Learning Outcomes Assessment Guidebook

Qatar University

Towards learning outcomes that are: specific, measurable, achievable, relevant to domains, and Time-bound.

Preface

The purpose of this guidebook is to introduce the university-approved learning outcome assessment process by providing the basic information of the learning outcomes assessment process and addressing the outcome-based learning strategy. The guidebook explains in detail the various phases to ensure proper implementation of the learning outcomes assessment process.

The guidebook also intends to help academic programs understand the university-approved assessment process requirements and to guide them on how to define and assess the learning outcomes and ensure continuous improvement of the offered academic programs through the adoption of the respective improvement plans.

It is worth mentioning that the implementation of the assessment process system including determining the organizational structures and the internal committees assigned to follow up on the learning outcomes assessment lie in the hand of the colleges in alignment with their nature and available human resources. Colleges are also free to set out their own time frameworks to implement their assessment process system provided that the assessment cycle does not exceed three academic years, taking into account the timeframe of the learning outcomes at the university level and the deadlines set for submitting the annual reports.

This guidebook is a reference to help deans/associate deans of colleges, heads of departments, learning outcomes assessment committees, assessment coordinators and faculty members, accrediting body, as well as non-academic staff understand the university's theoretical framework relating to the adopted assessment process system at the university level. It helps them grasp all aspects of the process and offers an overview of each of the various phases and how they are conducted.

Notably, it is important to know the updated forms provided by the office that can be accessed through this link and that follow up the implementation of the learning outcomes assessment process, which show the necessary elements that academic programs must implement at each phase of the learning outcomes assessment.

The guidebook also refers to several features available in the Online Assessment System (OAS) to assess the program learning outcomes, which require access to the OAS assistance manuals prepared to assess learning outcomes and detailed videos available on the Academic Planning and Quality Assurance Office web page. The guidebook displays the basic possibilities and processes that can be implemented using the OAS system.

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Academic Planning and Quality Assurance Office

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Acronyms

Acronym	Description
AAR	Annual Assessment Report
AARR	Annual Assessment Report Review
APQA	Academic Planning & Quality Assurance
DMAIC	Define, Measure, Analyze, Improve, and Control
OE	Outcome Element
PEO	Program Educational Objective
PLO	Program Learning Outcome
QU	Qatar University
SMART	Specific, Measureable, Achievable, Realistic, and Time-Bound

Glossary of Common Terms

Assessment: The aggregation of written, oral, and practical tests, and projects that are used to measure the student's progress in a course or program.

Assessment Criteria: A description of what the student is expected to do to ensure that the learning outcomes are achieved.

Assessment Rubric: A tool used to describe the areas used in evaluating/assessing student performance. Thus, the assessment rubric provides clear evidence on how to assess students' work.

Constructive Alignment: designing the curriculum to ensure that teaching and learning activities and assessment tasks are consistent and in line with the learning outcomes.

Continuous Assessment: It is the assessment that takes place during the period of regular education for the purpose of improving and developing the student's learning.

Credit Hours: They are the entitlement that the student obtains in return for studying a course. It is used as a measure of a student's eligibility to graduate if a certain number of credit hours is completed.

Direct assessment: It involves looking at actual samples of student work produced in a programs. These include homework assignments, quizzes, exams, lab experiments, term projects, capstone projects, senior theses, field work, exhibits or performances.

Evaluation: Judging the value of an item for a particular purpose.

Formative Assessment: A type of assessment that helps inform the teacher and students about how students are progressing. Formative assessment is usually done at the beginning or during the program. The idea of this assessment is that the feedback that students receive from the teacher helps to improve learning.

Indirect assessment: It is gathering information through means other than looking at actual samples of student work. These include surveys, exit interviews, and focus groups.

Knowledge: The ability to retrieve or remember facts without inevitably understanding them (Bloom classification).

Learning Outcomes: Statements that describe what the learner is expected to know, understand and/or be able to demonstrate after completing a learning process.

Objectives: The objectives of a course are specific statements that exhibit the willingness to teach. That is, they refer to the specific areas that the teacher intends to cover. The objectives of a program are defined as broad statements that describe what QU graduates are expected to attain within a few years after graduation.

Process: A series of actions, changes, or functions that lead to a result.

Summative Assessment: An assessment that attempts to summarize students' learning at some point in time—usually at the end of a unit or course. The use of summative assessment enables us to set a score that reflects the student's performance.

Taxonomy/Classification: It is based on certain criteria (e.g. Bloom's Taxonomy).

I. Introduction

The Learning Outcome Assessment in higher education institutions aims at enhancing the teaching and learning system and continuously improving the quality of academic programs. In its quest to achieve excellence in teaching and learning and to ensure the institution's quality Qatar University (QU) developed and adopted an institutional Learning Outcome Assessment Process that aims to improve academic programs offered at the university and the students' learning experience and performance to ensure a high level of academic achievement.

The university established Program Learning Outcomes (PLOs) Assessment committees at the university, college and department levels to help ensure a standardized learning outcome assessment strategy and to develop a culture of assessment and continuous improvement within the university. In addition to the aforementioned committees, each college has an academic coordinator who works, in collaboration with faculty members and the committees of learning outcomes assessment, on assessing learning outcomes. The coordinators and the established committees oversee and manage the assessment process and monitor the implementation of assessment-related activities, ensure the analysis of the learning outcomes, and adopt improvement plans based on the analysis of the assessment results which contribute to the constant development of the teaching and learning system that leads to achieving higher levels of students' academic performance.

The university offices responsible for ensuring the appropriate implementation of the learning outcomes process are the Office of Academic Planning and Quality Assurance, Office of Graduate Studies, Office of Quality Assurance in the Health Cluster, which work in collaboration with the assessment committees at the colleges and departments levels as well as the academic coordinators. They encourage the effective contribution and close involvement of all faculty and QU staff to achieve and enhance the quality of the teaching and learning process.

The university administration views assessment in general and learning outcome assessment in particular as a joint responsibility of the university community including academic and non-academic staff. All university members should be involved at the college and departmental levels in the development and/or implementation of assessment-related processes.

For the various academic programs at QU to adopt sustainable assessment plans that are implemented with their results in the continuous development of the programs, the University has developed an electronic system to assess, document and archive the learning outcomes (OAS). This system allows the management of all aspects related to the learning outcomes assessment process from the phase of determining the characteristics of the program to the phase of analyzing the assessment results and adopting improvement plans. The main advantages of developing and adopting the OAS locally are:

- It is fully integrated with QU's existing platforms such as Banner, Blackboard, Active Directory, etc.
- Fully supports the Arabic language in addition to the English language,
- It can be customized to the particularities of the different academic programs offered at QU since it is fully developed within the university.
- QU owns the IP rights and source code of the system and does not require any license or support fees.
- QU owns all data archived on its internal servers.

The university follows up the implementation of the learning outcomes assessment process at the level of various academic programs by sending regular notices about the implementation of scheduled assessment activities and compiling annual reports to assess learning outcomes. Later, it provides feedback on the effectiveness of the implementation of the assessment process, which will contribute positively to ensuring that the academic programs meet the phases of the learning outcomes assessment process and the good use and employment of assessment results in the continuous development of the academic programs.

