


# Quality Management System Manual

## for the Master of Science in Computer Science

**2024**

Qassim University

جامعة القصيم

قسم علوم الحاسب
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**Preface:**

The Deanship of Development and Quality at Qassim University has adopted, as part of its supporting tasks, the facilitation of quality assurance procedures and processes derived from the Institutional Quality Guide and Quality Management System (QMS). This system was developed according to structured and clear mechanisms that outline the standards and practices of quality assurance.

In alignment with this framework, and recognizing that quality is a shared and integrative responsibility, the Master of Science in Computer Science Program—offered by the College of Computer at Qassim University—presents its Program Quality Management System Manual (PQMS). This manual serves as a concise and comprehensive reference to ensure the achievement of the program's mission and objectives. It acts as a road map for quality management across all program operations, guiding faculty members in understanding their roles, tasks, and responsibilities, and facilitating the effective implementation of the quality cycle's stages.

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# 1. INTRODUCTION

Quality assurance is an integrated system of interconnected elements designed to implement and uphold various standards, providing a modern administrative framework for enhancing the performance of academic programs. This framework emphasizes the continuous development of student competencies, ensuring that graduates are well-prepared to seamlessly integrate into the workforce. It equips students with the adaptability to thrive in both academic, research and professional environments, ultimately achieving satisfaction among stakeholders across public and private sectors.

The evaluation and enhancement of program quality are grounded in internationally and locally recognized best practices and standards. These standards are consolidated into a comprehensive Quality Manual, which outlines the policies, regulations, systems, procedures, and operational guidelines for the program. Regular application, refinement, and measurement of these standards ensure the continuous improvement of educational quality, leading to high-performing graduates and impactful academic research that meet stakeholder expectations.

This manual serves as a definitive guide to the standards and procedures for quality assurance and development within the Master of Science in Computer Science Program at the College of Computer, Qassim University. It provides a clear framework for documenting required evidence, defining the roles and responsibilities of the program and its committees. The manual is fully aligned with the standards of the Education and Training Evaluation Commission (ETEC) and incorporates supplementary templates and models provided by the Deanship of Development and Quality at Qassim University.

By adhering to this robust quality assurance system, the Master of Science in Computer Science Program ensures that its operations are consistently effective, its graduates are highly skilled and competitive, and its academic contributions are impactful and aligned with national and international benchmarks.

## 2. Quality Framework

The quality assurance framework for the Master of Science in Computer Science Program at the College of Computer, Qassim University, is built upon the institutional standards established by the university via The Deanship of Development and Quality. These standards are in alignment with the quality criteria set by the National Center for Academic Accreditation and Evaluation (NCAAA). This alignment serves two key purposes: first, the comprehensiveness of these standards, which encompass all components of colleges within the university; and second, their relevance to the local context of higher education in the Kingdom of Saudi Arabia.

Furthermore, the quality framework for the program integrates the standards and objectives defined by the Qassim University and the College of Computer. These standards guide the implementation of the college's approved quality system, ensuring that various activities and operations within the program are aligned with institutional goals and practices. This comprehensive approach ensures consistency, relevance, and adherence to both local and national quality benchmarks.

## 3. Objectives of the Quality Assurance System

1. Ensure clarity and transparency at the program level.
2. Provide clear and accurate information to stakeholders about the program's objectives.
3. Promote a culture of quality within the program through meetings, events, printed materials, and electronic communications.
4. Continuously develop the program to align with labor market and societal needs, adhering to national and international quality standards.
5. Update the program content, including courses and textbooks, to align with technological and scientific advancements.
6. Improve student learning outcomes to meet targeted quality indicators.
7. Strengthen the role of scientific research to serve academic, economic, and social realities.

8. Monitor the extent to which students benefit from support services and academic advising based on performance indicators and targets.
9. Continuously improve and ensure the quality of all program activities and operations.
10. Prepare the program for achieving national accreditation by the National Center for Academic Accreditation and Evaluation (NCAAA).
11. Regularly update the program's information database and upload files and reports to facilitate continuous monitoring of program performance.
12. Enhance the activities of committees related to quality assurance within the program to improve performance in accordance with the standards established by the NCAAA.

# 4. The Program Strategic Plan

## 4.1. University Mission

Providing educational, professional, research, and consultancy services that support sustainable national development and enhance self-sufficiency. This is achieved within an inspiring, well-regulated environment that promotes innovation, technology, and partnerships.

## 4.2. College Mission

Providing exceptional educational, scientific, and professional services based on the latest advancements in the field of computing. The program aims to prepare highly qualified scientific and technical professionals equipped to work and compete in various computing fields and pursue advanced studies. It also contributes to sustainable development through a dynamic, inspiring environment that fosters research, innovation, and national and international collaboration.

## 4.3. Program Mission

Providing educational, research, and professional services in computer science to prepare competitive talents and contribute to enhancing scientific research and sustainable

national development; within a dynamic, inspiring environment that fosters research, innovation, and partnerships.

### 4.4. ALIGNMENT OF THE PROGRAM'S MISSION WITH THE UNIVERSITY'S MISSION

| University Mission | | | | | | |
|---|---|---|---|---|---|---|
| Program Mission | Description | Providing Educational Services | Research and Consultancy Services | Enhanced Sustainable National Development | Inspiring and Regulated Environment | Activating Innovation, Technology, and Partnerships |
| | Providing Educational Services | ✓ | | | | |
| | Providing Research and Professional Services | | ✓ | | | |
| | Enhancing Sustainable Development | | | ✓ | | |
| | Dynamic and Inspiring Environment | | | | ✓ | |
| | Fosters research, innovation, and partnerships. | | | | | ✓ |

## 4.5. Alignment of the Program's Mission with the College's Mission

| | | College' Mission | | | | | |
|---|---|---|---|---|---|---|---|
| Program Mission | Description | Providing Educational Services | Providing Research and Professional Services | Preparing scientific and technical cadres with high qualifications, equipping them for work and competition. | Contributing to Sustainable Development | A dynamic, inspiring, and engaging environment. | Engaged in research, innovation, and partnership. |
| | Providing Educational Services | ✓ | | | | | |
| | Providing Research and Professional Services | | ✓ | | | | |
| | Preparing competitive professionals | | | ✓ | | | |
| | Contributing to Sustainable Development | | | | ✓ | | |
| | A dynamic and inspiring environment. | | | | | ✓ | |
| | Fosters research, innovation, and partnerships. | | | | | | ✓ |

## 4.6. Program Goals and alignment with the Program's Mission

1. Ensure the quality of education in the program.
2. Raise the merit, competitiveness and professionalism of students.
3. Support and encourage scientific and applied research and innovation to promote sustainable development.

4. Enhancing local partnership with research laboratories and technology companies.

| No | Strategic Goal Text | Mission Component Related to the Goal |
|---|---|---|
| 1 | Ensure the quality of education in the program. | Providing educational, research, and professional services in computer science. |
| 2 | Raise the merit, competitiveness and professionalism of students. | Preparing competitive talents and contribute to enhancing scientific research and sustainable national development. |
| 3 | Support and encourage scientific and applied research and innovation to promote sustainable development. | A dynamic, inspiring environment activated for research and innovation. |
| 4 | Enhancing local partnership with research laboratories and technology companies. | A dynamic, inspiring environment that fosters research, innovation, and partnerships. |

## 4.7. Graduate Attributes

| Codes | Attributes | Domain |
|---|---|---|
| 1.1 | A graduate distinguished by broad and comprehensive knowledge and understanding in the field of computer science, with an understanding of research and inquiry methods. | Knowledge & Understanding |
| 2.1 | A graduate who possesses the necessary skills for effective (verbal and written) communication, and for collaborating and sharing information with others in the field of computer science. | Skills |
| 2.2 | A graduate with the ability to analyze and solve problems, propose creative ideas, and design and conduct research projects in the field of computer science. | |
| 2.3 | A graduate who has the scientific and technical skills in the field of computer science. | |
| 3.1 | A graduate capable of working in a team, leading it, and making appropriate decisions in the field of computer science. | Values |
| 3.2 | A graduate who upholds professional integrity and respects work ethics in the field of computer science. | |

## 4.8. Program Learning Outcomes (PLOs)

| Knowledge and Understanding | |
|---|---|
| K1 | Ability to understand computer science theories and fundamentals of software development to describe computing-based solutions. |
| K2 | Ability to develop new knowledge acquired through innovative scientific research that contributes to the field of computer science. |
| **Skills** | |
| S1 | Ability to communicate effectively in a variety of professional contexts. |
| S2 | Ability to analyze complex problems and apply principles of computing and other computer science disciplines to identify solutions. |
| S3 | Ability to devise, design, implement, and evaluate research and investigation processes in the field of computer science. |
| S4 | Possessing the skills of effective use of information technology and modern technical and digital applications to create innovative digital knowledge and solutions and meet different needs in the field of computer science. |
| **Values, Autonomy, and Responsibility** | |
| V1 | Ability to work effectively as a member or leader of a team engaged in activities appropriate to the computer science domain. |
| V2 | Ability to recognize professional responsibilities and make informed judgments in the practice of computing based on legal and ethical principles. |

# 5. ORGANIZATIONAL STRUCTURE OF THE PROGRAM QUALITY MANAGEMENT SYSTEM.

The structure of the Master of Science in Computer Science program quality management system is organized into two levels, focusing on both the college-wide and program-specific dimensions.

## 5.1. COLLEGE LEVEL STRUCTURE AND ORGANIZATION

At the college level, as depicted in Figure 1, the system encompasses several key administrative and operational units and committees to ensure comprehensive quality assurance and management.

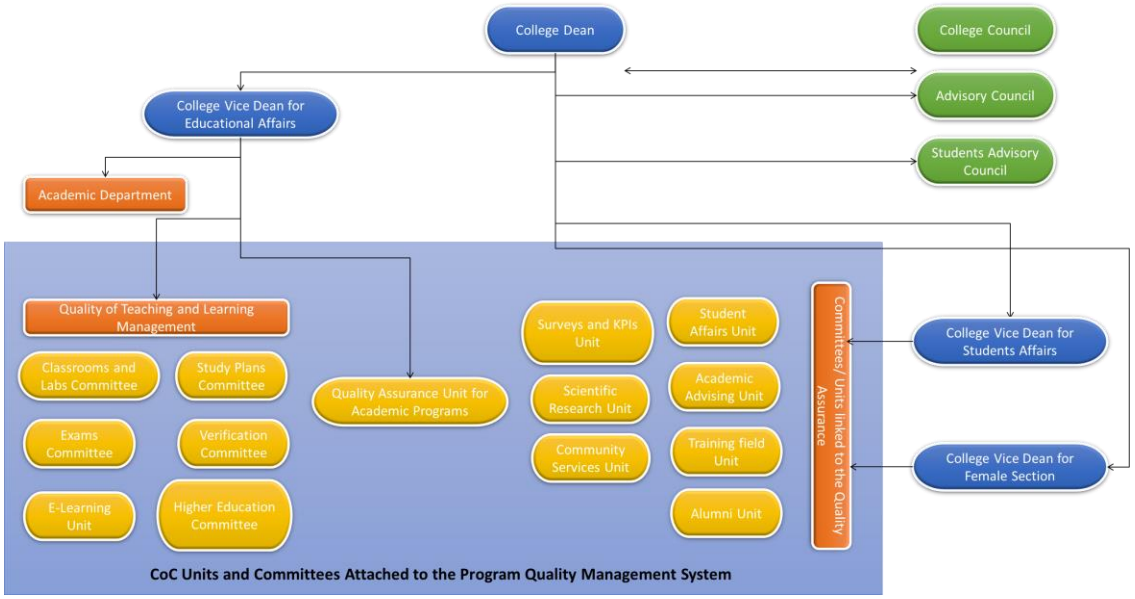



**FIGURE 1: ORGANIZATIONAL STRUCTURE OF THE PROGRAM QUALITY MANAGEMENT SYSTEM- COLLEGE LEVEL**

At the top, the **College Dean** leads the overall management of quality and academic activities, supported by the **College Vice Dean for Educational Affairs**, the **College Vice Dean for Student Affairs**, and the **College Vice Dean for the Female Section**, each overseeing distinct operational domains to ensure alignment and consistency across male and female sections. The **College Council**, the **Advisory Council**, and the **Student Advisory Council** further provide governance, strategic guidance, and feedback mechanisms to enhance decision-making and stakeholder engagement.

Key committees and units linked directly to quality assurance include the **Quality Assurance Unit for Academic Programs**, responsible for monitoring and improving program quality. This unit works closely with other operational entities like the **Surveys and KPIs Unit**, which gathers data for continuous improvement; the **Academic Advising Unit**, focusing on student support; and the **Scientific Research Unit**, which fosters research activities aligned with the program's goals. Additional units, such as the **Community Services Unit**, **Training Field Unit**, and **Alumni Unit**, ensure that the program maintains strong ties with the community, industry, and graduates.

The **Quality of Teaching and Learning Management** branch ensures the continuous improvement of educational delivery. It is supported by various committees:

- The **Classrooms and Labs Committee** oversees the infrastructure and technical facilities necessary for effective teaching.
- The **Study Plans Committee** ensures the alignment of course content with program objectives and industry needs.
- The **Verification Committee** reviews and validates academic materials and assessment methods.
- The **Exams Committee** manages the integrity and organization of examinations.
- The **E-Learning Unit** facilitates the integration of digital tools and platforms into the learning process.

Together, these components form a robust quality management framework, ensuring that the Master of Science in Computer Science program adheres to national and international standards while addressing the needs of its diverse stakeholders.

The second level of the Master of Science in Computer Science program Quality Management System is organized at the Department level and is structured to ensure alignment with the College and University quality assurance systems. The organization, as depicted in Figure 2, highlights the roles and responsibilities of various committees and units that contribute to maintaining and enhancing program quality.

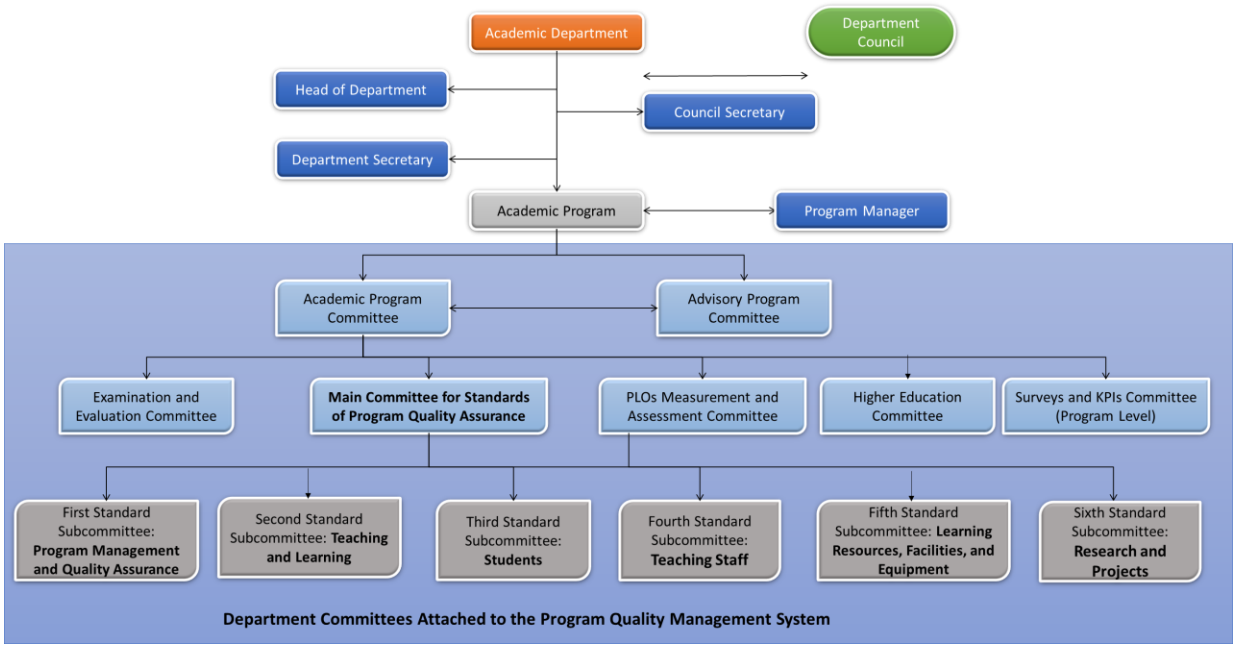



**FIGURE 2: ORGANIZATIONAL STRUCTURE OF THE PROGRAM QUALITY MANAGEMENT SYSTEM- DEPARTMENT LEVEL**

## 5.2. DEPARTMENTAL STRUCTURE AND COMMITTEES:

At the heart of the Departmental Quality Management System is the **Academic Program Committee**, which oversees and manages the academic program to ensure that it adheres to quality standards and aligns with the mission and goals of the program. This committee acts as a central body to coordinate quality-related efforts across the department.

The **Program Advisory Committee** plays a crucial role in guiding the program development process. It involves a selected group of stakeholders, including representatives from the labor market, quality assurance experts, and external program evaluators. This committee provides critical input on labor market requirements and ensures external program evaluations meet international and national standards.

The **PLOs Measurement and Assessment Committee** ensures the effectiveness of the assessment process at both course and program levels. It monitors the alignment of

assessments with program learning outcomes (PLOs) and guarantees that evaluation methods accurately reflect student learning and performance.

The **Examination and Evaluation Committee** ensures the validity and reliability of exams and assessments. It reviews and verifies the correctness of exams and undertakes an analysis of student results to identify areas for improvement in the learning and assessment processes.

The **Main Committee for Standards of Program Quality Assurance** is tasked with ensuring the correct implementation of quality practices as per the Qassim University Quality Management System (QMS) and the Program QMS manuals. This committee also oversees the academic accreditation process, working through five subcommittees:

1. **Program Management and Quality Assurance Subcommittee**
2. **Teaching and Learning Subcommittee**
3. **Students Subcommittee**
4. **Faculty Subcommittee**
5. **Learning Resources, Facilities, and Equipment Subcommittee**

**- Surveys and KPIs Committee:**

The **Surveys and KPIs Committee** is a pivotal part of the program-level quality assurance system. It measures the program's performance through approved surveys and key performance indicators (KPIs). This committee is responsible for fulfilling forms required by the Deanship of Development and Quality and maintaining consistency with the College-level unit. Notably, the head of this committee is also a member of the College's Surveys and KPIs Unit to ensure seamless coordination and alignment between the program and College-level practices.

**- Integration with College-Level Quality Management:**

The structure is designed to foster collaboration between the department and College-level quality assurance units. By ensuring that key committee members also participate in

College-level units, the program aligns its quality management efforts with broader institutional goals. This integration guarantees a unified approach to quality assurance, fulfilling the accreditation and performance requirements set by national and international standards.

## 6. QUALITY ASSURANCE METHODOLOGY

The committees, particularly those attached to Quality Assurance, adopt a Total Quality Management (TQM) approach to ensure the quality of all activities, guaranteeing the achievement of the program's mission and objectives while addressing the satisfaction of all stakeholders. This methodology integrates all program-related committees into the quality monitoring and continuous improvement processes. It is implemented across all activities through the active participation and collaboration of these committees, adhering to specified timelines and well-defined responsibilities to ensure inclusiveness and sustainability in achieving continuous improvements (Figure 1).

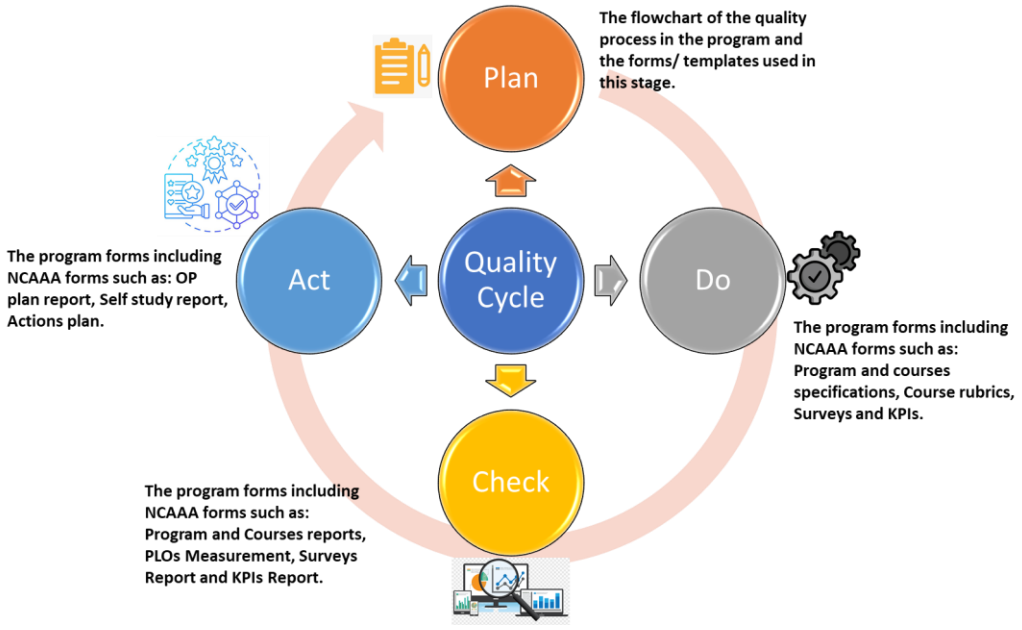



**FIGURE 3: QUALITY CYCLE**

In the **Planning Phase (Plan)**, the program outlines the essential features of each activity in alignment with its mission and strategic objectives. At this stage, the program

establishes various planning forms, including NCAAA forms, to create structured plans such as the PLOs Assessment Plan, Scientific Research Plan, Community Service Plan, Faculty Training Plan, and the Operational Plan with its related KPIs. The involvement of all relevant stakeholders ensures that these plans are comprehensive, effectively aligned with the program's goals, and meet institutional requirements.

