# Cybersecurity (BS) Program-199



### **Annual Assessment Plan**



#### PLO #1 - Computing (ULO 2)

Apply the knowledge of Computer Science, Cybersecurity, and Information Assurance theories to analyze problems, assess trade-offs, and develop creative solutions, including programs, computer-based systems, and processes.

## Outcome(s)

1 Choose one or more accreditor outcome that aligns with your Program Learning Outcome.

There is no selected outcome.

2 Choose one or more Institution outcome that aligns with your Program Learning Outcome.

Selected Outcomes:

o ULO 2 - Breadth and Depth of Knowledge

# Please Enter The Following Information Below:

**Measures** - Need to name specific course/ required experience plus exact exam items, assignments, rubric lines, etc. used for the analysis of performance on the PLO.

Targets - Percentage of students expected to earn a particular score on the measure.

Measures	Targets	Timeline
CIS 371 (Unit 3) Uninstall/Install MySQL	Student average of 80% or higher	Biennially
CIS 257 Cybersecurity Assessment	Student average of 80% or higher	Biennially
CIS 150 Artificial Intelligence Presentation	Student average of 80% or higher	Annually

CIS 371: 100% (9/9) of students met the performance target. Students performed well and were well prepared.

CIS 257: 64% (18/28) of students met the performance target. The assessed assignment was a group assignment in which two of the groups underperformed due to time management issues.

CIS 150: 92% (12/13) of students met the performance target. Students performed well and were well prepared.

Action Plans - If student performance did not meet the target, identify specific improvement strategies to enact in the upcoming academic year. For example, add instruction on the topic, change an assignment, revise course requirements, revise objectives, identify additional support/resources for students.

CIS 371: Continue teaching and learning strategies. Evaluate learning activities for level of complexity.

CIS 257: Implement performance improvement planning module to reduce groups underperforming due to time management.

CIS 150: Continue teaching and learning strategies.

Closing the Loop - If you entered action plans for the PLO last year, they will appear in the box below. Please explain what you did to accomplish the action plan this year, re-examine student performance, and determine the success of your action plan.

Significant progress has been made in developing the Cybersecurity Education program's assessment plan. This includes updating courses, targets, measures, mapping CLOs to PLOs and broadening assignment links.

#### PLO #2 - Risks and Solutions (ULO 4)

Analyze systems, identifying and defining the security risks and design solutions to mitigate those risks, with consideration for business concerns and technical issues.

# Outcome(s)

1 Choose one or more accreditor outcome that aligns with your Program Learning Outcome.

There is no selected outcome.

2 Choose one or more Institution outcome that aligns with your Program Learning Outcome.

#### Selected Outcomes:

ULO 4 - Specialized Skills and Scholarship

# Please Enter The Following Information Below:

**Measures** - Need to name specific course/ required experience plus exact exam items, assignments, rubric lines, etc. used for the analysis of performance on the PLO.

**Targets** - Percentage of students expected to earn a particular score on the measure.

Measures	Targets	Timeline
CIS 257 - Cybersecurity Assessment	80% of students score satisfactory on department- developed rubric	Biennially
CIS 150 - Artificial Intelligence Presentation	80% of students score satisfactory on department- developed rubric	Annually

CIS 257: 64% (18/28) of students met the performance target. The assessed assignment was a group assignment in which two of the groups underperformed due to time management issues.

CIS 150: 92% (12/13) of students met the performance target. Students performed well and were well prepared.

Action Plans - If student performance did not meet the target, identify specific improvement strategies to enact in the upcoming academic year. For example, add instruction on the topic, change an assignment, revise course requirements, revise objectives, identify additional support/resources for students.

CIS 257: Implement performance improvement planning module to reduce groups underperforming due to time management.

CIS 150: Continue teaching and learning strategies.

Closing the Loop - If you entered action plans for the PLO last year, they will appear in the box below. Please explain what you did to accomplish the action plan this year, re-examine student performance, and determine the success of your action plan.

