College: <u>Central Maine Community College</u>   Program: <u>Cybersecurity-Digital Forensics</u>
CIP: <u>11.1003</u>   Credentials: <u>Associate in Applied Science (AAS)</u>

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Date: <u>November 2023</u>   Period of Review: <u>AY 2017/2018-2021/2022</u>

Program Overview:

1) **Program description** (*from the most recent college catalog*):

The Associate in Applied Science Degree in Cybersecurity - Digital Forensics is designed to prepare students to address the ever-increasing needs of businesses in the area of technology security. Students in this program can choose to transfer to a baccalaureate degree program or go directly into the workforce. The skills learned in the core curriculum will give students a strong background in computer technology and networks. The degree concentration will focus on securing, testing, and analyzing information as it is stored, manipulated, and communicated across networks. The curriculum is designed to prepare students for a multitude of industry standard certifications, for which many of the exams can be taken on campus.

2) **Program Learning Outcomes: all program learning outcomes are expected to be assessed within the five-year cycle. Please attach an Assessment Data and Reflection Template for each program learning outcome. Explain how the department used the assessment results to improve teaching, learning, and the curriculum.**

List the program learning outcomes:	Method of assessment: list the courses and activities/assignments used to assess the learning outcomes
1. Demonstrate an understanding of computing technologies and terminology for industry employment. 2. Accurate and appropriate use of industry terms and representation of materials based on intended audiences. 3. Utilize ethical means to determine the effectiveness of a network's security posture while recommending appropriate remediation techniques. 4. Analyze, retrieve and report evidentiary data utilizing forensic tools. 5. Continue education through conferences, industry certifications, courses, and/or enrolling in other degree programs. 6. Develop an area of expertise while analyzing career opportunities vs. individual strengths.	Please see attached 5-Year Assessment Plan.

3) Credentials Awarded within the IPEDS year, i.e. July 1-June 30:

Credentials Awarded						
Credential	AY1718	AY1819	AY1920	AY2021	AY2122	AY2223
AAS	9	2	10	6	3	4

4) Program Graduates Employed:

Number of Completers with any Wage Data	12
% of Completers with any Wage Data	92%
# of Completers with First Year Earnings	10
Median First Year Earnings	$44,328

5) Partnerships, collaborations, associations and memberships
   a) Advisory Meeting Dates and Attendance (past 3 years)

Date(s) of Meeting	# of college attendees	# of Non-college attendees
11/18/20	2	2
11/4/21	2	2
4/14/22	3	2

   b) Program external accreditation, associations, and memberships (if applicable): N/A.

6) Other Indicators of student success, direct and/or indirect, which may include:

	AY1718	AY1819	AY1920	AY2021	AY2122
Licensure/certification pass rates (if applicable)	n/a	n/a	n/a	n/a	n/a
Program Advisory Committee Member Survey (on scale of 1-5 averaged):	--	--	--	--	--
Program Curriculum	--	--	--	--	4
Technical currency of the program	--	--	--	--	4
Preparation of program graduates for work in the field	--	--	--	--	4
Communication from program administration/faculty	--	--	--	--	4
Overall quality of the program	--	--	--	--	4
Other (please specify):	--	--	--	--	--

7) Student demographics:

Admissions					
	AY1819	AY1920	AY2021	AY2122	AY2223
Fall Applications	14	24	22	24	44
% chg in Fall Applicants from PY	--	71%	-8%	9%	83%
Enrolled (Yield)	8	13	7	3	14
% chg in Enrolled from PY	--	63%	-46%	-57%	367%

Student Enrollment[1]					
	AY1819	AY1920	AY2021	AY2122	AY2223
Unduplicated Headcount Enrolled in Program	27	36	26	15	29
% chg in Headcount from PY	--	33%	-28%	-42%	93%
Enrolled Credit Hours	276	368	272	142	337
% chg in Credit hours from PY	--	33%	-26%	-48%	137%
FTE	18	25	18	9	22
% chg in FTE from PY	--	39%	-28%	-50%	144%

[1] = students within the program in the fall of the academic year

Student Success						
Cohort Year	AY1718	AY1819	AY1920	AY2021	AY2122	AY2223
Cohort Enrollment	20	10	26	18	7	25
Retained to the next semester	75%	80%	46%	56%	57%	20%
Retained to the next year	55%	70%	27%	33%	43%	
100% of program time	10%	30%	15%	6%	0%	
150% of program time	25%	40%	19%	6%		
200% of program time	35%	50%	23%			
Transfer Rate (non-graduates)[2]	20%	10%	19%			
Transfer Rate (graduates)	5%	20%	8%			
Enrolled in Another Program[2]	5%	0%	--			
Graduated from Another Program[2]	0%	30%	8%			

[2]. Determined at the maximum graduation point in this table, i.e. 200%

8) **Strengths, challenges, and planned steps for continuous improvement: In your summary assessment you should reference sections of this review that inform the plan.**

Program Strengths:

- The program is experiencing robust growth and is in high demand.
- The AAS degree is customized to align with industry certifications; upon successful course completion, students confidently sit for certification examinations with Workforce Development.
- Graduates are securing employment within the relevant field upon program completion.
- Faculty members actively engage in the industry and have relevant certifications.