The **Implementation Phase (Do)** focuses on executing all the activities planned in the previous phase. This includes the preparation and implementation of Program and Course Specifications, distributing surveys to stakeholders such as students, faculty, alumni, and employers, and carrying out all established plans with the cooperation of relevant program committees. This phase ensures the systematic execution of plans, fostering active engagement from all parties involved.

In the **Review Phase (Check)**, the program undertakes a detailed evaluation of all activities. This involves the documentation, collection, and analysis of data to measure outcomes against the defined goals, performance indicators, and periodic review tools. During this phase, all review forms, including NCAAA forms, are completed. These forms include Program and Course Reports, Survey Reports, KPI Reports, and PLO Measurement Reports. The findings are compiled into comprehensive reports that identify strengths, areas for improvement, and actionable recommendations.

The **Improvement Phase (Act)** ensures that the recommendations from the review phase are implemented effectively, thereby closing the quality loop and achieving continuous development. At this stage, all necessary improvement forms, including NCAAA forms, are completed. These include the Operational Plan Report, Self-Study Report (SSR), and Action Plan for the next cycle. This phase ensures that the program's activities remain aligned with its mission, meet stakeholders' expectations, and maintain adherence to national and international quality standards.

## 6.1. SURVEYS AND KPIS COMMITTEE (PROGRAM LEVEL) QUALITY CYCLE

The Surveys and KPIs Committee at the program level operates within a structured quality cycle to ensure systematic evaluation and continuous improvement. The quality cycle begins with the **Plan Phase**, developed in coordination with the Quality Assurance Unit at the college level. During this phase, the committee creates its executive plan, aligning it with the unit's objectives and adhering to the unified guidelines and main surveys set forth by the Deanship of Quality and Development. These surveys and key performance indicators (KPIs), standardized across the university, form the foundation for data collection and analysis, detailed in Section 9.

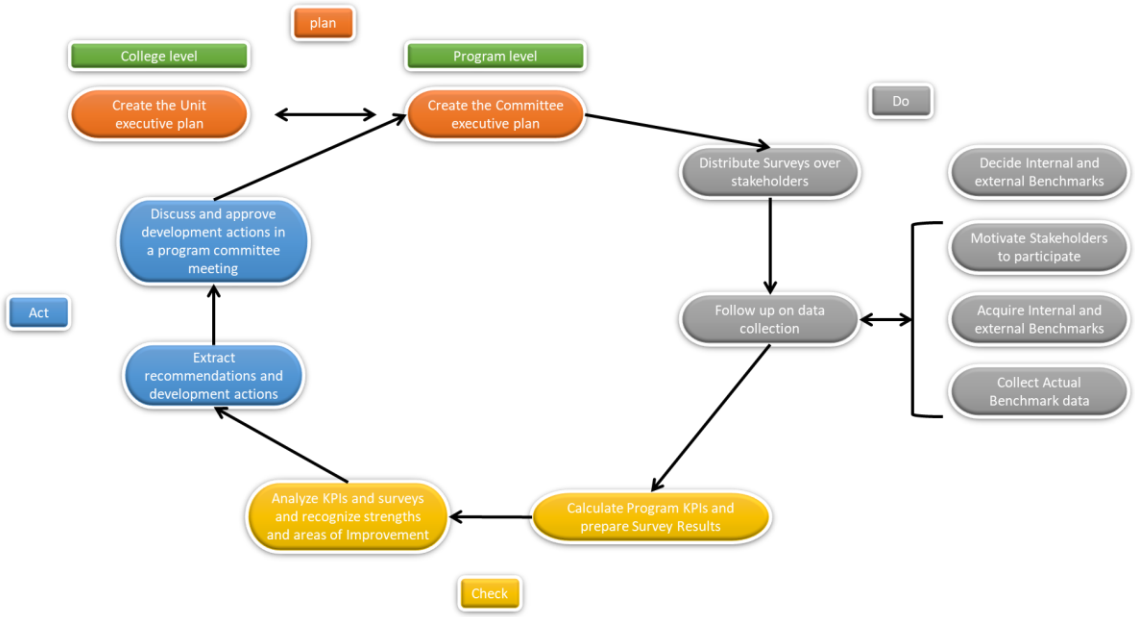



**FIGURE 4: SURVEYS AND KPIS COMMITTEE QUALITY CYCLE**

The **Do Phase** focuses on the implementation of planned activities, including distributing surveys to stakeholders, defining internal and external benchmarks, motivating stakeholder participation, and collecting actual benchmark data. The committee ensures effective follow-up on data collection to guarantee comprehensive participation and high-quality data.

In the **Check Phase**, the committee calculates the program KPIs and compiles survey results, analyzing these to identify strengths and areas for improvement. This thorough analysis serves as a basis for decision-making.

Finally, in the **Act Phase**, the committee extracts actionable recommendations and proposes development initiatives. These are discussed and approved during program committee meetings to ensure alignment with program goals and objectives. The cycle is iterative and promotes continuous improvement, ensuring the program maintains its quality standards while addressing stakeholder needs.

## 6.2. PLOs MEASUREMENT AND ASSESSMENT COMMITTEE QUALITY CYCLE

The **PLOs Measurement and Assessment Committee** operates through a structured quality cycle aimed at ensuring the effective evaluation and continuous improvement of Program Learning Outcomes (PLOs). The cycle begins with the **Plan Phase**, where the committee develops or updates the outcomes assessment plan in alignment with the program's objectives and benchmarks. This phase involves selecting courses, deciding on assessment levels and targets, and determining the methodologies for both direct and indirect assessments.

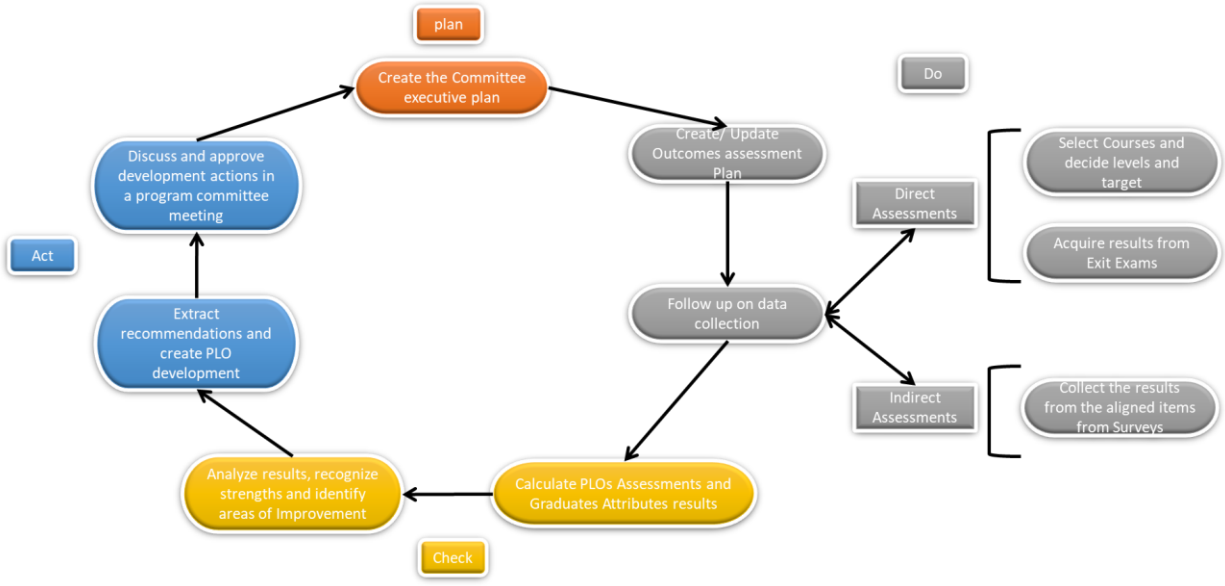



**FIGURE 5: PLOS MEASUREMENT AND ASSESSMENT COMMITTEE QUALITY CYCLE**

In the **Do Phase**, the committee implements the assessment plan by conducting direct assessments through course evaluations, acquiring results from exit exams, and collecting

aligned survey data for indirect assessments. These activities ensure a comprehensive collection of data to evaluate PLO attainment.

The **Check Phase** focuses on analyzing the results of these assessments. The committee calculates the overall PLO achievement and evaluates graduates' attributes based on the collected data. This analysis identifies the program's strengths and highlights areas needing improvement.

Finally, during the **Act Phase**, the committee extracts actionable recommendations and formulates PLO development plans. These recommendations are discussed and approved during program committee meetings to ensure their alignment with the program's strategic goals. This iterative cycle ensures the sustainability of quality improvements and the achievement of program outcomes.

## 6.3. MAIN COMMITTEE FOR STANDARDS OF PROGRAM QUALITY ASSURANCE QUALITY CYCLE

The **Main Committee for Standards of Program Quality Assurance** operates through a structured quality cycle to ensure adherence to the program's quality management system and its alignment with institutional and accreditation standards.

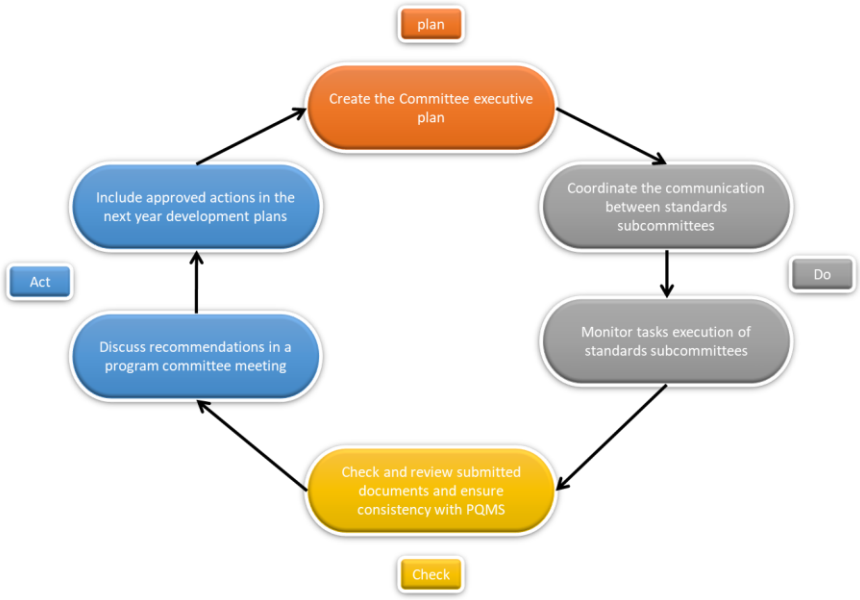



**FIGURE 6: MAIN COMMITTEE FOR STANDARDS OF PROGRAM QUALITY ASSURANCE QUALITY CYCLE**

1. **Plan Phase**:
    - The committee begins its annual cycle by formulating an **executive plan**. This plan outlines the objectives and tasks for the academic year, ensuring they align with the program's goals and accreditation requirements.
    - This plan serves as a roadmap for coordinating actions among the committee and its subcommittees, ensuring consistency and focus on key quality benchmarks.
2. **Do Phase**:
    - **Coordination**: The committee facilitates communication and collaboration between its various subcommittees, ensuring all teams work towards shared quality goals.
    - **Monitoring**: Regular oversight is conducted to ensure the effective execution of tasks assigned to the subcommittees, ensuring alignment with the established standards and objectives.

3. **Check Phase**:
    - The committee performs a thorough review of all submitted documents and outputs from the subcommittees.
    - During this phase, the committee ensures that all documentation is consistent with the **Program Quality Management System (PQMS)** guidelines and adheres to institutional and national accreditation standards.
4. **Act Phase**:
    - The committee discusses the findings and recommendations from the review phase in program committee meetings, fostering collective decision-making.
    - Approved recommendations and identified areas for improvement are integrated into the **next year's development plans**, ensuring continuous enhancement and alignment with quality standards.

## 6.4. PROGRAM ADVISORY COMMITTEE QUALITY CYCLE

The **Program Advisory Committee** plays a vital role in supporting the development and continuous improvement of the academic program by engaging key stakeholders and ensuring alignment with labor market demands and accreditation standards. The committee's quality cycle, as illustrated in the diagram, follows a structured process that ensures the program remains relevant and effective.

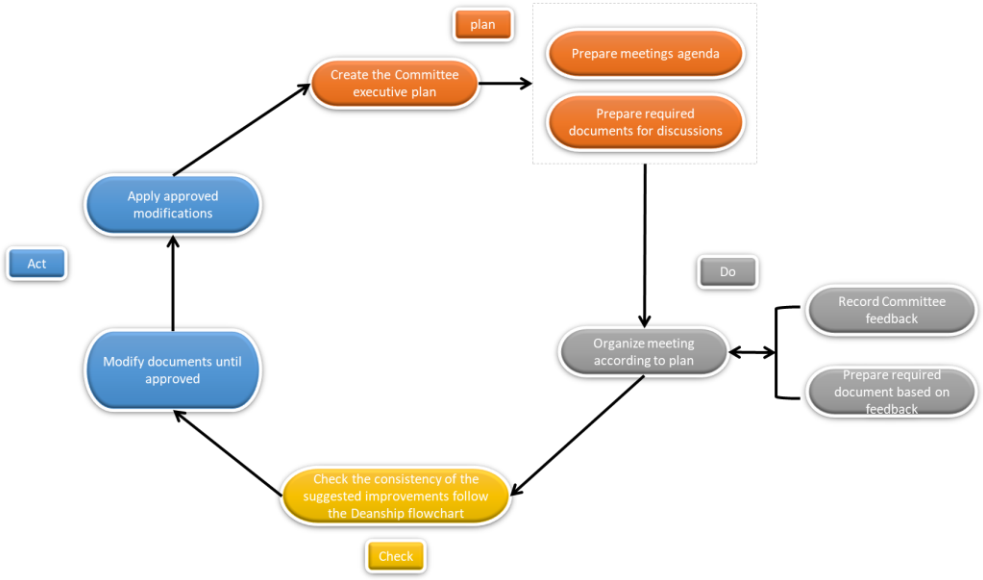



**FIGURE 7: PROGRAM ADVISORY COMMITTEE QUALITY CYCLE**

1. **Plan Phase**:
    - The cycle begins with the creation of the **Committee Executive Plan**, which outlines the goals, agenda, and strategies for the academic year.
    - The committee prepares for meetings by developing the **meeting agenda** and collecting **required documents** to facilitate productive and focused discussions.
2. **Do Phase**:
    - The committee organizes its meetings according to the plan, fostering collaboration among stakeholders and committee members.
    - During these meetings, **committee feedback is recorded**, and any necessary **documents are prepared** based on the discussions and stakeholder inputs.
3. **Check Phase**:

- The committee reviews and evaluates the proposed recommendations and improvements to ensure they align with institutional goals, labor market requirements, and accreditation standards.
- The recommendations are checked for **consistency with the Deanship's flowchart** and institutional quality assurance frameworks to guarantee compliance and effectiveness.

4. **Act Phase**:
   - **Modifications** are applied to the program documents or processes based on the committee's feedback, ensuring all improvements meet the required standards.
   - Approved modifications are incorporated into the program, with updates included in the **next year's development plans** to maintain the program's alignment with institutional and stakeholder goals.

## 6.5. EXAMINATION AND EVALUATION COMMITTEE QUALITY CYCLE

The **Examination and Evaluation Committee Quality Cycle** ensures the integrity, validity, and continuous improvement of the assessment process within the academic program. This cycle is designed to monitor and enhance the effectiveness of examinations and related evaluation mechanisms, as illustrated in the diagram:

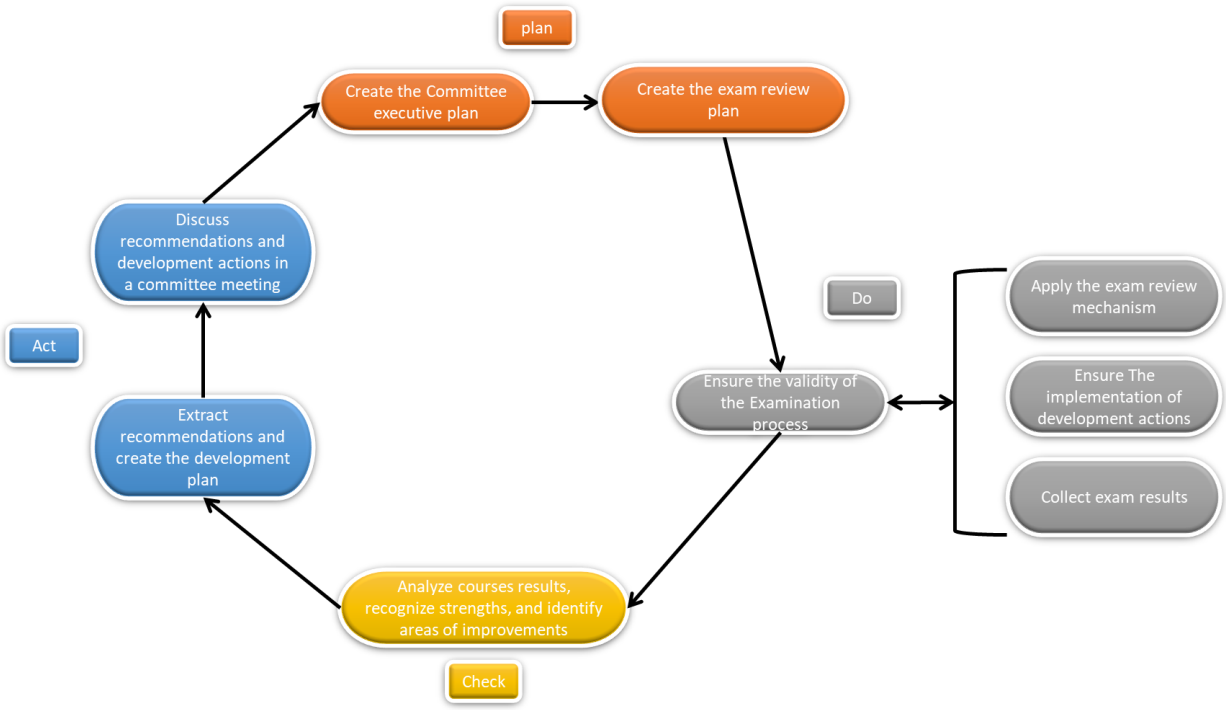



FIGURE 8: EXAMINATION AND EVALUATION COMMITTEE QUALITY CYCLE

1. **Plan Phase**
   - **Create the Committee Executive Plan**:

     The committee begins by formulating its executive plan, which outlines objectives, timelines, and responsibilities for managing examinations and evaluations.
   - **Develop the Exam Review Plan**:

     A detailed plan for reviewing exams is created to ensure that all assessment tools align with the intended learning outcomes and maintain academic rigor.
2. **Do Phase**
   - **Apply the Exam Review Mechanism**:

     The committee implements predefined mechanisms to evaluate the quality and validity of the exams and ensure they meet the required standards.

- **Ensure the Validity of the Examination Process**:

  The validity of the entire examination process is assessed to ensure that it aligns with the program's quality standards and objectives.

- **Ensure the Implementation of Development Actions**:

  Any development actions identified in previous cycles are implemented as part of continuous improvement efforts.

- **Collect Exam Results**:

  The committee gathers and consolidates exam results for further analysis.

3. **Check Phase**
   - **Analyze Course Results**:

     The collected exam results are thoroughly analyzed to identify strengths, weaknesses, and areas for improvement.

   - **Recognize Strengths and Identify Areas for Improvements**:

     The analysis helps the committee recognize well-performing areas and identify specific aspects that require development to enhance the assessment process.

4. **Act Phase**
   - **Discuss Recommendations and Development Actions in a Committee Meeting**:

     Based on the analysis, the committee discusses potential recommendations and development actions in their scheduled meetings.

   - **Extract Recommendations and Create the Development Plan**:

     Recommendations are formalized, and a detailed development plan is created to implement the necessary improvements in the next cycle.

