



UNIVERSITY OF TABUK

**Medical
Laboratory
Technology
Program**

**Quality Assurance
System**

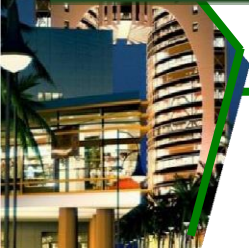


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PART 1 INTRODUCTION

1. Definition of Quality Assurance

Quality assurance is primarily an internal responsibility system in an institution, and it depends heavily on the commitment and support of all those who involve in administration, management, and teaching. The procedures and standards outlined by the National Commission for Academic Accreditation & evaluation (NCAAA) are based on the expectation that program would adopt such a responsibility system and take appropriate actions to ensure that high quality criteria are achieved. This manual is intended to guide and support those processes. Due to the importance of the higher education system for students, their families, and the wider community, one cannot simply assume that quality can be simply achieved. Quality must be verified by independent processes in order to guarantee to everyone concerned that high levels of quality are being accomplished. The NCAAA accreditation processes for higher education institutions and the programs provide this verification.

2. The Significance of Quality Assurance

Quality assurance is both a process and a framework that aims at accomplishing excellence and transparency. The process intends to ensure quality in the attainment of the program's mission and vision and consequently this will lead to having program performance that is aligned with its purpose. The major goal of quality assurance is to have all programmatic functions performing at an optimum level including academics, students, support services, physical plant (i.e. buildings, classroom environment), research, and services to the local and regional community. With continuous evaluation for attaining high quality in all areas, the program will be well-positioned to adapt itself to changes and provide the highest quality education to students.

3. Relationship of Quality Assurance to Accreditation

Quality assurance is a continuous, ongoing process of monitoring outcomes and ensuring quality in all academic endeavors. If such a process is done properly, program operations will constantly evolve and adapt to environmental changes and social needs. Accreditation is mainly based on the evaluation at a specific period of time, highlighting programmatic quality and outcomes that demonstrate alignment of purpose with performance. As such, quality assurance can be considered as a prerequisite for accreditation.

Accreditation process, at the institutional or programmatic level, involves evaluation by an external body (such as NAACLS) or the internal body of Saudi Arabia (i.e. NCAAA) based upon a set of agreed standards. If the standards are met, accreditation is granted. It is worth mentioning that being accredited indicates that the institution and its programs are up to international standards, and it is essential

to maintain such quality standards as part of the institution's ongoing and long-term performance improvement. Thus, it is unlikely that accreditation can be completely granted unless providing evidence that further steps to maintain the effectiveness and the quality of its programs through continual evaluation and assessment are provided.

4. The Quality Assurance Framework of Higher Education in Saudi Arabia

Within higher education, accreditation plays a major role in quality assurance and institutional effectiveness. Thus, granting academic accreditation is advantageous locally and internationally. Starting with learning outcomes, accreditation supports the interests of students by ensuring that the educational programs offered have attained a level that meets international quality standards and it guarantees that the students have demonstrated a certain set of skills and abilities. Taken into account the rapid regional and international changes, the international competition, and the third millennium modern challenges associated with technology development and computer revolution, equipping the students with such skills will enhance their future opportunities and develop their competitiveness in the job market.

In terms of improving education quality, accreditation has become a critical target to be attained by all academic and professional communities in order to improve educational policies and experiences. The main challenge for the modern educational systems is not only to provide education, but also to make sure that the educational environment and its outcomes as a whole are of high quality.

With the purpose of raising the quality and adequacy in addition to contributing to the national economy and development, some organizational arrangements for the Council of Ministers' Resolution No. 94 has approved the Education Evaluation Commission issued on 7/2/1438 AH. It stated that the commission is the competent authority in the Saudi Kingdom to assess and accredit education and training institutions and programs.

The National Center for Academic Accreditation and Evaluation, one of the centers supervised by the Commission, is an extension of what was previously known as the National Commission for Academic Accreditation and Assessment (NCAAA), which was established under the Royal Decree No. 7/B/ 6024 dated 9/2 / 1424H. NCAAA is an independent legal entity with administrative and financial governance that acts as the authority responsible for academic accreditation and quality assurance in higher educational of public and private institutions and programs.

5. National Commission for Academic Accreditation and Assessment (NCAAA)

The National Commission for Academic Accreditation & Evaluation (NCAAA) has been established with responsibility for determining standards and criteria for academic accreditation and assessment and for accrediting postsecondary institutions and the programs they offer.

The Commission is committed to a strategy of encouraging, supporting, and evaluating the quality assurance processes of postsecondary institutions to ensure that quality of learning and management of institutions are equivalent to the highest international standards. The six broad standards are applicable to both institutions and programs.

6. National Qualifications Framework for Higher Education in the Kingdom of Saudi Arabia (NQF)

The system for accreditation and quality assurance in the Kingdom of Saudi Arabia is designed to ensure that the quality of higher education is equivalent to high international standards and is widely recognized as such in the international academic and professional communities.

The National Qualifications Framework is an important element in this system. It is intended to ensure consistency within the Kingdom in the standards of student learning outcomes regardless of institution attended, and to make clear the equivalence of those standards with those for equivalent awards granted by higher education institutions in other parts of the world.

The Framework helps to provide appropriate points of comparison in academic standards for institutions in their planning and self-review processes and for external reviewers involved in program accreditation processes and institutional reviews.

7. Principal Elements in the Qualifications Framework

The principal elements in the framework are:

- Domains of Learning:
- Teaching strategies
- Assessment methods

PART 2

PROGRAM QUALITY ASSURANCE SYSTEM

A. Abbreviations

- (a) APR - Annual Program Report
- (b) CR - Course Report
- (c) CS - Course Specification
- (d) FR - Field Experience Report
- (e) FS - Field Experience Specification
- (f) KPI - Key Performance Indicator
- (g) PS - Program Specification
- (h) SSRP - Self-Study Report of the Program

B. Mission, Vision and Goals

Vision of the Department

“Educational and research excellence in the field of medical laboratory technology to contribute to community service”

Mission of the department

“To prepare distinguished graduates in the field of medical laboratory technology contributing to health services and scientific research to meet community needs”

Goals of the MLT Program

- (1) To provide a quality academic operation with the necessary knowledge and skills supported by competence in teaching and learning in the field of Medical Laboratory Technology.
- (2) To promote research activities and linkages that develop skills in creative, critical, and analytical thinking, for the advancement of knowledge in laboratory technology and to expedite progression to higher levels of study.
- (3) To develop sound moral values, responsibilities, social and health awareness among students and faculty members so that they may lead and participate in community action for the promotion and preservation.

C. Quality Assurance And Accreditation Duties and Responsibilities

The quality assurance and accreditation committee vested upon the authority decision is mandated to implement the following as stipulated below.

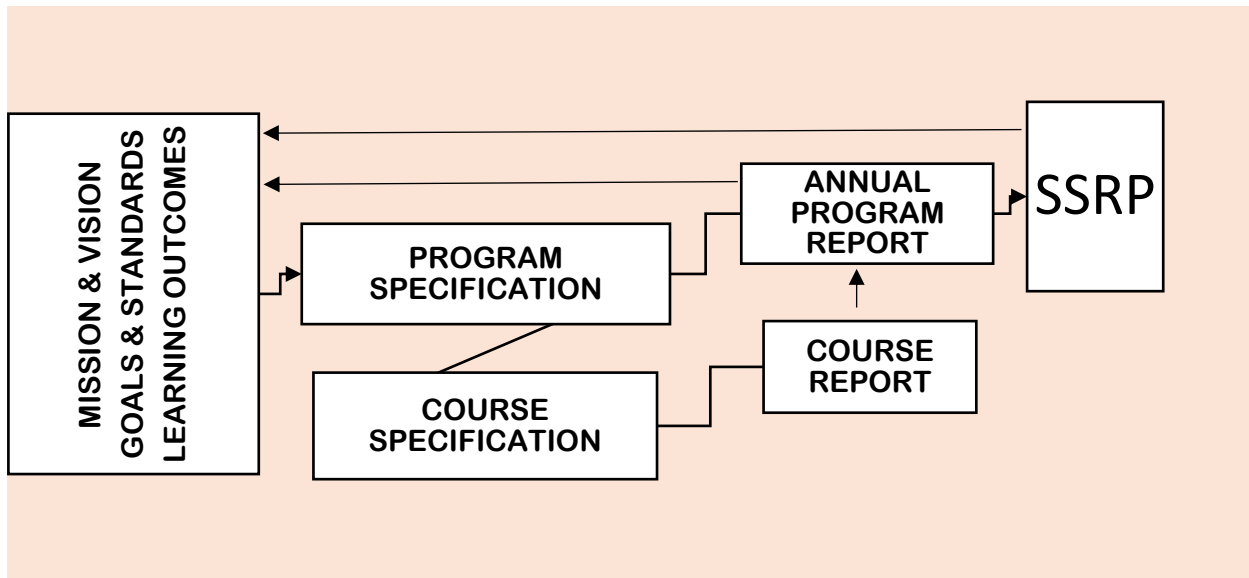
The minutes and reports associated herein will be submitted of the Unit to the Vice-Dean for Development and Quality. The work of the unit is related to the Vice-Dean for Development and Quality.