The respective offices at the University level prepare institutional reports on the implementation of the learning outcomes assessment process based on the results tracked and monitored by the academic programs. This contributes to drawing an integrated picture of the academic programs' performance at the university level and the extent to which these programs benefit from the results of the learning outcomes assessment process.

II. Learning Outcomes

Over the past two decades, educational trends have changed from teacher-centered to learner-centered approaches driven by the positive impact they have made on students' educational achievement. The learner-centered approach depends on what the learner is expected to acquire by the end of the educational phase.

Learning outcomes have been the result of global education reform and development movement and are considered a key factor in the success of adopting the learner-centered approach by a large number of reputable universities.

Learning outcomes are necessary to ensure the quality of teaching and learning in higher education institutions. They can be defined as "*items or phrases that can determine what we expect the learner to acquire such as knowledge, understanding, capabilities, competencies and what skills and behaviors can the learner successfully demonstrate at the end of the learning process.*"[1]

The adoption of the learner-centered approach has also helped to adopt clearer systems in the design of programs and courses. This is achieved by identifying the learning outcomes and learning experience of each phase in advance. Thus, arranging all elements related to the teaching and learning process to serve the achievement of these outcomes (as indicated in Figure 1).

The learning outcomes should be in the form of phrases describing what a student should know and/or be able to perform or accomplish at the end of his/her study of a lecture, a course, or an academic program.
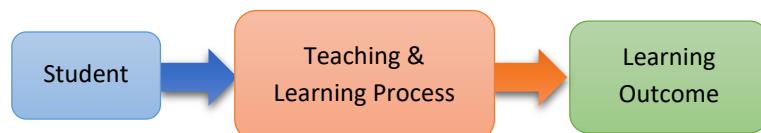

Figure 1: Contribution of the Teaching & Learning Process in the Achievement of Learning Outcomes (Cited from Linn & Miller 2005)

II.1 Significance of Learning Outcomes

The significance of the learning outcomes resides in the following:

- They are fundamental in the development of academic programs.

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[1] https://shms.sa.

- They ensure clarity, integration, and interdependence within and between courses.
- They enhance students' motivation.
- They encourage self-learning and independent learning by enabling students to measure the skills they have acquired (e.g. self and peer assessment).
- They contribute to supporting cooperation among faculty members.
- They can be used to assess decisions relating to curriculum and the educational environment.
- They help in spreading the culture of assessment and continuous improvement.
- They emphasize the principle of accountability and ensure the quality of academic programs.
- They help design assessments and align them with teaching.

Therefore, identifying the learning outcomes is essential for all contributors to the teaching and learning process. It provides information about what the program achieves and increases the confidence of employers and stakeholders in the program quality. Learning outcomes also contribute to ensuring that the teaching and learning process is consistent and in line with the goals and aspirations of the academic programs.

II.2   Where to Use Learning Outcomes?

Learning outcomes are usually used in:

- Evaluating and developing academic programs.
- Developing the teaching and learning system.
- Guiding student learning, by clarifying what students are expected to achieve upon graduation.
- Providing self-learning opportunities by improving students' motivation to learn and know what they are expected to achieve by the end of the educational phase.
- Helping students improve performance based on self-assessment results.
- Helping faculty plan and organize the educational process and identify educational activities.
- Following up on the development of performance and monitoring the progress made by students during the learning process.
- Following up on the impact of previously approved improvement plans.
- Supporting cooperation between students and faculty in achieving learning outcomes.
- Reviewing academic programs and course content based on assessment results.
- Guiding the efforts of faculty and students to ensure achievement of learning outcomes.
- Providing guarantees to employers and stakeholders about learning outcomes and levels of achievement.
- Aligning courses to one another within a program to ultimately lead to the achievement of the program learning outcomes

II.3   Levels of Learning Outcomes

- **Institution-Wide Learning Outcomes:** These are the QU Graduate Attributes. They identify the key features that all students of the educational institution should achieve.
- **Learning Outcomes at the College Level:** They identify the characteristics of the college graduates as the college is deemed a specialized educational institution regardless of the academic program in which students are enrolled.

- **Learning Outcomes at the Academic Program Level:** At this level, Program Learning Outcomes (PLOs) are designed to focus on a specific specialization such as Pharmacy, Dental Medicine, Electrical Engineering, Law, etc. Learning outcomes at the program level include joint general outcomes at the university and college levels. Thus, learning outcomes at the program level are phrases/clauses that determine what the student is expected to know and understand or what he/she should be able to do after successfully completing the academic program. They are determined in light of QU academic standards, professional levels of qualifications, and themes of excellence in teaching and learning on which the learning outcomes assessment is based.
- **Learning Outcomes at the Course Level:** A Course Level Outcome (CLO) is a formal statement of what students are expected to learn in a course. Course learning outcome statements refer to specific knowledge, practical skills, areas of professional development, attitudes, higher-order thinking skills, etc.

II.4   Characteristics of Learning Outcomes

Learning outcomes should cover knowledge, cognitive skills, professional competencies, and general skills. The learning outcomes must be formulated in a manner that helps students, faculty and other beneficiaries of the educational process understand them and to ensure the fulfillment of the following criteria:

- **Specific**: Learning outcomes show what a student will acquire and be able to perform when completing a course or academic program within the predetermined timeframe.
- **Measurable:** Learning outcomes are formulated in a way that helps measure the learning acquired by the student and determines the measurement mechanisms.
- **Achievable:** Learning outcomes are formulated in a way that demonstrates how the learner uses the knowledge and skills he/she has acquired during the learning process.
- **Realistic:** Learning outcomes are formulated in a way that enables the student to make use of all the knowledge and skills he/she has acquired.
- **Time-Bound**: Every learning outcome assessment needs a target date so that there is a deadline to focus on and something to work toward.

II.5   Formulating Learning Outcomes

When formulating the learning outcomes of an academic program, the following points must be considered:

- The learning outcomes should aim to achieve the mission and objectives of the program, college, and institution.
- Taking into account the academic and professional standards according to the nature of the academic program (achievement and abilities tests, medical bodies, …).
- Aligning them to the needs of the labor market, industry, and relevant sector.
- Learning outcomes should help students acquire the characteristics of graduates identified by the program, college, and university (e.g. graduate attributes).
- Views of academic experts and professionals on learning outcomes are incorporated.
- Benchmarking to regional and international similar educational programs and institutions.
- Learning outcomes are clearly linked to specific courses (each compulsory and elective course of the program must be related to a minimum of one learning outcome).

- The learning outcomes of each academic program should demonstrate the minimum level of knowledge, skills, and attitudes that reflect the characteristics a graduate should acquire by the time of completing the study of this program.
- The learning outcomes of each academic program should be aligned with the program's mission and vision statement, the college's strategic goals, and QU's mission, vision, objectives, and graduate attributes.
- The requirements of institutional or program accreditation entities or both if appropriate.
- The formulation of outcomes is consistent and aligned with the educational stage/level (B.A., M.A., Ph.D., ...).

