Assessment Plan of Program Learning Outcomes

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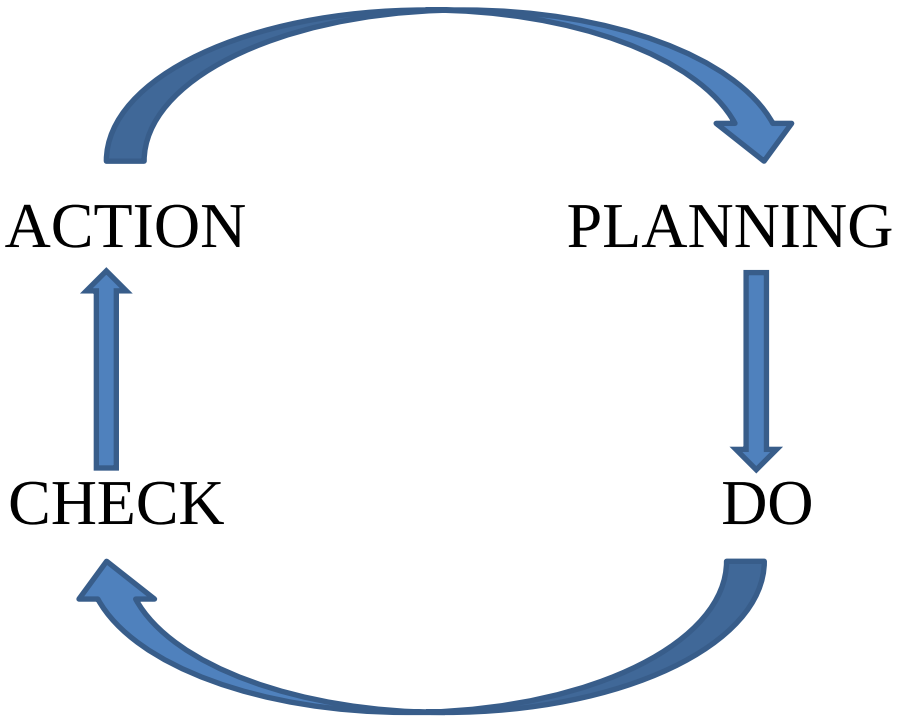
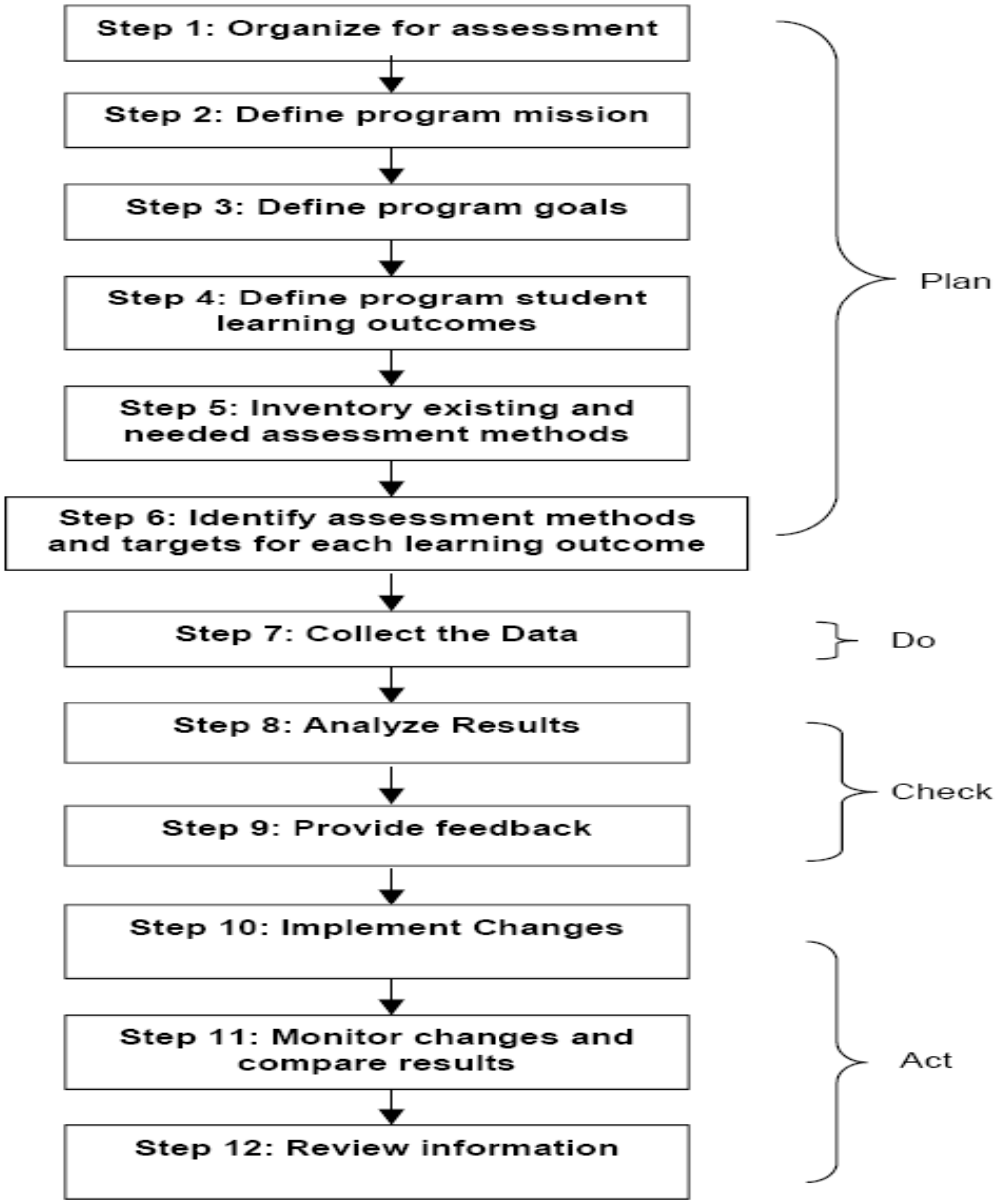
Why do we need to assess PLO?