## 6.6. ACADEMIC PROGRAM COMMITTEE QUALITY CYCLE

The **Academic Program Committee Quality Cycle** ensures the proper implementation, evaluation, and continuous development of the program's operational and academic activities. The following steps outline the quality cycle based on the diagram:

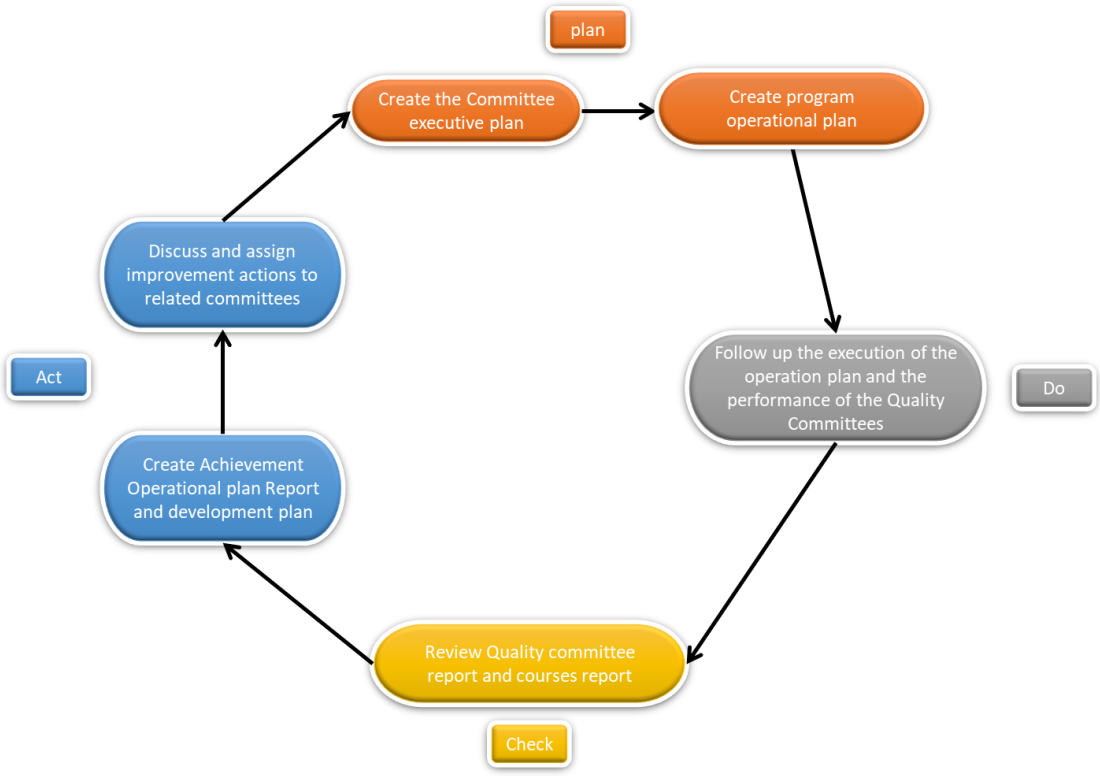



FIGURE 9: ACADEMIC PROGRAM COMMITTEE QUALITY CYCLE

1. **Plan Phase**
   - **Create the Committee Executive Plan**:

     The committee formulates its operational strategy, defining objectives, responsibilities, and timelines to guide its activities throughout the academic year.
   - **Create the Program Operational Plan**:

     The operational plan for the program is developed to align with the strategic goals and address specific tasks for all program-related activities, ensuring collaboration with other quality committees.

2. **Do Phase**

   - **Follow Up the Execution of the Operational Plan and the Performance of the Quality Committees**:

     The committee oversees the implementation of the operational plan to ensure all scheduled activities and tasks are executed effectively.

     The performance of various quality committees within the program is monitored to ensure adherence to established plans and objectives.

3. **Check Phase**

   - **Review Quality Committee Report and Course Report:** The committee evaluates data from the Quality Committee report and course reports. The analysis focuses on identifying strengths and recognizing areas requiring improvement in both academic and operational domains.

4. **Act Phase**

   - **Discuss and Assign Improvement Actions to Related Committees**:

     The committee convenes to discuss the analysis results and assigns specific development actions to relevant committees for implementation.

   - **Create Achievement Operational Plan Report and Development Plan**:

     Based on the findings and recommendations, the committee compiles an achievement report detailing the progress and prepares a development plan to address identified areas of improvement.

## 6.7. THE SUPPORTING COMMITTEE'S QUALITY CYCLE

In addition to the 10 committees and subcommittees dedicated to Quality Assurance, the Computer Science Program includes 14 Supporting Committees and Coordinators. These committees and coordinators are integral to the program's operations and are aligned with

the units and committees of the College. Below is the list of Supporting Committees and Coordinators, along with their roles and responsibilities:

1. **Scientific Committee**: Responsible for overseeing and enhancing the scientific and academic quality of the program, including curriculum updates and research alignment.
2. **Scientific Research Committee:** Focuses on promoting and facilitating research activities within the program, including funding opportunities and collaborative projects.
3. **Training and Scholarship Committee:** Handles matters related to faculty development, such as training programs and scholarship opportunities, ensuring continuous professional growth.
4. **Transfer and Visitation Committee:** Manages student transfers between programs or institutions and oversees visitation requests to support academic mobility.
5. **Summer Training Committee:** Organizes and monitors summer training programs for students, ensuring they gain practical experience and industry exposure.
6. **Graduation Projects Committee:** Supports students in planning and executing their final-year projects, ensuring academic rigor and practical relevance.
7. **Teaching Assistants and Lecturers Committee:** Oversees the recruitment, development, and performance of teaching assistants and lecturers, ensuring alignment with program goals.
8. **Community Service Coordinator:** Coordinates initiatives that contribute to community development and engagement, promoting the program's social responsibility.
9. **E-Content Coordinator:** Manages the development and maintenance of digital learning resources, ensuring accessibility and quality of e-content for students.
10. **Academic Advising Coordinator:** Supports students by providing guidance on academic planning, course selection, and career pathways.

11. **Student Affairs Coordinator:** Addresses student-related matters, including welfare, extracurricular activities, and administrative support.
12. **Time Tables Coordinator:** Manages course schedules and timetables, ensuring efficient use of resources and minimizing conflicts.
13. **Labs and Technical Support Coordinator:** Oversees the maintenance and development of laboratories and technical resources to support learning and research.
14. **Seminars and Scientific Conferences Coordinator:** Organizes seminars, workshops, and scientific conferences to enhance knowledge exchange and professional development.

All the supporting committees follow the same Quality Cycle, as illustrated in the provided diagram (Figure 10). This cycle adopts a Plan-Do-Check-Act (PDCA) framework to ensure systematic evaluation and continuous improvement.

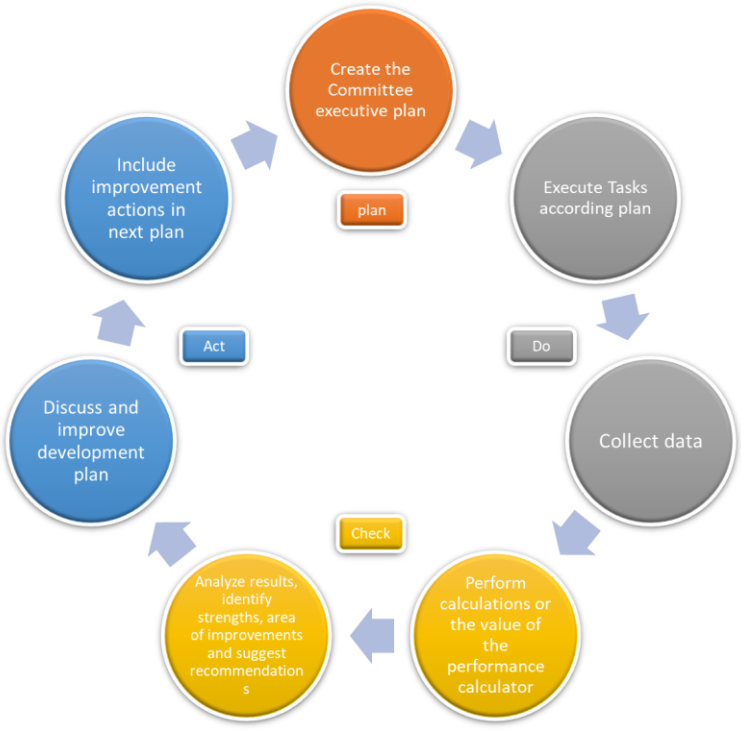



**FIGURE 10: THE SUPPORTING COMMITTEE'S QUALITY CYCLE**

Below is a description of each phase of the cycle:

1. **Plan: Create the Committee Executive Plan**
    - The process begins with creating an executive plan that outlines the objectives, tasks, and responsibilities of the committee. This plan serves as the foundation for implementing actions to achieve quality goals.
2. **Do: Execute Tasks According to Plan**
    - In this phase, the tasks outlined in the executive plan are carried out. The committee focuses on ensuring the effective implementation of the planned actions.
3. **Do: Collect Data**
    - Data is gathered during the execution phase to measure performance and outcomes. This includes monitoring results and tracking progress to provide a basis for evaluation.
4. **Check: Perform Calculations or Use the Performance Calculator**
    - The collected data is analyzed to calculate performance metrics or evaluate results using predefined tools or criteria, such as performance calculators.
5. **Check: Analyze Results, Identify Strengths, Areas for Improvement, and Suggest Recommendations**
    - The analysis phase involves reviewing the results to identify strengths, pinpoint areas requiring improvement, and propose actionable recommendations to enhance quality.
6. **Act: Discuss and Improve Development Plan**
    - The committee discusses the findings and recommendations, refining the development plan based on the analysis. This ensures that improvements are incorporated effectively.
7. **Act: Include Improvement Actions in the Next Plan**

- Finally, improvement actions are integrated into the next iteration of the committee's plan, ensuring the cycle continues and fosters continuous quality enhancement.

# 7. THE CS MASTER PROGRAM UPDATE PROCEDURES AND PERIODIC REVIEW CYCLES

## 7.1. PROGRAM UPDATE PROCEDURES

Before delving into the update process applied in the Computer Science Master program, it is important to note that the process rigorously adheres to the deanship flowchart outlined in the university's Study Plan Establishment Guide, as depicted in Figure 11.

Qassim University grants sufficient permissions to college councils, departments, and program administrations to implement changes in study plans, provided these changes do not alter the Program Learning Outcomes (PLOs) or affect the overall curriculum structure. For instance:

- **Course Specification Modifications:** Adjustments to course specifications can be proposed and approved at the department level by department councils and study plan committees within the program.
- **Program Specification Modifications:** Changes to program specifications that do not affect PLOs or involve the addition or removal of courses can be made and approved by college councils and college study plan committees.
- **Major Program Modifications:** Any changes to program specifications that involve reformulating PLOs, adding or removing multiple courses, or other significant curriculum alterations must receive approval from the Standing Committee of Study Plans and, ultimately, the Qassim University Council.

The following graph (Figure 11) illustrates the acceptable levels of study plan changes, the approval hierarchy, and the associated terms of reference.

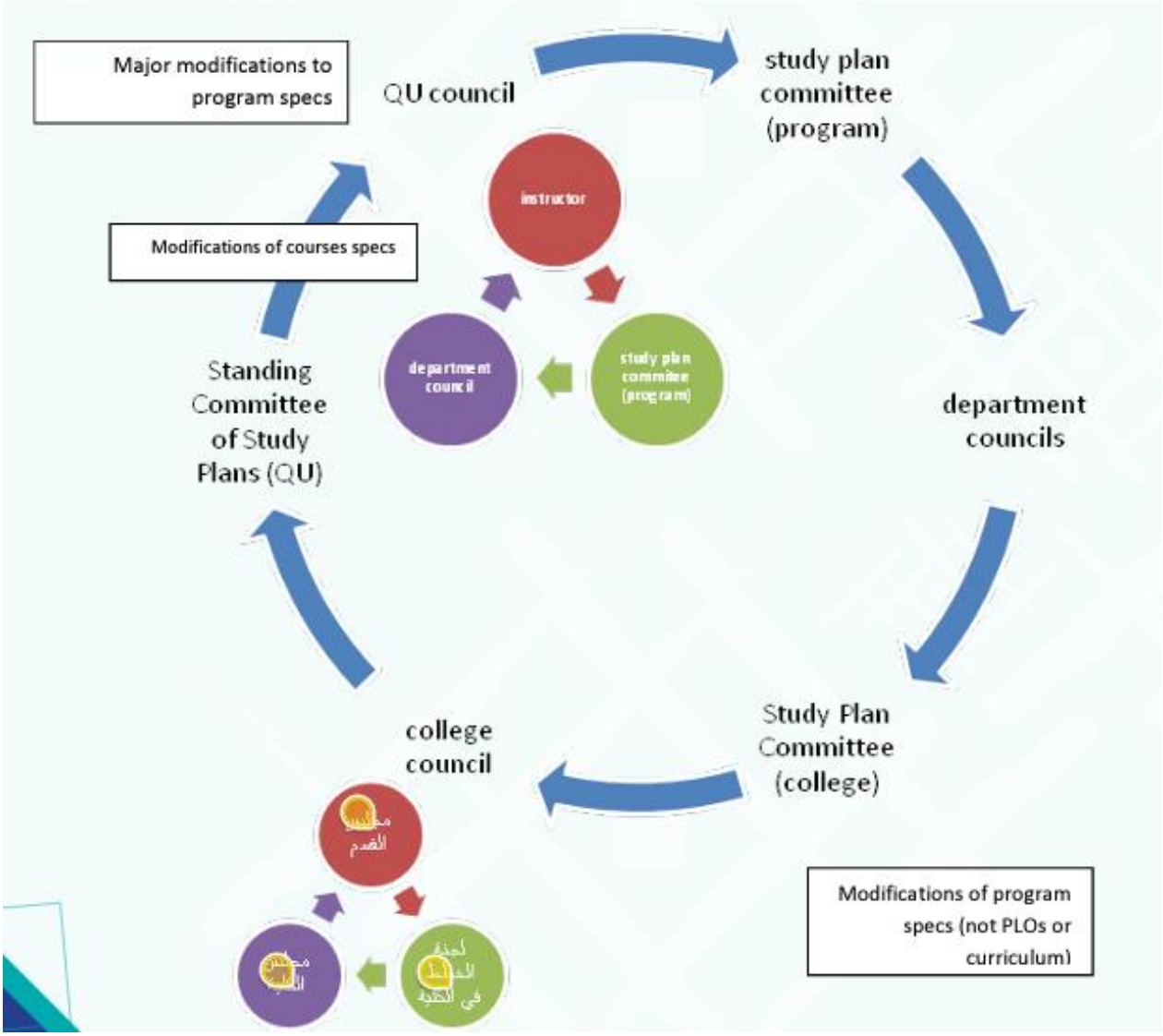



**FIGURE 11: THE DDQ FLOWCHART IN SUPPORTING ACADEMIC PROGRAMS QUOTED FROM THE QU STUDY PLAN ESTABLISHMENT GUIDE**

At the department level, the Study Plan Committee works in coordination with the Academic Program Committee and the Program Advisory Committee to ensure a structured and comprehensive approach to curriculum development. This coordination enhances the effectiveness of academic planning, decision-making, and continuous improvement by integrating internal quality assurance efforts with external industry and stakeholder feedback. In Figure 12, we present the flowchart adopted by the Computer Science program to manage updates. This flowchart illustrates all interactions and

recommended review processes, ensuring a systematic and collaborative approach to implementing changes.

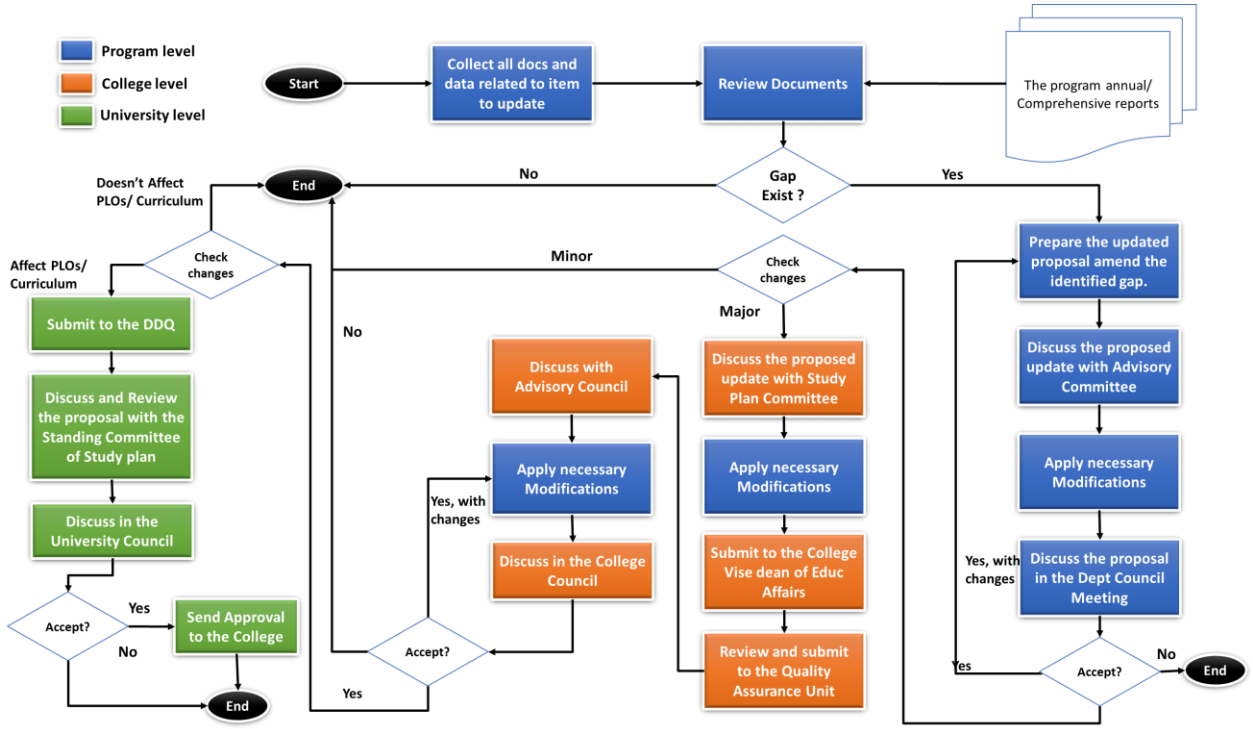



FIGURE 12: CS PROGRAM UPDATE PROCESS FLOWCHART

## 7.2. PROGRAM PERIODIC REVIEW CYCLES

The university outlines two periodic review cycles in the QU QMS Guide [Link], each with a defined timeline—one conducted annually and the other every five years. These structured review cycles ensure a systematic and comprehensive evaluation of the program, facilitating continuous quality enhancement and alignment with academic and industry standards.

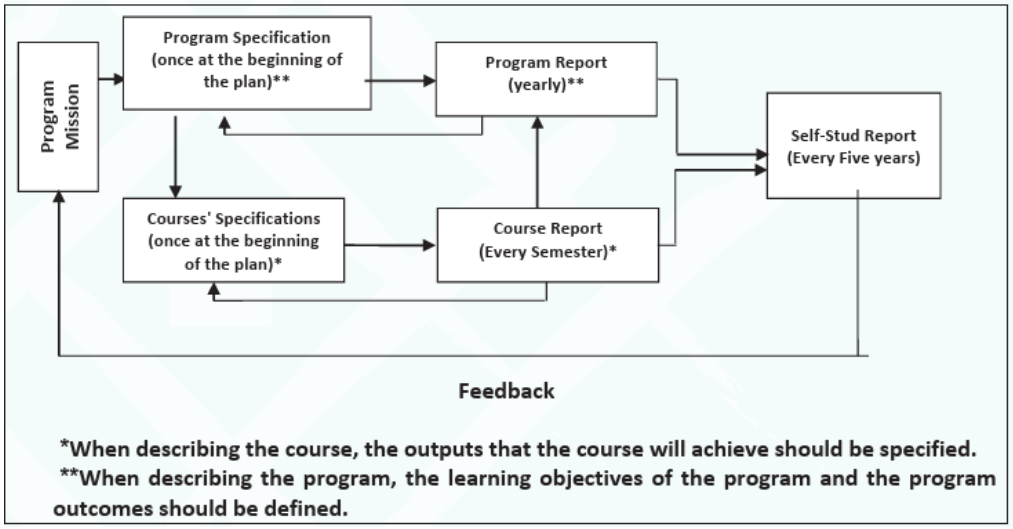



FIGURE 13: PROGRAM REVIEW CYCLES QUTOED FROM QU QMS GUIDE

**Table 1** outlines the frequency of each review cycle, while **Figure 13** illustrates the relationship and interdependence between these cycles. **Table 2** provides a detailed breakdown of the elements reviewed in the annual, and comprehensive evaluation cycles.

The review cycles follow a hierarchical approach:

- **Annual Review Cycle:** Focuses on specific, high-priority elements that require frequent assessment.
- **Comprehensive Review Cycle (Five-Year Cycle):** Includes all elements from the annual cycles, alongside broader aspects of the program to ensure a holistic evaluation.