In addition, some general guidelines should be followed when formulating learning outcomes, to ensure effective alignment between learning outcomes, teaching strategies, and the evaluation/assessment method. These general guidelines are:

- Determining what a student should learn or perform after completing the requirements of a degree, a course, or a learning module.
- Defining how to assess and evaluate the extent to which the targeted learning outcomes have been achieved.
- Identifying the teaching and learning activities that will help achieve the learning outcomes.
- Checking on the possibility of achieving the targeted learning outcomes before the end of the period specified for completing a program or a course.

Learning outcomes are derived from the academic standards and formulated in the form of phrases/clauses (to + verb (action, behavioral act) + student + content to be acquired and its conditions.

It is recommended that faculty members adopt the "Bloom's Taxonomy" to describe and formulate learning outcomes that take into account the different levels of mastery/competency within the three domains of learning activities: cognitive (knowledge-based), affective (emotion-based), and psychomotor domain (action-based).[2]

III. PLOs Assessment Process

III.1 PLOs Assessment Objectives

The process of program learning outcomes assessment aims to improve the components of the educational system and ensure the quality of academic programs. The most important objectives in this respect are as follows:

a) Know the mode by which the academic programs could achieve their learning outcomes.
b) Provide indicators for program, department, college, and university performance.
c) Use the learning outcomes assessment as a tool to evaluate programs and make improvement decisions at the program, department, college, or university level.
d) Evaluate the quality of teaching and learning strategies used by faculty members.
e) Make comparisons between the current and previous performance levels.
f) Provide the college with strong evidence and support for the achievement of its educational programs.

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[2] https://en.wikipedia.org/wiki/Bloom's_taxonomy

III.2 QU-Adopted PLOs Assessment Process

The PLO assessment process adopted at QU is based on the Six Sigma DMAIC methodology. The DMAIC methodology includes five phases: Define; Measure; Analyze; Improve; and Control. Figure 2 shows a brief illustration of the process and its phases.

The university assessment process adapted the DMAIC methodology to the university's needs. The "Define" phase was renamed the "Defining and Planning" phase while the "Measure" phase was further divided into two phases namely the "Measuring" phase and "The Data Collection and Reporting" phase. The "Control" phase was renamed "Control and Feedback" and is defined as a loop rather than a phase. In the adopted process, "Control and Feedback" is a continuous activity that covers all phases.

It is important to note that the assessment process at QU is a continuous process that occurs throughout the academic year and across multiple years. The process was designed to help build a culture of quality assurance through self-evaluation, further engage faculty and staff in the continuous evaluation and improvement of programs, promote informed change, develop and implement effective continuous improvement plans, and evaluate the impact of implemented changes on programs' performance.
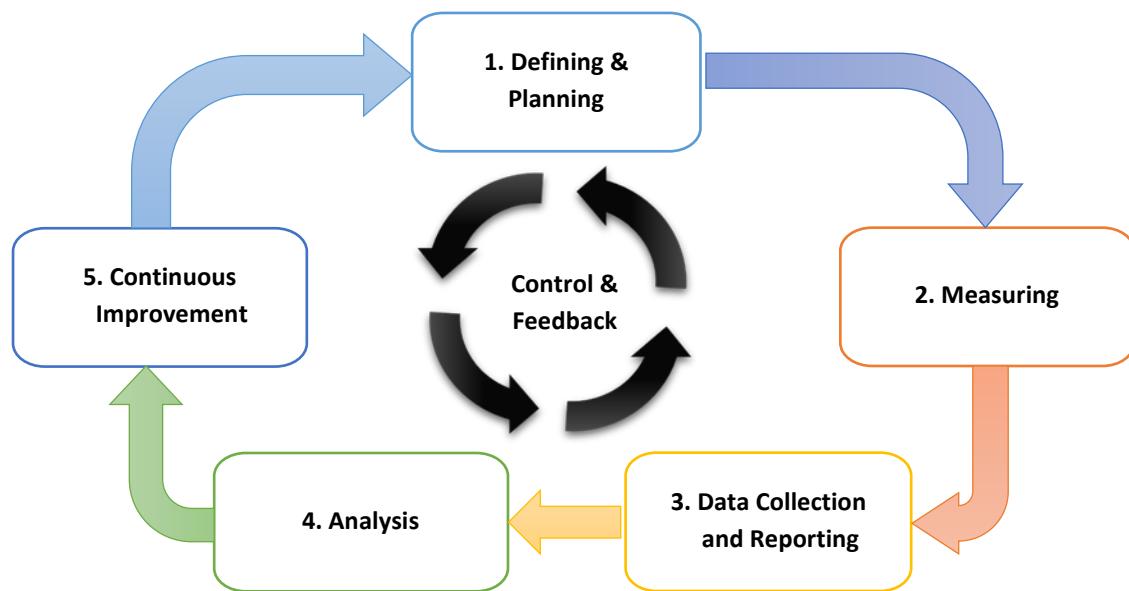
Figure 2: The General Learning Outcome Assessment Process at QU

The focus of the assessment process is on assessing student attainment of well-defined learning outcomes to improve the program performance. The assessment process relies on students' performance at the level of program learning outcomes in addition to the indirect results of the assessment (such as surveys for stakeholders). Students' grades and employment percentages cannot be considered as performance indicators.

The program coordinator is responsible for identifying the elements related to the implementation of the assessment process after considering all aspects pertinent to the requirements of the program and institutional accreditation.

III.3 Phases of PLOs Assessment

The process phases and steps that are briefly described in the following sections represent the basic process requirements. Thus, the assessment of an academic program should not be limited to the steps and elements described in this guidebook, but each program should consider these basic requirements in addition to the requirements of colleges and accreditation agencies (If any).

III.3.1   Defining and Planning Phase

The Defining and Planning phase of the assessment process is one of the most important phases as it includes the entry and preparation of accurate data following the instructions mentioned in the guidebook. The entry of inaccurate data leads to wrong results, and this in turn will not add value to the program because these results will not be utilized in the process of setting the improvement plans.

This phase is mainly concerned with the definition and/or revision of the program specifications including the program mission, educational objectives, and learning outcomes, the definition of the assessment activities that identify the assessment data needed for an effective and efficient evaluation of the program, the definition of the proper assessment tool for each activity, the proper selection of the rubric to assess students' achievements through clear and specific dimensions, and the definition of the assessment plans and schedule.

