LEARNING OUTCOMES ASSESSMENT RUBRIC GUIDELINES

The learning outcomes assessed include the abilities: v computational thinking, critical thinking, creative thinking, collaboration, communication, and compassion.

a. Computational Thinking

Computational thinking is thinking about how things work computationally, where a person is required to formulate a problem in computational terms and develop a sound computational solution to the problem (in the form of an algorithm), or explain why no suitable solution can be found. Computational thinking is a way of training the brain to become accustomed to thinking logically, systematically, and creatively. Computational thinking is the ability to formulate a problem by breaking it down into segments that are smaller and easier to manage. This strategy enables students to transform a complex problem into several procedures or steps that are not only easier to carry out, but also provide a way to think creatively and efficiently. Computational thinking is supported by a set of cognitive skills that enable educators to identify patterns, break complex problems into small steps, organize and create a series of steps to provide a solution, and build data representations through simulation. Indicators for assessing computational thinking skills:

1) Able to solve problems using a computer or another device.
2) Able to organize and analyze data.
3) Able to represent data through abstraction using a model or simulation.
4) Able to automate solutions through algorithmic thinking.
5) Able to identify, analyze, and implement solutions using various combinations of steps/methods and resources efficiently and effectively.
6) Able to generalize solutions to various different problems.

b. Critical Thinking

Critical thinking is a thought process aimed at making decisions rationally when deciding on a matter or problem. Critical thinking involves the ability to carefully assess the correctness or suitability of an idea, including rational analysis of all available information, input, opinions, and ideas, then formulating conclusions and making a decision. Critical thinking also involves an active, skillful process of creating concepts, applying, analyzing, synthesizing, and observing a problem obtained or developed through observation, experience, communication, and other means.

Indicators for assessing critical thinking:

1) Relevance of the statements made.
2) The importance of the issues or main points presented.
3) The novelty of the ideas, whether in introducing new ideas or information or in being open to other people's new ideas.
4) Using one's own experience or materials received from lectures (reference).
5) Seeking further explanation or information if there is any lack of clarity.
6) Consistently connecting facts, ideas, or viewpoints and seeking new data from the information gathered.
7) Providing evidence, examples, or justification for a solution or conclusion reached. This includes consistently providing explanations of the advantages and disadvantages of a situation or solution.
8) Evaluating every contribution/input received from oneself or others.
9) New ideas presented are also considered from the perspective of their practicality/ usefulness in application.
10) Discussions are consistently aimed at broadening the content or subject matter of the discussion.

The indicators above can be divided into several personal activities:

1) Focus on questions (focus on question)

2) Analyze arguments (analysis arguments).

3) Ask and answer questions for clarification (ask and answer questions of clarification and/or challenge).

4) Evaluate the reliability of information sources (evaluating the credibility sources of information).

c. Creative Thinking

Creative thinking is the ability to create new ideas and original ideas that can be applied to problem-solving, or the ability to see new relationships between elements that already exist previously. Creative thinking is demonstrated by an individual's ability to think about what everyone has already thought of, enabling that individual to do what no one has ever done before and do more than their peers.

Indicators for assessing creative thinking ability:

1) Fluency: the ability to ask many questions, answer with multiple answers when asked, work faster than peers, and quickly identify errors and weaknesses in an object or situation.

2) Flexibility: the ability to offer various interpretations of a picture, story, or problem; apply a concept or principle in different ways;

3) When offering an opinion or discussing something, consistently take a position that differs from or opposes the group majority; when given a problem, usually think of various different ways to solve it.

4) Originality: the ability to think of problems or things that others have never thought of; question old ways and try

thinking of new ways; providing new ideas in solving problems; after hearing or reading an idea, working to find a new solution.

5) Elaborative, the ability to find deeper meaning in an answer or problem-solving by taking detailed steps; developing/enriching others' ideas; tending to provide broad and satisfactory answers; and being able to build connections between concepts.

6) Evaluative, the ability to make judgments based on one's own point of view ; critically analyzing problems/solutions by always asking "why?"; having justifiable (rational) reasons to support a decision; determining an opinion and standing by it.

d. Collaboration

Collaboration skills are a person's ability to work together in small groups to achieve learning objectives, manifested through social interaction. Collaboration skills are demonstrated by the ability to work effectively and value team/group diversity; demonstrating flexibility and willingness to accept others' opinions in achieving shared goals, and taking on shared responsibility when working together and valuing each team member's contribution.