- To ensure the systematic collection of assessment data for improving the effectiveness of our programmes.
- To demonstrates to stakeholders, how well our students are performing with regard to the learning outcomes.

Outcomes assessment is a continuous process



Flowchart describing assessment process



Course grade vs learning outcomes

- Course grade focus on measuring the performance of individual students, not the overall effectiveness of the programme.
- Course grade → how well students are doing in a particular subject, focusing on the subject knowledge and skills rather than on the broader programme objectives.
- Course grade → does not indicate separately how well students have attained the different generic graduate outcomes such as critical thinking, creative problem solving or teamwork skills, even if such skills are assessed.

Course grade → Can not satisfy the characteristics of good measures

Course grades
(e.g. KU2101 English for Academic Purposes)

<u>Learning Outcome</u>

Communicate information effectively in writing using appropriate business writing format

- Assignment 1 (10)
- Assignment 2 (10)
- Homework (10)
- Quizzes (10)
- Exam 1 (20)
- Exam 2 (20)
- Attendance (10)
- Participation (10)
- Extra credit (2)

<u>Course Grade</u>

90 & up: A
80 ~ 89: B
70 ~ 79: C
60 ~ 69: D
59 & below: F

Assessment Plan

I. **Study Program**

Name of Study Program:

Degrees awarded:

Contact person:

Date:

II. **Program Mission Statement**

III. **Program Educational Objectives**

IV. **Program Learning Outcomes**

V. **Strategies, Methods, and Level of Competence**

VI. **Implementation Plan**

VII. **Assessment of Results**

VIII. **Evaluation of Results**

IX. **Recommendations**

X. **Actions**

Assesmen Plan

Learning Outcomes (each with measurable performance criteria):	'04-5	'05-6	'06-7	'07-8	'08-9	'09-10
A recognition of ethical and professional responsibilities	●			●		
An understanding of how contemporary issues shape and are shaped by mathematics, science, & engineering		●			●	
An ability to recognize the role of professionals in the global society			●			●
An understanding of diverse cultural and humanistic traditions	●			●		
An ability to work effectively in teams		●			●	
An ability to communicate effectively in oral, written, graphical, and visual forms			●			●