The Main Steps of the Defining and Planning Phase Include:
1. Define or revise the mission statement for the program.
2. Define or revise the Program Educational Objectives (PEOs).
3. Define or revise the Program Learning Outcomes (PLOs) (taking into account the requirements of accreditation agencies, if any).
4. Define or revise the Outcome Elements (OE) associated with each PLO. Outcome Elements are specific measurable statements that indicate the specific characteristics students should exhibit to demonstrate the desired achievement of the program learning outcomes.
5. Define or revise the curriculum mapping: Mapping courses in the curriculum and levels of achieving PLOs, considering that this mapping should follow a reasonable sequence of various courses contributing to the different mastery levels (Introduced, Developed, and Mastered).
6. Define or revise the assessment mapping by identifying the appropriate courses to assess each learning outcome. At least 2 courses should be considered per PLO assessment and it is preferable to select them from the senior-level courses close to student graduation.
7. Define the assessment cycle: The assessment cycle is the period during which assessment of the program learning outcomes PLOs and outcomes sub-elements (OEs) (If any) should be completed. It is recommended that the assessment cycle should not exceed three years during which the various activities of learning outcomes assessment are distributed in a balanced manner.
8. Define or revise the assessment plan: Identifying the required courses or the other assessment contexts (such as comprehensive exams, field training reports/internships) which will be used to implement the assessment activities. Upon the approval of the assessment plan, the academic programs must ensure that approved samples represent the program performance; this can be done through the adoption of various groups covering the demographic diversity of the program's students and faculty who participate in the teaching and learning process and contribute to the assessment process.
9. Define or revise assessment activities (recommend at least two activities for each OE/PLO in at least two different assessment contexts). An assessment activity represents an instance of assessment that is used to measure the student attainment of PLOs, and/or OEs.
10. Define or revise the assessment plan: Detailed schedule and timeline for implementing assessment activities throughout the assessment cycle.

11. Define or revise the assessment tools, which will be used for each assessment activity.
12. Develop rubrics: (The assessment rubrics usually include various dimensions or measurements that allow the assessment of various elements of the learning outcomes). One unified assessment rubric is recommended for each learning outcome at the college level.   More details of the Assessment Rubrics are provided in section III.3.7.
13. Define or adapt the achievement target for each learning outcome (PLO) and outcome element (OE).

This phase is supervised by the assessment coordinator in collaboration with the assessment committee in the program or department, which is responsible for entering/uploading the previously mentioned elements on the Online Assessment System (OAS). It is recommended that the assessment coordinator assists the faculty to define the assessment tool that is appropriate to assess the corresponding PLO. The tool should represent a considerable part of the effort provided by students during the course.

III.3.2 Measuring Phase

The Measuring phase of the assessment process is the phase during which the assessment plan is executed, and the assessment activities are carried out. The main steps of the measuring phase include but may not be limited to:

1. The PLO assessment coordinator in collaboration with the assessment committee in the department communicates the assessment activities to faculty or any other person responsible for implementing the activity in accordance with the assessment plan.
2. Implementing PLO related indirect assessment activities in accordance with the assessment plan:
   a. Prepare assessment tools (e.g. exit, employer, and alumni surveys in coordination with the OIPD office)
   b. Identify recipients of assessment instruments
   c. Send assessment tools to identified recipients (may use online surveys)
   d. Conduct annual regular (constituency) meetings.
   Activities a, b, and c, defined above, are typically conducted only one time during each assessment cycle (except for the Exit Survey which is conducted annually) while activity d: meeting, is to be held annually.
3. The PLO assessment coordinator and the assessment committee in the departments oversee the implementation of PLO planned direct assessment activities. Typically, such activities are implemented during each assessment period (semester) in accordance with the assessment plan by the designated faculty. The PLO assessment coordinator shall inform the faculty member at the beginning of the academic semester, which precedes the semester in which the learning outcomes assessment of the designated faculty will be assessed. It is recommended to request from the concerned faculty members to submit their assessment tool to the assessment committee for validation before implementation. The persons assigned to implement the assessment activities should follow the steps below and implement them on the OAS to assess the learning outcomes. The OAS explains how these steps are carried out in its special booklet available on the website: **https://oas.qu.edu.qa**

 For each defined activity, designated persons are to perform the following steps:
   a. Prepare assessment tools
   b. Select or define a rubric for measuring student performance

c. Select the sample of students who will be used in the PLO assessment. The academic programs should make sure that the sample represents the students of the program whose learning outcomes will be assessed (checking the specializations, adopting an appropriate sample)
d. Carry out assessment
e. Score students work
f. Complete data collection package associated with the activity (activity description, method of assessment, …)

It should be noted that the OAS makes it possible to separate the roles of the faculty member, the assessor, and the coordinator. This enables the program to distribute the tasks of preparing the assessment activity, implementing the assessment activity, coordinating between the various roles, and carrying out the tasks of analyzing the assessment results to ensure a higher level of reliability and stability. The preparation of the assessment activity is one of the instructor's roles, while the implementation of the assessment activity is the responsibility of the assessor, and the role of the coordinator, after implementing the assessment activity, is just a supervisory role to ensure that the information entered is correct so that the analyst (e.g. member of the PLOs assessment or curriculum committee in collaboration with the program/assessment coordinator), can see and analyze the results. It is always preferable that the coordinator supervises the implementation phase of the assessment activities to ensure that the process is done correctly.

III.3.3 Data Collection & Reporting Phase

The Data Collection and Reporting phase includes two main steps namely the data collection and the reporting steps. These steps are needed to collect assessment data and to generate reliable assessment reports in order to facilitate and support the analysis of learning outcomes assessment results. A brief description is given below.

III.3.3.1 Data Collection

The assessment coordinator in each college is responsible for the collection of assessment data throughout the year and for continuously monitoring the assessment results processing. The main steps in the collection of assessment data for each type of the planned and implemented assessment activity are described below:

- **Employer and Alumni Surveys:**
These surveys are not mandatory for academic programs, but some program accreditation agencies consider them a requirement to ensure the proper implementation of the learning outcomes assessment process, which contributes to ensuring a high level of credibility of the assessment results. If the program decides to implement this process, this phase includes:

    - Collecting completed assessment instruments (employer surveys and alumni surveys).
    - Following up with recipients who did not complete and submit the surveys.

- **Direct Assessment Activities:**
Recording the various assessment results on the OAS to assess learning outcomes.

- **Constituency Meetings:**
Collecting data during annual meetings and recording them in the meeting minutes enclosed in the annual report of learning outcome assessment. Feedback and opinions collected throughout the program meetings are considered one of the most important

sources of information that can contribute to the continuous improvement of the academic programs.

III.3.3.2 Reporting

The main goal of the reporting activity is to aggregate collected assessment data and to present them as clearly, completely, reliably, and concisely as possible in the form of reports in order to facilitate and support the analysis and evaluation of assessment results. Reports are to be developed at the end of each academic year and during the assessment cycle.

Reporting of assessment results should include a summary of both qualitative and quantitative assessment data. Qualitative data represents feedback and comments received from either faculty, students, or other program stakeholders. Quantitative data is mainly drawn from the aggregation of student scores obtained in any of the direct assessment activities implemented by the program and/or the aggregation of results obtained through surveys.

Assessment results are to be reported in the form of percentages such as indicating how many employers believe that graduates from the program possess a particular skill or ability or how many students scored (3) in a particular course given assessment activity. Percentages are derived from these frequencies to help identify the analysis phase and know whether achievement target levels are attained.