Collaboration skills assessment indicators:

1) Contribution, an aspect that describes the characteristics of attitudes.

2) students in offering thoughts or ideas so they can participate in group discussions.

3) Time management, an aspect that indicates the characteristics of students' attitudes when managing their time to complete group assignments on time.

4) Problem-solving, an aspect that indicates the characteristics of students in making efforts to resolve problems.

5) Working with others is an aspect that demonstrates the characteristics of students' attitudes in listening to the opinions/ideas of group members and helping complete group assignments.

6) Inquiry is an aspect that demonstrates the characteristics of students' attitudes in finding content sources or theories to answer/solve problems.

7) Synthesis is an aspect that demonstrates the characteristics of students' attitudes in organizing complex ideas into a structured arrangement.

e. Communication

A person's ability to use language appropriate to the topic, region, field, and conversation partner. Communication ability includes the knowledge speakers and listeners have about what underlies appropriate and correct language or speech behavior, and about what constitutes effective language behavior. Communication ability involves knowledge not only of language codes, but also of what to say to whom, and how to say it correctly in a particular situation. Communicative competence concerns the knowledge of social and cultural matters that speakers possess to help them use and interpret linguistic forms.

Mathematical communication ability consists of oral and written communication. Oral communication includes discussion and explaining. Written communication includes expressing mathematical ideas through pictures/graphs, tables, equations, or in the students' own words. Communication ability is also demonstrated by the ability to convey information, ideas, emotions, skills, and so on through the use of symbols such as words, images, numbers- and so on, accompanied by feedback.

Indicators for assessing communication ability

1) The ability to write (written text), draw (drawing), and express mathematical ideas (mathematical expression), connect real objects,

images, and diagrams into mathematical ideas; interpreting and evaluating mathematical ideas, symbols, terms, and information; expressing mathematical ideas, situations, and relationships orally and in writing using objects from real life, pictures, graphs, and algebra.

2) The ability to express everyday events in mathematical language or symbols and use tables, model drawings, and so on as support for explanations, make conjectures, construct arguments, and formulate definitions and generalizations.

3) The ability to solve contextual problems, since in every contextual problem, the ability to connect real objects to mathematical ideas, explain mathematical situations in writing, express everyday events in mathematical sentences, formulate mathematical questions, and make generalizations.

f. Compassion

The attitude of showing care and kindness toward oneself when facing various difficulties in life or one's own shortcomings, and understanding that suffering, failure, and shortcomings are part of everyone's life. Compassion includes the desire to alleviate suffering, awareness of its causes, and behavior that demonstrates kindness.

Indicators for assessing Compassion:

1) Accepting imperfection, failure, and one's own failures

2) Trying to comfort and care for oneself when experiencing a setback

3) Not judging harshly, being cold toward, or belittling oneself oneself

4) Not focusing on one's own weaknesses and failures

5) Recognizing that people are imperfect, can fail, and can make mistakes

6) Do not feel isolated and disconnected from the surrounding world when experiencing failure

7) Do not blame other people or circumstances when something goes wrong in the outside world

8) Able to accept positive, negative, or neutral experiences with peace of mind

9) Do not escape by dramatizing what is happening to oneself

10) View the situation with a broader perspective

A. Assessment Principles

Assessment principles are good values that must be practiced by Lecturers assess the learning process and outcomes. The assessment principles as set out in SN Dikti include:

1. Educational, namely assessment that motivates students to improve their planning and learning methods, and achieve graduate learning outcomes

2. Authentic, namely assessment oriented toward a continuous learning process and learning outcomes that reflect students' abilities during the learning process

3. Objective, namely assessment based on standards agreed upon by lecturers and students and free from the influence of subjectivity on the part of the assessor and the person being assessed

4. Accountable, namely assessment carried out according to clear procedures and criteria, agreed upon at the beginning of the course, and understood by students

5. Transparent, namely assessment whose procedures and results are accessible to all stakeholders

B. Assessment Techniques and Instruments

1. Assessment Techniques

Assessment techniques in the assessment quality standards include observation, participation, performance, written tests, oral tests, and questionnaires. Each assessment technique is explained as follows:

a. Observation.