Significant progress has been made in developing the Cybersecurity Education program's assessment plan. This includes updating courses, measures, mapping CLOs to PLOs and broadening assignment links.

4 PLO #3 - Threats (ULO 4)

Develop strategies for responses to cybersecurity threats.

Outcome(s)

Choose one or more accreditor outcome that aligns with your Program Learning Outcome.

There is no selected outcome.

Choose one or more Institution outcome that aligns with your Program Learning Outcome.

Selected Outcomes:

ULO 4 - Specialized Skills and Scholarship

# 3 Please Enter The Following Information Below:

**Measures** - Need to name specific course/ required experience plus exact exam items, assignments, rubric lines, etc. used for the analysis of performance on the PLO.

Targets - Percentage of students expected to earn a particular score on the measure.

**Timeline** - The frequency with which the department will analyze and report student performance on the PLO.

Measures	Targets	Timeline
CIS 455 - NMap Exercises	Average score of 80%	Biennially
CIS 150 Artificial Intelligence Presentation	Average score of 80%	Annually

Results - Please enter numeric results, indicating the number and percentage of student performance meeting the target. Record faculty discussion about the strengths and weaknesses in student performance. \*Please see the May Development section on the Assessment of Student Learning website for suggestions about how to process assessment results.

CIS 455: 70% of students met the performance target. Student results were skewed by incomplete assignments. Students decided not to do the assignment, due to the low assignment weight.

CIS 150: 92% (12/13) of students met the performance target. Students performed well and were well prepared.

Action Plans - If student performance did not meet the target, identify specific improvement strategies to enact in the upcoming academic year. For example, add instruction on the topic, change an assignment, revise course requirements, revise objectives, identify additional support/resources for students.

CIS 455: Raise the weight of the assignment commensurate with the amount of work required.

CIS 150: Continue teaching and learning strategies.

Closing the Loop - If you entered action plans for the PLO last year, they will appear in the box below. Please explain what you did to accomplish the action plan this year, re-examine student performance, and determine the success of your action plan.

Significant progress has been made in developing the Cybersecurity Education program's assessment plan. This includes updating courses, measures, mapping CLOs to PLOs and broadening assignment links.

#### 5 PLO #4a - Ethics (ULO 2)

Develop and defend an ethical code of conduct consistent with the Christian faith and formulated from an understanding of professional, ethical, legal, security and social issues and responsibilities.

# Outcome(s)

1 Choose one or more accreditor outcome that aligns with your Program Learning Outcome.

There is no selected outcome.

Choose one or more Institution outcome that aligns with your Program Learning Outcome.

Selected Outcomes:

- o ULO 2 Breadth and Depth of Knowledge
- 3 Please Enter The Following Information Below:

**Measures** - Need to name specific course/ required experience plus exact exam items, assignments, rubric lines, etc. used for the analysis of performance on the PLO.

Targets - Percentage of students expected to earn a particular score on the measure.

**Timeline** - The frequency with which the department will analyze and report student performance on the PLO.

Measures	Targets	Timeline
CIS 484 - Final Assignment	80% of students score satisfactory on department- developed rubric	Biennially
CIS 150 Artificial Intelligence Presentation	80% of students score satisfactory on department- developed rubric	Annually

Results - Please enter numeric results, indicating the number and percentage of student performance meeting the target. Record faculty discussion about the strengths and weaknesses in student performance. \*Please see the May Development section on the Assessment of Student Learning website for suggestions about how to process assessment results.

CIS 484: 100% of students met the performance target. Students performed well and were well prepared.

CIS 150: 92% (12/13) of students met the performance target. Students performed well and were well prepared.

Action Plans - If student performance did not meet the target, identify specific improvement strategies to enact in the upcoming academic year. For example, add instruction on the topic, change an assignment, revise course requirements, revise objectives, identify additional support/resources for students.

CIS 484: Continue teaching and learning strategies. Evaluate learning activities for level of complexity.