For the program to analyze the assessment results properly, the following reports must be prepared. They can be obtained from the OAS. These reports are:

OEs & PLOs Summary Reports: These are reports for each OE and PLO. The statistics contribute to identifying strengths and weaknesses, which will be regarded as quantitative evidence on which appropriate and effective improvement plans can be approved. Improvement plans should clearly mention the resources needed and the person responsible to implement the adopted improvement actions. These reports can be accessed through the OAS in the interface available on the link: Reports > Assessment Results > Learning Outcomes Level Summary Reports

Assessment Rubric Dimensions Reports: These reports contribute to identifying strengths and weaknesses at the level of assessment rubrics dimensions. This will help adopt appropriate and effective improvement plans. These reports can be accessed through the OAS in the interface available on the link: Reports > Assessment Results > Rubric Dimensions Report

Sections Assessment Results Reports: These include assessment results attained by each assessed section. These reports can be accessed through the OAS, the interface dedicated to reports available on the link: Reports> Assessment Results Report > Section Level Summary Report

Course Learning Outcomes Assessment Reports: a report for each course used to implement the assessment activities. The report includes assessment results obtained in all offered assessed sections. These reports can be accessed through the OAS in the interface available on the link: Reports > Assessment Results > Courses Level Summary Report

Survey Data Reports: A report for each type of survey that summarizes each item of the survey and assessment results obtained from all received surveys.

Qualitative Data Report: It summarizes all qualitative data received from program stakeholders including faculty, members of the constituency committee, feedback from alumni surveys, etc.

The program assessment coordinator should collect the assessment results-related data including data collection files, received survey tool, graduation survey forms, minutes of the learning outcomes assessment committee, etc.

Regarding the quantitative reports, they can be obtained from the OAS as shown in the Annual Assessment Report template through the link. The OAS also allows users to extract a large number of additional reports and graphics when needed.

 It is important to note that the OAS makes it easy to obtain all recorded data on the system for the purpose of analysis using specialized analysis software such as SPSS, RStudio, STATA, and others.

On the other hand, the academic programs should prepare other non-survey data reports that include feedback from the faculty members and beneficiaries of the program at the end of the academic year and at the end of the assessment cycle. Such data allow us to identify the main weaknesses the program failed to identify through the direct assessment results, this will help the program to identify and adopt effective improvement plans.

III.3.4 Analysis and Evaluation Phase

The Analysis and Evaluation Phase is one of the most critical phases of the assessment process. During this phase, the collected assessment results and the summary reports produced (in the Data Collection and Reporting Phase) are analyzed and evaluated to extract useful and meaningful information and to identify improvement areas and opportunities. Improvement areas and opportunities should not be limited in scope, but they should address curriculum issues as well as support services and executive issues including program administration and the assessment process itself.

The analysis and evaluation phase includes two main activities, the analysis activity, and the evaluation activity. While the analysis activity may be conducted by only members of the PLOs assessment or curriculum committees in collaboration with the academic coordinator, the evaluation activity requires a larger contribution from faculty members. The main steps of the analysis and evaluation activities are described in the following sub-sections.

III.3.4.1 Analysis

The analysis process aims to identify the strengths and weaknesses and their impact on the performance level of academic programs; this, in turn, allows the adoption of appropriate and effective improvement plans that contribute to ensuring continuous improvement of academic programs in line with the needs of stakeholders. On the other hand, the process of analysis enables those in charge of academic programs to identify any shortcoming that might affect the process of evaluating learning outcomes. This shortcoming, if any, may contribute to the adoption of improvement plans that are not in line with the reality of the program, which would negatively affect the quality of the program and the graduates.

The analysis phase requires the involvement of all faculty members and the program/assessment coordinator. In order for the academic program to ensure proper implementation of the analysis phase, this process should include the following steps:

1. A detailed analysis of the percentages of attainment of PEs and PLOs and other measures such as frequencies and average scores as shown in reports extracted from the OAS.
2. A detailed analysis of performance at the level of performance indicators, or rubric dimensions; this will enable the program to identify specific areas of improvement, which can help adopt effective improvement actions. Results can be analyzed using the "Rubric Dimension Level" report on the OAS. Figure 3 illustrates the PLO assessment and results analyses at the rubric dimensions' level.
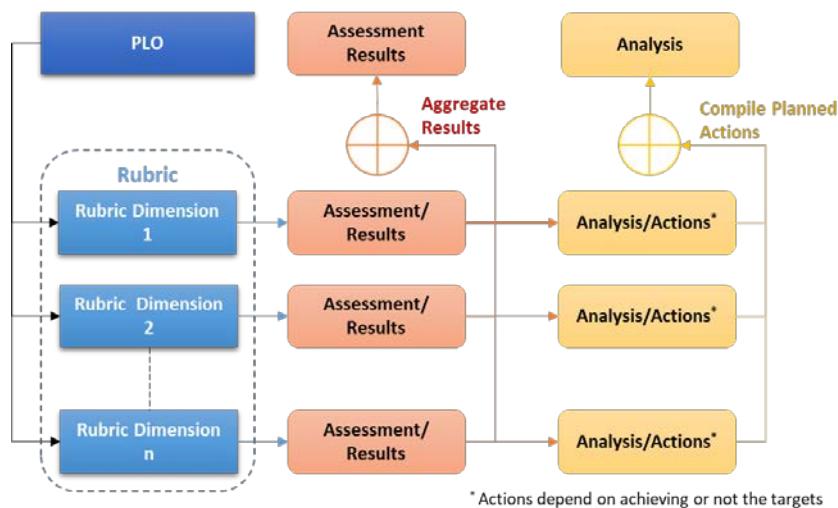
Figure 3: PLO assessment and results analyses at the rubric dimensions' level

3. Comparing obtained results with performance targets set during the Defining and Planning Phase of the assessment process and determine if targets are met and explain why these results were obtained and why other results might be obtained after discussing results with the program faculty members.
4. Considering lower and higher levels and analyzing elements that contribute to the attainment of the current level/situation. If there are higher percentages of the assessed students in the lower levels, the program should identify the reason behind the attained results to overcome deficiencies through the adoption of appropriate improvement actions.
5. Comparing and contrasting qualitative and quantitative reports and explaining why there are differences in the results (if any).
6. Ensuring the validity of assessment results. This may include a brief review of the assessment tools, auditing of scores when applicable, checking consistency of scores, validation of the sample size, checking results against expected patterns, percentages expected to be attained in each level of the assessment rubrics, etc. Notably, the faculty members participating in the evaluation process should ensure the validity of results while recording them in the OAS to assess the learning outcomes and document any shortcomings relating to these results so that appropriate corrective measures can be determined.
7. Comparing and contrasting the current results with assessment results obtained in previous assessment periods and/or assessment cycles.
8. Identifying causes for successes, failures, and encountered problems.
9. Generating an analysis report summarizing and documenting the outcome of the above steps.

10. Ensuring the attainment of the following elements:
    - Participation of faculty members in all phases of the analysis.
    - An accurate and detailed analysis of the evaluation results.
    - Adopting improvement measures that focus on curricula and the teaching and learning system.
    - Following up on the implementation of previous and new improvement procedures annually.
    - Evaluating the impact of improvement measures on student learning in terms of their impact on achieving higher or lower rates.
    - Activating the role of the relevant committees at all levels.