The observation technique uses an observation sheet.

Using this technique, educators can observe and prepare reports on the behavior of students, including spiritual and social attitudes. Observation sheets themselves consist of closed and open observation sheets. A closed observation sheet is an instrument used by lecturers to determine the behavioral items and indicators to be observed.

An open observation sheet, meanwhile, is an instrument used by educators to record students' behavior naturally. Assessment of behavior among university students is based not only on direct observations by lecturers, but also on other information considered relevant and valid from various sources. This technique is suitable for assessing students' attitudes.

b. Participation

Participation assessment is conducted to measure the level of student participation in learning activities. This technique is suitable for assessing students' general and specific skills, as well as their knowledge.

c. Performance

Performance assessment is a form of assessment that asks students to demonstrate and apply their knowledge, skills, and attitudes in various tasks according to the required criteria. Performance assessment can be conducted using a checklist or a rating) scale. This technique is suitable for assessing general and specific skills and students' knowledge.

d. Written test,

Knowledge assessment using a written test is an assessment that uses a test instrument consisting of questions and written answers to be completed by students. Students' answers in the test do not have to be essay responses; they may instead be multiple-choice

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multiple-choice, true-false, and matching. An appropriate technique for assessing students' knowledge, general and specific skills

e. Oral test

An oral test is a form of test that requires a response from students in spoken language. Students will give their answers in their own words in response to the questions or instructions given. An appropriate technique. for assessing general and specific skills, as well as students' knowledge

f. Questionnaire

A questionnaire is one technique for learning students' attitudes toward an object, for example, students' attitudes toward environmental issues, COVID prevention 19, diversity, corruption, religious moderation, and so on. This technique is appropriate for assessing students' attitudes.

Learning outcomes are assessed in the domains of attitudes, knowledge, and skills, as detailed below:

- Attitudes are assessed through observation, self-assessment, peer assessment (students assess their peers' performance in a subject area or group), and assessment of personal qualities that emphasize faith, noble character, self-confidence, discipline and responsibility in interacting effectively with the social environment, the natural surroundings, and the world and its civilizations.
- Knowledge is assessed through various forms of written and oral tests, which can technically be administered directly or indirectly. Direct administration means that the lecturer and student meet face-to-face during the assessment, for example during a seminar or a thesis or dissertation examination. Indirect administration, for example, involves using written examination papers.
- Skills are assessed through performance assessment, which can be conducted through laboratory work, practice, simulations, fieldwork, and other activities that enable students to improve their skills.

- The final assessment result is an integration of various techniques and assessment instruments used.

The relationship between assessment aspects, techniques, and instruments can be seen in the following table:

Table 1. Assessment Techniques and Instruments

<table>
<tr><th>Assessment</th><th>Technique</th><th>Instrument</th></tr>
<tr><td>Attitude</td><td>Observation/questionnaire</td><td rowspan="4">1. Rubric for assessing process and/or
2. Portfolio or work design for assessing results</td></tr>
<tr><td>General Skills</td><td rowspan="3">Observation, participation, performance, written tests, & oral tests</td></tr>
<tr><td>Specialized Skills</td></tr>
<tr><td>Knowledge</td></tr>
<tr><td colspan="3">The final assessment result is an integration of the various techniques and assessment instruments used.</td></tr>
</table>

(Junadi, et al., 2019)

Note. In general, the term instrument also refers to a tool used to conduct assessment or evaluation. Assessment instruments may include tests, non-tests, and systematic or non-systematic observation.

A rubric is an assessment guide or guideline that describes the desired criteria for assessing or assigning levels to student learning performance outcomes. A rubric consists of dimensions or aspects to be assessed and criteria for students' learning outcomes or indicators of student learning achievement. This guide explains analytic rubrics, holistic rubrics, and perception scale rubrics. The purpose of using rubrics for assessment is to clarify the dimensions or aspects and assessment levels of student learning outcomes. In addition, rubrics are expected to encourage or motivate students to achieve their learning outcomes. Rubrics may be comprehensive or generally applicable, and may also be

specific or applicable only to a particular topic. Rubrics that are comprehensive can be presented in the form of a holistic rubric.