In essence, all items reviewed in the annual review cycle are included in the comprehensive review cycle as illustrated in **Figure 13**. This layered approach ensures thorough and continuous program improvement.

TABLE 1: CS PROGRAM PERIODIC REVIEW CYCLE

| Program review cycle | Triggered | Based on |
|---|---|---|
| **Annual Cycle** | Every year | Program development plan |
| **Comprehensive Cycle** | Five years | SSR Report |

**TABLE 2: THE ITEMS REVIEWED IN THE ANNUAL AND COMPREHENSIVE PROGRAM EVALUATION CYCLES**

| The CS program annual review Cycle | The CS program Comprehensive review cycle |
|---|---|
| Program educational needs | The Program Mission |
| Program enrolment capacity | The Program Goals |
| Program disclosed information | The Program Graduate Attributes |
| Formation of quality committees | Review Alignments matrices :<br>1. Mission alignment matrices<br>2. Goals alignment matrices<br>3. GA alignment matrix |
| Program operational plan<br>Internal and external benchmarks | Program Key Performance Indicators (KPIs) |
| CS program consistency with NQF<br>CS program consistency with ETEC specialized standards<br>CS program consistency with international academic standards.<br>Consistency with NCAAA forms | The Study Plan:<br>1- Program total credit hours<br>2- The levels of courses<br>3- Career opportunities.<br>4- Course credit hours and contact hours.<br>5- Exit points.<br>6- Elective courses<br>7- Courses pre-requisites |
| 1- Course content<br>2- Course practical tools<br>3- Course references<br>4- Course teaching and learning strategies<br>5- Course assessment methods<br>6- Course assessment calendar<br>7- Course disclosed information | |
| The Course Learning Outcomes (CLOs) | The Program Learning Outcomes (PLOs) |
| Review Alignments matrices:<br>- CLO/PLO Matrix | Review Alignments matrices:<br>1. PG/PLO Alignment |

| | |
|---|---|
| | 2. PLO/GA Alignment<br>3. Program/Courses Matrix |
| The CLOs Performance Indicator Rubrics | The PLOs Performance Indicator Rubrics |
| Course study Plan | PLOs Assessment Plan and targets |
| Course specifications<br>Course matrix | Program specifications |
| Internship training sites | Internship training policies and regulations |
| Alignment of professional certificates | Partnerships<br>Competencies and Professional skills for the next five years |
| Activated services and systems provided to the CS program's stockholders | |
| The faculty member and employee annual job charters | Tasks and authorities of faculty members, employees and technical staff. |
| Learning resources and facilities | New Laboratories |

## 7.3. Program Update Policy and Procedure

In this section, a comprehensive guide is provided for updating courses and programs. The overarching process has been previously outlined in Section 7.1. Here, we will delve into the details of both major and minor updates at the course and program levels. Figure 14 illustrates the structured relationship between these updates, ranging from minor course modifications to the approval of an entirely new program. This structured approach ensures that all updates align with institutional policies, accreditation requirements, and evolving academic and industry standards.

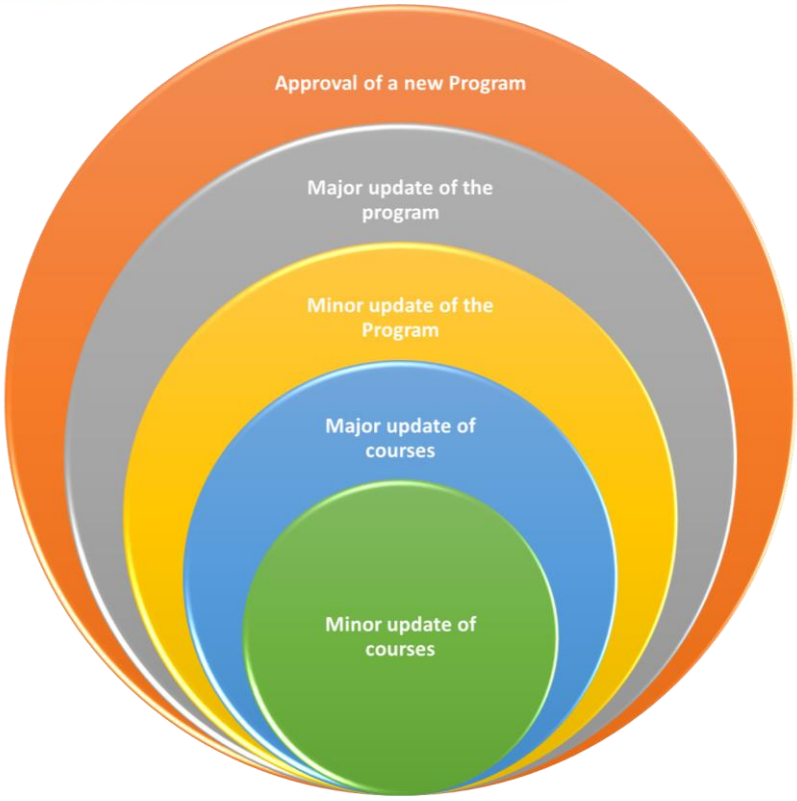



FIGURE 14: MAJOR AND MINOR UPDATES AT THE COURSE AND PROGRAM LEVELS

### 7.3.1. MINOR UPDATE OF COURSES

A minor update may be initiated following an annual program review or upon request from a course coordinator based on identified areas for improvement. Table 3 outlines the specific items classified as minor updates, along with the responsible entities, approval process, timeline, and required documentation.

**TABLE 3: MINOR COURSE UPDATE ITEMS AND APPROVAL PROCESS**

| Items | Responsible | Required document | Approval process | Timeline |
|---|---|---|---|---|
| **Less than 20% of the course content**<br>**Course practical tools**<br>**Course references** | Course coordinator | - Benchmarking comparison<br>- Course report with, CLOs assessment results and improvement plan.<br>- Student Course evaluation survey | 1. Study plan Committee<br>2. Advisory Board Committee.<br>3. Department Council | 3 weeks |
| **Course teaching and learning strategies**<br>**Course assessment methods** | | - New course specification using the latest NCAAA format<br>- Course coordination meeting minute | 1. PLOs measurement and evaluation committee<br>2. Academic | 4 weeks |

| | | | | |
|---|---|---|---|---|
| **Course assessment calendar** | | | 3. program committee<br>4. Advisory Board Committee.<br>5. Department Council | |

### 7.3.2. MAJOR UPDATE OF COURSES

A major update to a course requires comprehensive modifications to its course specifications to ensure alignment with academic standards, industry advancements, and institutional goals. Table 4 provides a detailed classification of items considered as major updates, along with the responsible entities, approval process, timeline, and required documentation necessary for implementation.

**TABLE 4: MAJOR COURSE UPDATE ITEMS AND APPROVAL PROCESS**

| Items | Responsible | Required document | | Approval process | Timeline |
|---|---|---|---|---|---|
| **More than 20% of the course content** | Course coordinator | - Benchmarking comparison<br>- Course report with, CLOs assessment results and improvement plan.<br>- Student Course evaluation survey<br>- New course specification using the latest NCAAA format<br>- Course coordination meeting minute | - Alignment with ETEC specialized standards SKU topics (if applicable) with the latest NCAAA format. | 1. Study plan Committee<br>2. Advisory Board Committee.<br>3. Department Council<br>4. Study plan committee (College level)<br>5. Advisory Council<br>6. College Council | 6 weeks |
| **Modify the contact hours** | Study plan Committee | | - Committee meeting minute | 1. Advisory Board Committee.<br>2. Department Council<br>3. Study plan committee (College level)<br>4. Advisory Council<br>5. College Council | |
| **Modify the CLOs** | Course coordinator | | - Allignment with ETEC specialized standards, SKU | 1. PLOs mesurment | |

| | | | | | |
|---|---|---|---|---|---|
| | | | outcomes (if applicable) with the latest NCAAA format. | and evaluation committee<br>2. Academic program committee<br>3. Advisory Board Committee.<br>4. Department Council<br>5. Quality Assurance Unit (College level)<br>6. Advisory Council<br>7. College Council | |
| **CLOs-PLOs Mapping Matrix** | | | | | |

### 7.3.3. MINOR UPDATE OF THE PROGRAM

The minor update of the program is required after an annual/comprehensive review cycle. Table 5 describes the items considered as minor updates, along with the responsible entities, required documentation necessary for implementation, approval process, and timeline.

**TABLE 5: MINOR PROGRAM UPDATE ITEMS AND APPROVAL PROCESS**

| Items | | Responsible | Required document | | Approval process | Timeline |
|---|---|---|---|---|---|---|
| **Update courses levels** | | Study plan committee | - Benchmarking comparison<br>- Annual Program report with the improvement development plan<br>- Stakeholders surveys and evaluation<br>- Updated curriculum<br>- Updated Program specification | - Course specification documents with the latest NCAAA format | 1. Advisory Board Committee.<br>2. Department Council<br>3. Study plan committee (College level)<br>4. Advisory Council<br>5. College Council | 8 weeks |
| **Update courses requirements** | | | | | | |
| **Add elective courses** | | | | | | |
| **Career opportunities** | | Academic Program Committee | | Alignment of PLOS with JOBs outcomes | 1. Advisory Board Committee.<br>2. Department | |
| **CS program** | Without | | | CS program | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| **consistency with NQF** | updating credit hours or PLOs | | document with the latest NCAAA format<br>- Committee meeting minute | consistency with NQF document following the latest NCAAA format. | Council<br>3. Quality Assurance Unit (College level)<br>4. Advisory Council College Council | |
| **CS program consistency with ETEC specialized standards** | Without updating PLOs | | | CS program consistency with ETEC specialized standards document following the latest NCAAA format | | |
| **CS program consistency with international academic standards.** | | | | CS program alignment matrix with international academic standards | | |

### 7.3.4. MAJOR UPDATE OF THE PROGRAM

A major program update is primarily initiated following a comprehensive review or as a required improvement action based on findings from an annual review. This type of update involves significant modifications to the program specifications and/or curriculum to enhance alignment with academic standards, industry demands, and institutional objectives. Table 6 outlines the key items that constitute a major program update, along with their implications for the program structure and learning outcomes.

**TABLE 6: MAJOR PROGRAM UPDATE ITEMS AND APPROVAL PROCESS**

| Items | Responsible | Required document | | Approval process | Timeline |
|---|---|---|---|---|---|
| **The Program Mission** | Academic Program Committee | - University and college strategic plan<br>- DDQ forms<br>- Bench-marking comparison<br>- Self-study report with the improvement development plan<br>- Stakeholders surveys and | Mission alignment matrix with the University, College, and Department missions. | 1. Advisory Board Committee.<br>2. Department Council<br>3. Quality Assurance Unit (College level)<br>4. Advisory Council College Council<br>5. DDQ review<br>6. DDQ- standing committee<br>7. QU council | One year |
| **The Program** | | | Goals | | |

| | | | | | |
|---|---|---|---|---|---|
| **Goals** | | evaluation<br>- Updated Program specification document with the latest NCAAA format<br>- Committee meeting minute | alignment matrix with the University, College, and Department goals. | | |
| **The Program Graduate Attributes** | | | Graduate attributes alignment matrix with the University, graduate attributes. | | |
| **Program Key Performance Indicators (KPIs)** | Surveys and KPIs committee | | - New Key Performance Indicator assessment plan | 1. Academic Program Committee<br>2. Advisory Board Committee.<br>3. Department Council<br>4. Quality Assurance Unit (College level)<br>5. Advisory Council College Council<br>6. DDQ review<br>7. DDQ- standing committee | |
| **Program total credit hours:**<br>**1. Adding new course**<br>**2. Updating the courses credit hours** | Study plan committee | | - Courses specification documents with the latest NCAAA format.<br>CS program consistency with NQF document following the latest NCAAA format.<br>- CS program consistency with ETEC specialized standards document | 1. Academic Program Committee<br>2. Advisory Board Committee.<br>3. Department Council<br>4. Study plan committee (College level)<br>5. Quality Assurance Unit (College level)<br>6. Advisory Council College Council<br>7. DDQ reviewr<br>8. DDQ- standing committees<br>9. College council. | |

| | | | | | |
|---|---|---|---|---|---|
| | | | following the latest NCAAA format | | |
| **PLOs Update** | PLOs assessment and measurement committee + Study plan committee | | - PLO alignment matrix with University PLOs<br>- PLOs alignment matrix with GA.<br>- All Courses specification documents with the latest NCAAA format.<br>CS program consistency with NQF document following the latest NCAAA format.<br>- CS program consistency with ETEC specialized standards document following the latest NCAAA format.<br>- updated PLO assessment plan | | |

### 7.3.1. NEW PROGRAM APPROVAL

The process for creating a new academic program or revising an existing curriculum is comprehensively outlined in the DDQ Quality Management System (QMS). This

framework ensures that the development process aligns with institutional objectives, accreditation requirements, and industry demands. The strategic planning, benchmarking studies, and approval procedures are clearly defined within the QMS to maintain academic excellence and relevance. Each step, from initial proposal to final approval, follows a structured approach to guarantee that the program meets both national and international educational standards. For further details, refer to [link]. Table 7 describes the process for approval a new program/study plan:

**TABLE 7: ESTABLISHING OR DEVELOPING A PROGRAM PROCESS**

| Steps | Documents | | Responsible | Approval process | Timeline |
|---|---|---|---|---|---|
| **1** | Establishing or Developing a Program [form] | Bench-marking comparison<br>- Self-study report with the improvement development plan<br>- Stakeholders surveys and evaluation | Study plan committee | 1. Academic Program Committee<br>2. Advisory Board Committee.<br>3. Department Council<br>4. Quality Assurance Unit (College level)<br>5. Advisory Council College Council<br>6. DDQ reviewr<br>7. DDQ-standing committee | 4 months |
| **2** | Program specification with the latest NCAAA format | - All cources specification | - PLO allignement matrix with University PLOs<br>- PLOs alignment matrix with GA.<br>- All Courses specification documents with the latest NCAAA | 1. Academic Program Committee<br>2. Advisory Board Committee.<br>3. Department Council<br>4. Quality Assurance Unit (College level) | 6 months |

| | | | | | |
|---|---|---|---|---|---|
| | | | format.<br>CS program consistency with NQF document following the latest NCAAA format.<br>- CS program consistency with ETEC specialized standards document following the latest NCAAA format. | 5. Advisory Council College Council<br>6. DDQ review<br>7. DDQ-standing committee<br>8. QU council | |

# 8. Program Learning Outcomes Assessment Process

The **Program Learning Outcomes (PLOs) Assessment Process** incorporates a structured approach to evaluate the extent to which students achieve the intended outcomes of the Computer Science program. Central to this process is the use of well-defined rubrics that provide a standardized framework for assessing performance across key knowledge, skills, and values outcomes. These rubrics outline clear criteria and performance levels, ranging from "Excellent" to "Needs Improvement," ensuring consistency, transparency, and objectivity in evaluation. By aligning with specific Course Learning Outcomes (CLOs) and leveraging a variety of assessment methods, the rubrics serve as a critical tool for measuring and monitoring the program's effectiveness, identifying areas for enhancement, and fostering continuous quality improvement.

## 8.1. PLOs Rubrics

### 8.1.1. Knowledge and Understanding (K1-K2)

**PLO-K1:** Ability to understand computer science theories and fundamentals of software development to describe computing-based solutions.

| Criteria | Excellent (4) | Good (3) | Satisfactory (2) | Needs Improvement (1) |
|---|---|---|---|---|

| | | | | |
|---|---|---|---|---|
| **Understanding of Theories** | Demonstrates comprehensive understanding of theories with clear and accurate explanations. | Demonstrates good understanding of theories with minor gaps. | Demonstrates basic understanding with noticeable gaps. | Demonstrates little or no understanding with major misconceptions. |
| **Understanding of Software Development Fundamentals** | Understands software development fundamentals effectively and appropriately to solve problems. | Understands fundamentals adequately with minor errors or limitations. | Understands fundamentals with limited effectiveness, showing gaps in execution. | Struggles to Understands fundamentals or provides incorrect solutions. |
| **Ability to Describe Computing-Based Solutions** | Provides clear, precise, and well-structured descriptions of computing-based solutions, supported by relevant theories. | Provides clear and structured descriptions of computing-based solutions, with minor gaps in theory support. | Provides descriptions of computing-based solutions, but lacks clarity, precision, or sufficient theory support. | Struggles to describe computing-based solutions, with unclear or incomplete explanations. |

**PLO-K2:** The ability to develop new knowledge acquired through innovative scientific research that contributes to the field of computer science.

| Criteria | Excellent (4) | Good (3) | Satisfactory (2) | Needs Improvement (1) |
|---|---|---|---|---|
| **Developing new knowledge** | Demonstrates exceptional originality, creativity, and innovation in developing new | Shows good creativity and innovation with some original contributions to knowledge or | Demonstrates moderate originality, with limited innovative ideas or contributions to | Lacks originality or innovation, with minimal or no new contributions to the field of computer |

| | | | | |
|---|---|---|---|---|
| | knowledge or solving problems in the field of computer science. | problem-solving in computer science. | knowledge or problem-solving. | science. |
| **Contributing to the field of computer science.** | Research has a significant impact on the field, addressing pressing issues or advancing computer science knowledge substantially. | Research is relevant and contributes to the field but has a limited or moderate impact. | Research relevance is minimal, with limited contributions or applicability to the field of computer science. | Research lacks relevance or practical contributions to the field, with no clear impact. |

### 8.1.2. SKILLS (S1-S4)

**PLO-S1:** Ability to communicate effectively in a variety of professional contexts.

| Criteria | Excellent (4) | Good (3) | Satisfactory (2) | Needs Improvement (1) |
|---|---|---|---|---|
| **Clarity and Organization** | Ideas are communicated clearly and logically with excellent structure in both oral and written forms. | Ideas are communicated clearly with good structure, with minor lapses in organization. | Ideas are communicated with limited clarity and inconsistent organization. | Communication is unclear and disorganized in both oral and written forms. |
| **Use of Professional Terminology** | Consistently and accurately uses appropriate professional terminology in oral and written | Uses terminology correctly with minor errors in oral or written communication. | Occasionally uses professional terminology inaccurately or inconsistently. | Rarely uses appropriate terminology, with frequent inaccuracies. |

| | | | | |
|---|---|---|---|---|
| | communication. | | | |
| **Demonstration and Explanation** | Demonstrates concepts effectively through oral presentations and written explanations with depth and precision. | Demonstrates concepts adequately with minor gaps in depth or precision. | Demonstrates concepts with limited effectiveness, lacking clarity or depth. | Fails to effectively demonstrate or explain concepts in oral or written formats. |
| **Engagement and Presentation** | Delivers presentations confidently, engaging the audience with clear articulation and professional demeanor. | Delivers presentations adequately, with occasional lapses in engagement or confidence. | Delivers presentations with limited confidence or audience engagement. | Struggles to deliver presentations confidently, failing to engage the audience. |
| **Adaptability to Context** | Adapts communication style seamlessly to suit various professional contexts and audiences. | Adapts communication style adequately to most contexts and audiences. | Shows limited adaptability in communication style to different contexts. | Fails to adapt communication style to professional contexts or audiences. |

**PLO-S2:** Analyze complex problems and apply principles of computing and other computer science disciplines to identify solutions.

| Criteria | Excellent (4) | Good (3) | Satisfactory (2) | Needs Improvement (1) |
|---|---|---|---|---|
| **Problem Identification** | Accurately identifies and | Identifies the main aspects of the | Identifies some aspects of the | Struggles to identify the |

| | | | | |
|---|---|---|---|---|
| | articulates all key aspects of the problem, including implicit elements. | problem with minor gaps or oversights. | problem but misses key details or complexities. | problem accurately, missing critical elements. |
| **Analysis and Decomposition** | Breaks the problem into manageable components with a clear and logical approach, highlighting interdependencies. | Breaks the problem into components adequately, with minor gaps in clarity or logic. | Breaks the problem into components superficially, with limited logical structure. | Struggles to decompose the problem effectively or provide a logical approach. |
| **Application of Principles** | Skillfully applies principles of computing and computer science disciplines to analyze the problem and generate effective insights. | Applies principles effectively, with occasional errors or limited insights. | Applies principles with noticeable gaps or inaccuracies, generating basic insights. | Fails to apply principles accurately, leading to minimal or incorrect insights. |
| **Innovation and Creativity** | Proposes innovative, effective, and well-reasoned solutions tailored to the problem's context and constraints. | Proposes adequate solutions with minor limitations in creativity or relevance. | Proposes basic solutions, with limited innovation or relevance to the problem. | Struggles to propose appropriate or innovative solutions for the problem. |
| **Justification of Solutions** | Provides thorough and compelling justifications for the proposed | Provides adequate justifications, with minor gaps in reasoning or | Provides limited justifications for solutions, lacking depth or sufficient | Fails to justify solutions effectively, with little to no |

| | | | | |
|---|---|---|---|---|
| | solutions, supported by sound reasoning and evidence. | evidence. | evidence. | supporting reasoning. |