The academic programs, during the phase of analyzing the assessment results, must work on:

- Evaluating the accuracy and reliability of assessment results.
- Determining whether the objectives relating to students' learning outcomes have been achieved.
- Extracting valuable information about students' learning and the extent to which expected learning outcomes have been achieved.
- Extracting information not only at the level of learning outcomes, but also at the levels of outcome elements (PEs), and the rubric dimensions.
- Providing an opportunity for faculty members to review the curricula and the teaching and learning process.
- Supporting evidence-based improvement to adopt effective improvement measures.
- Promoting a quality assurance culture based on evaluation and continuous improvement.

It is worth noting that the analysis of the assessment results is assigned to the program/assessment coordinator in collaboration with the relevant committees of the college/department, such as the Learning Outcomes Assessment Committee/Quality Assurance Committee, and the Curriculum Development Committee.

III.3.4.2 *Evaluation*
The main steps of the evaluation activity include:

1. Identifying faculty and staff that may contribute to the evaluation of particular assessment data and results.
2. Organizing meetings with the identified people to present, reflect on, discuss, and evaluate particular assessment data and results.
3. Identifying the student's strengths and weaknesses.
4. Reflecting on the adequacy of learning resources at both program and university levels and the effectiveness of their utilization.
5. Reflecting on the effectiveness of the curriculum in achieving the intended learning outcomes.
6. Evaluating the impacts of the various elements comprising teaching and learning (nature of the course, teaching methods, assessment methods…) on the program performance.
7. Evaluating the overall strengths and weaknesses of the program.
8. Evaluating the effectiveness and efficiency of the overall assessment process and ensuring that the assessment process presents results reflecting the reality of the

academic program, and making sure that analyzing these results will exhibit the weaknesses and strengths of the academic program.

9. Identifying areas for improvement and drafting them in the form of recommendations and ensuring their implementation next year and their effectiveness in improving assessment results in the year after.

10. Studying proposed recommendations for improvement, which may require contribution and consultation with other concerned units and bodies at the department, college, and University levels.

11. Developing an evaluation report summarizing and documenting the outcome of the above steps. The report should list all identified improvement areas in addition to providing evidence that shows the implementation of the above steps such as meeting minutes, correspondence, etc).

III.3.5   Continuous Improvement Phase

The Continuous Improvement Phase leads to the adoption of specific improvement actions that contributes to the continuous improvement of the program and the definition of specific action plans associated with each of the adopted improvement actions. This is the most important phase in the assessment process in terms of added value to the program. Improvement actions may address the program specifications including the program mission, educational objectives, and learning outcomes; the program curriculum; the assessment activities and assessment tools; the assessment plans and schedule; as well as the assessment process itself.

The main steps of the continuous improvement phase include:

1. **Organizing a program level meeting with all faculty and staff to:**
   - present current findings and those of the previous phases,
   - incur further discussion on the proposed recommendations for improvements,
   - obtain other recommendations to improve the program and the assessment process, and
   - reach an agreement and adopt specific improvement actions.

2. **Documenting adopted improvement actions. It should include:**
   - a clear description of the adopted improvement action,
   - the process used in reaching the decision, and
   - a linking of the specific assessment results and/or findings to explanations on how assessment results affect decisions.

3. **For each adopted improvement action, develop a specific action plan including:**
   - list and sequence of steps and tasks required to implement and carry out the adopted improvement action,
   - implementation timeline,
   - people responsible for each step in the sequence,
   - needed resources (human and financial), and
   - overseeing and monitoring the implementation of adopted improvement actions in accordance with the associated action plan.

III.3.6   Control and Feedback Loop

The Control and Feedback Loop is a continuous process that covers all phases of the assessment process. The QU-PLO assessment and the PLO assessment committees at the college and the department levels are tasked to continuously oversee and monitor the

assessment process and to periodically provide feedback to ensure proper implementation of learning outcomes. Such feedback may be provided during events not necessarily dedicated to learning outcome assessment or meetings scheduled to present and discuss recommendations or internal/external auditing for annual reports of learning outcomes assessment.

Control and feedback are critical to any process. All activities and steps in the assessment processes described in this document are closely monitored. Further corrective measures are taken based on the monitoring committees to ensure proper implementation of the assessment process.

In addition to regular monitoring of the assessment process phases, the PLO assessment offices follow up on the effect of adopted and implemented improvement actions to ensure that positive change occurred because of these actions.

The main tasks to be conducted by the PLO assessment offices during the Control and Feedback Loop include:
- Overseeing and monitoring all phases of the process,
- Following up the implementation of all assessment-related activities and identifying any deviations from the plan and/or from good practices,
- Periodically providing feedback on all assessment-related activities and results and promoting good practices,
- Following up on the implementation and evaluation of improvement actions,
- Developing a report at the end of each assessment period summarizing and documenting the outcomes of the process collected throughout the academic year.

Completion of the above tasks will ensure "Closing the Loop" and the continuous improvement of the program, which is the ultimate goal that the learning outcomes process seeks to achieve.

III.3.7 Assessment Rubric

An assessment rubric is considered as the key element in judging performance levels. It can be used to share evaluation criteria with students and evaluators. A descriptive assessment rubric helps determine the level of what the student knows or can perform.

Each dimension of the assessment rubric shows the characteristics and signs that demonstrate a student's performance in each learning area. Scoring is set gradually and continuously reflecting the quality of performance (excellent, good, acceptable, and poor). The evaluator then chooses the appropriate qualitative level as he/she sees it in each student's work. Figure 4 shows the basic elements of the assessment rubric.

	Level of Performance Quality 1	Level of Performance Quality 2	Level of Performance Quality 3	Level of Performance Quality 4
Criterion1				
Criterion 2				
Criterion 3				
Criterion 4				

Description of Performance Level for each Criterion
Figure 4: Basic Elements of an Assessment Rubrics

When designing an assessment rubric, it is also recommended that the rubric is in line with the course content, all assessment activities of the program, including course-level assessment tools and methods, and contributes to the adoption of a unified rubric for each learning outcome of the program.

To ensure the proper design of the assessment rubric, the concerned bodies responsible for implementing the assessment process need to complete the following phases:

Phase 1: Identifying the Criteria that Make up the Learning Outcome:
During this phase, all the criteria that make up the learning outcome are identified, such as knowledge, critical thinking, and research to ensure that the outcome is achieved if all criteria are met. The following elements must be taken into account when setting criteria:

- Focusing on what is necessary to ensure that the learning outcome is achieved.
- Formulating criteria in a smooth and simplified manner.
- Avoiding the indication of the level of achievement when formulating the criterion.
- Maintaining an acceptable number of criteria (not exceeding 6).

Phase 2: Identifying the Performance Levels:
During this phase, a performance rubric is formulated for the various levels related to each criterion. The following elements must be taken into account when formulating performance levels:

- Identifying the highest level of achievement that can be reached in the current circumstances.
- Identifying the minimum acceptable performance level.
- Identifying the level of performance between the highest and the minimum acceptable level.
- Identifying the unacceptable level.

Therefore, the performance levels mentioned earlier in Figure 4 are as follows:

- Performance quality level 1: Unacceptable (Poor)
- Performance quality level 2: Acceptable
- Performance quality level 3: Good
- Performance quality level 4: Very good

The ability of the assessment tools that will be adopted to help distinguish between different levels of performance should be taken into account when determining the number of performance levels.

