New Course CYCS 4920
New course selected: This new course is not seeking approval as a general education course.

1. Proposed course prefix and number:
   CYCS 4920

2. Proposed credit hours:
   2

3. Proposed course title:
   Cybersecurity Capstone 2

4. Proposed course prerequisites:
   CYCS 4910

5. Proposed course corequisites:
   none

6. Proposed course prerequisites that may be taken concurrently (before or at the same time):
   none

7. Minimum grade for prerequisites (default grades are D for Undergrad and C for Grad):
   C

8. Major and/or minor restrictions:
   Include

9. List all the four-digit major and/or minor codes (from Banner) that are to be included or excluded:
   Major Code Restriction for New B.S. in Cybersecurity

10. Classification restrictions:
    Include

11. List all the classifications (freshman, sophomore, junior, senior) that are to be included or excluded:
    SR

12. Level restriction:
    Not Applicable
13. List the level (undergraduate, graduate) that is to be included or excluded.
   Not Applicable

14. Do prerequisites and corequisites for 5000-level courses apply to undergraduates, graduates, or both?
   Not Applicable

15. Is this a multi-topic course?
   No

16. Proposed course title to be entered in Banner:
   Cybersecurity Capstone 2

17. Is this course repeatable for credit?
   No

18. Is this course mandatory credit/no credit?
   No

19. Select class type:
   Lecture/Lab/Discussion

20. How many contact hours per week for this course?
   2

A. Please choose Yes or No to indicate if this class is a Teacher Education class:
   No

B. Please choose the applicable class level:
   Undergraduate

C. Please respond Yes if this is a current general education course and/or a course being submitted for the new WMU Essential Studies program. Please respond No if it is neither. No

D. Explain briefly and clearly the proposed improvement. Create the course CYCS 4920 as part of a new Bachelor of Science in Cybersecurity.

   CYCS 4920 is a required course that will be offered by the Computer Science Department as part of the new cross-disciplinary online B.S in Cybersecurity degree proposed in the complete Program Improvement form packet submitted separately.
E. Rationale. Give your reason(s) for the proposed improvement. (If your proposal includes prerequisites, justify those, too.).
CYCS 4920 is one of the required classes that students must take to complete the Bachelor of Science in Cybersecurity degree collaboratively offered by the BIS and CS departments. This course will be regularly offered online as detailed in the complete Program Improvement form packet [Appendix C] submitted separately.

CYCS 4910 is a prerequisite because it is the first course of this two-course series for the Cybersecurity Capstone.

F. List the student learning outcomes for the proposed course or the revised or proposed major, minor, or concentration. These are the outcomes that the department will use for future assessments of the course or program.
Students will be able to:
- Construct systems or software projects using accepted development approaches and techniques.
- Apply a concurrent versioning system to manage code and documentation.
- Generate and present project reports using textual and visual data.
- Justify software and system implementation decisions within appropriate ethical standards.

G. Describe how this curriculum change is a response to student learning assessment outcomes that are part of a departmental or college assessment plan or informal assessment activities.
CYCS 4920, as part of the B.S. in Cybersecurity, aligns with the CEAS mission vision by preparing students for careers in an exciting and high-demand industry. Our students will learn to be ethical and professional leaders, and to answer challenges in our local and global communities to improve the well-being of society by protecting both individuals and organizations from malicious attackers.

CYCS 4920 is part of the B.S. in Cybersecurity that has been designed to meet all ABET accreditation criteria for Cybersecurity and similarly named computing programs. ABET accreditation will be pursued for this program once approved.

H. Effect on other colleges, departments or programs. If consultation with others is required, attach evidence of consultation and support. If objections have been raised, document the resolution. Demonstrate that the program you propose is not a duplication of an existing one.
Both the CIS and CS program have collaboratively worked with EUP to develop the online B.S. in Cybersecurity.
Letters of support from each department, college, and EUP are attached to in the complete Program Improvement form packet [Appendix B] submitted separately.
This course, as part of the new degree, is not duplicated at Western Michigan University.

I. Effect on your department’s programs. Show how the proposed change fits with other departmental offerings. CYCS 4920 is not currently offered in the CS Department because it is a new course for the B.S. in Cybersecurity.

CYCS 4920 will become a regular offering in the CS Department.

J. Effects on enrolled students: are program conflicts avoided? Will your proposal make it easier or harder for students to meet graduation requirements? Can students complete the program in a reasonable time? Show that you have considered scheduling needs and demands on students' time. If a required course will be offered during summer only, provide a rationale. CYCS 4920 does not conflict with any current degree or program offerings in either CIS or CS as this is a new course designed for the Bachelor of Science in Cybersecurity.

CYCS 4920 proposed scheduling has been included in the complete Program Improvement form packet [Appendix C] submitted separately.

Enrolled Bachelor of Science in Cybersecurity students will be able to complete all coursework in 4 years.

K. Student or external market demand. What is your anticipated student audience? What evidence of student or market demand or need exists? What is the estimated enrollment? What other factors make your proposal beneficial to students? Market research discussed in the submitted Program Improvement form packet demonstrates a strong market for job candidates with a Bachelor of Science degree in Cybersecurity. The complete data and analyses can be found in the complete Program Improvement form packet [Appendix F].

L. Effects on resources. Explain how your proposal would affect department and University resources, including faculty, equipment, space, technology, and library holdings. Tell how you will staff additions to the program. If more advising will be needed, how will you provide for it? How often will course(s) be offered? What will be the initial one-time costs and the ongoing base-funding costs for the proposed program? (Attach additional pages, as necessary.) This course is part of the Bachelor of Science in Cybersecurity that will be offered completely online. EUP will provide resources to support the program to include additional faculty for each department.
EUP will also offer the necessary online support in terms of course development assistance and technology.

In the complete Program Improvement form packet this course is placed in the overall course offerings and sequences of the department within a four-year plan, as well as resource allocations [Appendix C].

This course will be offered entirely online. Technology, equipment, and support--to include advising--for this online offering will be provided via EUP.

M. With the change from General Education to WMU Essential Studies, this question is no longer used.

For courses requesting approval as a WMU Essential Studies course, a syllabus identifying the student learning outcomes and an action plan for assessing the student learning outcomes must be attached in the Banner Workflow system.
Not Applicable

N. (Undergraduate proposals only) Describe, in detail, how this curriculum change affects transfer articulation for Michigan community colleges. For course changes, include detail on necessary changes to transfer articulation from Michigan community college courses. For new majors or minors, describe transfer guidelines to be developed with Michigan community colleges. For revisions to majors or minors, describe necessary revisions to Michigan community college guidelines. Department chairs should seek assistance from college advising directors or from the admissions office in completing this section. This change will not affect any current articulation agreements because this is a new course. Articulation agreements with community colleges relating to specific course transfer equivalencies with required Bachelor of Science in Cybersecurity courses will be agreed upon individually between Western Michigan University and the Community College in question as is usual.

O. Current catalog copy:
Not applicable

P. Proposed catalog copy:
This course is the second of a capstone project sequence required for all Cybersecurity majors. Student teams complete an existing project by implementing code, configuring systems, or assessing activities according to a previous design. They produce a testing plan, carry out testing, record test results, and summarize them. Prototype demonstrations and periodic progress reports are required to help assure steady progress. Individuals and teams produce a variety of documents throughout the course. These documents include a testing plan, a testing
log, a summary of testing, a maintenance manual and a user manual. Discussion of current social and ethical issues related to individual projects and Cybersecurity in general will be integrated into the course. Project management techniques and computer simulated solutions are formally presented to emphasize team dynamics and management skills.