**PLO-S3:** Ability to devise, design, implement, and evaluate research and investigation processes in the field of computer science.

| Criteria | Excellent (4) | Good (3) | Satisfactory (2) | Needs Improvement (1) |
|---|---|---|---|---|
| **Research Design** | Demonstrates an exceptional ability to devise and design innovative, well-structured, and methodologically sound research processes addressing key problems. | Designs effective and structured research processes with some innovation and adherence to methodology, though minor improvements are needed. | Designs research processes that are acceptable but lack structure, depth, or creativity. | Research design is poorly constructed, lacks innovation, or fails to align with methodological standards. |
| **Implementation of Research** | Executes the research process with outstanding precision and attention to detail, achieving reliable and reproducible results. | Implements research with good precision and reliability, though with minor inconsistencies or areas for refinement. | Implementation is adequate but demonstrates notable gaps in precision, reliability, or reproducibility. | Research implementation is incomplete, inconsistent, or lacks reliability, undermining the credibility of results. |
| **Evaluation of Results** | Provides a thorough and critical evaluation of research results, | Evaluates results effectively with meaningful insights, though | Evaluation is adequate but lacks depth or critical analysis, with | Fails to effectively evaluate results, providing little to no insight or |

| | | | | |
|---|---|---|---|---|
| | demonstrating deep insight and understanding of their implications in computer science. | with some room for deeper analysis or understanding of implications. | limited understanding of the implications of results. | understanding of their implications. |

**PLO-S4:** Possessing the skills of effective use of information technology and modern technical and digital applications to create innovative digital knowledge and solutions and meet different needs in the field of computer science.

| Criteria | Excellent (4) | Good (3) | Satisfactory (2) | Needs Improvement (1) |
|---|---|---|---|---|
| **Technical Proficiency** | Demonstrates advanced proficiency in modern tools and technologies, using them effectively to solve problems. | Demonstrates good proficiency, with minor gaps in tool usage or technology understanding. | Demonstrates basic proficiency, with frequent errors or limited scope of usage. | Struggles to use modern tools or technologies effectively. |
| **Innovation in Solutions** | Develops highly creative and effective digital solutions that address diverse needs. | Develops creative and effective solutions, with minor limitations. | Develops basic solutions, with limited creativity or relevance to needs. | Struggles to develop relevant or creative solutions. |
| **Adaptation to Emerging Tools** | Quickly adapts to and incorporates emerging tools and technologies in solution development. | Adapts to new tools and technologies with occasional difficulty. | Shows limited ability to adapt to new tools or technologies. | Fails to adapt to or utilize emerging tools and technologies. |

### 8.1.3. VALUES, AUTONOMY, AND RESPONSIBILITY (V1-V2)

**PLO-V1:** Ability to work effectively as a member or leader of a team engaged in activities appropriate to the computer science domain.

| Criteria | Excellent (4) | Good (3) | Satisfactory (2) | Needs Improvement (1) |
|---|---|---|---|---|
| **Team Collaboration** | Consistently collaborates effectively, contributing meaningfully to team goals. | Collaborates effectively with minor lapses in contributions or communication. | Collaborates with limited effectiveness or consistency in contributions. | Struggles to collaborate effectively, with minimal contributions. |
| **Leadership Skills** | Demonstrates strong leadership, guiding the team to achieve goals while resolving conflicts. | Demonstrates adequate leadership, with occasional gaps in guiding the team. | Demonstrates basic leadership, contributing minimally to team guidance. | Fails to demonstrate leadership, negatively affecting team outcomes. |
| **Respect and Inclusivity** | Promotes a respectful and inclusive environment, valuing diverse perspectives. | Shows respect and inclusivity, with minor lapses in recognizing others' perspectives. | Occasionally shows respect but struggles with inclusivity or diverse perspectives. | Rarely demonstrates respect or inclusivity, negatively affecting team dynamics. |

**PLO-V2:** Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles.

| Criteria | Excellent (4) | Good (3) | Satisfactory (2) | Needs Improvement (1) |
|---|---|---|---|---|

| | | | | |
|---|---|---|---|---|
| **Understanding of Ethics** | Demonstrates a deep understanding of legal and ethical principles, consistently applying them to practice. | Demonstrates a good understanding, with minor lapses in application. | Demonstrates basic understanding, with occasional inconsistencies in application. | Shows little to no understanding of legal and ethical principles. |
| **Informed Judgment** | Consistently makes informed and ethical decisions, considering all relevant factors. | Makes ethical decisions with minor limitations in judgment. | Makes decisions with limited consideration of ethical implications. | Fails to make informed or ethical decisions, often disregarding key factors. |
| **Accountability** | Takes full accountability for actions and decisions, demonstrating integrity in all professional practices. | Takes accountability with minor lapses in acknowledging responsibility. | Takes limited accountability, with frequent deflections or justifications. | Rarely takes accountability, often shifting blame or avoiding responsibility. |

## 8.2. PLOs ASSESSMENT PLAN

The **PLOs Assessment Plan** for the Master of Science in Computer Science program is developed using the standardized template provided by the Deanship of Development and Quality. This plan employs both direct and indirect methods to ensure comprehensive evaluation. The direct assessment is conducted through core courses of the CS master program, starting from the first semester of the program (Level 1) and research thesis/project (Level 3 and 4). The indirect assessment utilizes selected items from Employers and Post-Graduates surveys to provide additional insights into program

effectiveness. The PLOs are assessed on an annual basis, with the **PLO Assessment Committee** that responsible to guide instructors for assessing all the master courses in each semester. This committee collects and evaluates data, implements developments from the previous cycle, and assigns targets and attainment levels for both CLOs and PLOs. These targets are determined based on historical CLO and PLO assessment results, benchmarking with peer programs, and best practices adopted by national and international programs. This iterative process ensures continuous improvement and alignment with academic and industry standards. This process is described in the PLOs assessment plan.

## 8.3. PLOs ASSESSMENT MECHANISM

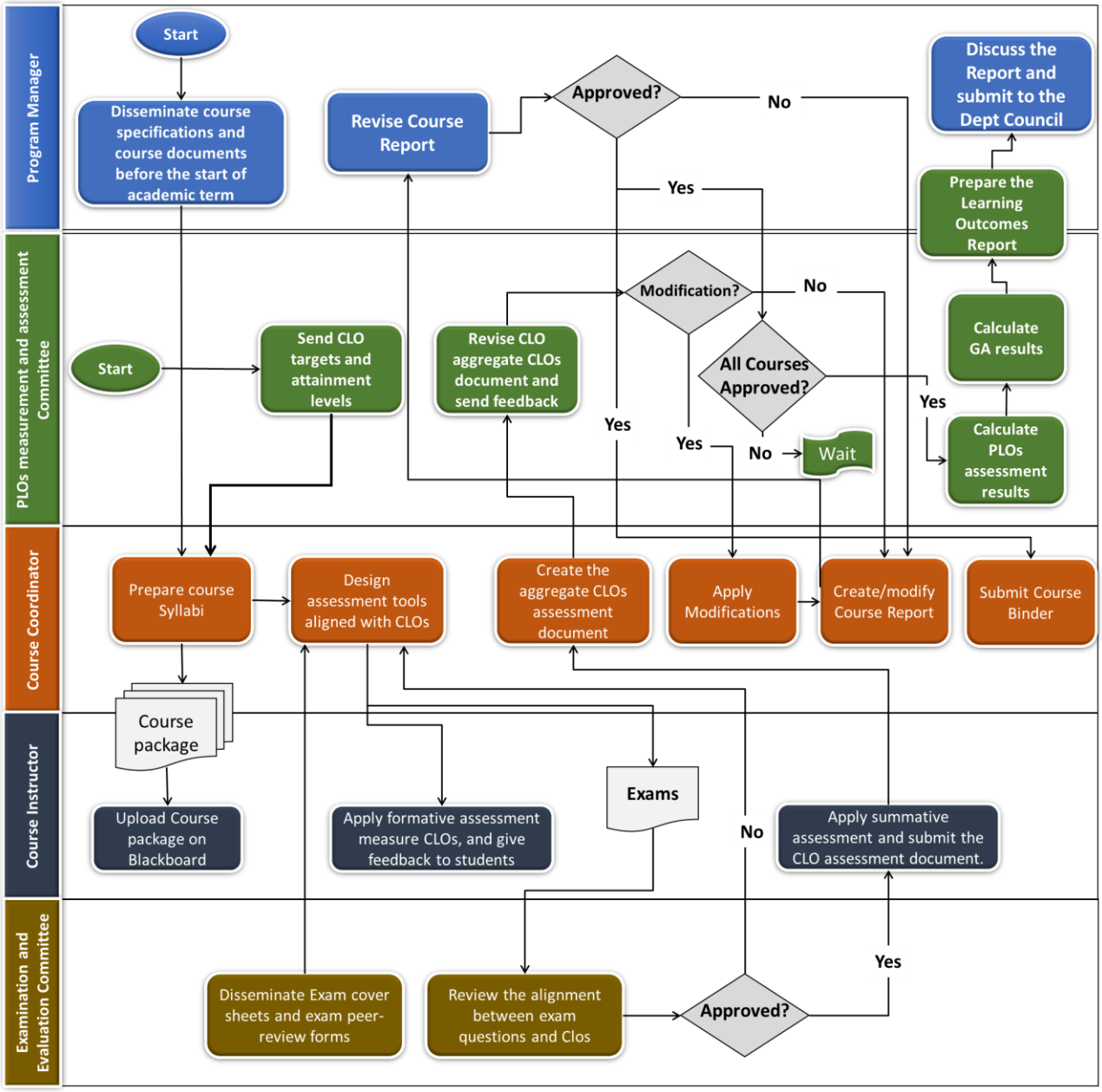



**FIGURE 14: THE FLOWCHART OF THE PLOS ASSESSMENT MECHANISM**

The Computer Science program implements a robust PLOs assessment mechanism, which inherently incorporates the assessment of CLOs. This integrated approach ensures that the evaluation of course-specific outcomes (CLOs) directly contributes to the measurement of program-level outcomes (PLOs), fostering alignment and coherence across all levels of assessment, as illustrated in Figure 14.

The program employs a dual approach to PLO assessment, utilizing both direct and indirect methods. Direct assessment results for PLOs are derived from aggregated CLO assessment results, ensuring alignment between course-level and program-level outcomes. Indirect assessment, on the other hand, leverages data from aligned items in the Deanship of Development and Quality surveys, such as employer and graduate feedback, to provide additional insights into PLO achievement.

| Assessment Mechanism | CLO assessment | Related items from DQD Surveys |
|---|---|---|
| **Direct/Indirect** | **Direct** | **Indirect** |
| **Time base** | **Annually** | **Annually** |
| **Where will data be collected?** | **Mastery level Core Courses (Starting from level 5)** | **Graduates and Employers evaluation surveys at end of the program.** |

Following the assessment process, the **PLO Assessment Committee** compiles a comprehensive **PLOs Assessment Report**, which includes a detailed analysis of the results. This analysis highlights key strengths, identifies areas requiring improvement, and offers actionable recommendations for enhancing program quality and effectiveness. This iterative process ensures continuous alignment with academic standards and stakeholder expectations, fostering a culture of ongoing improvement.

## 9. Monitoring the Attainment of Program Goals and Measuring the Performance of its Operations

The university has implemented the use of **Key Performance Indicators (KPIs)** and surveys as tools to measure and evaluate the performance of academic programs across various dimensions. These dimensions are strategically aligned with the university's mission and overarching objectives. The Computer Science program adopts these mechanisms to monitor its progress toward achieving its goals and to evaluate the effectiveness of its operations.

KPIs are utilized to assess the level of achievement of initiatives, projects, and activities outlined in the program's operational plan. This plan is structured to link each activity

directly to a specific program goal, ensuring alignment and coherence. Consequently, achieving the targeted performance in activities associated with a particular goal serves as evidence of the attainment of that goal.

Furthermore, updates to program goals may necessitate adjustments to internal program KPIs to maintain alignment. These elements undergo systematic review during the program's intermediate and comprehensive review cycles. The **Program Committee** oversees the update process, ensuring adherence to the procedures outlined in the flowchart depicted in Figure 12. This approach fosters a dynamic and adaptable framework for continuous quality improvement.

Evaluating program performance from multiple perspectives is essential to ensuring its continuous improvement and alignment with stakeholder expectations. The Computer Science program actively encourages its stakeholders, including students, faculty, employers, and alumni, to provide feedback on program-provided services, performance, quality, and competitiveness.

A dedicated Quality Committee is tasked with measuring and analyzing the results of program-specific KPIs and stakeholder surveys. The committee operates within a structured quality cycle, as illustrated in **Figure 4**, and its responsibilities are outlined in the **Organizational and Procedural Guide for Administrative Tasks in the Computer Science Department [Link]**. Detailed information about the activated surveys and applied KPIs for the program can be found in **Sections 9.1 and 2.2**.

## 9.1. SURVEYS

The surveys consist of electronic questionnaires that include objective quantitative measurements, along with open-ended questions to ensure participants have the opportunity to express their opinions. The Deanship of Development and Quality at Qassim University manages the process of preparing, distributing, and analyzing approved programmatic surveys. Detailed reports for each survey are then sent to the academic program to enhance the validity and impartiality of the results, as outlined in the Guide for Periodic Surveys and Unified KPIs for Academic Programs.

Additionally, the program develops its own specialized surveys to identify the needs of its stakeholders and prepares ad hoc surveys when necessary. Below is a list of the key surveys utilized by the program.

1. **PO_SU_01: Student Evaluation of Program Quality and Services (1)**
2. **PO_SU_02: Student Evaluation of Program Quality and Services (2)**
3. **PO_PRO_01: Faculty Evaluation of Program Quality (1).**
4. **PO_PRO_02: Faculty Evaluation of Program Quality (2).**
5. **PO_EMPO: Employer Evaluation of Program Quality and Graduate Competence.**
6. **PO_GRAD: Graduate Evaluation of Program Quality.**
7. **PO_STAFF: Staff Evaluation of Program Quality and Services.**
8. **PO_INT_STU: International Student Evaluation of Program Quality and Services.**
9. **PO_SPN_STU: Evaluation of Program Services for Students with Special Needs.**
10. **PO_POSTGRAD_STU: An additional questionnaire for graduate students in the thesis (or research project) preparation stage.**
11. **PO_POSTGRAD_PRO: An additional questionnaire for faculty members in graduate programs and academic supervisors or advisors.**
12. **COC_COM_SERV: A survey to assess community needs and preferences for training courses.**
13. **DEP_ TRAININGS: Faculty Training Needs Assessment within the Program.**
14. **DEP_ TRAININGS_EVA: Faculty Training Evaluation within the Program.**
15. **DEP_RESEARCH: Faculty Research Priorities Assessment.**
16. **PROG_EMPO: Employer Feedback for Program Development.**
17. **PROG_GRAD_EMPLO: Graduate Employment Status Survey.**

### 9.1.1. Committee Workflow Map for Surveys and Performance Indicator Calculation

| Central Surveys by the Deanship of Development and Quality | | | | |
|---|---|---|---|---|
| **Survey Title** | **Survey Code/ Semester** | **Committee Responsible for Distributing the Survey** | **Target Group** | **The survey is distributed to stockholders across the different sections: both males and females' sections.** |
| **1. Student Evaluation of Program Quality and Services (1)** | **PO_SU_01 Level 1/Semester 1 and 2** | **SURVEYS AND KPIS COMMITTEE** | **Mater's Computer Science in level 1 and 2** | **Courses:**<br>- **CSC 601**<br>- **CEN 604**<br>- **CSC 621**<br>- **CSC 602**<br>- **CSC 608**<br>- **CSC 606** |
| **2. Student Evaluation of Program Quality and Services (2)** | **PO_SU_02 Level 2/Semester 1 and 2** | **SURVEYS AND KPIS COMMITTEE** | **Mater's Computer Science in level 3 and 4** | **Courses:**<br>- **CSC652**<br>- **CSC612**<br>- **CSC620**<br>- **CEN610**<br>- **CSC650**<br>- **CSC698** |
| **3. Faculty Evaluation of Program Quality (1)** | **PO_PRO_01 Level 1/Semester 1 and 2** | **SURVEYS AND KPIS COMMITTEE** | **Faculty Members** | - **Professor**<br>- **Associate Professor**<br>- **Assistant Professor** |
| **4. Faculty Evaluation of Program Quality (2)** | **PO_PRO_02 Level 2/Semester 1 and 2** | **SURVEYS AND KPIS COMMITTEE** | | |
| **5. Employer Evaluation of Program Quality and Graduate Competence** | **PO_EMPO Semester 2** | **SURVEYS AND KPIS COMMITTEE** | **Employers** | |
| **6. Graduate Evaluation of Program Quality** | **PO_GRAD Semester 2** | **SURVEYS AND KPIS COMMITTEE** | **Alumni** | **Students who have completed their degree and obtained their certificate** |
| **7. Staff Evaluation of Program Quality and Services** | **PO_STAFF Semester 1** | **SURVEYS AND KPIS COMMITTEE** | **College Staff** | |
| **8. International Student Evaluation of Program** | **PO_INT_STU Semester 1** | **SURVEYS AND KPIS COMMITTEE** | **International Students in the Program (Specialization Students)** | **Distributed if students are enrolled in the academic year** |

| | | | | |
|---|---|---|---|---|
| **Quality and Services** | | | | |
| **9. Evaluation of Program Services for Students with Special Needs** | **PO_SPN_STU Semester 1** | **SURVEYS AND KPIS COMMITTEE** | **Students with Special Needs in the Program (Specialization Students)** | |
| **10. An additional questionnaire for graduate students in the thesis (or research project) preparation stage.** | **PO_POSTGRAD_STU Level2/Semester 2** | **SURVEYS AND KPIS COMMITTEE** | **Enrolled students in the research thesis/Projects** | **Thesis/Projects Supervisors** |
| **11. An additional questionnaire for faculty members in graduate programs and academic supervisors or advisors.** | **PO_POSTGRAD_PRO Level 2/Semester 2** | **SURVEYS AND KPIS COMMITTEE** | **Thesis/Projects Supervisors** | **Thesis/Projects Supervisors** |
| **Surveys Conducted by the Program / Department / College of Computer** | | | | |
| **12. Survey to assess community needs and preferences for training courses** | **COC_COM_SERV First weeks, Semester 1** | **Community Services Unit (College Level)** | **Social Partners:**<br>- **Institute for Leadership and Capacity Development**<br>- **Civil Society Organizations** | |
| **13. Faculty Training Needs Assessment within the Program** | **DEP_TRAININGS First weeks, Semester 1** | **Training and Scholarship Committee (Department)** | **Faculty Members within the Program:**<br>- **Professor**<br>- **Associate Professor**<br>- **Assistant Professor** | |
| **14. Faculty Training Evaluation within the Program** | **DEP_TRAININGS_EVA After each Training** | | **- Faculty Members Who Participated in the Training Only** | |
| **15. Faculty Research Priorities Assessment** | **DEP_RESEARCH** | **Scientific Research Committee** | **Faculty Members within the Program:**<br>- **Professor**<br>- **Associate** | |

| | | | | |
|---|---|---|---|---|
| | | | - Professor<br>Assistant Professor | |
| **16. Employer Feedback for Program Development** | **PROG_EMPO<br>In the beginning of the review cycle (Intermediate/ Comprehensive).** | **Program Advisory Committee (Program)** | **Employers: Public and Private.** | |
| **17. Graduate Employment Status Survey** | **PROG_GRAD_EMPLO** | **Graduates Committee (Program)** | **Graduates (Previous Year's Graduates)** | **Graduates will be asked about their employment status, enrollment in higher education programs (PhD), and whether they have obtained any professional certifications or passed professional exams.** |

## 9.2. KPIs

The program primarily utilizes the **Key Performance Indicators (KPIs)** proposed by the Education and Training Evaluation Commission (ETEC) for program accreditation, comprising a total of 13 indicators (KPI-PG-) to measure the quality of its activities. In addition, the program employs 70 other KPIs, developed under Qassim University's (QU-) quality management system, to evaluate its overall performance, and 7 KPIs related to the Master of Science in Computer Science Program (CSC-KPI-). This brings the total number of KPIs used by the program to 87, as outlined in the following table:

