculum Equity policy in the following way(s):**

This course supports the college’s efforts to introduce and support equity in all curriculum. Access to the course will be designed in such a way to be inclusive of all, recognizing that all students have something to contribute. Materials will be made available in alternate formats (where feasible) to ensure that students have equal access. Materials will be produced in such a way to encourage women, minorities, and people with disabilities to consider occupations within technology.

**LIBRARY CONSULTATION Please contact your liaison librarian to schedule a 30+ minute individualized instructional consultation and collaboration session. In addition to your specific course-related questions, your librarian will be prepared to share:**

* **Library resources and services that support your teaching and student learning needs**
* **OER (Open Educational Resources) options that align with your program and course curriculum**
* **Strategies for integrating the development of information literacy skills into course content and/or assignments**

Please allow one week for the librarian to prepare for your consultation. If you are not sure who your liaison librarian is, you can either look it up on the [Library’s website](https://library.lanecc.edu/services/liaison) or call the Library Reference Desk at 463-5355. (Librarian signature required above.)

**COURSE OVERLAP Indicate any topic/content overlap with other courses. How will this course's topics and content be differentiated?** If there is overlap, faculty of overlapping courses must **agree on the extent of overlap and** **include a rationale** explaining its necessity. The dean of the division in which overlap occurs must sign their approval (see p.1).

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| Division | Course Number / Title | Rationale | Dean of overlap course (name) |
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**CAREER/TECHNICAL COURSE TRACKING (required only for career/technical courses)**

Career/Technical courses are tracked within programs for purposes of Carl Perkins funding and budgetary planning. Indicate all degree or certificate programs for which this course will be required.

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| --- | --- |
| **Programs in which course will be required** | **Division** |
| CPC Computer Network Security | BCIT |
|  |  |

# **Part 3: Outcomes, Assessments, and Topics**

**List course outcomes, Core Learning Outcomes (CLOs), and Assessments** The information in this section should be used to create your course outline and syllabus. How are Lane’s Core Learning Outcomes emphasized and measured or demonstrated through course assessments? Please indicate which [Core Learning Outcomes and Dimensions](https://www.lanecc.edu/assessment/core-learning-outcomes) are linked to your course outcomes. Need help? Contact Tammy Salman, Faculty Coordinator, Assessment and Curriculum Development or Sarah Lushia, Core Learning Outcomes Coordinator.

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| [**Core Learning Outcomes and Dimension**s](https://www.lanecc.edu/assessment/core-learning-outcomes) **You do not need a CLO for each course outcome**.  **EXAMPLE** CLO 1.2:Determine information need, find and cite relevant information | **COURSE-LEVEL LEARNING OUTCOMES** (course outcomes)  [See this page for guidance on writing outcomes](https://www.lanecc.edu/assessment/developing-and-refining-learning-outcomes)  **EXAMPLE**  Upon successful completion of this course, students will be able to:  1. Describe and explain general plant structure and function in relation to plant growth and development.  2. Demonstrate knowledge of horticultural principles in the cultivation of plants. | **ASSESSMENTS** Include specific assignments you will use to measure/observe student attainment of outcomes. For assessment ideas see [Authentic Tasks](http://jfmueller.faculty.noctrl.edu/toolbox/tasks.htm) |
| **CLO 5: Apply learning** 5.2 Apply skills, abilities, theories or methodologies gained in one situation to new situations to solve problems or explore issues | **Learn basic incident analysis and methods, using industry standard tools.** | Discussion/Questions  Hands-on Lab Assignments  Quizzes |
| **CLO 1: Think critically**  1.2 Determine information need, find and cite relevant information | **Explain basic event correlation, normalization, and metrics of event data.** | Discussion/Questions  Hands-on Lab Assignments  Quizzes |
| **CLO 1: Think critically**  1.2 Determine information need, find and cite relevant information | **Describe common attack vectors against networks and hosts.** | Discussion/Questions  Hands-on Lab Assignments  Quizzes |
| **CLO 1: Think critically** 1.2 Determine information need, find and cite relevant information | **Understand SOC workflow management system and automation.** | Discussion/Questions  Hands-on Lab Assignments |
| **CLO 3: Create ideas and solutions** 1.2 Experiment with possibilities that move beyond traditional ideas or solutions. Embrace ambiguity and risk mistakes | **Interpret log data to identify malicious activity on Windows and Linux hosts.** | Discussion/Questions  Hands-on Lab Assignments  Quizzes |
| **CLO 5: Apply learning**5.2 Apply skills, abilities, theories or methodologies gained in one situation to new situations to solve problems or explore issues | **Using security monitoring techniques, apply the processes of identifying sources and types of data and events.** | Discussion/Questions  Hands-on Lab Assignments  Quizzes |

**COMPETENCIES AND TOPICS COVERED (include in course outline)**

Example: [Course Outline Sample](https://www.lanecc.edu/copps/course-outline-sample) (from COPPS)

* Cybersecurity and the Security Operations Center
* Principles of Network Security
* Protecting the Network against Advanced Attacks
* Cryptography and the Public Key Infrastructure
* Endpoint Security and Analysis
* Security Monitoring
* Intrusion Data Analysis
* Incident Response and Handling

# **Part 4: Financial and Student Impact**

**Financial Impact Analysis**

Describe the financial impact of the revised course, including: Instructional costs; workload (both FT and PT faculty and classified staff); physical space requirements (e.g., labs); additional equipment needs; additional fees; any cost reductions

This course will not require any additional staffing, as the current faculty and staff will support this course. Our program staff are actively moving towards utilizing OER/free materials for all courses. This new course will not require any additional expenses such as textbooks or additional fees. In fact, there will be a cost reduction as no textbook is required.

**Student Impact Analysis**

Describe the revised course’s potential impact on students, including: Effect of changes on program requirements, articulations, cost, credit load, avoiding excess credits in transfer, financial aid credit limits, completion, and enrollments; determination of how new/revised courses transfer to four-year schools (please consult with your advisor).

The revised course will not change degree/CPC requirements. In fact, the change in the objectives of the course will improve on the overall outcome of the program and increase the breadth and depth of knowledge and skill the student will gain. This makes them more marketable in the technology industry.

# **Part 5: Degree Requirements Applications (if applicable)**

If applying for any of the following, check the appropriate boxes and include your completed degree requirements forms with this course proposal. Go to the [Curriculum Office website](https://www.lanecc.edu/currsched/curriculum-forms) to download these forms.

AAOT (Career Technical courses not eligible)

Arts & Letters

Cultural Literacy

Information Literacy

Mathematics

Science /Computer Science

Social Sciences

Speech/Oral Communication

Health/Wellness/Fitness (all degrees)

Human Relations designation (for AAS degrees and certificates)

Sustainability course status (optional)

**College Approval (before signing, please see Curriculum Committee recommendations for this course in the committee’s** [**meeting minutes**](https://www.lanecc.edu/currsched/agendas)**)**

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Executive Dean for Academic Affairs Date

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Vice President for Academic & Student Affairs Date