Table 1. Data collection cycle for six learning outcomes

Outcome: An ability to recognize the role of professionals in the global society

Assessment and Evaluation Activity	'04-5	'05-6	'06-7	'07-8	'08-9	'09-10
Review of performance criteria that define the outcome	●			●		
Map educational strategies related to performance criteria		●			●	
Review mapping and identify where data will be collected		●			●	
Develop and/or review assessment methods used to assess performance criteria		●			●	
Collect data			●			●
Evaluate assessment data including processes				●		
Report findings				●		
Take action where necessary				●		

Table 2. Assessment and evaluation activity timeline for a single outcome

Activities	'04-5						'05-6						'06-7					
	Ethics	Contemporary Issues	Global	Cultural	Teams	Communication	Ethics	Contemporary Issues	Global	Cultural	Teams	Communication	Ethics	Contemporary Issues	Global	Cultural	Teams	Communication
Review of performance criteria defining that outcome			●			●	●			●				●			●	
Map educational strategies related to performance criteria		●			●				●			●	●			●		
Review mapping and identify where data will be collected		●			●				●			●	●			●		
Develop or review assessment methods related to outcome		●			●				●			●	●			●		
Collect and analyze data	●			●				●			●				●			●
Evaluate assessment data including processes			●			●	●			●				●			●	
Report findings			●			●	●			●				●			●	
Take action where necessary			●			●	●			●				●			●	

Table 3. Three-year cycle of assessment and evaluation activity

Program Outcomes

Program Outcome _____

Performance Criteria	Strategies	Assessment Method(s)	Source of Assessment	Time of data collection	Assessment Coordinator	Evaluation of Results

Results _____ **(date)**:
Actions _____**(date):**
Second-Cycle Results _____**(date):**

Program Outcome: Students can work effectively in teams

Performance Criteria	Strategies	Assessment Method(s)	Source of Assessment	Time of data collection	Assessment Coordinator	Evaluation of Results
1. Produces research information for team	ME 234, ME256, ME113, EM213, ME213, ME235, ME333, ME412	Peer & Faculty Evaluations (rubrics) Senior Survey	ME412			Department Curriculum Committee
1. Demonstrates understanding of team roles when assigned	ME 234, ME256, ME113, EM213, ME213, ME235, ME333, ME412	Peer & Faculty Evaluations (rubrics) Senior Survey	ME412			Department Curriculum Committee
1. Shares in work of team	ME 234, ME256, ME113, EM213, ME213, ME235, ME333, ME412	Peer & Faculty Evaluations (rubrics) Senior Survey	ME412			Department Curriculum Committee
1. Demonstrates good listening skills	ME 234, ME256, ME113, EM213, ME213, ME235, ME333, ME412	Peer & Faculty Evaluations (rubrics) Senior Survey	ME412			Department Curriculum Committee

Assessment Methods

- Multiple methods & sources recommended (increase validity)
- One method does NOT fit ALL (each has pros & cons)
- Practicality? Time, effort, money
- Do not have to measure everything or everybody (sampling)
- Capitalize on what you are already doing

Direct vs. indirect measurements

- Direct measures: Assess student **knowledge or skills**, that is student learning outcomes
- Indirect measures: Assess students' learning **experiences or perceptions** of their learning

Inventory of assessment methods

Direct (Required)

- Class Assignments
  (paper, presentation, report…)
- Capstone Project
- Performance Project
- Direct Observation
- Portfolios
- External examiner
- Standardized exam
- Locally developed exam
- Certification and licensure exams
- Simulations
- Theses/Senior papers

Indirect (Supplemental)

- Surveys
  - Student survey
  - Alumni survey
  - Employer survey
  - National survey
- Interview
- Focus group
- Case study

Guiding Questions for Methods

Does the method……

- Measure your learning outcomes?
- Measure your learning outcomes accurately?
- Provide useful information (implications for educational evaluation and improvement)?