**TABLE 8: KPIS RELATED TO THE STANDARD 1**

| No | Code | Key Performance Indicator | Target Value | Measurement Methods | Target Group |
|---|---|---|---|---|---|
| 1 | QU01 | Average clarity of the program's mission across all stakeholder groups (on a Likert scale from 1 to 5). | 2.5 | Average evaluation by beneficiaries of elements related to the indicator in central surveys (Item 1):<br>- PO_SU_01<br>- PO_PRO_01<br>- PO_EMPO<br>- PO_GRAD<br>- PO_STAFF | Male/Female/Students/ Faculty/Employers/ Staff/Graduates – Total |

| | | | | | |
|---|---|---|---|---|---|
| **2** | QU02 | Average awareness of the program's mission across all stakeholder groups (on a Likert scale from 1 to 5). | 3.7 | Average evaluation by beneficiaries of elements related to the indicator in central surveys (Items 2 & 3):<br>- PO_SU_01<br>- PO_PRO_01<br>- PO_EMPO<br>- PO_GRAD<br>- PO_STAFF | |
| **3** | CSC-KPI-01 | Percentage of achieved indicators for the program's operational plan goals. | 40% | Operational Plan Achievement Report for the Academic Program (Form J-D-4, Section 4, Clause 4.د.ج، G-ج). | |
| **4** | QU61 | Average clarity of program objectives across all stakeholder groups (on a Likert scale from 1 to 5). | 2.5 | Average evaluation of the clarity of program objectives across all stakeholder groups (on a Likert scale from 1 to 5):<br>- PO_SU_01 (Item 4)<br>- PO_PRO_01 (Item 4)<br>- PO_EMPO (Item 5)<br>- PO_GRAD (Item 4)<br>- PO_STAFF (Item 5) | Male/Female/Students/ Faculty/Employers/ Staff/Graduates – Total |
| **5** | QU03 | Average evaluation of program members for the clarity of program committees and councils. | 3.4 | Average evaluation of program committees and councils in terms of clarity (Items 10 & 11 in PO_PRO_01, Items 8 & 9 in PO_STAFF). | Male/Female/Faculty/Staff – Total |
| **6** | QU04 | Average evaluation of program members for the leadership and management's suitability, qualifications, and ability to achieve the program's mission and goals. | 2.5 | Item 21 in Survey: PO_PRO_02 | Male/Female/Students – Total |
| **7** | QU05 | Ratio of students to technicians, including lab operators (total number of students to total number of technicians in both branches of the program). | 50% | Academic program records | Male/Female – Total |
| **8** | QU06 | Average evaluation of program members for the organizational and academic environment within the program (Likert scale from 1 to 5). | 2.5 | Item 3 in PO_SU_02, Items 1-4 in PO_PRO_02, Item 10 in PO_GRAD, Items 10-13 in PO_STAFF | Male/Female/Students/ Faculty/Staff/Graduates – Total |
| **9** | QU07 | Average evaluation of program members for the adequacy and effectiveness of representation, | 2.5 | Items 13-14 in PO_PRO_02 | Male/Female/Faculty – Total |

| | | | | | |
|---|---|---|---|---|---|
| | | integration, coordination, and collaboration between both branches of the program (Likert scale from 1 to 5). | | | |
| **10** | QU08 | Average evaluation of program members for fairness, justice, and equality in program management across all members (Likert scale from 1 to 5). | 2.5 | Item 4 in PO_SU_02,<br>Item 5 in PO_PRO_02,<br>Item 11 in PO_GRAD,<br>Item 14 in PO_STAFF | Male/Female/Students/<br>Faculty/Staff/Graduates<br>– Total |
| **11** | QU09 | Percentage of achieved training plans for technicians and administrative staff within the program (% of completed training programs for administrative staff × 100). | 40% | Training Plan Achievement Report for the academic program (Form J-D-10,10.د.ج Section 3) | Male/Female<br>– Total |
| **12** | QU10 | Percentage of technicians and administrative staff enrolled in training programs during the year. | 50% | Training Plan Achievement Report for the academic program (Form J-D-10,10.د.ج Section 3) | Male/Female<br>– Total |
| **13** | QU11 | Average satisfaction of beneficiaries with the comprehensiveness and adequacy of information provided by the program (Likert scale: 1 to 5). | 2.5 | Items (5, 6) in PO_SU_01,<br>Items (6, 7) in Survey:<br>- PO_PRO_01,<br>- PO_EMPO,<br>- PO_GRAD,<br>- PO_STAFF | Male/Female/Students/Faculty/<br>Employers/Staff/Graduates<br>– Total |
| **14** | QU12 | Average satisfaction of program members with the program administration's encouragement of developmental initiatives and proposals (Likert scale: 1 to 5). | 2.5 | Item 5 in PO_SU_02,<br>Items (6, 7) in PO_PRO_02,<br>Item 12 in PO_GRAD,<br>Items (15, 16) in PO_STAFF | Male/Female/Students/Faculty/<br>Staff/Graduates<br>– Total |
| **15** | QU13 | Awareness of beneficiaries regarding scientific integrity, intellectual property rights, and ethical practices (Likert scale: 1 to 5). | 2.5 | Item 6 in PO_SU_02,<br>Items (8, 9) in PO_PRO_02,<br>Item 13 in PO_GRAD | Male/Female/Students/<br>Faculty/Graduates<br>– Total |
| **16** | QU14 | Awareness of program members about grievance, complaints, and disciplinary mechanisms (Likert scale: 1 to 5). | 2.5 | Item 7 in PO_SU_02,<br>Items (10, 11) in<br>PO_PRO_02,<br>Item 14 in PO_GRAD | Male/Female/Students/<br>Faculty/Graduates<br>– Total |

**TABLE 9: KPIS RELATED TO THE STANDARD 2**

| No | Code | Key Performance Indicator | Target Value | Measurement Methods | Target Group |
|---|---|---|---|---|---|
| 17 | QU15 | Beneficiaries' awareness (students, faculty, employers, etc.) of program graduates' characteristics and learning outcomes (Likert scale from 1 to 5). | 3.0 | Items 1 & 2: PO_SU_02, Items 8 & 9: PO_PRO_01, Items 8 & 9: PO_EMPO, Items 8 & 9: PO_GRAD | Male/Female/Students/Faculty/ Employers /Graduates – Total |
| 18 | KPI-PG-05 | Rate of students dropping out of the program | 10% | Academic program records | Male/Female – Total |
| 19 | KPI-PG-06 | Employers' evaluation of the program graduates' Competency | 3 | Items 10-21 in Survey: PO_EMPO, | Male/Female – Total |
| 20 | KPI-PG-03 | Students' evaluation of the quality of academic supervision | 3 | Items 12 & 15 in Survey: PO_POSTGRAD_STU | Male/Female – Total |
| 21 | KPI-PG-04 | Average time for students' graduation | 6 | Academic program records / deanship of higher education records | Male/Female – Total |
| 22 | QU16 | Percentage of faculty participation in training programs on teaching strategies and assessment methods. | 50% | Training Plan Achievement Report for the academic program (Form J-D-10,10.د.ج Section 3) | Male/Female – Total |
| 23 | QU17 | Percentage of faculty participation in training programs on using modern technologies in teaching and student assessment. | 50% | Training Plan Achievement Report for the academic program (Form J-D-10,10.د.ج Section 3) | Male/Female – Total |
| 24 | KPI-PG-02 | Students' evaluation of the quality of the courses | 3.8 | Items 34 in Survey: PO_SU_01 | Male/Female – Total |
| 25 | QU18 | Average student evaluation of course initiation elements, including providing comprehensive course information, success requirements, and assessment methods at the beginning of the semester (Likert scale from 1 to 5) | 3.8 | Items 34 & 31 in Survey: PO_SU_01 | Male/Female – Total |
| 26 | QU19 | Average student evaluation of the "timely delivery of | 3.8 | Items 32 & 33 in Survey: PO_SU_01 | Male/Female – Total |

| | | | | | |
|---|---|---|---|---|---|
| | | assignment and exam grades" across all courses (Likert scale from 1 to 5). | | | |
| **27** | KPI-PG-01 | Students' Evaluation of Quality of learning experience in the program | 3.7 | Items 25, 26, 30, 34 in Survey: PO_SU_02 | Male/Female – Total |
| **28** | CSC-KPI-02 | Student satisfaction with the services provided. | 3.5 | Items 7 & 8 and Items 14-18 in Survey: PO_SU_01 Items 9, 10, 13, 14 in Survey: PO_SU_02 | Male/Female/ First-Year Students/ Final-Year Students – Total |
| **29** | QU63 | Percentage of achieved learning outcome targets | 60% | Report on the assessment of graduate characteristics and learning outcomes in the academic program (Form J-D-6, 6.د.ج, Section 4). | Male/Female – Total |
| **30** | QU68 | Average evaluation by students and supervisors of the field training program as per the field experience course | 2.5 | Items 01 & 11 in Surveys: PO_FTR_STU and PO_FTR_SUP | Male/Female/Field Training Students/Field Training Supervisors – Total |
| **31** | QU69 | Average evaluation by students and supervisors of the field training institutions | 2.5 | Items 12 & 20 in Surveys: PO_FTR_STU and PO_FTR_SUP | Male/Female/Field Training Students/Field Training Supervisors – Total |
| **32** | QU70 | Average evaluation by students of field supervisors (Likert scale from 1 to 5). | 2.5 | Items 21-27 in Survey: PO_FTR_STU | Male/Female/Field Training Students/Field Training Supervisors – Total |

**TABLE 10: KPIS RELATED TO THE STANDARD 3**

| No | Code | Key Performance Indicator | Target Value | Measurement Methods | Target Group |
|---|---|---|---|---|---|
| **33** | QU20 | Average student evaluation of the program's fairness in applying admission and registration criteria (Likert scale from 1 to 5). | 2.5 | Item 9 in Survey: PO_SU_01 | Male/Female – Total |
| **34** | CSC-KPI-03 | Average number of students per class. | 28 | Academic program records: Ratio of the total number of students to the total number of full-time and full-time equivalent teaching staff in the program | Male/Female – Total |
| **35** | KPI-PG-07 | Students' satisfaction | 3.5 | Items 7, 8 and 14-18 in | Male / Female /Students |

| | | | | | |
|---|---|---|---|---|---|
| | | with services provided | | Survey: PO_SU_01<br>Items 9, 10, 13, 14 in Survey: PO_SU_02 | level 1/ Students level 2 / Total |
| **36** | QU22 | Average student evaluation of the ease of obtaining information about the program before registration (Likert scale from 1 to 5). | 3.0 | Item 10 in Survey: PO_SU_01 | Male/Female – Total |
| **37** | QU23 | Average student evaluation of orientation programs for new students (Likert scale from 1 to 5). | 3.0 | Item 11 in Survey: PO_SU_01 | Male/Female – Total |
| **38** | QU24 | Average student evaluation of the program's fairness in applying grievance, complaints, and disciplinary mechanisms (Likert scale from 1 to 5). | 3.0 | Item 8 in Survey: PO_SU_02 | Male/Female – Total |
| **39** | QU25 | Student satisfaction with academic advising services (Likert scale from 1 to 5). | 3.6 | Items 7 & 8 in Survey: PO_SU_01 | Male/Female – Total |
| **40** | QU26 | Student satisfaction with career advising services (Likert scale from 1 to 5). | 3.5 | Items 9 & 10 in Survey: PO_SU_02 | Male/Female – Total |
| **41** | QU27 | Student satisfaction with psychological and social counseling services (Likert scale from 1 to 5). | 3.5 | Items 13 & 14 in Survey: PO_SU_02 | Male/Female – Total |
| **42** | QU28 | Student satisfaction with mechanisms for identifying and supporting gifted, creative, and high-achieving students. | 2.5 | Items 15 & 16 in Survey: PO_SU_02 | Male/Female – Total |
| **43** | QU29 | Student satisfaction with mechanisms for identifying and supporting struggling students (Likert scale from 1 to 5). | 2.8 | Items 17 & 18 in Survey: PO_SU_02 | Male/Female – Total |
| **44** | QU30 | Student and graduate satisfaction with professional development activities provided to them (Likert scale). | 3.0 | Items 11 & 12 in: PO_SU_02, Items 16 & 17 in: PO_GRAD | Male/Female/ Students/Graduates – Total |
| **45** | QU31 | Percentage of graduates from the year who have records in the graduate database out of the total | 60% | Academic program records / Graduate records in the program or college | Male/Female/ Students/Graduates – Total |

| | | | | | |
|---|---|---|---|---|---|
| | | number of graduates for the year. | | | |
| **46** | QU32 | Graduate response rate to program evaluation surveys. | 50% | Periodic Survey Report for the Program (Form J-D-11, ج.د.11، Section 2-8-A) | Male/Female – Total |
| **47** | QU33 | International students' satisfaction with the services and facilities provided to them (Likert scale from 1 to 5). | 3.0 | Items 1-13 in Survey: PO_INT_STU | Male/Female – Total |
| **48** | QU34 | Satisfaction of students and faculty members with special needs and disabilities regarding the adequacy and suitability of services, facilities, and equipment provided to them (Likert scale from 1 to 5). | 3.0 | Items 1-13 in Survey: PO_SPN_STU | Male/Female – Total |
| **49** | QU64 | Total volunteer hours by students in the program (per year). | 35 hours | Academic program records | Male/Female – Total |
| **50** | QU65 | Average volunteer hours per student (per year). | 0.5 hour per Student | Academic program records | Male/Female – Total |

**TABLE 11: KPIS RELATED TO THE STANDARD 4**

| No | Code | Key Performance Indicator | Target Value | Measurement Methods | Target Group |
|---|---|---|---|---|---|
| **51** | QU35 | Faculty satisfaction with the program's policies and procedures for selection, recruitment, appointment, and contracting (Likert scale from 1 to 5). | 3.0 | Item 12 in Survey: PO_PRO_01 | Male/Female – Total |
| **52** | CSC-KPI-04 | Faculty attrition rate from the program (excluding retirement age or maximum retirement limit reasons). | 3.0 | Academic program records | Male/Female – Total |
| **53** | CSC-KPI-05 | Percentage distribution of faculty members. | - Assistant Professor: 64.9%<br>- Associate Professor: 22.8% | Academic program records | Male/Female – Total |

| | | | | | |
|---|---|---|---|---|---|
| | | | - Professor: 12.28% | | |
| **54** | QU36 | Percentage of faculty members holding a PhD. | 60% | Academic program records | Male/Female – Total |
| **55** | QU37 | Percentage of faculty members holding professional licenses. | 20% | Academic program records | Male/Female – Total |
| **56** | QU38 | Average years of teaching and supervision experience. | 5 years | Academic program records | Male/Female – Total |
| **57** | QU66 | Average student evaluation of course instructors (Likert scale from 1 to 5). | 3.5 | Item 35 in Survey: PO_SU_02 | Male/Female – Total |
| **58** | QU39 | Percentage of faculty participation in orientation programs offered by the university/college/program (Number of participants ÷ total faculty). | 80% | Academic program records | Male/Female – Total |
| **59** | QU40 | Average faculty satisfaction with orientation programs offered by the university/college/program (Likert scale from 1 to 5). | 3.5 | Items 13 & 14 in Survey: PO_PRO_01 | Male/Female – Total |
| **60** | QU41 | Faculty Participation Rate in Academic Activities = (Number of faculty members participating in conferences, discussion panels, research projects, thesis evaluation, and research evaluation ÷ Total number of faculty members) | 50% | Academic program records | Male/Female – Total |
| **61** | KPI-PG-8 | Ratio of students to faculty members | 22 | Academic program records | Male/Female – Total |
| **62** | QU42 | Number of patents and innovations obtained by faculty members during the year. | 1 | Academic program records | Male/Female – Total |
| **63** | QU43 | Number of excellence awards received by faculty members during the year (includes awards for research, teaching, community service, both internal and external). | 2 | Academic program records | Male/Female – Total |

| | | | | | |
|---|---|---|---|---|---|
| **64** | QU44 | Percentage of faculty participation in community activities. | 48% | Academic program records | Male/Female – Total |
| **65** | QU45 | Percentage of achieved training plan for faculty (Number of completed training programs ÷ Total planned programs). | 60% | Training Plan Achievement Report for the academic program (Form J-D-10,10.ج, Section 3) | Male/Female – Total |
| **66** | QU46 | Percentage of faculty participation in planned training programs (Number of participants ÷ Total faculty members). | 62% | Training Plan Achievement Report for the academic program (Form J-D-10,10.ج, Section 3) | Male/Female – Total |
| **67** | QU47 | Average satisfaction of faculty and students with the adequacy and quality of services provided by the program/college/university (Likert scale from 1 to 5). | 3.0 | Items 12 & 15 in Survey: PO_SU_01<br>Items 19 & 24 in Survey: PO_SU_02<br>Items 15 & 31 in Survey: PO_PRO_01 | Male/Female/ Students/Faculty – Total |
| **68** | QU48 | Average faculty satisfaction with the mechanisms and procedures for periodic performance evaluation (Likert scale from 1 to 5). | 3.5 | Items 15 & 17 in Survey: PO_PRO_02 | Male/Female – Total |
| **69** | QU49 | Average faculty awareness of mechanisms, procedures, and forms for periodic performance evaluation (Likert scale from 1 to 5). | 3.5 | Items 18 & 19 in Survey: PO_PRO_02 | Male/Female – Total |

**TABLE 12: KPIS RELATED TO THE STANDARD 5**

| No | Code | Key Performance Indicator | Target Value | Measurement Methods | Target Group |
|---|---|---|---|---|---|
| **70** | QU50 | Beneficiaries' satisfaction with the availability of adequate learning resources in program/college libraries or the central library (Likert scale from 1 to 5). | 3.3 | Items 26 & 27 in Survey: PO_SU_02<br>Items 32 & 36 in Survey: PO_PRO_01 | Male/Female/ Students/Faculty – Total |
| **71** | QU51 | Beneficiaries' | 3.4 | Items 28 & 29 in Survey: | Male/Female/ |

| | | | | | |
|---|---|---|---|---|---|
| | | satisfaction with the availability and adequacy of electronic resources, digital databases, and accessibility (Likert scale from 1 to 5). | | PO_SU_02<br>Items 38 & 39 in Survey: PO_PRO_01 | Students/Faculty – Total |
| **72** | CSC-KPI-06 | Beneficiaries' satisfaction with learning resources. | 3.5 | Items 25, 26, 28 & 29 in Survey: PO_SU_02<br>Items 32 & 39 in Survey: PO_PRO_01 | Male/Female/ Students/Faculty – Total |
| **73** | QU52 | Average satisfaction of beneficiaries with the technical services provided, in terms of suitability, security, confidentiality, maintenance, and periodic updates (Likert scale from 1 to 5). | 3.4 | Items 19 & 22 in Survey: PO_SU_02<br>Items 15 & 20 in Survey: PO_PRO_01 | Male/Female/ Students/Faculty – Total |
| **74** | QU53 | Beneficiaries' satisfaction with the adequacy and quality of technical support provided by various university entities (Likert scale from 1 to 5). | 3.0 | Items 23 & 24 in Survey: PO_SU_02<br>Items 21 & 24 in Survey: PO_PRO_01 | Male/Female/ Students/Faculty – Total |
| **75** | QU54 | Beneficiaries' satisfaction (faculty and students) with e-learning systems like Blackboard in terms of adequacy, ease of use, and accessibility (Likert scale from 1 to 5). | 3.5 | Items 12 & 13 in Survey: PO_SU_01<br>Items 25 & 27 in Survey: PO_PRO_01 | Male/Female/ Students/Faculty – Total |
| **76** | QU55 | Beneficiaries' satisfaction with the adequacy, quality, maintenance, updates, and accessibility of laboratories and workshops, including availability of guidelines (Likert scale from 1 to 5). | 3.5 | Items 19 & 23 in Survey: PO_SU_01<br>Items 26 & 29 in Survey: PO_PRO_02 | Male/Female/ Students/Faculty – Total |
| **77** | QU56 | Beneficiaries' satisfaction with the adequacy and qualifications of technicians and laboratory operators (Likert scale from 1 to 5). | 2.8 | Item 20 in Survey: PO_SU_01<br>Items 30 & 31 in Survey: PO_PRO_02 | Male/Female/ Students/Faculty – Total |
| **78** | QU57 | Beneficiaries' satisfaction with the adequacy, capacity, and technical and | 3.5 | Items 24 & 26 in Survey: PO_SU_01<br>Items 32 & 34 in Survey: PO_PRO_02 | Male/Female/ Students/Faculty – Total |

| | | | | | |
|---|---|---|---|---|---|
| | | technological equipment of classrooms (Likert scale from 1 to 5). | | | |
| **79** | QU58 | Beneficiaries' satisfaction with the quality and adequacy of facilities and equipment (Likert scale from 1 to 5). | 3.5 | Items 16 & 29 in Survey: PO_SU_01<br>Items 20 & 38 in Survey: PO_PRO_02<br>Items 17 & 26 in Survey: PO_STAFF | Male/Female/ Students/Faculty/Staff – Total |
| **80** | QU59 | Beneficiaries' satisfaction with the availability of safety and security measures across all program facilities (Likert scale from 1 to 5). | 3.0 | Item 27 in Survey: PO_SU_01<br>Items 35 & 36 in Survey: PO_PRO_02<br>Items 23 & 24 in Survey: PO_STAFF | Male/Female/ Students/Faculty/Staff – Total |
| **81** | QU60 | Beneficiaries' awareness of risk manuals, evacuation procedures, and handling risks (Likert scale from 1 to 5). | 3.0 | Items 28 & 29 in Survey: PO_SU_01<br>Items 37 & 38 in Survey: PO_PRO_02<br>Items 25 & 26 in Survey: PO_STAFF | Male/Female/ Students/Faculty/Staff – Total |
| **82** | QU71 | Average satisfaction of faculty and students with the accessibility of libraries at suitable and convenient times (Likert scale from 1 to 5). | 3.0 | Item 27 in Survey: PO_SU_02<br>Item 37 in Survey: PO_PRO_01 | Male/Female/ Students/Faculty – Total |