CIS	150	Continue	teaching	and	learning	strategies.
$\circ$	100.	OULITIE	teacilling	ullu	1Culling	oli alcaico.

Closing the Loop - If you entered action plans for the PLO last year, they will appear in the box below. Please explain what you did to accomplish the action plan this year, re-examine student performance, and determine the success of your action plan.

Significant progress has been made in developing the Cybersecurity Education program's assessment plan. This includes updating courses, measures, mapping CLOs to PLOs and broadening assignment links.

PLO#4a and #4b should be combined as a single PLO that maps to multiple ULOs.

PLO #5 - Communication (ULO 4)

Effectively communicate technical information for a range of audiences.

#### Outcome(s)

1 Choose one or more accreditor outcome that aligns with your Program Learning Outcome.

There is no selected outcome.

Choose one or more Institution outcome that aligns with your Program Learning Outcome.

Selected Outcomes:

- ULO 4 Specialized Skills and Scholarship
- 3 Please Enter The Following Information Below:

**Measures** - Need to name specific course/ required experience plus exact exam items, assignments, rubric lines, etc. used for the analysis of performance on the PLO.

**Targets** - Percentage of students expected to earn a particular score on the measure.

Measures	Targets	Timeline
CIS 371 (Unit 9) SymPRM Development Audit	80% of student scores are satisfactory on presentation rubric	Biennially
CIS 257 (Fifth Domain - 10, 11, 12)	80% of student scores are satisfactory on presentation rubric	Biennially
CIS 150 Artificial Intelligence Presentation	80% of students scores are satisfactory on presentation rubric	Annually

CIS 371: 89% (8/9) of students met the performance target. Students performed well and were well prepared.

CIS 257: 85% (24/28) of students met the performance target. Students performed well and were well prepared.

CIS 150: 92% (12/13) of students met the performance target. Students performed well and were well prepared.

Action Plans - If student performance did not meet the target, identify specific improvement strategies to enact in the upcoming academic year. For example, add instruction on the topic, change an assignment, revise course requirements, revise objectives, identify additional support/resources for students.

CIS 371: Students were successful but need more opportunity to show success in effectively communicating technical information. Specifically for non-technical audiences.

CIS 150, 257: Continue teaching and learning strategies.

Closing the Loop - If you entered action plans for the PLO last year, they will appear in the box below. Please explain what you did to accomplish the action plan this year, re-examine student performance, and determine the success of your action plan.

Significant progress has been made in developing the Cybersecurity Education program's assessment plan. This includes updating courses, measures, mapping CLOs to PLOs and broadening assignment links.

#### PLO #6 - Continuing Education (ULO 4)

Utilize industry recognized resources to stay abreast of the latest technology and the industry tools and techniques to safeguard those technologies.

#### Outcome(s)

1 Choose one or more accreditor outcome that aligns with your Program Learning Outcome.

There is no selected outcome.

Choose one or more Institution outcome that aligns with your Program Learning Outcome.

Selected Outcomes:

- ULO 4 Specialized Skills and Scholarship
- 3 Please Enter The Following Information Below:

**Measures** - Need to name specific course/ required experience plus exact exam items, assignments, rubric lines, etc. used for the analysis of performance on the PLO.

Targets - Percentage of students expected to earn a particular score on the measure.

Measures	Targets	Timeline	

Measures	Targets	Timeline
CIS 335 (Modeling using UML -1)	80% of students score satisfactory on department-developed rubric.	Biennially
CIS 150: Artificial Intelligence Presentation	80% of students score satisfactory on department- developed rubric	Annually
OIC OFF Kali Naturatina	00% of students soors	Annually

CIS 335: 83.3% (25/30) of students met the performance target. Students performed well in all aspects of the assignment.

CIS 150: 92% (12/13) of students met the performance target. Students performed well and were well prepared.

CIS 255: 92% (24/26) of students met the performance target. Students performed well and were well prepared.