- (1) Prepare and implement quality plan of the faculty.
- (2) Prepare and implement plans for spreading a culture of quality in the faculty.
- (3) Participate in providing required data and information to prepare, develop and evaluate plans and programs at the faculty.
- (4) Participate in preparation and implementation of MLT strategic plan.
- (5) Implement rules, regulations and standards for local and international academic accreditation and follow-up their implementation in MLT.
- (6) Assure the implementation of rules, regulations and standards for quality and accreditation in educational, administrative, regulatory, and technical fields on a continual basis.
- (7) Prepare a complete manual for quality control and academic accreditation in the faculty in light of pioneer local and international experience.
- (8) To work for gaining and maintaining local and international accreditation.
- (9) Continual observation and follow-up of distinguished expertise in quality control and academic accreditation, including policies, regulations, standards, tools and techniques used, and to prepare reports with developmental suggestions in MLT.
- (10) Suggest names of institutes, universities and colleges to cooperate, form alliances and partnerships within quality control and academic accreditation.
- (11) Suggest the names of specialized centers in the field of quality assurance and academic accreditation that can benefit from their expertise and services for the faculty to obtain academic accreditation.
- (12) Suggest names of specialized centers in the field of academic accreditation organizations in light of vision, mission and strategic goals.
- (13) Suggest standards and tools to evaluate teaching and administrative performance.
- (14) Continuous follow-up on teaching and administrative performance and reports with developmental suggestions.
- (15) Suggest an integrated database to ensure the quality and academic accreditation and enter the necessary data and processing and updating continuously.
- (16) Participate in the development of standards, tools and mechanisms of performance evaluation and measurement of achievements of the faculty.

- (17) Coordinate with the Deanship of Development and Quality in all aspects to enable FAMS for achieving high levels in the field of quality control and academic accreditation.
- (18) Submit reports to the Deanship of Development and Quality on all activities and achievements of FAMS in field of quality and academic accreditation.
- (19) Perform any related tasks.

D. Quality Assurance General Process

**FIGURE1:
GENERAL QUALITY ASSURANCE PARADIGM**



The MLT program believes that proper designing, implementing and continuous assessment and improvement of all of its sectors and activities can guarantee high quality.

In relation to this, the MLT program has established a general paradigm in order to ensure that good practices of all sectors follow the requirements of NCAAA quality expectation.

The quality assurance would begin with the planning of the program. The drafting of program specification would require the consideration of mission and vision, goals and standards, and learning outcomes of the department.

The mission and vision of the MLT department is anchored to the institutions context. Wherein, the department aims to provide educational and research excellence in the field of medical laboratory technology to serve the community. Furthermore, in its vision, it aspires to produce distinguished graduates in the field of medical laboratory technology.

The quality assurance also is continuously looking into major changes or strategic developments which may have a huge impact in the existence of the program. These includes the learning outcomes, goals, and standard accomplishments. These holistic cohesive approach will be generally considered in the program specification.

The program specification context was intended to explain the need for the program and indicate any significant elements of the context in which it is being offered that affect the way it should be planned and delivered.

The course specifications are the representation of the program at the student or stakeholder level of implementation.

Both the course and program specifications will be implemented according to the varied strategies and assessment methods during the academic year period. The outcomes will be based according to the assessment results and indicators. Apparently, this aspect will be reflected in the course and program reports respectively.

This entire process occurs in annual basis, except for the SSRP or the self-study report of the program. Wherein, the report is completed in a 3-year implementation of the program. The assessment is based on the benchmarking and indicators against the academic standards.

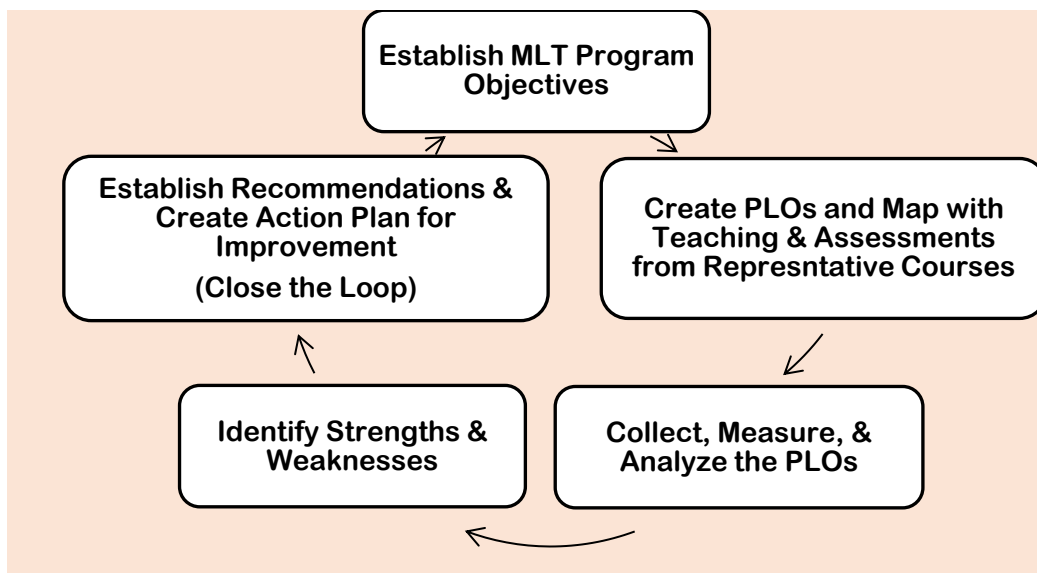
The recommendations addressed on mission and vision, goals and standard, and learning outcomes upon verification from all the reports will be taken in action. Hence called the plan for improvement to be adopted in the succeeding specifications.

E. Quality Assurance at Program Level

It primarily involves program and course coordinators. The processes and quality assurance mechanisms are carried out by several committees and task forces.

The MLT has put in place an effective system to ensure that all programs meet high standards through initial approval, performance monitoring, and the provision of institution-wide support services.

FIGURE 2:
QUALITY ASSURANCE PARADIGM AT PROGRAM LEVEL



The figure depicts the 5-step general plan followed in the assessment of MLT program learning outcomes. The program begins by determining the objectives for the students to learn and then aligning those objectives with the courses provided within the program.

- The program assessment process involves the following steps;
- (a) Establishment of Program Objectives
 - (b) Create PLOs and Map with Assessments from Representative Courses
 - (c) Collect, Measure, & Analyze the PLOs
 - (d) Identify Strengths & Weaknesses (Close the Loop)
 - (e) Establish Recommendations & Create Action Plan for Improvement

All throughout the program duration, different teaching strategies and a variety of assessments are administered to measure the extent to which the program has achieved the objectives. The data resulted from the direct assessments will be

collected measured, and analyzed. In addition, appropriate evaluation results will be incorporated in the analysis.

The strengths & weaknesses are generated and translated into recommendations. The recommendations will be selected based on the priorities for improvement. These priorities will be utilized to formulate recommendations for action to be taken.

The results will be used for the improvement of the program. The improvement is directed primarily on the program objectives.

F. Quality Assurance at Course Level

It includes course instructors and students, facilities, resources, teaching strategies, assessment strategies, and recommendations for continuous improvements.

At the end of each semester, the faculty members submit a course file and course reports on the NCAAA templates. Course reports should be prepared at the end of the semester in which the course was delivered.

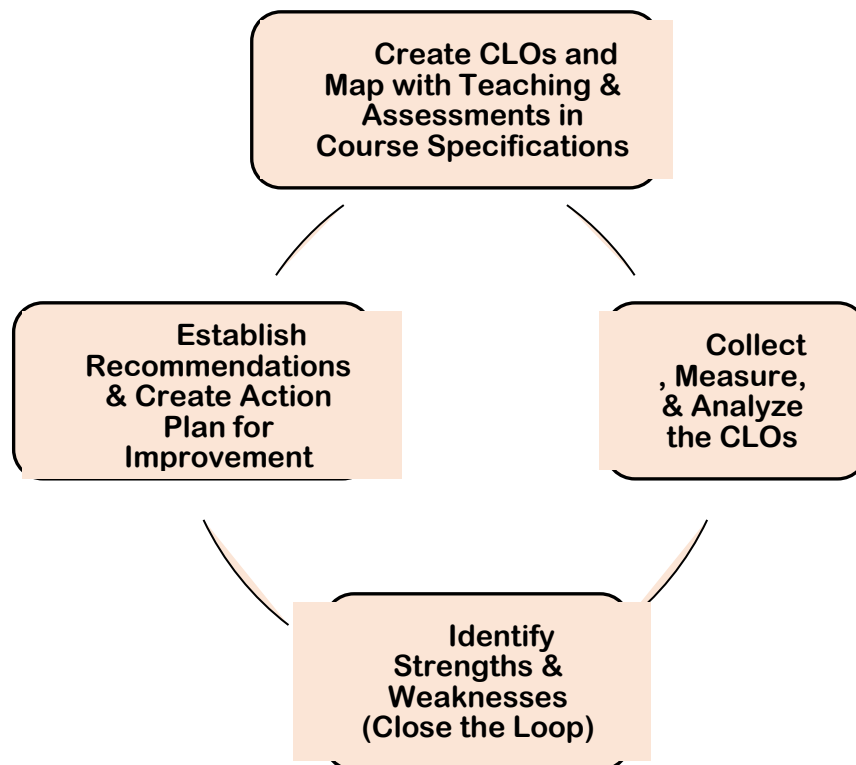
The minimum requirements for annual course monitoring should include summary and analysis of: final marks of students with comments on grade profiles, course learning outcomes, effectiveness of planning teaching and assessment strategies for course SLOs, course evaluation by students and other evaluators, and an action plan for improvement that may include arising issues or proposals for change.

If the course was offered in a different location such as on the main campus and satellite campuses, a separate report for each location should be considered and provided to the course coordinator who prepares one final report for all locations showing the difference between locations regarding the handling of the course.

All course reports of the program are in turn provided to program coordinators which should be read before the completion of the annual program report. Also, the supervisors of the units of measurement and evaluation in the main campus and satellite campuses of the university are instructed to guide the faculty members to fill item No. 10 of the course syllabus.

The evaluation department in the unit of measurement and evaluation gathers and analyzes the observations received from each faculty and prepares a special report.

