



Guide for Designing Student Survey Questions to Indirectly Measure Course Learning Outcomes (CLOs)

2026 (1447 H)

❖ Overview

This guide explains how instructors should design student survey questions based on the Course Learning Outcomes (CLOs) they teach, for the purpose of indirect assessment. It focuses on:

- Translating CLOs into appropriate survey questions
- Ensuring questions are suitable for indirect measurement
- Avoiding common mistakes in survey question design
- Maintaining consistency with program-level assessment requirements

➤ First: Start from the CLO

Each CLO is already classified into a specific domain (Knowledge, Skills, or Values/Responsibility) within the **approved course specification**. *The course coordinator, in coordination with the instructors, should refer to the official course specification to identify the domain of each CLO before designing survey questions.*

CLO Domain	Focus
Knowledge	Understanding, explaining, identifying concepts and principles
Skills	Applying, analyzing, investigating, and problem-solving
Values / Responsibility	Teamwork, communication, autonomy, and lifelong learning

This step is critical because survey question wording must align with the CLO domain as formally approved in the course specification.

➤ Second: Convert the CLO into a Perception-Based Question

Survey questions used for indirect CLO assessment must capture students' perceptions of how the course supported their learning. The survey question should be written as a general, student-centered statement that reflects the intent of the CLO.

Survey questions should not:

- Combine multiple CLOs into a single unclear question.
- Use assessment-specific terms (e.g., exam, quiz, grade, mark, score, test, etc).
- Mention specific exams, quizzes, or assignments.
- Refer to individual instructors.
- Use overly technical or discipline-specific wording.

Below are examples of survey questions from the Introduction to Cybersecurity (SEC1101) course:

CLO	Survey Question
<p>Explain basic terms and concepts in the field of cybersecurity.</p>	<p>I can clearly explain the basic terms and fundamental concepts used in the field of cybersecurity.</p> <ul style="list-style-type: none"> ▪ Strongly Agree. ▪ Agree. ▪ Neutral. ▪ Disagree. ▪ Strongly disagree.
<p>Identify and describe common cyber risks, threats, and vulnerabilities.</p>	<p>I can identify and describe common cyber risks, threats, and vulnerabilities that affect modern systems.</p> <ul style="list-style-type: none"> ▪ Strongly Agree. ▪ Agree. ▪ Neutral. ▪ Disagree. ▪ Strongly disagree.
<p>Demonstrate the ability to independently acquire and communicate knowledge in cybersecurity, a key skill for lifelong learning, through an oral presentation.</p>	<p>Through the term project and research, I have developed the ability to independently acquire new knowledge in the rapidly evolving field of cybersecurity.</p> <ul style="list-style-type: none"> ▪ Strongly Agree. ▪ Agree. ▪ Neutral. ▪ Disagree. ▪ Strongly disagree. <p>I feel confident in my ability to communicate complex cybersecurity topics to others through oral presentations and reports.</p> <ul style="list-style-type: none"> ▪ Strongly Agree. ▪ Agree. ▪ Neutral. ▪ Disagree. ▪ Strongly disagree.

➤ **Third: Use the Five-Point Likert Scale**

All survey questions should use the standard scale:

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

This ensures:

- Consistency across questions.
- Ease of analysis.
- Compatibility with program-level assessment.

➤ Fourth: Collecting Survey Results

After the semester ends, the instructor retrieves the course evaluation results. For each selected survey question, the **average score out of 5 should be reported**, which is *calculated based on the numerical values assigned to the Likert scale responses (5 = Strongly Agree to 1 = Strongly Disagree)* as follows:

$$= \frac{(\text{No. of Strongly Agree} \times 5) + (\text{No. of Agree} \times 4) + (\text{No. of Neutral} \times 3) + (\text{No. of Disagree} \times 2) + (\text{No. of Strongly Disagree} \times 1)}{\text{Total Number of Responses}}$$

For example:

Assume **20 students** responded to the survey question “I can clearly explain the basic terms and fundamental concepts used in the field of cybersecurity.” as follows:

Response	Number of Students
Strongly Agree	10
Agree	6
Neutral	2
Disagree	2
Strongly Disagree	0

The average score is:

$$\frac{(10 \times 5) + (6 \times 4) + (2 \times 3) + (2 \times 2) + (0 \times 1)}{20} = 4.20$$

➤ Fifth: Normalizing Survey Scores

All scores of all survey questions must be converted into percentages. The following formula is used:

$$\text{Question Percentage} = (\text{Average Question Score} \div 5) \times 100$$

For example, if the average score for the question “I can clearly explain the basic terms and fundamental concepts used in the field of cybersecurity.” is **4.20 out of 5**, the calculation would be: $4.20 \div 5 \times 100 = 84\%$

➤ Sixth: Applying the Target Benchmark

For indirect assessment, the program adopts a **target achievement level of 80%**.

- If the normalized survey percentage is **80% or higher**, the outcome is considered **Achieved**.
- If the normalized survey percentage is **below 80%**, the outcome is considered **Not Achieved** and requires further analysis.

In the example above, a result of **84%** exceeds the target and indicates satisfactory indirect achievement.

➤ **Seventh: Recording Results in the Course Report (TP-154)**

The calculated percentages are then entered into the **Indirect Assessment** section of the **Course Report (TP-154)**.

For example:

CLO #	Course Learning Outcomes	Related PLOs Code	Direct Assessment				Indirect Assessment			Comment on Assessment Results	
			Assessment Methods	Target Level	# of Students achieving the Target Level		Assessment Methods	Target Level	# of participants		
					80%	Male			Female		80%
1	Knowledge and Understanding:										
1.1	Explain basic terms and concepts in the field of cybersecurity.	K1					End of Course Survey	84%		20	

You can access the course report (TP-154) click [Here](#) .

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