Phase 3: Describing the Performance Level for Each Criterion:
In the implementation of this phase, the academic programs must consider the possibility of determining the actual level of students through the assessment rubrics of each learning outcome as the description of different dimensions allows us to differentiate between different levels.

Describing the level of performance that allows most students to obtain the higher or lower levels of performance is not suitable for assessing students' performance.

The formulation of performance levels must be concise and accurate, simplifying students' understanding of their significance.

The following elements must be taken into account when describing the level of performance for each criterion:

- The presence of acceptable performance levels, which go in line with the nature of the study phase.
- Identifying what students are expected to achieve at each performance level.
- Considering the accuracy in formulating different performance levels without complexity.

- Using a formulation that goes in line with students' abilities.
- Assessing measurable skills by describing the qualities/features of each level of achievement.

IV. PLOs Assessment Process Implementation

IV.1 Reporting

The PLOs assessment process implementation is considered one of the most important mechanisms that maintain quality assurance and continuous development of academic programs. Thus, the various structures working on quality assurance have been prompted to put more emphasis on the implementation of such assessment. In this context, QU is following up on the effectiveness and efficiency of implementing the PLOs assessment process through annual reports to assess PLOs that the academic programs prepare and submit to the various offices supervising the PLOs assessment process at the university level. The drafts of the annual reports are submitted at the end of the academic year provided that the final version of the report should be submitted maximally during the fourth week of the following academic year. The relevant offices concerned with following up the implementation of learning outcomes assessment communicate with the other concerning programs to inform them about the specific dates annually. Although the assessment report is submitted annually, it, however, pays extreme attention to the results collected throughout the assessment cycle. The program determines the cycle period (as per the program's particularities), which ranges from two to three years.

IV.2 Responsibilities

The PLOs Assessment Coordinator or the person in charge of implementing the PLOs assessment process is responsible for planning the learning outcomes assessment process by identifying the appropriate courses for the assessment process that would represent an appropriate assessment context for each learning outcome after seeking input from course coordinator/instructor. Thus, assessment activities are distributed in a balanced manner during the cycle to avoid fluctuation in the load of faculty members tasked in the process.

The PLOs assessment coordinator or the person in charge of implementing the PLOs assessment process is required to plan the assessment process after seeking input from course coordinator/instructor, by specifying the appropriate courses for assessment, which in turn represent the proper assessment context for each learning outcome. Thus, assessment activities are distributed in a balanced manner during the assessment cycle to avoid fluctuation in the load of faculty members tasked with implementing the assessment.

The PLOs assessment coordinator or the person in charge of implementing the PLO assessment process is also assigned to follow up the implementation of assessment activities during the semester, allowing early notification to the faculty members tasked with carrying out the assessment activities (an entire semester before starting the assessment activity) so that they can prepare and implement the necessary activities in a timely manner to ensure the credibility of the assessment results.

During each semester, the PLOs assessment coordinator must follow up on the completion of the assessment activities, endorse the results if the implementation is appropriate, or take corrective decisions if the implementation is inaccurate or not in line with the nature of the outcomes.

As the implementation of assessment activities progresses during each semester, the assessment coordinator must use the features available on the OAS (for evaluating learning outcomes) to ensure that the implementation complies with the previously scheduled plan, and thus extract reports related to the achievement of learning outcomes during the academic year or the assessment cycle.

To ensure the proper implementation of the assessment process in a manner that contributes to the continuous improvement of academic programs, the concerned offices responsible for following up on the implementation of the assessment system provide continuous support for academic programs through technical support or professional development sessions. These offices are also responsible for preparing reports that demonstrate the general trends of the programs (under review), allowing decision-makers to take appropriate actions at the institutional level.

IV.3 Closing the Loop

Improvement actions are one of the most important results of the PLOs assessment process due to its potential for continuous improvement of academic programs at various levels. In this context, closing the loop by following up on the implementation of improvement actions and assessing their impact on the quality of academic programs at the university level is one of the most important responsibilities assigned to PLOs assessment coordinators.

The closing of the loop and follow-up process includes all elements related to:

- Completing the implementation of improvement actions, including coordination between stakeholders,
- Compiling and including evidence relating to the implementation of improvement actions in the section dedicated to the annual PLOs assessment report,
- Following up on the impact of improvement actions in the upcoming years (for implementing them) to ensure that there is a positive impact arising from these improvements and recommend amendments if these improvements do not achieve the intended goal.

Offices of Academic Planning and Quality Assurance, Graduate Studies, and Quality Assurance at the Health Cluster monitor and follow up on the implementation of improvement actions through the annual reports for learning outcomes assessment. Throughout this process, the concerned offices extract statistical reports demonstrating the general trends of improvement actions, which are included in the institutional reports on learning outcomes assessment to allow decision-makers at the university level to know the programs' improvement trends. The relevant offices also ensure that improvement actions are completed and well-implemented through the process of reviewing the implementation of the PLOs assessment.

IV.4 Review

The review of the implementation of the PLOs assessment process, described in Figure 4, is an important mechanism that ensures the proper implementation of the assessment process.

The review process seeks to ensure the proper implementation of the PLOs assessment process, by reviewing all data related to the implementation. The data include data uploaded to the OAS and the Annual Assessment Reports (AAR).

By reviewing the data, the teams in charge of the review process will be able to ascertain the credibility and stability of the assessment results, the effectiveness of improvement actions, and the level of their relation to the assessment results.
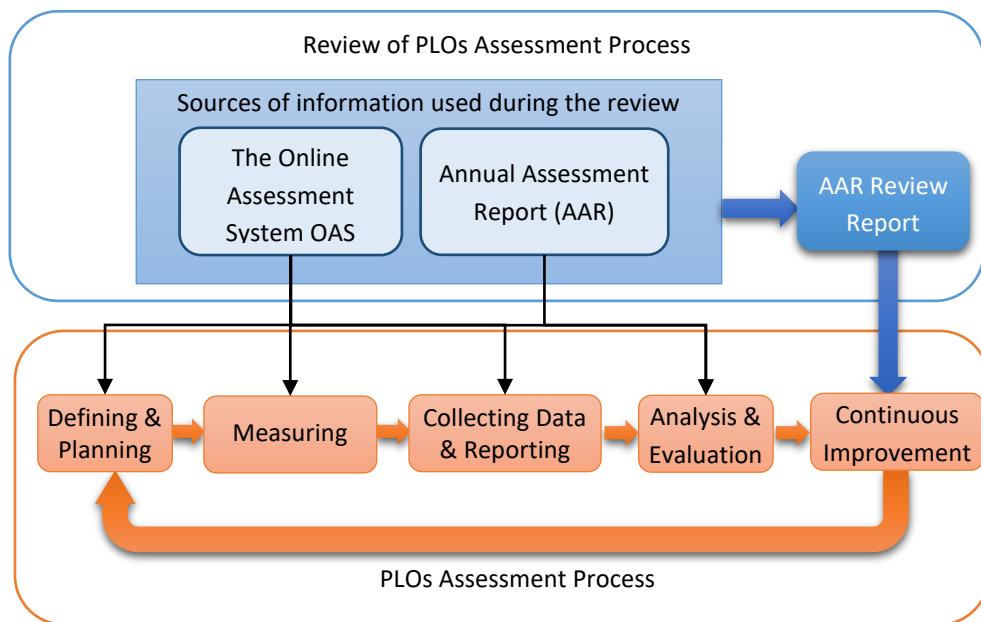

Figure 5: Review of the PLOs Assessment Process Implementation

The review process includes:
- Reviewing the PLOs
- Reviewing the curriculum mapping, assessment map, and assessment plan
- Reviewing the assessment rubrics for each PLO
- Reviewing approved assessment tools
- Reviewing students' work and verifying the extent to which the assessment results match the students' work
- Reviewing approved samples of students and ensuring that they reflect the diversity of the program's students
- Reviewing the results aggregation process
- Reviewing the analysis process
- Ensuring the correlation of the approved improvement actions with the observed/recorded assessment results.