FIGURE 3
QUALITY ASSURANCE PARADIGM AT COURSE LEVEL



The figure 3 depicts the general overview of the CLO assessment plan in the MLT program. The program aims to equip graduates with knowledge, skills, and values relevant to the practice of MLT profession. The individual courses form pieces to collectively achieve these goals.

The CLO assessment plan consists of the following general components;

1. Create CLOs and Map with Teaching & Assessments in Course Specifications
 2. Collect, Measure, and Analyze the CLOs
 3. Identify Strengths and Weaknesses
- Establish Recommendations & Create Action Plan for Improvement

The program begins by determining the objectives for the students to learn in order to attain these goals. These objectives will be strategically designated with the courses offered by the program.

Throughout the program duration, different learning opportunities and a variety of assessments are administered to measure the extent to which the students have achieved the objectives by the course learning outcomes. Each of the courses offered clearly states the course learning outcomes (CLOs) as found in the course specifications and course reports. The CLOs are mapped with the teaching and assessment strategies in accordance with the National Qualification Framework (NQF).

The data from the assessments will be collected, measured, and analyzed following the completed delivery of each course. The analyzed items would generate notable strengths and weaknesses in accordance to the target values established. This critical step of assessment is termed "Closing the Loop".

The recommendations drawn from the identified strengths and weaknesses will be used to create a plan of action for improvement. These will be periodically reviewed during the process of course assessment plan. More so, the implementation progress will be continuously monitored and assessed accordingly.

G. Planning Prior the Academic Year

The quality assurance is the lead unit responsible for the planning of the program prior to the academic year.

This would primarily focus on the program learning outcomes or PLO, which is descriptive statements of the knowledge, skills, and values a student displays at the end or conclusion of the program.

These are measurable expectations or anticipated outcomes. Each set of outcomes should be comprehensive, coherent, and contextualized for a specific discipline.

In addition, PLO should address the concerns of the major stakeholders in the program, such as students, employers, and community.

The programs developed 10 learning outcomes, and are classified according to three (3) learning domains. The table below shows the PLO with codes.

TABLE 1
PLO Statements & Code

Code	PLO Statements
K1	Describe the underlying theories, methods, principles, and applications of clinical laboratory concepts and practices.
K2	Explain the various human biological, chemical, molecular, and scientific mechanisms, their reactions and activity in aid to clinical diagnosis.
K3	Recognize various laboratory tests' concepts in the selection of appropriate test, reconciliation of laboratory results discrepancy, and correlation of data to clinical conditions.
S1	Apply critical and analytical thinking ability in solving problems of mathematical calculations, integration of quality assurance on laboratory test results, assay end-point readings, and evaluation of laboratory diagnosis and problems with clinical cases.
S2	Execute operation, preventive maintenance, awareness of equipment and machine to achieve valid results in the clinical laboratory.
S3	Perform accurate and precise techniques while observing safety measures and standards in clinical laboratory tests.
S4	Utilize efficient ICT skills, lab informatics, integrated community work, modern technology, valid statistics and scientific research relevant to medical laboratory technology and in advancing the health care delivery system.
S5	Exhibit effective communication in Arabic and English languages within the healthcare system
V1	Demonstrate commitment to the future of the medical laboratory profession by cultivating positive academic values and ethical codes of conduct during the course of their work within the health care team.
V2	Work independently and collaboratively displaying professionalism and responsible citizenship with adherence to cultural, governmental and institutional regulatory standard practices.

Legend: K=Knowledge & Understanding; S=Skills; V=Values

APPROVAL OF THE PLANNING

Academic programs should be developed and evaluated in accordance with the (1) mission, (2) the NQF, (3) scientific and educational innovations, (4) national development plans, and (5) market demand.

To establish a new academic program or modify existing programs, a program specification is prepared along with course specifications as per the NCAAA standards and forms. The study plans are then discussed for approval by the MLT Council.



Figure 4 illustrates the main procedures in sequence involved in approving a new program or changing an existing program.

H. Map Representative Courses with Assessment Methods to Learning Outcomes (PLO and CLO)

The quality assurance uses only the core courses for assessing the learning outcomes. In addition to that, it is preferable to use the courses at the mastery level for the assessment purpose.

The assessment methods aligned with teaching methods are mapped with the learning outcomes. In addition, the map also indicated the learning domain classification of learning outcomes. The assessment methods are also provided in the course specifications.

The selection of assessment methods for a specific learning outcome depends primarily on its alignment and applicability. The criteria include the learning domain, verb used, scope, and nature of the particular learning to be assessed.

The table 2 below serves as the basis for mapping the individual courses to LO.

TABLE 2:
MAPPING OF COURSE LEARNING OUTCOMES

First Year (Level 1 & 2)										SECOND YEAR (Level 3 & 4)															
CLO	CSC 001	EMD 001	Math 100	Phys 101	LTS 001	EMD002	Bio 101	Chem	Math 102		CLO	PHYT 201	MLT 201	MLT 202	ISL S 101	ARAB 101	BCHT 202	MLT 202	MLT 203	MLT 205	STAT 201	ISL S 201	ARAB 201		
K1											K1														
K2											K2														
K3											K3														
S1											S1														
S2											S2														
S3											S3														
S4											S4														
S5											S5														
V1											V1														
V2											V2														
CLO	MLT 303	MLT 305	MLT 307	MLT 308	MLT 302	MLT 304	MLT 306	MLT 309	MLT 310	ISL S 301	CLO	ISL S	MLT 401	MLT 405	MLT 406	MLT 409	MLT 410	MLT 411	MLT 412	MLT 413	MLT 402	MLT 403	MLT 407	MLT 408	
K1											K1														
K2											K2														
K3											K3														
S1											S1														
S2											S2														

S3	P	P	P	P	P	P	P	P	P	P	P	S3		M		M	M	M	M				M	M	M	M
S4		P				P	P	P	P			S4			M	M	M			M	M	M		M		
S5											P	S5	M						M	M						
V1						P	P	P	P		P	V1	M		M		M	M	M	M				M	M	
V2	P	P	P			P					P	V2	M	M	M		M	M	M			M	M	M	M	

LEGEND: I-Introduced, P- Practiced, M- Mastered

The course learning outcomes contributions to the PLO are categorized according to the level of proficiency a particular outcome is achieved. The “I” means an introductory degree of expectations. The “P” has practiced the learning outcomes. The “M” category requires mastery of the learning outcome specifically. Hence, all of the courses in the fourth year level measured assessments served as evidence of the PLO.

The mapping is decided according to the course description, mainly on its core objective and goal. The other non-core objectives which are integrated to the course are not included, instead will be assigned to courses which would represent the learning outcome the most.

The teaching strategies with the corresponding code are presented in the table below;

TEACHING STRATEGIES & CODE

- T1 – Case studies
- T2 – Individual presentation + peer teaching
- T3 – Actual demonstrations
- T4 – Lecture + Active questioning
- T5 – Projects
- T6 – Research activities
- T7 – Individual or Small group work
- T8 – Group didactics
- T9 – Homework or Assignment

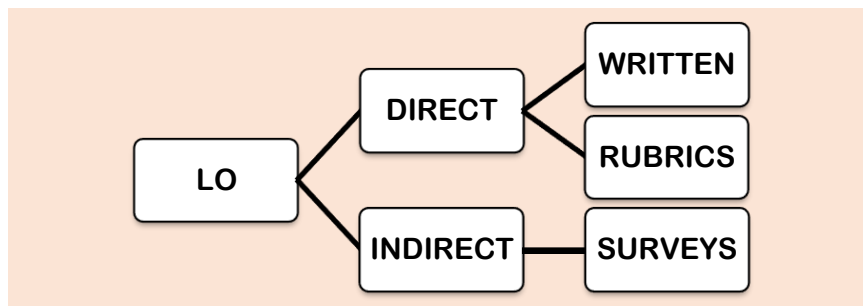
Each of these teaching strategies is defined according to operation.

1. Case studies – a teaching strategy that refers to assigned scenarios based on situations in which students observe, analyze, record, implement, conclude, summarize, or recommend. Case studies are created and used as a tool for analysis and discussion.
2. Individual presentation + peer teaching – a teaching strategy when students, by design, teach other students. The assistance from their peers enables them to move away from dependence on teachers and gain more opportunities to enhance their learning.

3. **Actual demonstrations** – a teaching strategy administered exclusively in laboratory class. The idea is communicated by showing the procedures and techniques with the aid of visuals such as the actual materials, video, posters, power point, etc. A demonstration is the process of teaching someone how to make or do something in a step-by-step process. As you show how, you “tell” what you are doing.
4. **Lecture + Active questioning** – a teaching strategy where a teacher presents the information verbally. It is the method of relaying factual information which includes principles, concepts, and ideas about a given topic. The teacher is very active, doing all the talking. An active questioning is interjected during the presentation.
5. **Projects** – is a teacher-facilitated collaborative strategy in which students acquire and apply knowledge and skills to define and solve realistic problems using a process of extended inquiry? Projects are student-centered; following standards, parameters, and milestones clearly identified by the instructor and can be performed in the home setting.
6. **Research activities** – a teaching strategy wherein students carry out research in their courses independently and with an open outcome. This helps to internalize and practice research conducts and methods, skills such as formulating a precise question and processing and monitoring a research process.
7. **Individual or Small group work** – a teaching strategy administered exclusively in laboratory class. This allows students – typically in individual or in groups to practice, make mistakes and work out how to think about what they’re learning, on their own terms.
8. **Group didactics** – a teaching strategy administered exclusively in classroom setting. It is a student-centered methodology that allows students to actively involve and be partners in the teaching-learning process. Students interact with peers and instructors, discussing, and sharing ideas. They develop the ability to build consensus in a group.

The figure 5 presents the LO assessment paradigm applied for the individual learning outcomes.