PLO Assessment Matrix

Learning Outcomes	Course 1	Course 4	Course 5	Course 6	Course 7	Standardized test
Communication	CA (writing) CA (writing 2) CA (oral presentation) CA (oral presentation 2)	CA (writing)	CA (writing)	External examiner; Employer survey; CA	CA (report); Exam (multiple choices)	GMAT writing
Work as a team	CA (Group project)	External examiner	CA (Group project)		CA (Group project)	
Self learning				CA (Self-reflecting paper)		
Critical thinking		CA (Written analysis report)	CA (Comprehensive paper)		CA (Critique report)	
Ethics and professionalism				CA (Essay)	CA (Reaction paper)	

Assessment Map: Program

Learning Outcomes	Performance Criteria	Course 1	Course 2	Course 3	Course 4	Activity 1	Activity 2
Communicate information in business field effectively in writing, orally, and graphically	Create business documents with appropriate business writing format						
	Argue constructively and formulate a logical conclusion on a topic in writing						
	Prepares and delivers a well-organized logical oral presentation						
	Illustrates information with professional graphics						
	Interpret graphical information correctly						

Assessment Map: focused

Learning Outcomes	Performance Criteria	Course 1	Course 4	Course 5	Course 6	Course 7	Standardized test
Communicate information in business field effectively in writing, orally, and graphically	Create business documents with appropriate business writing format	CA (writing)	CA (writing)	CA (writing)			
	Argue constructively and formulate a logical conclusion on a topic in writing	CA (writing 2)					GMAT Writing
	Prepares and delivers a well-organized logical oral presentation	CA (oral presentation)			External examiner; Employer survey		
	Illustrates information with professional graphics	CA (oral presentation 2)				CA (report)	
	Interpret graphical information correctly				CA	Exam (multiple choices)	

Where to start?

- Course related:
  - Course descriptions
  - Syllabi
  - Course objectives
  - Course assignments
  - Course exams
- Other activities:
  - Student exit survey
  - Alumni survey
  - Employer survey
  - National Standardized Exams

Syllabus analysis

- Identify course objectives
- Document those objectives in a table
- Faculty complete table for each of their courses

- LO: communicate information in the business field effectively in writing, orally, and graphically.

Performance criteria

- Create appropriate business documents
- Write logically
- Logical oral presentation
- Illustrate with graphics
- Interpret graphical info correctly

Syllabus Objective (Course 1)

- Analyze communication situations and audiences
- Write business documents that are grammatically correct and use appropriate business style
- Deliver effective business presentations
- Develop effective interpersonal communication skills
- Use communication technology appropriately and effectively
- Conduct research and use it to complete written and oral reports

Syllabus Analysis

Objective	Exam 1	Exam 2	Assignment 1	Assignment 2	Assignment 3
Analyze communication situations and audiences					
Write business documents that are grammatically correct and use appropriate business style					
Deliver effective business presentations					
Develop effective interpersonal communication skills					
Use communication technology appropriately and effectively					
Conduct research and use it to complete written and oral reports					

Syllabus Analysis

Objective	Exam 1	Exam 2	Assignment 1	Assignment 2	Assignment 3
Analyze communication situations and audiences		x			
Write business documents that are grammatically correct and use appropriate business style			x		
Deliver effective business presentations	x			x	
Develop effective interpersonal communication skills					x
Use communication technology appropriately and effectively	x			x	
Conduct research and use it to complete written and oral reports			x		x

Exam analysis

- Identify test items that match course objectives
- Calculate overall student performance for each item
- Calculate the average performance for items assessing same objective
- Determine the level of competence

Exam Analysis

Objective	Exam 1	Exam 2	Assignment 1	Assignment 2	Assignment 3
Analyze communication situations and audiences		1 89% 5 82% Avg 86%			
Write business documents that are grammatically correct and use appropriate business style					
Deliver effective business presentations					
Develop effective interpersonal communication skills					
Use communication technology appropriately and effectively	3 75% 11 85% 15 45% Avg 68%				
Conduct research and use it to complete written and oral reports					

Assignment analysis

- Identify assignment components that match course objectives
- Assess student performance for each component
- Determine the level of competence
- Using rubrics

Assignment Analysis

Objective	Exam 1	Exam 2	Assignment 1	Assignment 2	Assignment 3
Analyze communication situations and audiences					
Write business documents that are grammatically correct and use appropriate business style			x		
Deliver effective business presentations				x	
Develop effective interpersonal communication skills					x
Use communication technology appropriately and effectively				x	
Conduct research and use it to complete written and oral reports			x		x

Rubrics

- Scoring guidelines
- A set of categories which describe the important components of the work assessed.