The review process also includes providing a set of recommendations that would help overcome weaknesses at any phase of the assessment process. This would contribute to ensuring the credibility of the assessment results and their good use in developing academic programs. As the academic programs at the level of QU are diverse, the review process is a collaborative process between representatives of the various colleges, with the participation of an academic expert who is nominated by the program to be reviewed.

The review process is carried out using forms/templates prepared for the intended purpose.[3]

The whole phases of the process of PLOs assessment implementation are presented in Figure 6 and Figure 7.

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[3] http://www.qu.edu.qa/offices/vpaa/aqa/learning_outcome_assessment
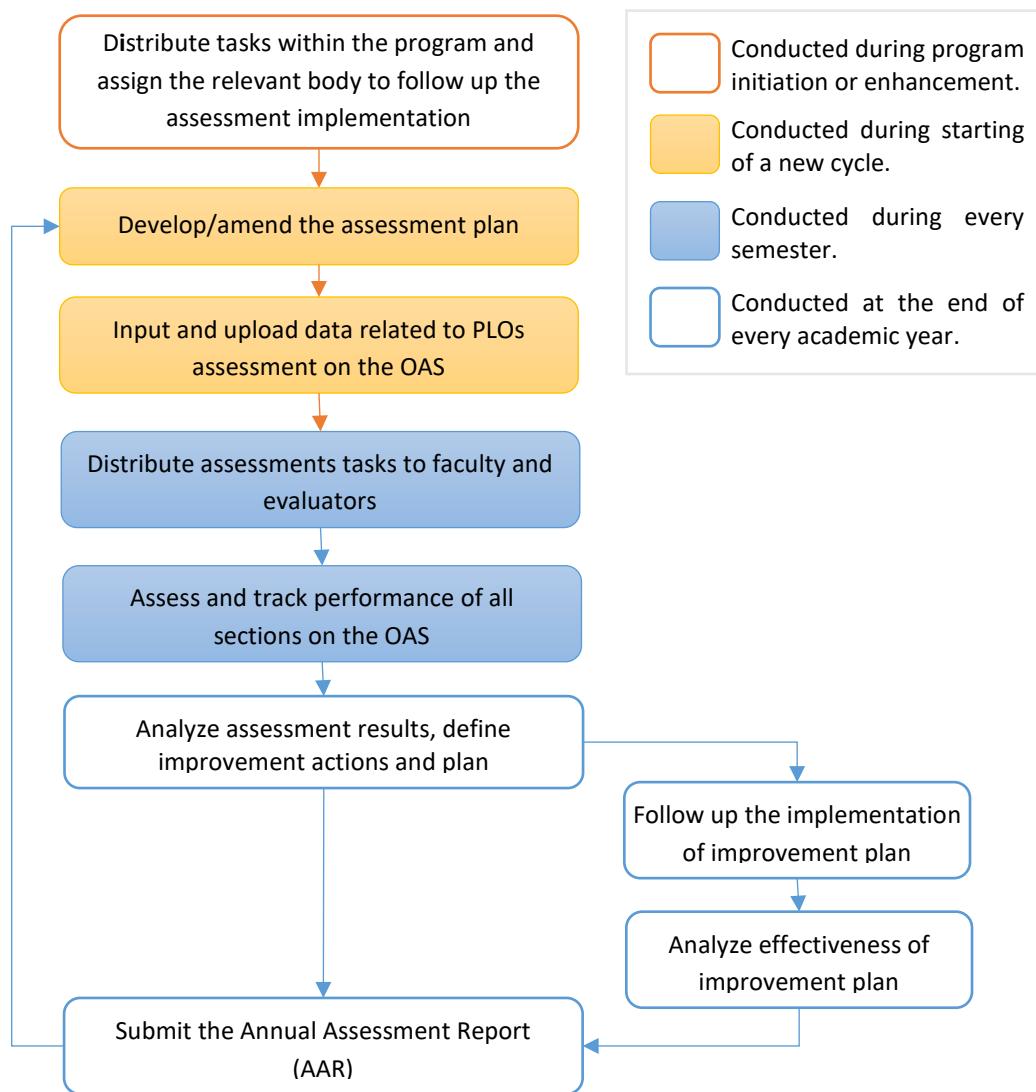
Figure 6: Phases of PLOs assessment implementation by programs
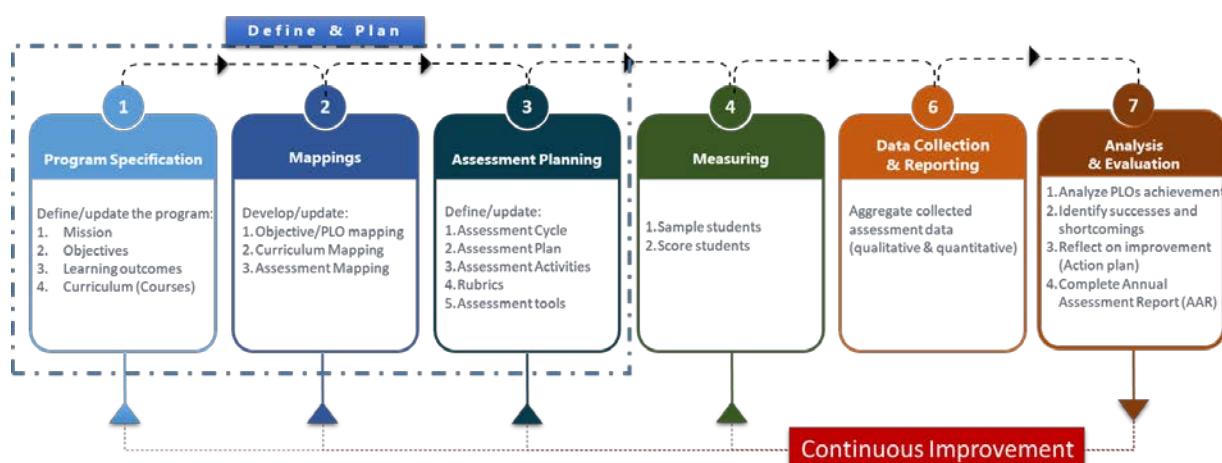
Figure 7: PLOs assessment and continuous improvement process