**FIGURE 5:
ASSESSMENT PARADIGM**



There are multiple ways to assess the extent to which students are meeting LOs. The two main lines of evidence are: Direct evidence (faculty assessment of students’ skills) and Indirect evidence (student self-assessment of their skills). We generally recommend collecting both types of evidence, as they provide different types of insight regarding student achievement of LOs.

To collect direct evidence of students’ skills, faculty assess student work (e.g., written and rubric) and determine the extent to which each product demonstrates mastery of specific skills related to the LO.

To collect indirect evidence of students’ skills, students rate their own skills relevant to the PLO via a survey. This type of evidence is most useful when the survey questions are tailored to match the specific skills that are being assessed by faculty (direct evidence).

The evidence for PLO achievement is termed “assessment”. This will measure the extent to which the stated learning outcomes are achieved by the students in the program. The assessment methods utilized are all “direct” types. This type is based on a sample of work or “actual” result that the student has produced.

The MLT program employs 2 major types of “direct” assessment; namely, written exam and rubrics. The subtypes of each assessment method are defined according to operation and coded for mapping access. Each type has a specific assessment method or subtypes.

ASSESSMENT METHODS & CODE

Written Exams

W1 - MCQ

W2 - True or False

W3 - Matching Type

W4 - Fill-in the blank or direct answer or enumeration

Rubrics or Checklist (Specific template is required & provided)

R1 - Interviews or recitation

R2 - Performance test

R3 - General (values + affective skills)

R4 - Lab manual reports

R5 - Research

R6 - Class presentation/reporting/data sheets/calculation

R7 - Essays or Case studies

The individual teaching strategies are defined according to operation:

(a) Written Exam – this is an “objective” type of assessment method where learning outcomes are expressed in a written form. This constitutes any of the following MCQ, True or False, Matching Type, Fill-in the blank or direct answer or enumeration.

(b) Rubrics – is a “non-objective” type of assessment method which constitutes qualitative type of assessments (e.g., Interviews or recitation, specific laboratory demonstrations/performances, general, lab manual reports, research, class presentation/reporting, essays or case studies).

A specific template is designed which intends to quantify the outcome of assessment. These assessments require pre-structured templates and are conducted during major periodical examinations, quizzes, and forums. Apparently, these are tables designed with a scale of 5 for each criteria or procedural step to quantify and score the performance.

Furthermore, the subtypes are operationally defined as follows;

Essays or Case Studies – type of assessment method which requires answers to be written out at some length (short or long). The question usually starts with a premise having a clinical or laboratory situation wherein possible answers are to be driven out.

1. General – type of assessment method which relates to intended feelings, behavior, attitude, and perceptions in consonance to the profession. Refer to the table 2 below as example.

**TABLE 3:
General Checklist**

Discipline		
(1) Work without supervision		
(2) Work without disturbing/talking with other students		
(3) Work without wasting reagent/materials		
(4) Keep gadgets away from holding area and exam room		
(5) Finish work on time		
(6) Cleaning work area after test		

2. Lab manual reports – type of assessment method where answers are written (short or long) in lab activity manuals.
3. Performance test – type of assessment method to determine the psychomotor skills acquired. This comprises the techniques and steps part of the procedure. Refer to the table 4 below as example.

**TABLE 4:
Performance Rubric**

SCALE						
5 - Excellently performed						
4- Few mistakes as performed						
3 - Many mistakes as performed						
2 - Poorly performed						
1 - Attempted to perform but failed to do so						
0 - NOT performed						
(1) Pre-rinse the tip before pipetting						
(2) Weigh the container (beaker)						
(3) Set balance at zero						

4. Interviews or recitation – type of assessment method where students are required to recite or verbalize the expected information or facts. It is a spoken assessment by verbal expression of recalled skills, knowledge, and abilities on brief scope.
5. Class presentation/reporting – a form of pre-assigned assessment that calls on students to use the spoken word to express their knowledge and understanding of a topic on a broader scope. It allows capture of not only the research that the students have done but also a range of cognitive and transferable skills.
6. Research – an assessment of a written expression of the systematic investigation into and study of materials and sources in order to establish facts and reach new conclusions.

7. **MCQ** – or multiple choice question assessment is a written expression of learning outcome, wherein the respondents are asked to select only correct answers from the choices offered as a list. The degree and content construction of the assessment is diverse according to level of learning taxonomy (e.g. recall or cognitive, etc.).

Among the written exams, the MCQ is the most versatile and mostly used in assessing learning outcomes of the program's professional courses. It does not only contain questions that test knowledge but cover questions with scenarios/case presentation that test other skills (interpretation, analysis, decision making, reasoning and problem solving). The questions may be both theoretical and procedural. Theoretical questions measure skills necessary to apply knowledge, calculate results, and correlate patient results to disease states. Procedural questions measure skills necessary to perform laboratory techniques, evaluate laboratory data, and follow quality assurance protocol.

8. **True or False and Matching Type, and Fill-in the blank or direct answer or enumeration** – allow answers to be written based on the premise. This assesses primarily the knowledge or recall learning.
9. **Indirect assessment** - assessments that gather information through means other than looking at actual samples of student work. These can give us information quickly, but may not provide real evidence of student learning. Example is the Exit Survey.

I. KPI for STANDARDS and GOALS

The quality assurance is tasked to identify and apply the key performance indicators as tool to measure program standards and goals of operation.

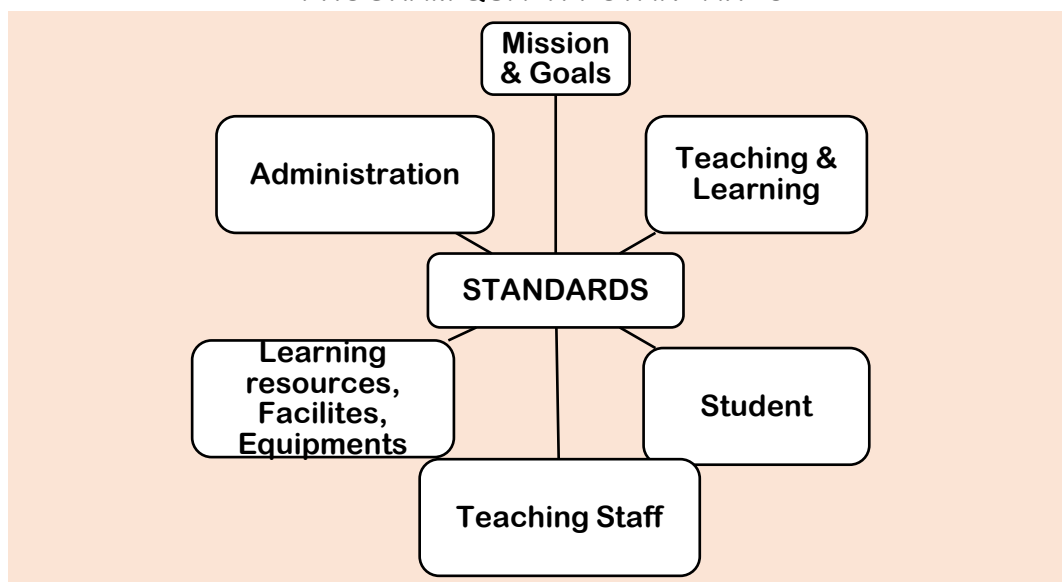
These improvements will be addressed according to major component program areas, namely;

- a. **Mission and Goals**
- b. **Administration**
- c. **Teaching and learning**
- d. **Student**
- e. **Teaching staff**
- f. **Learning resources, facilities & equipment**

These areas play a very important and cohesive role in achievement of the program learning outcome.

The figure 6 below shows the standard program for quality satisfaction. The corresponding KPIs are measured to against the target and benchmark to determine its achievement.

**FIGURE 6
PROGRAM QUALITY STANDARDS**



The KPIs will be analysed, interpreted, and discussed in application to the standards and goals. The confounding variables (ex. branches and gender) will be included in the report.

The conclusions arising from the KPI analysis provide the identification of strengths and recommendation for areas which require improvement.

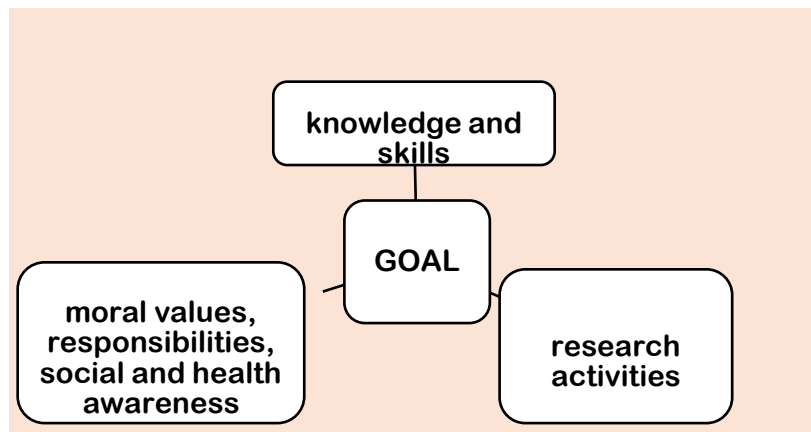
Listed in the table are the KPI for standards;

Standard 1
KPI-P-01-S1: Percentage of Achieved Indicators of the Program Operational Plan
Standard 3
KPI-P-02-S3: Students' Evaluation of quality of learning experience in the program.
KPI-P-03: Students' evaluation of the quality of the courses.
KPI-P-04: Completion rate of undergraduate students who completed the program in minimum time in each cohort
KPI-P-05: First-year students retention rate
KPI-P-06: Student Graduates' employability and enrolment in postgraduate programs s' performance in the professional and/or national examinations
KPI-P-07:
KPI-P-08: Average number of students in the class
KPI-P-09: Employers' evaluation of the program graduate's proficiency
KPI-P-10: Students' satisfaction with the offered services

Standard 5
KPI-P-11: Ratio of students to teaching staff
KPI-P-12: Percentage of teaching staff distribution
KPI-P-13: Proportion of teaching staff leaving the program
KPI-P-14: Percentage of publications of faculty members
KPI-P-15: Rate of published research per faculty member
KPI-P-16: Citations rate in refereed journals per faculty member
Standard 6
KPI-P-17: Satisfaction of beneficiaries with the learning resources

The figure below shows the 3 main goals of the program fro quality satisfisfaction.