Collect Data

This phase involves teaching program and measuring outcomes.

- When will measurements be made?
- How often will measurements be made?
- Who (specifically) will collect the data?
- Who will interpret the data?
- Where/When will data be interpreted?
- Who will report the results?
- To whom will results be reported?
- By when will results be reported?

Check

- The purpose of this phase is to
  - analyze the results, and
  - determine what actions need to be taken to improve the program.

Analyze the results

- Analysis and interpretation of data → Faculty staff
- The results are summarized in a meaningful way.
- The results are annalyzed and reported according to the identified audience

Provide Feedback

- Plan should incorporates a feedback mechanism.
- The results should be distributed to the faculty staffs to obtain their ideas on how to improve the program.
- The faculty will relate the findings to the curricular/teaching initiatives and between program goals and intended learning outcomes.
- Use assessment results to initiate action aimed at improving program.

Act

- The objective of this step is
  - to implement improvements to the program and
  - to prepare for the following assessment cycle.

Implement changes.

- The planned changes should be implemented.
- These changes could be in the curriculum, teaching & learning strategies, staffing, facilities, etc

Summary of types of changes that may be implemented as a result of conducting assessment

Assessment Plan

- revision of intended learning outcome statement (s)
- revision of measurement approaches
- collection of and analysis of additional data and information
- changes of data collection methods

Curriculum

- changes in pedagogical practices
- revision or enforcement of prerequisites
- revision of course sequence
- revision of course content
- Addition/deletion of course(s)

Academic Processes

- modification of frequency or schedule of course offerings
- improvements of technology
- changes in personnel
- implement additional training
- other implemented or planned change
- revision of advising standards or processes

Assessment Map exercise

- Pick a Learning Outcome with performance criteria
- Write them in 2 left columns
- List courses or activities in your program in the first row

  -start with your own courses
- Write down assignments that are relevant to the chosen learning outcome for each course or activity
- Among them, choose the methods you intend to use

Assessment Map

Learning Outcomes	Performance Criteria	Your Course	Course 4	Course 5	Course 6	Course 7	Standardized test

- LO:

Performance criteria

Syllabus Objective (Your course)

Syllabus Analysis

Objective	Exam 1	Exam 2	Assignment 1	Assignment 2	Assignment 3

Exam Analysis

Objective	Exam 1	Exam 2	Assignment 1	Assignment 2	Assignment 3

Assignment Analysis

Objective	Exam 1	Exam 2	Assignment 1	Assignment 2	Assignment 3

Alternative of LO Assessment

Course Grade:

- Assignment 1 (10)
- Assignment 2 (10)
- Homework (10)
- Quizzes (10)
- Exam 1 (30)
- Exam 2 (30)
- ~~Attendance (10)~~
- ~~Participation (10)~~
- ~~Extra credit (2)~~

<u>Course Grade</u>

90 & up: A
80 ~ 89: B
70 ~ 79: C
60 ~ 69: D
59 & below: F

LO can be assessed through course grade

Courses supporting each PLO

No.	Programme Learning Outcome	Supporting Courses
1	They are able to demonstrate their knowledge of classical and modern physics by identifying physical properties of a physical system	**Core Physics**: FI1101, FI1201, FI2102, FI2202, FI2203, FI3101, FI3102, FI3103, FI4101, FI4202 **Mathematical tools:** FI2101, FI2201 **Subject in simulation and computational analysis:** FI3202
2	They are able to formulate a standard physical system into a physical model by using mathematics	**Core Physics**: FI1101, FI1201, FI2102, FI2202, FI2203, FI3101, FI3102, FI3103, FI4101, FI4202 **Mathematical tools:** FI2101, FI2201 **Subject in simulation and computational analysis:** FI3202
3	They are able to solve problems of a standard physical system comprehensively by the use of mathematics and computational tools	**Core Physics**: FI1101, FI1201, FI2102, FI2202, FI2203, FI3101, FI3102, FI3103, FI4101, FI4202 **Mathematical tools:** FI2101, FI2201 **Subject in simulation and computational analysis:** FI3202