There are 3 types of rubrics presented as examples in this book, namely:

(1) A holistic rubric is an assessment guide for evaluating based on an overall impression or a combination of all criteria. An example of a holistic rubric can be seen in the attached table

(2) An analytic rubric is an assessment guide with levels of criteria that are described and assigned a rating scale or score. An example of an analytic rubric is attached

(3) A perception-scale rubric is an assessment guide with levels of assessment criteria that are not described, but are still assigned a rating scale or score for assessment. An example of a perception-scale rubric is attached

Some benefits of assessment using rubrics are as follows:

1) Rubrics can serve as objective and consistent assessment guides with clear criteria;

2) Rubrics can provide information on the assessment weighting at each level of student ability;

3) Rubrics can motivate students to learn more actively;

4) Students can use rubrics to measure the achievement of their own abilities or those of their study group;

5) Students receive prompt and accurate feedback;

6) Rubrics can be used as an instrument for effective reflection on the learning process that has taken place;

7) As a guide for both the learning process and the assessment of learning outcomes of students

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a. Portfolio Assessment

Portfolio assessment is an ongoing assessment based on a collection of information showing the progress of learning outcomes of students over a certain period. This information may take the form of work produced by students during the learning process that is considered their best work, or work by students that demonstrates the development of their ability to achieve the learning outcomes.

The types of portfolio assessment presented in this book are as follows:

(1) Development portfolio, containing a collection of students' work that shows progress in achieving their abilities in accordance with the learning stages they have completed.

(2) Showcase portfolio, containing students' work that demonstrates their best learning performance.

(3) Comprehensive portfolio, containing students' work in its entirety throughout the learning process.

3. Validation of Assessment Instruments

Assessment instruments used to measure the achievement of learning outcomes must be validated instruments, or instruments developed by experts may be cited, or instruments may be developed by the lecturer in question. Under UNISM's assessment system, examination questions are required to be validated by an expert and/or the Head of the Study Program. Validation covers two main aspects:

a. Content, namely the alignment of examination questions with the material and learning outcomes stated in the RPS
b. Face, namely the validity of the sentence structure or wording used in questions/prompts/statements, ensuring their meaning is clear and does not cause misinterpretation.

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C. Assessment Mechanism and Procedures

1. Assessment Mechanism The assessment mechanism relates to assessment stages, assessment techniques,

assessment instruments, assessment criteria, assessment indicators, and assessment weights

carried out according to the flow shown in Figure 1

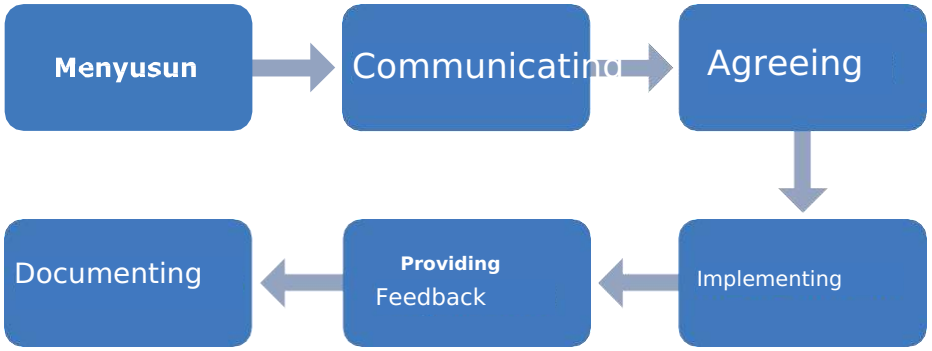


Figure 1. Assessment Mechanism

2. Assessment Procedures

The assessment procedures include the following stages:

a. Planning (may be carried out through staged assessment and/or reassessment

),

b. assigning tasks or questions,

c. performance observation,

d. returning the observation results, and

e. assigning the final grade.

D. Conducting the Assessment

The assessment is conducted in accordance with the learning plan and may be carried out by:

- the course instructor or a team of course instructors;
- the course instructor or a team of course instructors involving students; and/or
- the course instructor or a team of course instructors involving

relevant stakeholders.

Meanwhile, assessment for the two-specialist program, doctoral program, and applied doctoral program must include an external assessment team from a different university

E. Assessment Reporting

The following is the assessment reporting mechanism:

1. Assessment reporting takes the form of students' achievement qualifications in completing a course, expressed in the ranges shown in Table 2.