FIGURE 7
PROGRAM QUALITY GOALS



There are three (3) established goals set by the department. Each of these evaluates the identified initiatives and objectives to achieve the MLT goals. There is a total of 24 KPIs, with the following components; goal A is 10, goal B is 8, and goal C is 6.

The program identifies 17 key performance indicators . The key performance indicators use appropriate tools (ex. surveys, statistical data, etc.) to calculate and generate the results and determine the actual performance. These results are analyzed according to the following : targeted performance level, internal benchmark, external benchmark, and new target performance level

The table below presents the list of specific objectives under each goal in relation to the determined KPI intended to measure.

GOAL-A

To establish quality academic environment with competence in teaching and learning in the field of Medical Laboratory Technology

OBJECTIVES	KPI
1. Provide with equipped and adequate learning facility in the department such as classroom and laboratory	A-1 Average overall rating of adequacy of facilities and equipment in a survey of teaching staff and students.
2. Available learning resources to students and staff such as internet room, online or physical library.	A-2 Average overall rating of Stakeholder evaluation of library services, internet rooms and online library
3. Increase the number of qualified and specialized academic staff.	A-3 Proportion of teaching staff with verified doctoral qualifications.
4. Support professional development of teaching staff through continuing education and post graduate studies	A-4 Average overall rating of the staff on the support for seminars and workshops on teaching and learning.
5. Closely supervise and monitor classroom and laboratory instruction	A-5 Proportion of courses in which classroom evaluations were conducted during the year.
6. Deliver and measure the intended learning outcomes of the graduates and prepare them in the national licensure exam.	A-6 Passing rate of graduates in Saudi Commission Licensure Examination
7. Benchmark with other institutions offering the same program	A-7 Number of benchmarking with other Institutions
8. Establish a university-based clinical laboratory which will fortify the laboratory training of the students	A-8 Completion rate of the plan for the university based clinical laboratory
9. Apply and submit for national accreditation (NCAAA)	A-9 Completion rate for NCAAA accreditation preparation activities
10. Prepare and submit for international accreditation	A-10 Completion rate of NACCLS international accreditation preparation task

Goal-B

Promote research activities to develop skills in creative, creative and analytical thinking to advance knowledge in laboratory technology and to progress to higher

Objectives	KPI
1. Involve students and faculty members in the university or department's research activities.	B-1 Proportion of students' researches with the graduating students' researches
2. Participate in the Faculty or University research symposia	B-2 Proportion of student group participated in the Research symposia with the total number of groups in research
3. Develop a research priority plans for the Department.	B-3 Identified research priority areas
4. Conduct health and MLT related researches approved by the University or outside research funding.	B-4 Number of researches approved by DSR and other Agencies for funding
5. Publish researches in a reputable and high impact research journals	B-5 Proportion of full-time member of teaching staff with at least one refereed publication during the previous year.
6. Spearhead or participate in regional, national or international research symposia or conferences	B-6 Proportion of teaching staff participating in professional development activities during the past year.
7. Collaborate with national and international research agencies	B-7 Number of agreements for collaborative research
8. Initiate and propose relevant postgraduate programs in the specified field.	B-8 Completion rate of the proposed graduate program

Goal-C

Promote research activities to develop skills in creative, creative and analytical thinking to advance knowledge in laboratory technology and to progress to higher levels of study.

Objectives	KPI
1. Establish a functional community outreach committee	C-1 Proposed plan of activities
2. Conduct outreach programs related to health and improvement of the community	C-2 Number of community education programs provided per year

3. Establish a solid partnership and collaboration with Health agencies, Community leaders and Managers in the promotion of health to the public.	C-3 Numbers of collaborations and partnership with health agencies
4. Integrate community outreach in the curriculum	C-4 Number of courses with community-related exposure
5. Involve teachers and students in the community activities	C-5 Proportion of teaching staff and students actively engaged in community service activities.
6. Monitor and evaluate the outreach activities	C-6 Average rate of community satisfaction about community outreach activities

J. Calculate, Collect, & Analyze the Assessment Data

The quality assurance unit is tasked to calculate, collect, and analyze the assessment data. The table below presents the calculation and derivation of assessment results using the different types of assessment tools. This ensures systematic guidelines of calculation procedures.

TABLE 5:
Determination & calculation of results, based on the type of assessment method

Assessment method	Determination and calculation of results	Example
DIRECT Written Exams	Count the number of students with correct answers, divide from the total number of students who took the assessment, and multiply to 100. Results are expressed in percentage (%).	Example: 6 students out of 10 got the correct answer. $6/10 \times 100 = 60\%$
DIRECT Rubrics or Checklist	Each student will be given a score (scale of 5) in rubric. Get the average score from all students who took the assessment. Convert the score into percentage (%).	Example: There are 2 students who took the assessment. 1 student got 3, and another one has 4. $2+3/2=2.5$ $2.5/5 \times 100 = 50\%$
INDIRECT Exit Survey	Scale of 5 survey questionnaire in rubric Get the average score from all the 4 th year students who answer the survey Convert the score into percentage (%).	Example: There are 2 students who took the assessment. 1 student got 3, and another one has 4. $2+3/2=2.5$ $2.5/5 \times 100 = 50\%$

The data obtained by assessments methods are determined and calculated. The results will be expressed in percentage.

Similarly the average score is taken cumulatively if several items are designated for each course. This will be eventually converted in percentage. Furthermore, the population or unbiased samples are scored by at least two faculty members using similar scoring rubrics to ensure inter-rater reliability.

The actual assessment is determined and reported by calculating the average among all the sections for each LO. The comment on the assessment results will be based on the comparison of the actual against the target value.

The assessment values and remarks will also be reported in the course and field reports of each course. The calculated values will be collected. This includes all the sections for each course. The data from those assessments will be collected every semester of the academic year using the prescribed form.

The results are electronically submitted through google “drive” application during the prescribed semester via access link. These data were taken from the representative courses encompassing the three (3) sections.

The table 6 below is provided to encode the summarize assessment results for the accreditation and quality unit documentation and file.

**TABLE 6:
LO DIRECT ASSESSMENT DATA**

First Year (Level 1 & 2)								SECOND YEAR (Level 3 & 4)													
CLO	CSC 001	EMD 001	Math 100	Phys 101	LTS 001	EMD002	Bio 101	Chem	Math 102	CLO	PHYT 201	PHYT 202	MLT 201	MLT 202	MLT 203	MLT 204	MLT 205	STAT 201	ISL S 201	ARAB 201	
K1																					
K2																					
K3																					
S1																					
S2																					
S3																					
S4																					
S5																					
V1																					
V2																					

The ERC upon review will endorse to the department Head for approval. The approved assessment will eventually be administered to the students. The sample size includes all the student population who will take the periodical examination or assessment as scheduled.

The assessment method is to be conducted simultaneously in all sections during the scheduled major examinations.

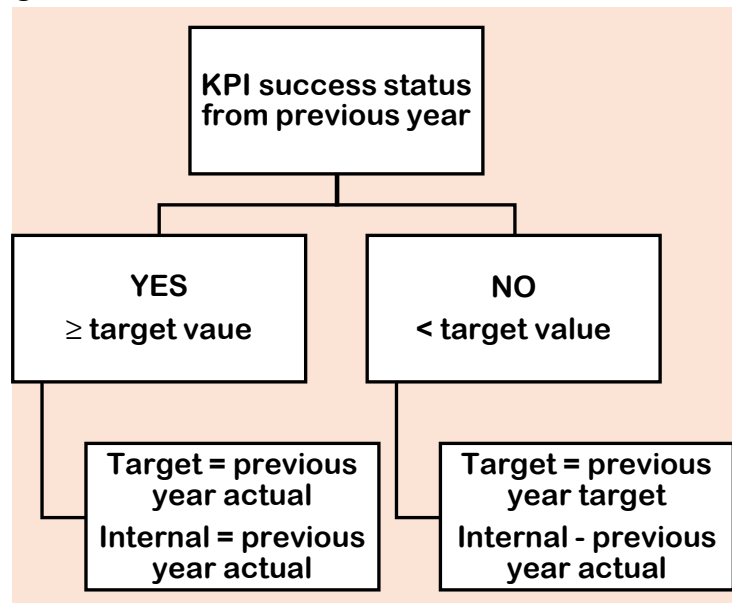
LEARNING OUTCOME ACTUAL ASSESSMENT & STATUS

LEARNING OUTCOME	DIRECT	INDIRECT	ACTUAL	TARGET	STATUS
K1 Describe the underlying theories, methods, principles, and applications of clinical laboratory concepts and practices.					
K2 Explain the various human biological, chemical, molecular, and scientific mechanisms, their reactions and activity in aid to clinical diagnosis.					
K3 Recognize various laboratory tests' concepts in the selection of appropriate test, reconciliation of laboratory results discrepancy, and correlation of data to clinical conditions.					
S1 Apply critical and analytical thinking ability in solving problems of mathematical calculations, integration of quality assurance on laboratory test results, assay end-point readings, and evaluation of laboratory diagnosis and problems with clinical cases.					
S2 Execute operation, preventive maintenance, awareness of equipment and machine to achieve valid results in the clinical laboratory.					
S3 Perform accurate and precise techniques while observing safety measures and standards in clinical laboratory tests.					
S4 Utilize efficient ICT skills, lab informatics, integrated community work, modern technology, valid statistics and scientific research relevant to medical laboratory technology and in advancing the health care delivery system.					