**Action Plans** - If student performance did not meet the target, identify specific improvement strategies to enact in the upcoming academic year. For example, add instruction on the topic, change an assignment, revise course requirements, revise objectives, identify additional support/resources for students.

CIS 335, 150, 255: Continue teaching and learning strategies.

**Closing the Loop** - If you entered action plans for the PLO last year, they will appear in the box below. Please explain what you did to accomplish the action plan this year, re-examine student performance, and determine the success of your action plan.

Significant progress has been made in developing the Cybersecurity Education program's assessment plan. This includes updating courses, measures, mapping CLOs to PLOs and broadening assignment links.

#### PLO #7 - Teamwork (ULO 2)

Function effectively on teams to establish goals, plan tasks, meet deadlines, manage risk and produce deliverables.

## Outcome(s)

1 Choose one or more accreditor outcome that aligns with your Program Learning Outcome.

There is no selected outcome.

Choose one or more Institution outcome that aligns with your Program Learning Outcome.

Selected Outcomes:

- o ULO 2 Breadth and Depth of Knowledge
- Please Enter The Following Information Below:

**Measures** - Need to name specific course/ required experience plus exact exam items, assignments, rubric lines, etc. used for the analysis of performance on the PLO.

**Targets** - Percentage of students expected to earn a particular score on the measure.

Measures	Targets	Timeline
CIS 371 (Unit 9) SymPRM Development Audit	80% of students score satisfactory on department- developed rubric	Biennially

Measures	Targets	Timeline	
CIS 150 Artificial Intelligence Presentation	80% of students score satisfactory on department- developed rubric	Annually	
CIS 257 Cybersecurity	80% of students score	Biennially	

CIS 371: 89% (8/9) of students met the performance target. Students performed well and were well prepared.

CIS 150: 92% (12/13) of students met the performance target. Students performed well and were well prepared.

CIS 257: 64% (18/28) of students met the performance target. The assessed assignment was a group assignment in which two of the groups underperformed due to time management issues.

Action Plans - If student performance did not meet the target, identify specific improvement strategies to enact in the upcoming academic year. For example, add instruction on the topic, change an assignment, revise course requirements, revise objectives, identify additional support/resources for students.

CIS 371: Students were successful but need more opportunity to show success in effectively communicating technical information. Specifically for non-technical audiences.

CIS 150: Continue teaching and learning strategies.

CIS 257: Implement performance improvement planning module to reduce groups under-performing due to time management.



**Closing the Loop** - If you entered action plans for the PLO last year, they will appear in the box below. Please explain what you did to accomplish the action plan this year, re-examine student performance, and determine the success of your action plan.

Significant progress has been made in developing the Cybersecurity Education program's assessment plan. This includes updating courses, measures, mapping CLOs to PLOs and broadening assignment links.

#### PLO #9 - Scholarship (ULO 4)

Engage in focused inquiry that seeks to answer or explore an intellectual and/or creative problem or question.

# Outcome(s)

1 Choose one or more accreditor outcome that aligns with your Program Learning Outcome.

There is no selected outcome.

Choose one or more Institution outcome that aligns with your Program Learning Outcome.

#### Selected Outcomes:

- ULO 4 Specialized Skills and Scholarship
- Please Enter The Following Information Below:

**Measures** - Need to name specific course/ required experience plus exact exam items, assignments, rubric lines, etc. used for the analysis of performance on the PLO.

Targets - Percentage of students expected to earn a particular score on the measure.

Measures	Targets	Timeline
CIS 371 (Unit 3) MySQL Analysis	80% of students score satisfactory on department- developed rubric	Biennially

Measures	Targets	Timeline	
CIS 371 (Unit 5) Oracle Analysis	80% of students score satisfactory on department- develeoped rubric	Biennially	
CIS 150 Artificial Intelligence	80% of students score	Annually	

CIS 371 (Unit 3) MySQL Analysis: 100% (9/9) of students met the performance target. Students performed well and were well prepared.

CIS 371 (Unit 5) Oracle Analysis: 100% (9/9) of students met the performance target. Students performed well and were well prepared.