Mapping of the courses that support the program learning outcomes (PLO)

No	Code	Course Name	CU	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8	PLO9	PL10
2	FI1101	Elementary Physics IA	4 (1)	S	S	S	S	S					
3	KI1101	Basic Chemistry IA	3								L		
4	KU1011	Indonesian Language	2						S				
7	KU1101	Sports	2									M	
9	MA1201	Mathematics IIA	4	S	S	S	S						
10	FI1201	Elementary Physics IIA	4 (1)	S	S	S	S	S					
11	KI1201	Basic Chemistry IIA	3								L		
12	KU102x	English	2						S				
14	FI2101	Mathematical Physics I	4	S	S	S	S						
15	FI2102	Mechanics	4	S	S	S	S						
16	FI2103	Electronics	4					S					
17	FI2201	Mathematical Physics II	4	S	S	S	S						
18	FI2202	Electricity and Magnetism	4	S	S	S	S						
19	FI2203	Modern Physics	3	S									
		Total	31										

Procedure of Alternative LO Assessment

- Identify courses that support PLO1 → 8 courses, with total credit = 31 cu
- Make a rubric to standardize the course grade.
- Calculate the attainment of PLO for each course through rubric
- Calculate the aggregate of PLO1 attainment from all courses and weighting using work load, or other factor, such as: course weight (S, M, L), student survey, course portfolio, etc

Thank You

Course Portfolio

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What is course portfolio?

- An exhibition of **evidence** on teaching effectiveness
- An **anatomy of a course** showing what we do as faculty and what students do as learners
- **Artifacts** from specific course
- **Reflection** on them

Primary elements of Course portfolio

- Design
- Execution
- Results

of particular course

Why construct a course portfolio

- To meet one of the requirements of the **faculty performance review** and development system
- To document and provide scholarly **evidence** of teaching excellent and innovation
- To increase **self-reflection** on teaching and enhance professional growth
- To provide a **document for internal & external review** for promotion, tenure or teaching award

Major components of a course portfoio

- Detailed coure syllabus
- Samples of faculty work
- Samples of student work
- Presentation & Analysis of Student’s Results
- Course Evaluation Results
- Course Reflection Journal

Additional Components

- Faculty Profile
- Course History
- Instructional Innovations Attempted
- Research on the Course
- Professional Development Activities Related to the Course
- Participation in off-campus Activities Related to the Course

Required Elements of a Course Syllabus

- Course Information
- Faculty Information
- Course Description
- Course Objectives
- Course Learning Outcomes

- LO: communicate information in the business field effectively in writing, orally, and graphically.

Performance criteria

- Create appropriate business documents
- Write logically
- Logical oral presentation
- Illustrate with graphics
- Interpret graphical info correctly

Syllabus Objective (Course 1)

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Syllabus Analysis

Objective	Exam 1	Exam 2	Assignment 1	Assignment 2	Assignment 3
Analyze communication situations and audiences		x			
Write business documents that are grammatically correct and use appropriate business style			x		
Deliver effective business presentations	x			x	
Develop effective interpersonal communication skills					x
Use communication technology appropriately and effectively	x			x	
Conduct research and use it to complete written and oral reports			x		x

Assignment Analysis

Objective	Exam 1	Exam 2	Assignment 1	Assignment 2	Assignment 3
Analyze communication situations and audiences					
Write business documents that are grammatically correct and use appropriate business style			x		
Deliver effective business presentations				x	
Develop effective interpersonal communication skills					x
Use communication technology appropriately and effectively				x	
Conduct research and use it to complete written and oral reports			x		x

Required Elements of a Course Syllabus

- Content Distribution by Week
- Delivery Methods
- Media & Technology
- Assessment Policy & Tools
- Learning Activities & Tasks

Required Elements of a Course Syllabus

- Course Regulations
- References & Additional Resources
- Appendices
  - Course Matrix
  - Evaluation Criteria (Rubrics)