S5 Exhibit effective communication in Arabic and English languages within the healthcare system					
V1 Demonstrate commitment to the future of the medical laboratory profession by cultivating positive academic values and ethical codes of conduct during the course of their work within the health care team.					
V2 Work independently and collaboratively displaying professionalism and responsible citizenship with adherence to cultural, governmental and institutional regulatory standard practices.					

The figure below shows the guide in how to establish the target value of the PLO in the succeeding year.

FIGURE 8:
Paradigm of TARGET Value decision for the Next Academic Year



The interpretation of evidence requires comparison of the results with an established standard. This process is called “Benchmarking”. Apparently, it is the predetermined acceptable level of achievement on the actual assessment in order to consider that the outcome is “achieved” by students.

BENCHMARKING

Target Benchmark	Refers to the anticipated performance level or desired outcome (goal or aim) for a KPI. For example, if the KPI is "Average score from all students who took the identified MCQ question" then the target benchmark might be 85%. A target benchmark is also an internal benchmark.
KPI Actual Benchmark	Refers to the actual outcome determined when the KPI is measured or calculated. It represents the actual reality of the present situation. For example, if the actual "Average score from all students who took the identified MCQ question" is determined to be 86%, then it is the actual benchmark. An Actual benchmark is also an internal benchmark.
Internal Benchmark	Refer to benchmarks that are based on information from inside the program or institution. Internal benchmarks include target or actual benchmark data results from previous years. For example, a previous year's benchmark for "Average score from all students who took the identified MCQ question" could have been 85% and the actual benchmark for that year might have been 84%.
External Benchmark	Refer to benchmarks from similar programs or institutions that are outside the program or institution. For example, external benchmarks for "Average score from all students who took the identified MCQ question" could be 83% from a different program within the institution or another program (e.g., Najran MLT) outside the institution.
New Target Benchmark	Refers to the establishment of a new or desired performance level or goal for the KPI that is based on the outcome of the KPI analysis or actual benchmark. For example, the new target benchmark for the "Average score from all students who took the identified MCQ question" KPI might be 86%.

The quality assurance decides and sets the Target Benchmarks. Scoring benchmarks can be expressed in either percentage (0-100%) or scales (0-5) which will satisfy the PLO achievement. According to Linda Susie (2012), the benchmark scoring depends on the objectives. The variation in the level of benchmarking per PLO will rely on the degree of significance, the extent to which it satisfies the mission and vision of MLT, and future job demands

**TABLE 7:
Degree of PLO significance**

Percentage	Scale	Significance
90%-100%	*****	Very high
80%-90%	****	High
70%-80%	***	Average
60%-70%	**	Low
50%-60%	*	Very low
Below 50%		None

Whenever the result of your score is 50% less than your target benchmark, Susie suggests that you do some further investigation on any rubric criteria or test questions. The PLO is considered satisfactory, acceptable, or successful if the result of the assessment is equal to or higher than the target benchmark.

Results obtained are then compared to the internal benchmark. An internal benchmark is the result achieved in the previous year's assessment. Results which are lower than the prescribed benchmark requires further investigation and will serve as the basis for improving the program and implementing changes (ex. potential course modification in terms of teaching strategies, assessment methods, instructional materials and teaching-learning facilities) to enhance student learning.

Furthermore, according to the obtained result, a new target benchmark will be established, based on the identified factors affecting the results. This is usually an actual benchmark value obtained that is higher than the target benchmark.

The benchmark results are tabulated following the APR format. An assessment checklist and plan of action are tabulated and filled-up for reference and verification. The verified results will be used for drawing conclusions, determination of strength and weakness. This will also serve to list the key priorities for improvement.

An external benchmark is an analysis comparing UT's MLT program with the same program from another institution. An external benchmark cannot be performed because the PLOs of institutions vary depending on their mission and vision. There appears to be no similarities in the PLO's of the University of Tabuk with other institutions offering the same MLT program.

L. Identify the Strengths & Weaknesses; Opportunities & Treats

The accreditation and quality unit of the department then will collate and summarized the course evaluation survey, peer evaluation, graduate, employer, etc.

Apparently, these will be categorized as strengths or weaknesses; and further, into areas of the program standards and aligned with PLOs.

- (a) Mission & Goals
- (b) Teaching & Learning
- (c) Student
- (d) Teaching Staff
- (e) Learning resources, Facilities, & Equipment
- (f) Administration

Table 8. List of Strengths & Weaknesses mapped to Areas of the Program

List (examples only)	Strength	Weaknesses	Mission & Goals	Teaching & Learning	Student	Teaching Staff	Learning resources, Facilities, & Equipment	Administration
Enhance labs and other hands-on learning opportunities								
Add new topics								
Provide targeted professional development opportunities								
Comprehensive teaching delivery								
Complicated assessment methods								
Provide access to library								
Limited lab materials								
Limited conduct of assessments of learning outcomes								
Course is not beneficial								
Course objectives are not provided								
Lab equipment are not working								
Change methods and/or measures of assessment								
Provide resources to support student independent research								
There was advisory to make sure students take the right courses								
Add more active-learning components to course design								

The table 8 above presents the Summary List of Strengths & Weaknesses mapped to areas of the program.

M. Establish Priorities for Improvement

The quality assurance will be responsible for the verification of NON-accomplished PLO & Established Priorities for Improvement

PLO Code & STATEMENT (example only)	Priorities for Improvement	Area of the Program
S3 Perform lab techniques	Enhance labs and other hands-on learning opportunities	Teaching & Learning
	Limited lab materials	Learning resources, Facilities, Equipment
K1 Describe the theories	Add more active-learning components to course design	Teaching & Learning
	Course objectives are not provided	Administration

The table 9 above will serve as template for data entry of priorities for improvement among verified PLO items.

The quality unit will verify the PLO assessment results and identify those which are not accomplished. This specific PLO then will be noted as requiring improvement priority.

The specific weakness from the list will be selected according to applicability and alignment to a particular PLO for improvement. The associated area of the course is also identified.

N. List Recommendations & Create Action Plan

The course coordinator carries over the priorities for improvement and will transcribe into recommendation. This is prepared in the course report.

TABLE 10:
Action Plan for PLO Improvement

Recommendations (examples only)	Specific actions	Responsible for Implementation Time Frame Support
To enhance labs and other hands-on learning opportunities	<p>To review the current lab manuals</p> <p>To provide the hands-on learning activity in relation to the topic</p> <p>To secure approval upon by the curriculum committee upon consensus by course coordinators</p> <p>To impose the activity during the course delivery.</p>	<p>Course coordinator</p> <p>Aug-Dec</p> <p>Administration Curriculum committee</p>
To supply and satisfy lab materials	<p>To conduct inventory of the current and available laboratory materials.</p> <p>To submit a request of the materials required using the official template to the lab. Committee.</p> <p>To receive the items as requested or purchased.</p>	<p>Lab committee</p>

An action plan will be created to address the identified recommendations to close the loop.

The table 10 above will be used for entry of the recommendations transcribed from the priorities for improvement. Specific action plan created provides the steps in the realization of the recommendation. A responsible person or in-charged is identified and tasked to implement and monitor the actions stated.

The implementation time frame is also identified to facilitate and carry out in conjunction with support committee and unit.

O. Create & Monitor Action Plan Progress

The specific action identified and established for each recommendation will be monitored by the quality unit and accreditation committee.

The progress of the action taken is checked using the table 11 below. The circumstances attributing to difficulty or deficiency in the implementation will be noted under challenges and difficulties section of the table.

**TABLE 11:
PLO Action Plan Progress Checklist**

Recommendations (examples only)	Specific actions	DONE	NOT DONE	Challenges & difficulties
To enhance labs and other hands-on learning opportunities	To review the current lab manual			
	To provide the hands-on learning activity in relation to the topic			
	To secure approval upon by the curriculum committee upon consensus by course coordinators			
	To impose the activity during the course delivery.			
To supply and satisfy lab materials	To conduct inventory of the current and available laboratory materials.			
	To submit a request of the materials required using the official template to the lab. Committee.			
	To receive the items as requested or purchased.			Institutional issue

The monitoring the quality assurance of the program in long term and annually in order to maintain the quality of MLT academic programs for long term, a self-assessment should be carried out to the program every five/four years to ensure that it remains in accordance with the reaccreditation requirements of the organization. The self-evaluation process involves a retraction from the continuous process and a revision of all areas of the program based on present developments

during a specific period, and on the potential changes that have occurred in the environment in which the students are being prepared to work. The quality

QUALITY ASSURANCE TABLE OF ACTIVITIES

Documents	Planning	Implementation	Submission & Documentation
PS	Before each AY	During the AY	Middle of the AY
CS/FS	Before each AY	During the AY	Within 2 week after the start of Sem.
CR/FR	During the AY	During the AY	Within 1 week after implementation
APR	During the AY	During the AY	Within 4 week after the end of AY
SSRP	During the AY	3 year cycle	Within 2 week after the end of 3 year cycle
Standard KPI	Before each AY	During the AY	Within 1 week after implementation
CES-Eval	Before each AY	2 weeks prior the final exam implementation for all students	Within 1 week after implementation
PES-Eval	Before each AY	2 weeks prior the final exam implementation for 4 th yr. students	Within 1 week after implementation

These program reports are reviewed by the Standing Internal Review Committee in the Deanship of Development and Quality assurance, which issues reports containing feedback on the extent to which quality assurance standards are being met by these programs. Simultaneously, these annual reports are employed to develop the current programs. Moreover, the committee is considered to function as a consulting unit; that is, it supports programs in order to improve their performance.