CIS 150: 92% (12/13) of students met the performance target. Students performed well and were well prepared.

Action Plans - If student performance did not meet the target, identify specific improvement strategies to enact in the upcoming academic year. For example, add instruction on the topic, change an assignment, revise course requirements, revise objectives, identify additional support/resources for students.

CIS 371: Continue teaching and learning strategies. Evaluate learning activities for level of complexity.

CIS 150: Continue teaching and learning strategies.

Closing the Loop - If you entered action plans for the PLO last year, they will appear in the box below. Please explain what you did to accomplish the action plan this year, re-examine student performance, and determine the success of your action plan.

Significant progress has been made in developing the Cybersecurity Education program's assessment plan. This includes updating courses, measures, mapping CLOs to PLOs and broadening assignment links.

#### 10 PLO #8 - Faith and Vocation (ULO 3 and 5)

Explain how faith connects to their discipline and how the biblical call to vocation relates to their potential career options

# Outcome(s)

1 Choose one or more accreditor outcome that aligns with your Program Learning Outcome.

There is no selected outcome.

Choose one or more Institution outcome that aligns with your Program Learning Outcome.

There is no selected outcome.

3 Please Enter The Following Information Below:

**Measures** - Need to name specific course/ required experience plus exact exam items, assignments, rubric lines, etc. used for the analysis of performance on the PLO.

Targets - Percentage of students expected to earn a particular score on the measure.

Measures	Targets	Timeline
CIS 411 Career Path Essay	80% of students score satisfactory on department- developed rubric	Biennially
CIS 150 Artificial Intelligence Presentation	80% of students score satisfactory on department- developed rubric	Annually

CIS 411: 93% (26/28) of students met the performance target. Students performed well and were well prepared.

CIS 150: 92% (12/13) of students met the performance target. Students performed well and were well prepared.

Action Plans - If student performance did not meet the target, identify specific improvement strategies to enact in the upcoming academic year. For example, add instruction on the topic, change an assignment, revise course requirements, revise objectives, identify additional support/resources for students.

CIS 411, 150: Continue teaching and learning strategies.

Closing the Loop - If you entered action plans for the PLO last year, they will appear in the box below. Please explain what you did to accomplish the action plan this year, re-examine student performance, and determine the success of your action plan.

Significant progress has been made in developing the Cybersecurity Education program's assessment plan. This includes updating courses, measures, mapping CLOs to PLOs and broadening assignment links.

4 Holistic program improvement goals: Programs are expected to have at least one action plan to improve student learning annually. If you have not yet identified an action plan associated with this year's assessment results, or if the department has identified additional issues that require action plans, describe the specific, measurable action plan and its relation to evidence of student performance.

# **Assessment Rubric**



#### **Process**

	1	2	3	4
Is the plan being implemented faithfully and revised as needed?	Assessment plan is not implemented.	Most aspects of plan are being implemented or all aspects are implemented to some degree.	Assessment plan is fully implemented.	Plan is faithfully executed and modified/evaluated as needed.

2 Explanations:

3

# **Engagement**

1	2	3	4

	1	2	3	4
Are all relevant	Limited involvement beyond chair/director	All educators contributing to the	All educators contributing to the	All relevant
parties are meaningfully involved in the creation/revision, implementation, analysis, interpretation and learning improvement process?	beyond chair/director	curriculum are aware of process and results	curriculum participate in conversations regarding the use of assessment data to improve student learning	(students, employers, alumni) are meaningfully involved in the creation/revision, implementation, analysis, interpretation, and/or improvement processes associated with this assessment