**TABLE 8: KPIS RELATED TO THE STANDARD 6**

| No | Code | Key Performance Indicator | Target Value | Measurement Methods | Target Group |
|---|---|---|---|---|---|
| **83** | KPI-PG-9 | Percentage of publications of faculty members | 47% | Academic program records/ Research databases (e.g., Google Scholar, Scopus, ISI) | Male/Female/ – Total |
| **84** | KPI-PG-10 | Rate of published research per faculty member | 1.5 | Academic program records/ Research databases (e.g., Google Scholar, Scopus, ISI) | Male/Female/ – Total |
| **85** | KPI-PG-11 | Citations rate in refereed journals per faculty member | 2 | Academic program records/ Research databases (e.g., Google Scholar, Scopus, ISI) | Male/Female/ – Total |
| **86** | KPI-PG-12 | Percentage of students' publication | 40% | Academic program records/ Research databases (e.g., Google Scholar, Scopus, ISI) | Male/Female/ – Total |
| **87** | KPI-PG-13 | Number of patents, innovative products, and awards of excellence | 3 | Academic program records | Male/Female/ Students/Faculty – Total |
| **88** | QU67 | Number of research papers published in indexed journals (SCOPUS or ISI) during the year. | 5 | Academic program records / Research databases (e.g., Google Scholar, Scopus, ISI) | Male/Female – Total |

| | | | | | |
|---|---|---|---|---|---|
| **89** | QU62 | Number of research publications by program students during the year. | 5.0 | Academic program records/ Research databases (e.g., Google Scholar, Scopus, ISI) | Male/Female – Total |
| **90** | QU72 | Beneficiaries' evaluation of the supportive and stimulating environment for research activities in the program (on a Likert scale from 1 to 5). | 3 | Items 1,2 in Survey: PO_POSTGRAD_STU Items 1,2 in Survey: PO_POSTGRAD_PRO | Male/Female/ Students/Faculty – Total |
| **91** | QU73 | Beneficiaries' satisfaction with the adequacy and quality of research-enriching activities in the program (e.g., conferences, regularly organized seminars, specialized research and thesis preparation workshops, joint seminars between faculty and graduate students, and field and extracurricular activities for graduate students) on a Likert scale from 1 to 5. | 3 | Items 6,7 in Survey: PO_POSTGRAD_STU Items 6,7 in Survey: PO_POSTGRAD_PRO | Male/Female/ Students/Faculty – Total |
| **92** | QU74 | Beneficiaries' satisfaction with the clarity and fairness of the mechanisms and procedures for approving theses and research projects (on a Likert scale from 1 to 5). | 3 | Item 8 in Survey: PO_POSTGRAD_STU Item 8 in Survey: PO_POSTGRAD_PRO | Male/Female/ Students/Faculty – Total |
| **93** | QU75 | Beneficiaries' evaluation of the announcement and clarity of instructions and guidelines for preparing and assessing research papers, theses, and research projects (on a Likert scale from 1 to 5). | 3 | Items 10,11 in Survey: PO_POSTGRAD_STU Items 10,11 in Survey: PO_POSTGRAD_PRO | Male/Female/ Students/Faculty – Total |
| **94** | QU76 | Beneficiaries' satisfaction with the fairness, objectivity, and credibility of the approval processes for research papers, theses, and research projects (on a Likert scale from 1 to 5). | 3 | Item 8 in Survey: PO_POSTGRAD_STU Item 8 in Survey: PO_POSTGRAD_PRO | Male/Female/ Students/Faculty – Total |
| **95** | CSC-KPI- | Beneficiaries' | 3 | Items 3,5 in Survey: | Male / Female / Students / |

| | | | | | |
|---|---|---|---|---|---|
| | 07 | Satisfaction with Research Facilities and Equipment | | PO_POSTGRAD_STU Items 3,5 in Survey: PO_POSTGRAD_PRO | Faculty Members – Total |

# 10. ENSURING THE QUALITY OF COURSES

## 10.1. COURSE DEVELOPMENT CYCLE

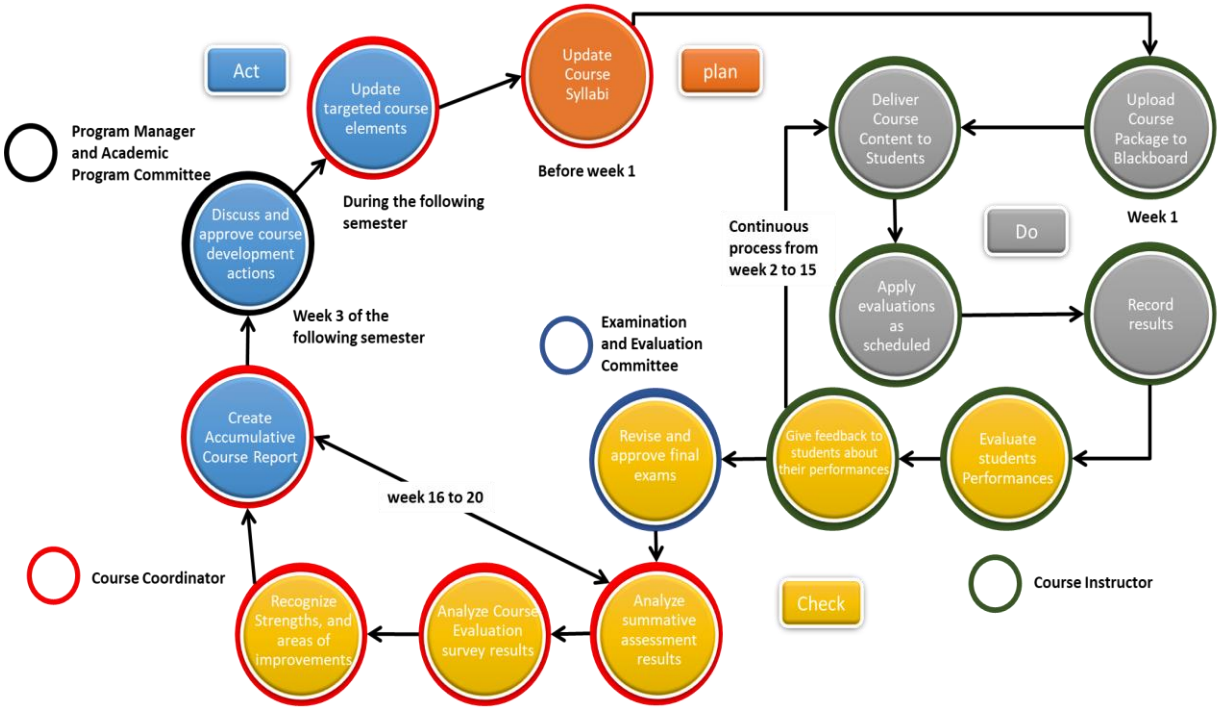



**FIGURE 15: COURSE DEVELOPMENT CYCLE**

Figure 15 illustrates the development cycle of all courses in the program's study plan, excluding the internship and graduation project (1, 2) courses. Before the start of the first week, instructors are required to upload course materials to the Blackboard platform. During the semester, instructors adhere to the teaching and assessment methods outlined in the course specification form while delivering course content. Evaluations, feedback, and assessments of CLOs are conducted throughout the semester.

The course coordinator ensures a consistent pace across all sections of the course and monitors instructors' performance during teaching activities. Periodic coordination meetings are mandatory to follow up on the entire process. Both the course coordinator and instructors collaborate to develop course evaluation tools, following the framework set by the examination committee. The committee is responsible for revising and approving the final exam before submission to the examination conduct committee.

Instructors analyze course evaluation surveys, student grades, and CLO assessment results to formulate a development plan. They are also required to write individual course reports and submit them to the course coordinator. The coordinator identifies anomalies in course delivery, assessment results, or evaluation feedback and provides explanations for these anomalies. Furthermore, the coordinator is responsible for compiling an aggregated course report that covers all sections and includes a proposed development plan for the course. Detailed responsibilities of course coordinators and instructors are outlined in the Program Handbook for Faculty Members [**LINK**].

### 10.1.1. Quality of Teaching and Assessments

To ensure the quality of teaching, the program implements a comprehensive evaluation process. An **automated course evaluation survey** is distributed to all students enrolled in the program via the **MyQU Student Personal page**. Students can provide their feedback regarding course quality, and the results are made available to faculty members at the end of the semester. This feedback is used for continuous improvement of teaching and learning.

The program also follows a systematic approach to assess the effectiveness of student assessments and ensure alignment with course learning outcomes (CLOs). The mechanisms include:

- **Exam Verification by the Examination Committee:**

The committee ensures that CLOs and exam questions are correctly aligned. It reviews the final exams for compliance with the course articulation matrix and ensures that the exam format adheres to the regulations of the university, college, and program. The committee also verifies the appropriate distribution of grades.

- **CLO Assessment Review:**

  Faculty members submit the CLO assessment report to the assessment committee, which reviews the CLO assessment results, evaluates the appropriateness of coursework, and final exam evaluation methods. Feedback is provided to the faculty member for any necessary adjustments before the finalized course report is submitted.

- **Program Committee Recommendations:**

  The program committee extracts key findings and recommendations from course reports. These are discussed, approved, and used to develop the course action plan for the following year.

- **Learning Outcomes Feedback:**

  The learning outcomes assessment committee provides feedback to course coordinators regarding the attainment of CLOs, ensuring continuous improvement of teaching strategies and course delivery.

The quality of teaching is also evaluated through a dedicated section of the course evaluation survey focused on learning resources. Ensuring the quality of learning resources directly supports effective teaching and enhances student learning outcomes. **Table 8** lists the assessors and tools used to evaluate teaching effectiveness, student assessments, and the quality of learning resources. It also outlines the methods employed to maintain and improve the quality of courses in the program.

**TABLE 13: THE METHODS USED TO ENSURE THE QUALITY OF THE COURSE**

| Aspect Verified | Assessment Method | Assessment Type | Assessor |
|---|---|---|---|
| **Evaluating the** | Course Evaluation | Indirect | Student |

| | | | |
|---|---|---|---|
| **effectiveness of teaching** | Survey | | |
| **Evaluating the effectiveness of student assessment** | Course evaluation survey | Indirect | Student |
| | - Course result statistical analysis<br>- Course report | Direct | Course coordinator |
| | Exam results evaluation report | Direct | Examination and evaluation committee |
| | Annual Program report | Direct | Program Manager |
| **Evaluating the quality of learning resources** | Course Evaluation Survey | Indirect | Student |
| **The extent to which CLOs have been achieved** | Course Evaluation Survey | Indirect | Student |
| | Course report and CLOs Assessment Report | Direct | Course coordinator |
| | Course Assessment Evaluation Feedback Report | Direct | Learning outcomes assessment committee |
| | Annual Program report | Direct | Program Manager |

## 10.2. THESIS DEVELOPMENT CYCLE

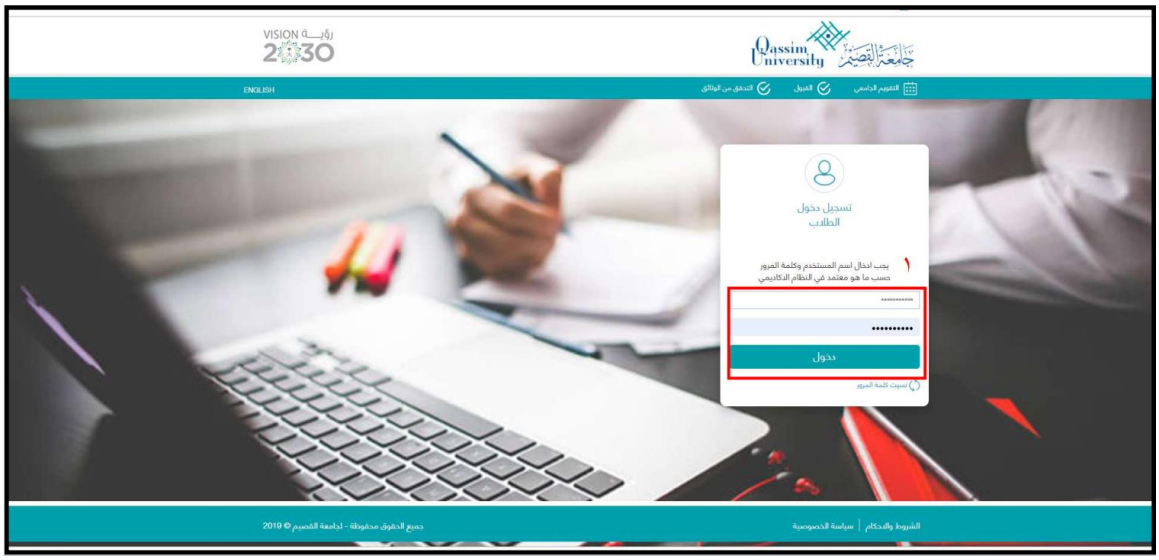
Ensuring the quality of thesis involves a comprehensive mechanism that includes clear guidelines, robust evaluation criteria, continuous supervision, and structured feedback.

The Thesis stands out as a pivotal course and research across all programs within the College of Computer. Its primary goal is to bridge the gap between theoretical knowledge acquired at the university and practical application in real-world scenarios. Additionally, it serves as a microcosm for fostering management skills, entrepreneurial thinking, and proficiency in scientific and applied research methodologies.

Considering the Mission of the IT Program, the guidelines for the Thesis have been developed. These guidelines are designed to assist students in creating high-quality documentation and tools for their thesis. For further information, please refer to the Thesis Guide at [link].

**A)** Guide for Submitting a Graduate Student's Research Proposal via the Portal [link].

1- Log in to the student's page on the system.

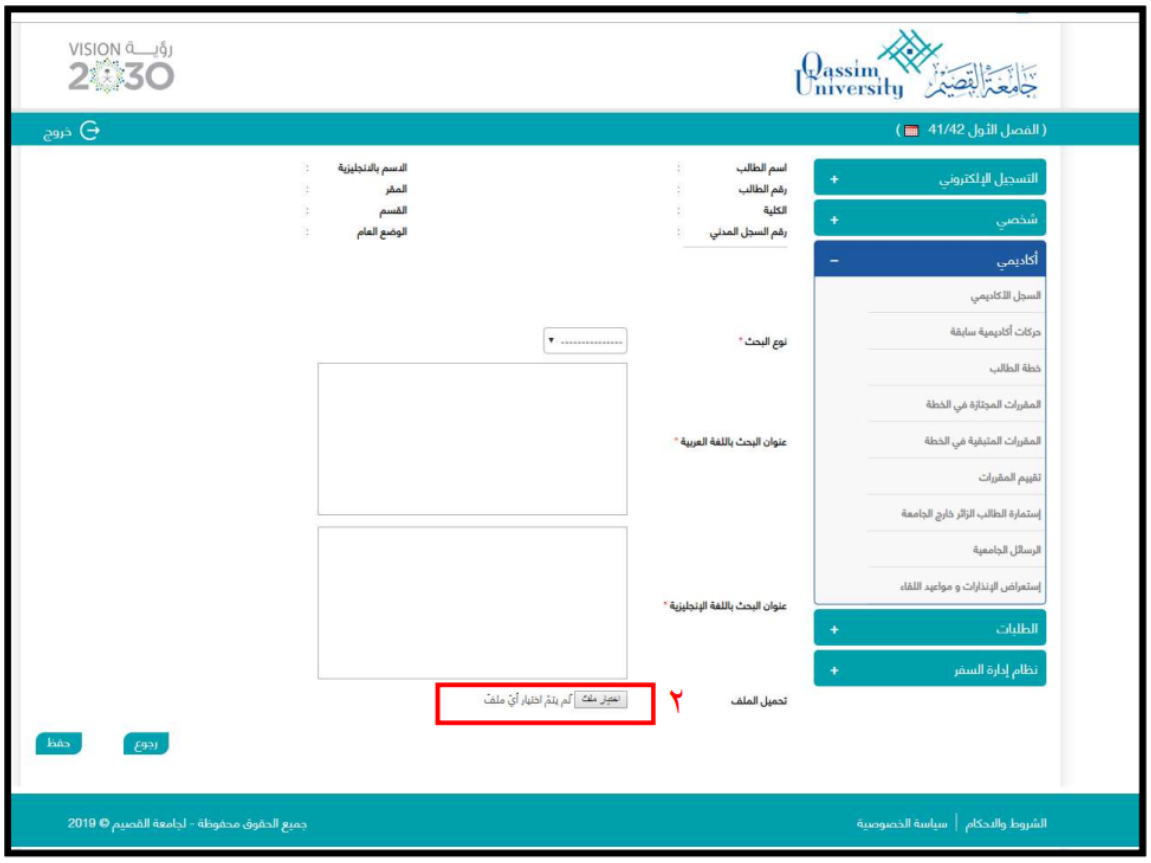



1- Log in to the Academy.

2- Go to university messages.

3- Click on Enter Search Plan.

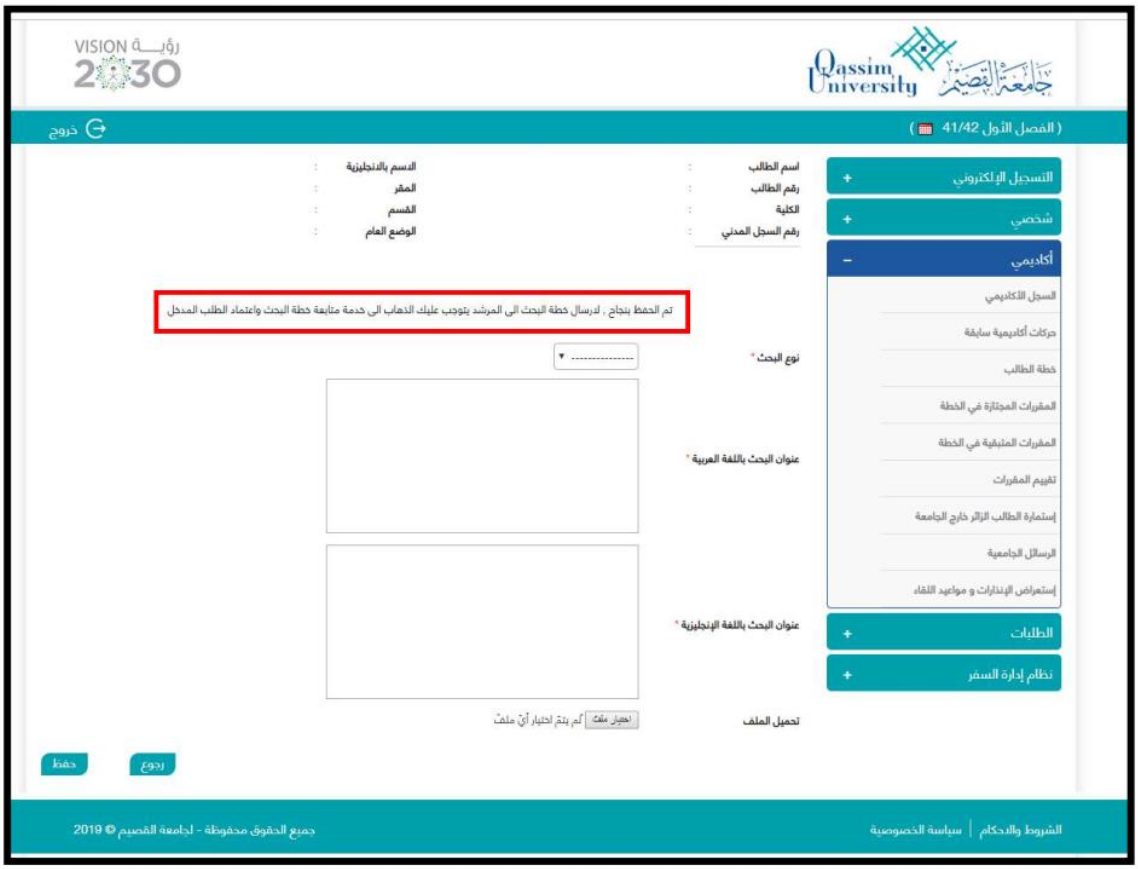
1- Fill in the fields carefully.
2- Attach a summary of the research plan.




1- After attaching the file, make sure that the phrase “File has been selected” appears at the top.

2- After making sure that the data is filled in, click on the save button.