The most important cycle in the quality assurance of education at the program level is the 3-year Strategic Plan cycle. Policy for the next five years is driven by the vision and objectives set out in the Strategic Plan and in the Vision on Teaching and Learning arising from it.

The MLT educational policy must adhere with Ministry of Education policy. The MLT annual report presents an overall account of progress. The Department Council is responsible for approval in the education and student policy, as well as for the general management.

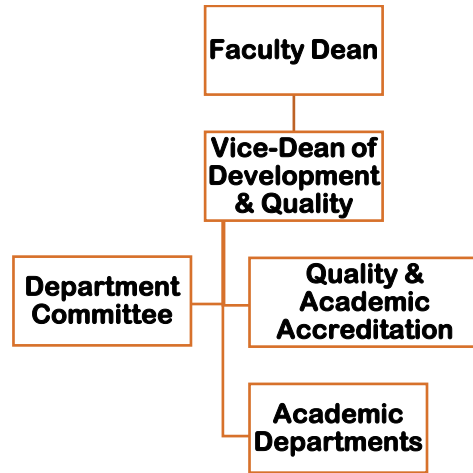
The first responsibility means that it has its own substantive role regarding the quality of the program. The second entails issuing guidelines to the deans concerning the coordination and organization of program through periodic consultations such as the periodic council meetings.

REFERENCE

- (a) Suskie, L. (2012) Summarizing, Understanding and Using Assessment Results, presented at Penn State Harrisburg on May 10, 2012
- (b) Assessment and Institutional Effectiveness, California State University, Fullerton https://www.fullerton.edu/data/assessment/sla_resources/closetloop.php
- (c) Program Exit Survey Form
<https://docs.google.com/document/d/16UxHvtuWwnjwxQMwnXj-KLjDZrdH3No5/edit>

APPENDIX

Hierarchy of MLT Quality Unit



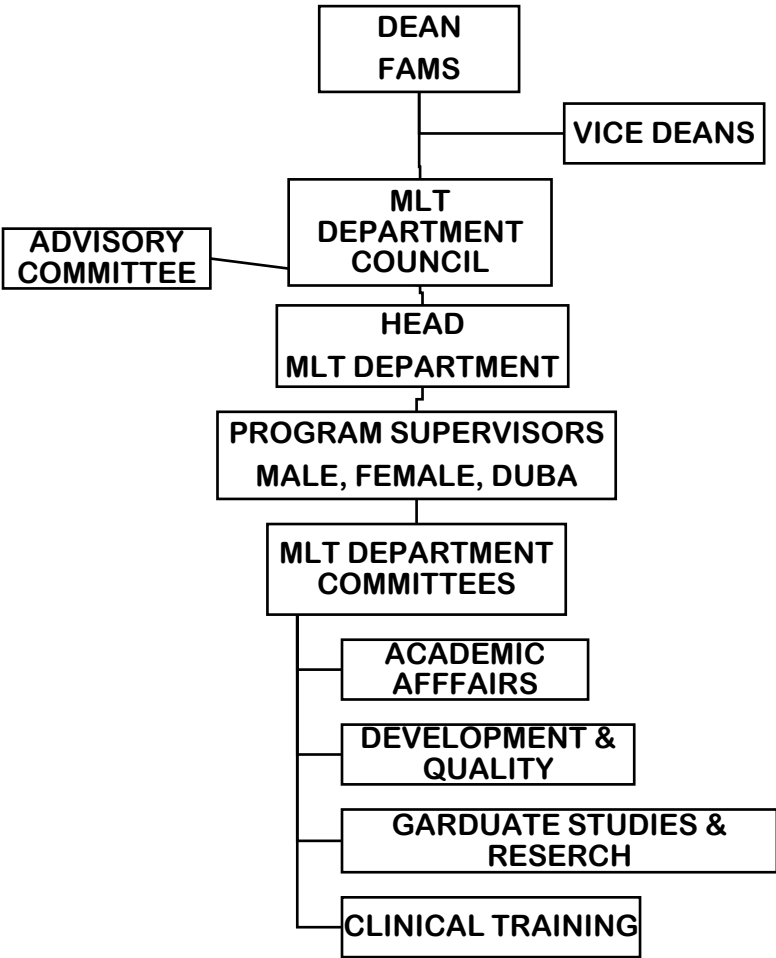
The MLT department in its commitment to program quality assurance at the university level has established in its hierarchal a vice-rectorate for development and quality, which is the umbrella for the deanship of development and quality assurance. The vice-rectorate for development is in charge and responsibility for the quality assurance and development at the university. It is responsible for quality assurance planning etc. Moreover, the vice-rectorate for academic affairs are playing main part of the program quality assurance and development too.

The Vice-Dean of Development and Quality is responsible for taking variety of measures to ensure the integration and harmony of the quality practices in different sectors of the university.

Thus, in order to ensure the integration and comprehensiveness of quality and accreditation and develop the ability to control and ensure the quality of internal and external operations in accordance with the NCAAA standards.

The Vice-Dean of Development and Quality evaluates the importance of restructuring these departments through the formation of a unified quality management structure and organization in different faculties

ADMINISTRATIVE FLOWCHART OF MLT DEPARTMENT



MLT Departmental Working Committee

Academic Affairs	Development & Quality	Graduate Studies & Scientific Research	Clinical Training
Curriculum & Course development	Accreditation & Quality Assurance	Scientific	Clinical Training & Internship
Academic Advisory	Strategic Planning		
Exam Review			
Laboratory Management & Instrumentation			
Continuous Education & E-Learning			
Student Activity & Community Service			
Exam Officer			

Duties and Responsibilities of MLT Committees

1. Accreditation and Quality Assurance Committee (AQAC)

- I. The committee is to perform the following duties:
- Implementation of NCAAA standards with regard to MLT program’s mission, vision, goals, and values.
 - Determine strategic goals and priorities of the MLT program and preview their achievement performance.
 - Prepare MLT program’s vision and mission in harmony with the vision and mission of FAMS and UT.
 - Determine the Program Learning Outcomes (PLOs) according to NCAAA standards.
 - Fill-in program and course specification forms:
 - NCAAA program specification form.
 - NCAAA course specification form.
 - Fill-in course report (every semester) and program report (annually) forms.
 - NCAAA course report form.
 - NCAAA program report form.
 - Collect program performance indicators for the last three years and prepare performance indicators’ study report and recommendations for improvement accordingly.
 - Take arrangements for conducting surveys for program evaluation through collecting opinions from stakeholders such as students, faculty members, employees, graduates, and employers to prepare survey reports and recommendations for improvement.

- Specify and collect performance indicators from five similar programs for benchmarking.
- Prepare self-evaluation scales with participation of faculty members.
- Arrange contracting with external independent experts in MLT program to evaluate the program, self-study report and key performance indicators including results and recommendations.
- Make sure of the use of performance indicators reports, recommendations in survey reports, benchmarking reports and self-evaluation scales. And include all in the self-study report to specify priorities for improvement in program activities.
- Prepare the self-study report according to NCAAA including methodology of the study, results obtained, evidence for results and recommendations for improvement.
- Review the self-study report and raise it to the department council for approval.
- Follow up on approvals of the program self-study by the higher administration in the university.
- Prepare and fulfill all preparations needed for the visit of external review panel.
- Follow-up the performance of related initiatives (projects) in FAMS and UT strategic plans.
- Any other related duties assigned to the committee.

II. Minutes of committee meetings are to be verified by chairman of the committee.

III. Minutes and reports of the committee are to be raised to the head of MLT department.

2. Curriculum and Course Development Committee (CCDC)

I. Committee duties include:

- a. Prepare department course syllabi according to the manual provided by the Curricula and Courses Unit at the University of Tabuk.
- b. Evaluate curricula and teaching methods in terms of:
 - Study programs.
 - Teaching procedures.
 - Class room management.
 - Academic performance of students.
 - Teaching efficiency.
 - Compliance of curriculum with accreditation and quality standards.

II. Follow-up implementation of related initiatives in the strategic plan.

III. Minutes of committee meetings are to be verified by the committee chairman.

IV. Minutes and reports of the committee are to be raised to the head of MLT department.

3. Continuous Education and E-learning Committee (CEELC)

I. The committee is to perform the following duties:

- Suggest and implement programs related to teaching techniques and methods.
- Develop training programs for department members to raise performance and develop skills.

- Present recommendations related to e-learning issues.
- Implement, follow-up and develop training and procedures related to e-learning technology.
- Cooperate with all committees to make use of education technology in their fields of work.
- Participate in implementing initiatives related to duties of the committee in strategic plans of MLT department, FAMS and University of Tabuk.

II. Minutes of committee meetings are to be verified by chairman of the committee.

III. Minutes of the committee are to be raised to the head of MLT department.

4. Clinical Training and Internship Committee (CTIC)

I. Committee duties:

- The general overseeing of clinical training and internship.
- Communicate with the different training bodies inside and outside the kingdom.
- The awareness of students towards clinical training and internship and its importance and how to make the most of it and ways to deal with the problems they face.
- Follow-up to the performance of various training bodies and make sure to achieve the objectives of clinical training and year of the concession contract.
- Follow-up to the performance of students and the revision of the evaluation mechanisms, training records, attendance and absence periodically to ensure its effectiveness to achieve the objectives of clinical training and year of the concession contract.
- Consideration of student complaints and training bodies and find solutions to them and raising them to the department head.
- Proposing and developing plans to increase the efficiency of clinical training and internship.

II. The Committee should meet monthly or as needed to discuss topics related to clinical training and internship.

5. Exam Officer Committee (EOC)

I. The committee is to perform the following duties:

- a. Distribution of class rooms and proctors in the final exam schedule.
- b. Preparation of final exams schedule.
- c. Ensure classrooms equipped in terms of: chairs, lighting, and air-conditioners.
- d. follow up the final exams, and includes:
 - Follow-up the attendance of the proctors in the exams.
 - Preparing tables for proctors and daily supervision.
 - Follow-up of the signing of the proctors in daily record template.
 - Identify alternative is noticeable when the delay or absence of one of the proctors before the start of the exam.
 - Receiving questions and lists of students from courses instructors' before the start of the final exams and compiling lists of students allowed entering the final exam, and delivering them to the proctors on the day of the exam.