Program Learning Objectives

1	2	3	4

	Os are problematic			
	Os are problematic			
Are the program learning objectives clear, measurable, aligned with ULOs/GLOs, and representative of the range of learning for that major/program?	vague, abstract, not aligned with ULOs/GLOs) or missing.	PLOs are clear, mostly measurable, partially aligned with ULOs/GLOs.	PLOs are clear, measureable, aligned with ULOs/GLOs, and represent a summary of the knowledge, skills, beliefs, and values that a graduate of this major/program should attain by completing the required curriculum, accounting for variations in learning outcomes due to tracks/concentrations	PLOs are clear, measurable, aligned with ULOs/GLOs, and representative of the range of learning students achieve through completion of the program. The learning objectives provide a comprehensive view of the knowledge, skills, beliefs, and values that are important for a graduate of this major/program and account for variations in learning outcomes due to

7

#### Measures

1	2	3	4

Targets

4	2	2	<b>A</b>
		3	7

	1	2	3	4
Are the targets based on professional standards and/or analysis of past student work? Are targets challenging and achievable?	Some targets are missing.	Targets are arbitrarily chosen or reflect minimal expectations.	Targets are challenging and achievable based on prior student performance, and reflect an appropriate level of performance.	Targets are challenging and achievable. Targets are based on professional standards and/or prior student performance. Targets are set at a level to inspire program improvement.



#### **Timeline**

	1	2	3	4
Is the timeline for data collection manageable with sufficient data points to effectively inform decision making and program review?	Not identified clearly for all measures.	Clearly states semester/year for each objective/measure. Data analysis delayed from data collection. Time between collection points may not facilitate informed decision making.	Clearly stated and manageable schedule. At least two data points for each objective per review cycle.	Timeline for data collection is manageable and allows for continuous improvement with timely and meaningful decision making even before program review.

12 Explanations:

#### **Action Plan**

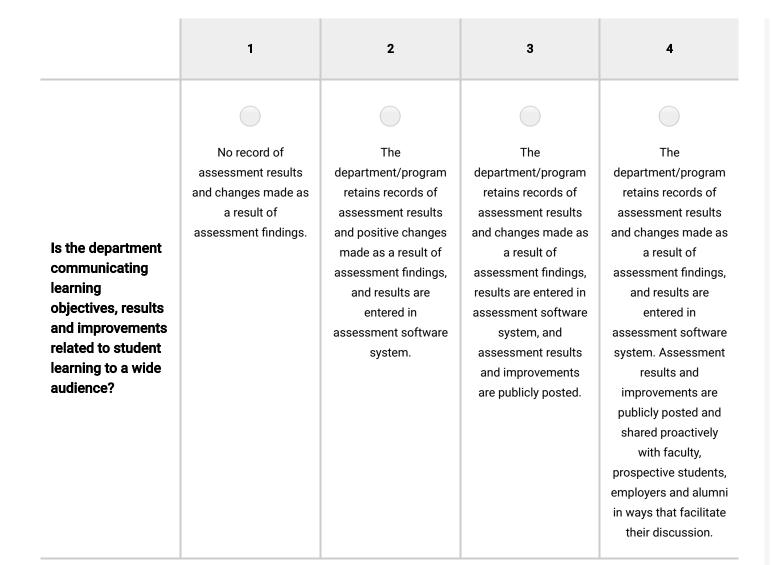
	1	2	3	4
	Assessment data not	Data collected.	Data collected.	Department collected
Is the department effectively examining and using assessment data to revise curriculum and pedagogy to support student learning?	Assessment data not collected/analyzed/used for decisions and/or results not documented in AEFIS.		documented and discussed by department.  Department and dean confirmed confidence in measures and data as sufficient indicators of student performance. Action plans (e.g. improving outcomes, measures, targets, curriculum or pedagogy) developed in consultation with dean. If prior year data warranted action plans, the department	and discussed follow- up data after the implementation of action plans in order to determine whether changes resulted in improvement or whether additional action is necessary. Data confirms effective curriculum and pedagogy for learning outcomes. Score of 4 should be assigned only if objectives, measures, targets and timeline
			implemented the changes.	all score a 4.

Explanations:

15

# Dissemination

1	2	3	4



16

Explanations:

### **Additional Feedback**

1

Please enter any additional feedback for changes that should be made:

**CLOSE AND EXIT**