Letter	Number	Category
A	4	**Excellent**
B	3	**Good**
C	2	**Satisfactory**
D	1	**Poor**
E	**0**	**Very poor**

Table 2. Assessment Categories

2. Assessment may use intermediate letters and numbers for scores in the range from 0 (zero) to 4 (four).
3. The assessment results for graduate learning outcomes each semester are expressed

$$IPS = \frac{\sum_{i=1}^{n} (Nilai\ angka\ X\ Besar\ sks\ MK)}{\sum_{i=1}^{n} (Besar\ sks\ MK\ yang\ telah\ ditempuh\ selama\ 1\ semester)}$$

as the semester grade point average (IPS):

a) The assessment results for graduate learning outcomes at the end of the study program are expressed as the cumulative grade point average (IPK):

$$GPA = \frac{\sum_{i=1}^{n} (\text{Numerical grade X Course credit hours})}{\sum_{i=1}^{n} (\text{Total course credit hours completed by the end of the program})}$$

Students with high academic achievement are students who have a semester grade point average (GPA) greater than 3.50 (three point five zero) and meet academic ethics.

Assessment at Sari Mulia University uses four main categories, namely; Assignments, Mid-Semester Exam (UTS), Final Semester Exam (UAS), and Participation. The percentage weight of each category is adjusted according to the level of difficulty and or the relative importance of each in achieving the course learning outcomes.
Each category is explained as follows:

- Assignments. These include structured and independent assignments. The grade for assignments is the cumulative score of structured and independent assignments completed by students. This category carries a higher weight than the other categories, and may account for 35-50 %
- Mid-Semester Exam (UTS). The UTS measures learning outcomes over a period of 7-8 weeks of lectures. The UAS grade is obtained from the cumulative assessment results over class meetings 1-7, 8. The UAS weight percentage ranges from 15-25%
- Final Semester Exam (UAS). The UAS measures learning outcomes over the course of one semester. The UAS grade is obtained from the cumulative assessment of learning achievement throughout the semester, particularly through tests. Its weight percentage may reach 25-35%
- Participation: Participation is the assessment of students' level of involvement in the learning process. Participation is assessed based on the level of class attendance (online/offline), active participation in discussions and presentations, active completion of independent assignments, and active involvement in completing structured assignments. Its weight percentage ranges from 20-30%

The assessment categories applied at Sari Mulia University for the undergraduate level are as shown in the following table 3: Table 3. Assessment Categories at Sari Mulia University

SCORE	LETTER	NUMBER	CATEGORY
80,00-100	A	4	Excellent
75,00-79,99	B+	3,5	Very Good
70,00-74,99	B	3	Good
65,00 - 69 ,99	C+	2,5	Fairly Good
60,00 – 64,99	C	2	Fair
55,00 – 59,99	D	1	Poor
0,00- 54,99	E	0	Fail

The student graduation classifications are set out in SN-Dikti, as shown in the table figure 4 below:

Table 4. Student Graduation Classifications

Program	GPA	Graduate Classification
Diploma and Bachelor's Degree		
Students in diploma and bachelor's degree programs are declared to have graduated if they have completed all prescribed study requirements and achieved the learning outcomes targeted by the study program, with a grade point average (GPA) greater than or equal to 2,00 (two point zero).		
	2,76-3,00	Satisfactory
	3,01-3,50	Very Satisfactory
	>3,50	With Distinction
Professional, specialist, master's, applied master's, doctoral, applied doctoral		

<table>
<tr><td colspan="3">Students in professional, specialist, master’s, and applied master’s programs
doctoral, and applied doctoral programs are declared to have graduated if they have completed all of the prescribed study requirements and achieved the
graduate learning outcomes targeted by the study program, with a grade point average (GPA) greater than or equal to 3,00 (three point zero).</td></tr>
<tr><td rowspan="3"></td><td>3,00-3,50</td><td>Satisfactory</td></tr>
<tr><td>3,51-3,75</td><td>Very Satisfactory</td></tr>
<tr><td>>3,75</td><td>With Honors</td></tr>
<tr><td colspan="3">Students declared to have graduated are entitled to receive a diploma, degree or title, and a diploma supplement in accordance with applicable laws and regulations.</td></tr>
</table>