- Receipt of the answer sheets and students signing lists from the proctors and deliver them to the course instructor directly after the.
- Provide a daily report on the progress of the final exam.
- Provide the answer sheets according to the type of exam.
- Set up private records of the receipt of the questions for each section, in terms of the date of receipt of the test, and the name of an instructor, and the name of the article.
- Inventory the students' absences and follow-up names; guarantee for non-entry student test article, which deprived.
- Prepare templates for students absentees and deprived of entry the exam.
- Order class room according to the number of students in each exam.
- Raise student cases (request a replacement-cheating) to the relevant committees and prepare cheating records of each case and raise them department supervisor after the completion of the entire proceedings.
- Ensure the exclusion of all teaching aids, and all related materials outside the classrooms during the exam.
- Place announcements on exam class room distribution.
- Preparation of the final report on exams.

6. Examination Review Committee (ERC)

I. The committee is tasked to review and follow up student examination. The task also includes staff development with regard to exam preparation.

II. The committee works in coordination with the curriculum committee.

III. Committee duties:

A. Examination Review

1. Ensure availability of test paper blueprint and Table of Specification (TOS) for periodic and final examinations.
2. Review examinations:
 - alignment of exam content with course specification
 - alignment of exam content with the test blueprint
 - diversity and variety of test type
 - key answers
 - design of exam paper
3. Specify corrections and rationale for the correction
4. Provide feedback to supervisors regarding corrected exams
5. Verification of each page of in the approved test paper

B. Creation of Test Bank/Repository

1. Pool from the staff
2. Filter questions appropriately
3. Safe-keep of test bank
4. Update test bank regularly

C. Faculty Development

1. Provide feedback to faculty on the following:
 - best practice
 - common mistakes
 - recommendations
2. Conduct training and workshops for faculty on testing and student evaluation.

3. Follow up faculty implementation of committee recommendations.
4. Evaluate faculty performance in testing and evaluation

IV. Minutes of committee meetings are to be verified by the committee chairman.

V. Minutes and reports of the committee are raised to the head of MLT department.

7. Student Activity and Community Service Committee (SACSC)

1. The committee is to perform the following duties:
 - Prepare annual and terminal plans to define and develop student activities.
 - Organize and supervise student activities in coordination with other faculty committees.
 - Spread awareness among students about rules and regulations concerned with costumes, good manners, academic behavior and student affairs.
 - Make short and long term plans for community service.
 - Organize and implement community service programs with participation from students, faculty members and partner associations in the community.
 - Follow-up completion of initiatives in strategic plans of MLT, FAMS and UT.
2. Minutes of committee meetings are to be verified by chairman of the committee.
3. Minutes and reports of the committee are to be raised to head of MLT department.

9. Strategic Plan Committee (SPC)

The committee is to perform the following duties:

- Coordinate with initiative managers, units, and different committees to implement initiatives and objectives of the strategic plans of Department of Medical Laboratory Technology, Faculty of Applied Medical Sciences and University of Tabuk within the designated time frame for each objective.
- Coordinate with the Strategic Planning Unit in FAMS to follow-up the implementation of the strategic plan according to the designated time frame.

Minutes of committee meetings are to be verified by chairman of the committee.

Minutes and reports of the committee are to be raised to the Head of the Department of
Medical Laboratory Technology.

10. Scientific Committee

The committee performs the following tasks:

1. Developing the scientific research environment in general in the department in terms of developing the research skills of faculty members through seminars, programs and development courses.

2. Follow up on the establishment and development of laboratories and laboratories for scientific research in the department and supervising them, in addition to preparing a mechanism for faculty members to benefit from them.

3. Encouraging joint research among faculty members in the various departments of the college, as well as with colleges and research centers at the university.

4. Encouraging students to participate in scientific research through workshops, lectures and other means showing the importance of scientific research and urging faculty members to involve students in their research.

5. Stimulating research directed to meet the needs of the community, in addition to building research partnerships with local community institutions.

6. Submitting proposals for conducting internal and external cooperation and agreements to support scientific research.

7. Inventory of the research interests and activities of the faculty members.

8. Contribute to motivating, facilitating and supporting the research affairs of faculty members to develop and increase quantitative and qualitative research production.

9. Procedures related to all matters related to scientific research in the department.

10. Contribute to holding workshops, seminars, courses, meetings and scientific and research conferences at the college and university, in addition to nominating distinguished staff in scientific research from the department's staff to honor them.

11. Contribute to the preparation and development of a plan to establish postgraduate programs and their annexes in the department.

12. Procedures related to graduate studies affairs in the department.

13. Cooperating with other college departments to open postgraduate programs.

14. Submitting proposals for internal and external cooperation and partnerships to support programs and benefit from expertise.

15. Preparing databases to limit the research production of the faculty members of the department.

10. Laboratory Management and Instrumentation Committee

The committee performs the following tasks:

1. Preparing the laboratories necessary for the department and reviewing the offers and specifications of the devices and laboratories units required by the specialists within the department.

2. Ensure compliance with the specifications of the equipment to be supplied to the laboratories before completing the purchase process. Forming technical committees to examine and decide on purchase offers, and prepare technical receipt minutes.

3. Ensure that there is regular maintenance for the laboratories.

4. Equipping the laboratories with the necessary furniture and the appropriate teaching aids based on the request of specialists within the department.

5. Inventory of materials, devices and equipment in the various laboratories and laboratories of the department and organize the process of storing and dispensing them in accordance with the laws and regulations in force.

6. Inventory and assessment of all types of risks in the laboratory.

7. Inventory and assessment of all types of risks to which laboratory workers are exposed.

8. Working on developing security and safety procedures in the laboratory and providing safety requirements, first aid and firefighting equipment in the laboratories.

9. Follow up on hygiene and management of toxic and hazardous waste according to the standards in force in the Kingdom of Saudi Arabia.

10. Follow up on the implementation of the periodic maintenance of laboratories and devices, and receive reports of any malfunction in medical devices or equipment to communicate with the authorities responsible for repairing them.

11. Monitoring the duties and responsibilities of laboratory technicians, which are:

- Maintaining the cleanliness and general arrangement of laboratories.
- Return devices and materials to their places after use and store them periodically.
- Label all materials in the laboratory for easy identification.
- Inventory of laboratory contents systematically and periodically.

The minutes of the committee shall be approved by the committee chairman.

The minutes and reports of the committee are submitted to the department council.

11. Student Advisory Committee

The committee performs the following tasks:

1. Supervising and following up the academic advising process in the college.

2. Distribute the college students into groups and specify the names of the academic advisors from the faculty members or the like in each group. This is at the beginning of each academic year. The committee informs the academic advisors of the names of the students assigned to each group.

3. Assisting academic advisors in their work and overcoming any difficulties they may face, in coordination with the department head.

4. Receiving the periodic reports submitted by each academic advisor on the progress of the student's study during the year, as well as the exceptional reports that the academic advisor may submit on specific cases, such as low rates or poor general level of the student.

5. Discussing students' problems that may affect the level of their educational attainment and finding solutions to them.

6. Considering students' complaints about any course, finding solutions, and submitting this to the department head.

7. Awareness of the importance of academic guidance and the importance of communicating with the academic advisor by publishing brochures and leaflets and using the college website for this purpose.

8. Supervising the orientation programs for new students to introduce the study and examination system in the department.

9. The committee meets periodically every 4 weeks or as new, to discuss periodic or exceptional reports submitted by academic advisors.

The duties of the academic advisor are as follows:

1. Preparing the student's file: The academic advisor prepares a special file for each of the students whom he has been entrusted with the task of supervising. The file contains the following:

a. Student data form.

- List of major courses leading to the student's graduation.
- Registration forms.
- A recent copy of the academic transcript (transcript of grades).
- Other administrative documents (such as forms for postponement of subjects).
- Directing the student to someone who can answer his inquiries and discuss with the student the following topics:-
 1. **Course registration process:** The academic advisor studies the student's file and specialization, and the registration form for each student is filled out before the date of registration, where the student comes seeking advice in choosing courses and knowing the next steps before signing the final advisor, where the student is then directed to register the courses.
 2. **Choosing Courses:** The advisor should consult the list of courses for the academic specialization while assisting students in choosing their courses.
 3. **Study schedule:** The advisor must ensure that students know the place and time when the lectures begin, and that there are no conflicts in the student's academic schedule.
 4. **Explanation of subject grades and cumulative grades:** The academic advisor should know the minimum and maximum grades (poor - very weak - acceptable - good - very good - excellent) as well as how to calculate the cumulative grade. The academic advisor also introduces students to the division Subject grades (practical - oral - year's work - final theoretical).
 5. **Deleting and adding courses:** The advisor must distribute the form to students who wish to make adjustments to their original choices during the first week of the semester (according to the regulations).
 6. **Apologizing for an exam in a course:** The advisor must sign the form for students wishing to apologize for not taking the exam in a course.
 7. **Student Absence:** Monitoring students' absence is one of the duties of the course professor, and the general policy of the college states that the student is deprived of attending the final exam if he is absent for 25%.

II. The guidance forms are approved by the head of the guidance committee in the department and the department supervisor.

III. Each academic advisor submits a report on the status of students under his guidance two weeks before the end of each semester, explaining the following:

1. The students' academic status and the level of their academic achievement during the semester.
2. Cases of absence and apology for courses.
3. The courses to be offered outside the study plan for the next semester to solve the students' problems.
4. Students' suggestions on study schedules and final exams schedules.