Challenges:

- Student confusion about different degree tracks in Computer Technology and Cybersecurity can lead to student attrition if not addressed through the advising process.
- Students are often offered jobs in the field before graduation, leading students to not complete degrees.
- The industry is changing quickly, necessitating faculty and students to continuously update their skills.

Planned Steps for Continuous Improvement:

- Clarify the advising process so that matriculating and first-year students better understand course sequences and differences among degree options in the Computer Technology department. Add an automated email from the department chair explaining these options to incoming students.
- Continue to offer a "hi-flex" option to second-year students who have gained full-time employment to enable them to complete remaining courses through more flexible scheduling.
- Encourage instructors to pursue continuous learning and professional development to stay updated with current practices in the field.
- Continue working with the COMP TIAA network to offer additional certifications.
- Continue to leverage partnerships with IT industry associations and local businesses to gain insights into industry trends, job market demands, and emerging technologies.
- Continue to foster close relationships with CTEs to connect high school students to Early College and college options.
- Continuously review and update course curriculums to reflect the most current industry practices and technologies, including integrating real-world case studies and projects that simulate the challenges students may face in their field.

Five-year Assessment Plan for Student Learning Outcomes

Cybersecurity-Digital Forensics   November 2023
Name of Program or General Education Domain   Date

Learning goal:

Student learning outcomes:	Academic year during which assessment will occur	Source(s) and type of assessment artifact(s) that will be collected (e.g.: embedded questioning, capstone assignments, standardized testing, performance observation, portfolio reviews, etc.)	Method(s) to be used for assessing artifact(s)	Assessment Goal (targets/criteria) for direct measure	Assessment Outcome (*Number of Students Achieving an "acceptable" or better*)	Assessment Goal was:		
						Met	Not Met	Pending Review
Demonstrate an understanding of computing technologies and terminology for industry employment.	Fall Term, Spring Term	Assignments, Exams, in class activities, Labs, Capstone	Evaluation and Feedback of assignments, completion of Capstone	75% of students will earn a C or better in the following courses, to achieve the outcome: CPT 127, CPT 227, CPT 147, CPT 201, CPT 235, CPT 266, CPT 271, CPT 261, CPT 239, CPT 275, CPT 281, CPT 298	491 students scored a C or higher out of 642 students during AY 2122 /2223	X 76.5%		
Accurate and appropriate use of industry terms and representation of materials based on intended audiences.	Fall Term, Spring Term	Assignments, Exams, in class activities, Labs, Capstone	Evaluation and Feedback of assignments, completion of Capstone	75% of students will earn a C or better in the following courses, to achieve the outcome: CPT	491 students scored a C or higher out of 642 students during AY 2122 /2223	X 76.5%		

				127, CPT 227, CPT 147, CPT 201, CPT 235, CPT 266, CPT 271, CPT 261, CPT 239, CPT 275, CPT 281, CPT 298				
Utilize ethical means to determine the effectiveness of a network's security posture while recommending appropriate remediation techniques.	Fall Term, Spring Term	Assignments, Exams, in class activities, Labs, Capstone	Evaluation and Feedback of assignments, completion of Capstone	75% of students will earn a C or better in the following courses, to achieve the outcome: CPT 147, CPT 235, CPT 239, CPT 266, CPT 271 CPT 281, CPT 298	311 students scored a C or higher out of 389 students during AY 2122 /2223	X 79.9%		
Analyze, retrieve and report evidentiary data utilizing forensic tools.	Fall Term, Spring Term	Assignments, Exams, in class activities, Labs, Capstone	Evaluation and Feedback of assignments, completion of Capstone	75% of students will earn a C or better in the following courses, to achieve the outcome: CPT 261, CPT 275, CPT 298	47 students scored a C or higher out of 52 students during AY 2122 /2223	X 90.4%		
Develop an area of expertise while analyzing career opportunities vs. individual strengths.	Fall Term, Spring Term	Capstone	Evaluation and Feedback of assignments, completion of Capstone	75% of students will earn a C or better in the following courses, to achieve the outcome: CPT 298	23 students scored a C or higher out of 23 students during AY 2122 /2223	X 100%		

Most significant assessment findings? (Pedagogical, instructional, curricular changes). Please report on actions taken and on ongoing assessment plans.
- The introductory courses and Semester II CPT courses have a lower pass percentage (75%) than upper-level courses.
- Students who successfully transition to the second year have high success rates with senior courses such as the Capstone.
- We will continue to explore ways of advising and supporting first-year students even more effectively.