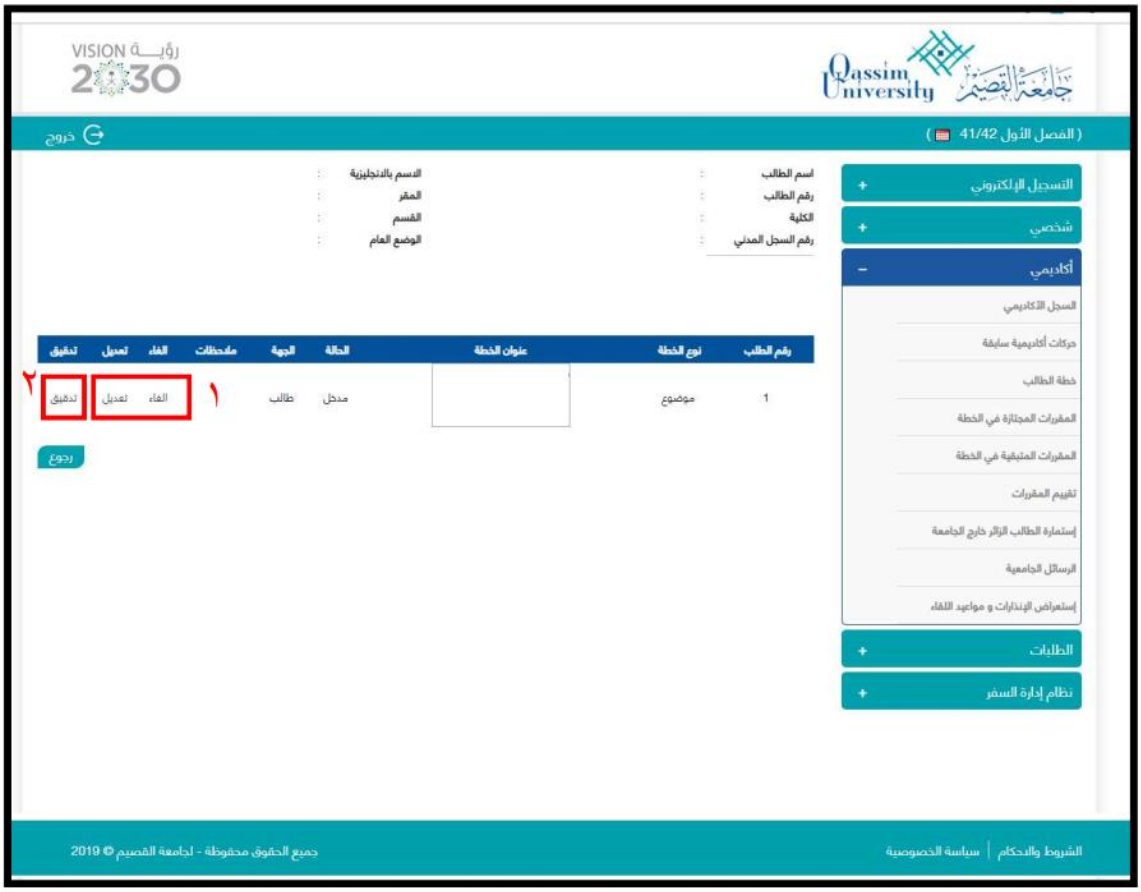

1- After pressing the save button, the phrase “Save Successfully” will appear. Here, the student can modify the title and the attached file at any time until the student finally approves the research plan.




1- To finally approve the plan, the student must go to the research plan follow-up.

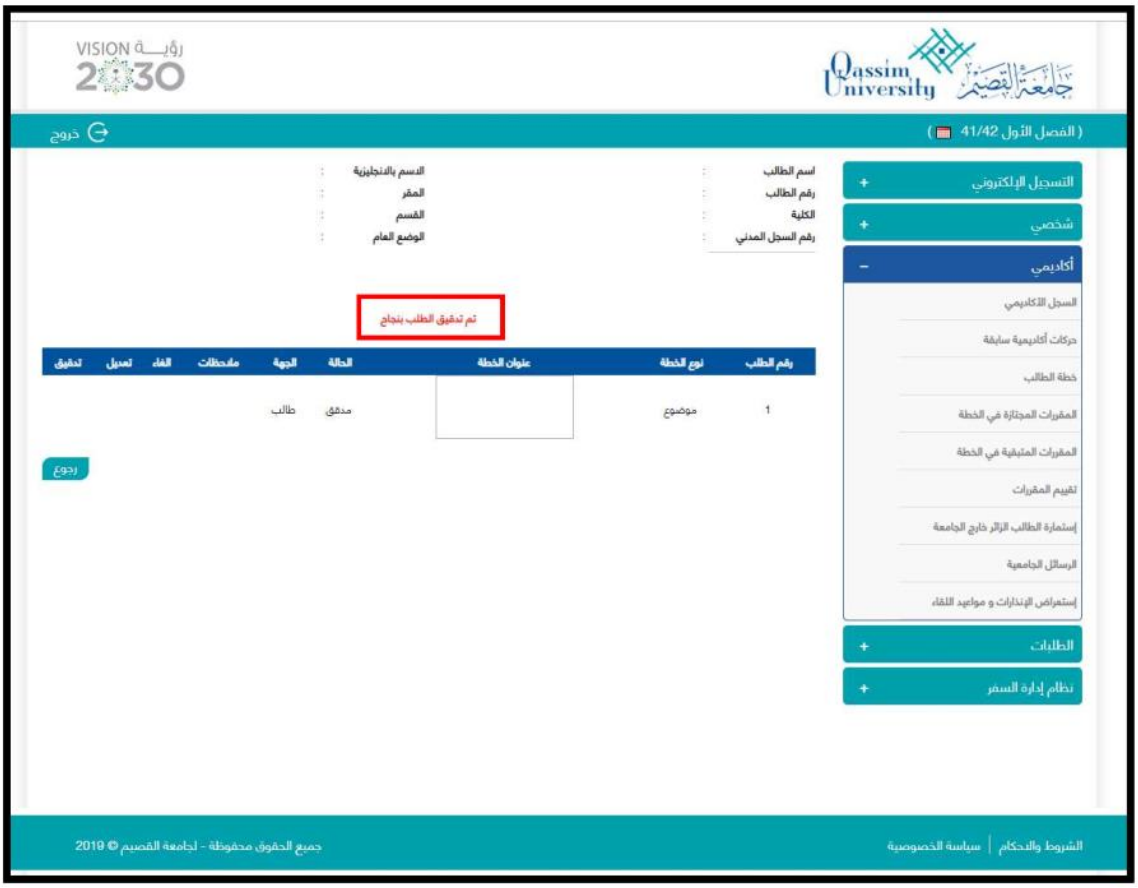

1- The research plan remains visible to the student, as the student can cancel and modify the research plan before submitting it finally to the academic advisor.

2- To submit the research plan in its final form, you must click on “Verify”.




1- After clicking on “Audit”, the phrase “Audit Successfully” will appear at the top, and the student will not be able to modify the plan as it is under study by the student’s academic advisor.

The student must follow up on the case and notes until the student’s plan is approved by the University’s Graduate Studies Deanship Council.

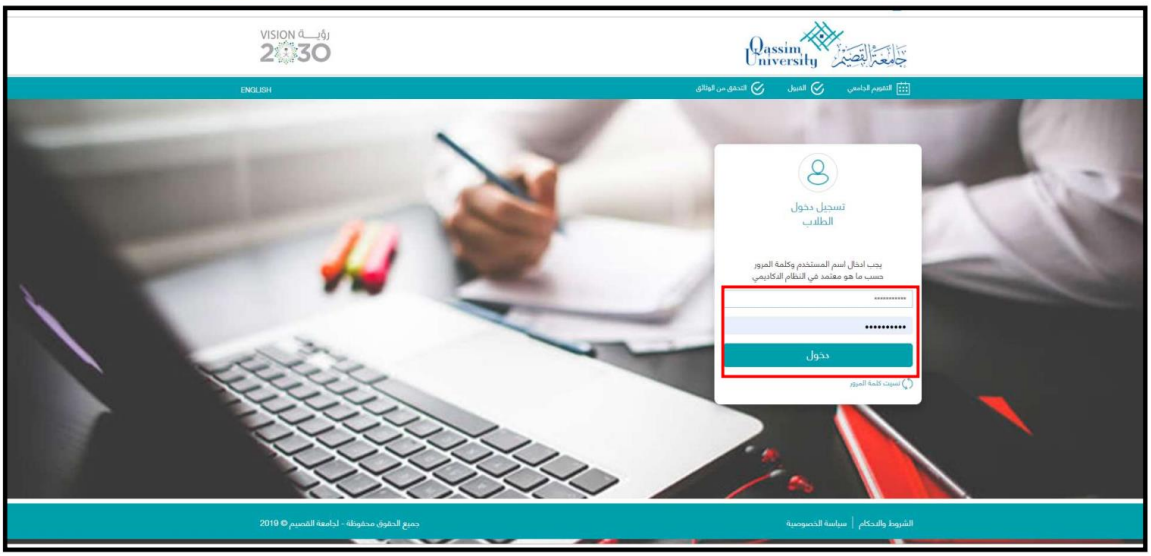



**B)** Guide for Approving a Research Proposal - For the Supervisor [link].

- Explanation of the electronic system for postgraduate studies

Regarding the academic advisor's approvals of research plans submitted by his graduate students in the academic system.

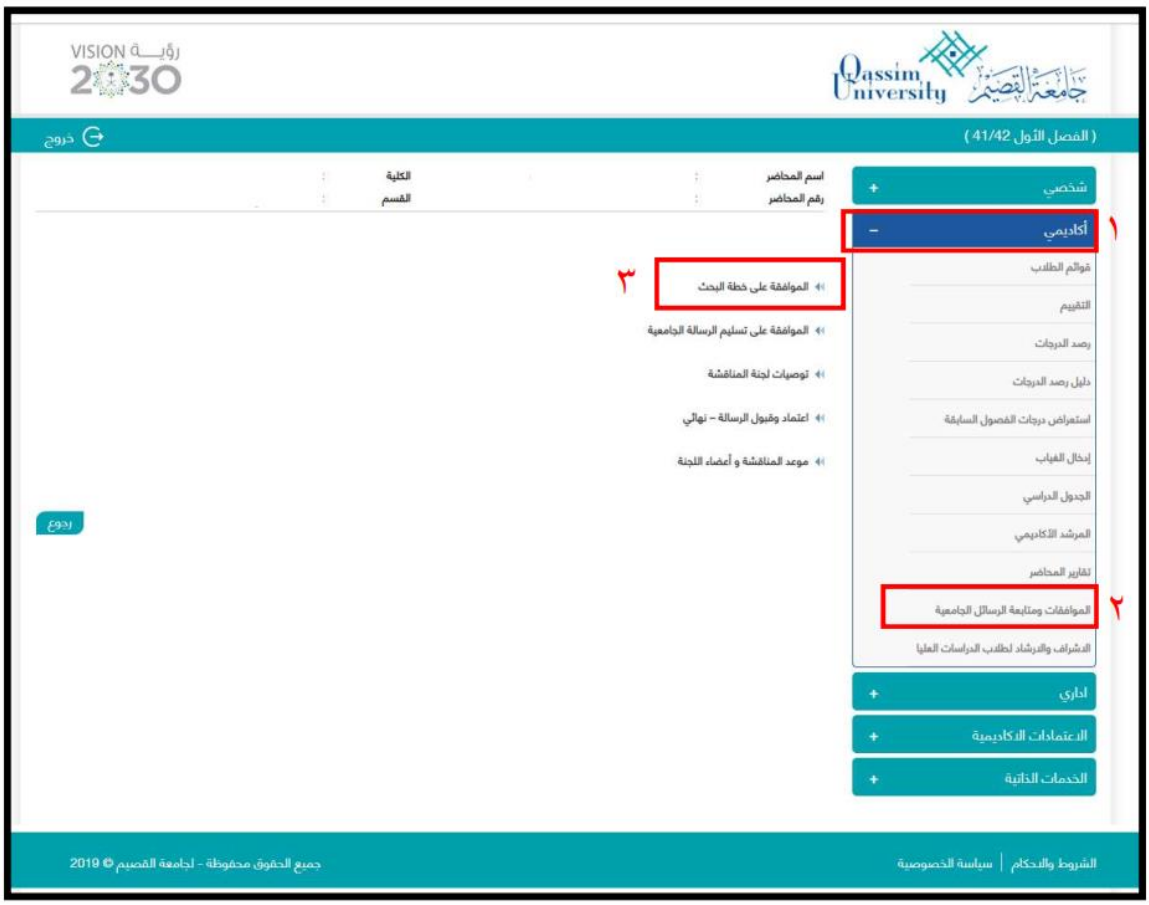
1- Log in to the system administrator page.




1- Log in to the Academy.

2- Go to approvals and follow up University dissertations

3- Approval of a research plan

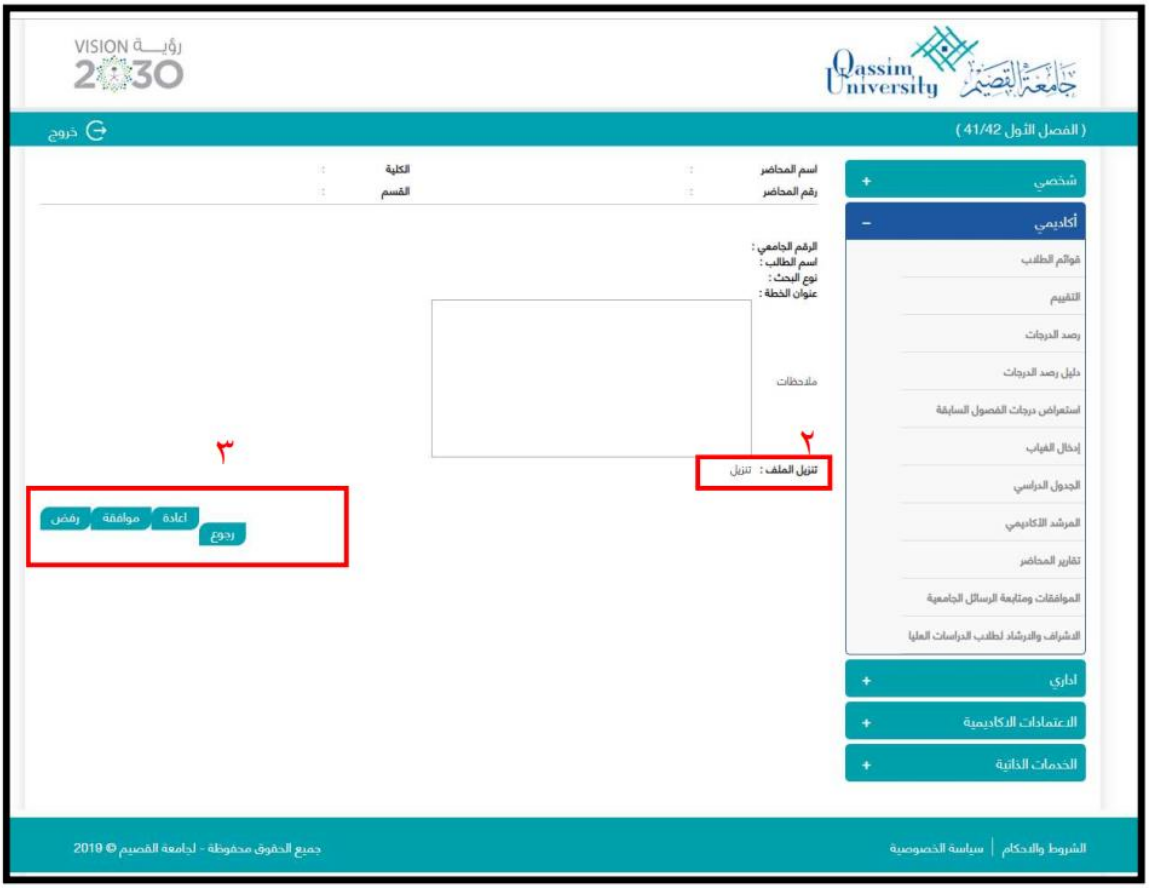


1- The advisor will see the requests of the students affiliated with him in the academic system.
2- To approve the student's plan, click on the student's name.


1- After clicking on the student's name, the plan data submitted by the student will appear.

2- The academic advisor can review the files attached by the student.

3- The advisor can approve the student's plan, and it will go to the department with written notes that will appear to both the student and the department, or return it to the student with some notes written, or reject it completely with notes written to the student, and the student must apply for another plan again.




## 10.3. COURSE BINDER

The Computer Science program uses the Course Binder as a quality monitoring tool to ensure compliance with approved quality standards established by the Program Manager and the Assessment Committee. The Course Binder is reviewed to check every aspect of the course, and feedback is provided to address any identified issues. The review process involves examining the following items submitted by the course coordinator.

### 10.3.1. KEY ACTORS AND RESPONSIBILITIES IN THE PREPARATION OF THE COURSE BINDER

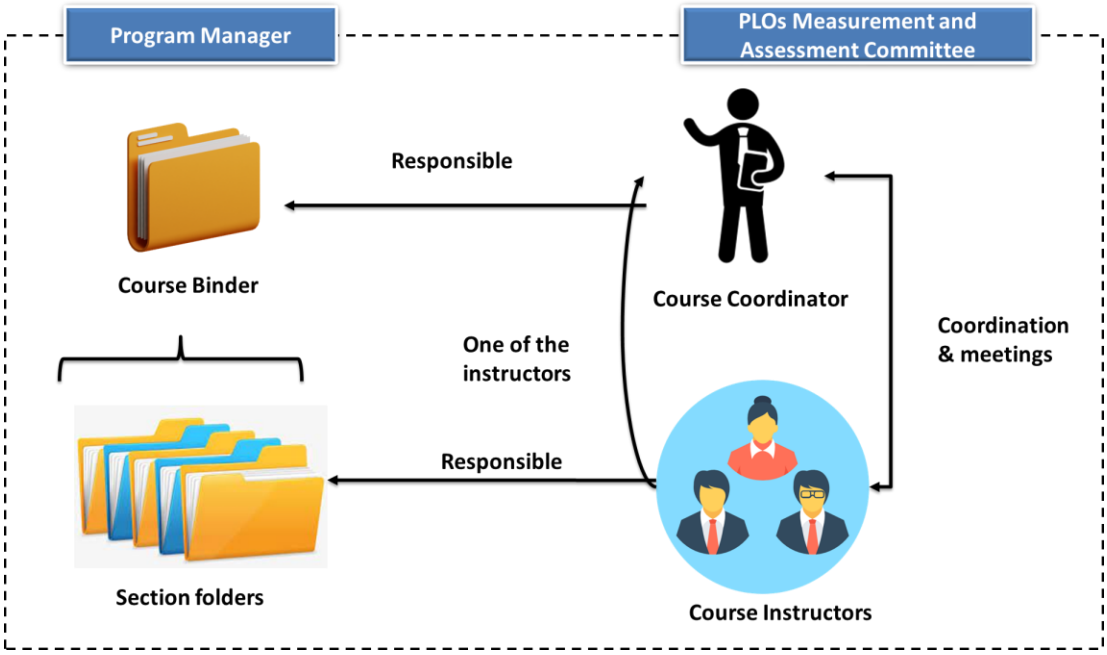



**FIGURE 18: KEY ACTORS AND RESPONSIBILITIES IN THE PREPARATION OF THE COURSE BINDER FOR THE COMPUTER SCIENCE PROGRAM**

Figure 18 illustrates the key actors and components involved in the preparation of the **Course Binder** for the **Computer Science program**. The diagram outlines the workflow and responsibilities distributed across different stakeholders to ensure the comprehensive assembly of the course binder, which serves as a quality monitoring and improvement tool.

1. **Course Coordinator (Central Actor):**

   The course coordinator plays a vital role in overseeing the preparation and submission of the course binder. They are responsible for collecting all necessary documents, ensuring alignment with program requirements, and organizing the binder according to established guidelines.

2. **Documents and Materials (Folders):**

   The **main Course Binder folder**, labeled with the corresponding course code, is divided into two subfolders:

- **Total Folder:** This folder consolidates overall course-related information, including high-level summaries and aggregated data.
- **Sections Details Subfolders:** These subfolders contain detailed records specific to different sections of the course, such as assessments, student performance, and attendance records.

The contents and purpose of these subfolders will be elaborated on in the next two subsections, providing a comprehensive breakdown of how course data is organized and stored.

3. **PLOs Measurement and Assessment Committee:**

   The committee reviews the contents of the course binder to verify compliance with the program's quality standards. They ensure that assessment practices, student performance data, and course materials meet the expected academic benchmarks. Feedback is provided to the course coordinator for improvements when necessary.

4. **Program Manager:**

   The program manager defines and communicates the quality rules, standards, and expectations that guide the preparation of the course binder. They provide oversight to ensure that all processes align with the Computer Science program's objectives and institutional quality policies. Additionally, the program manager:

   - Conducts workshops for faculty members, particularly new instructors, to explain how to prepare a Course Binder. These workshops also address any new requirements or updates that need to be included in the course binder, ensuring faculty members are well-informed and equipped to meet quality standards.
   - Revises the Aggregated Course Report, which consolidates course-level data such as CLO achievement, student performance trends, and quality assessment results. Based on their review, the program manager can

request modifications or improvements from the course coordinator to address gaps or enhance the course's alignment with program objectives.

### 10.3.2. TOTAL SUBFOLDER CONTENT

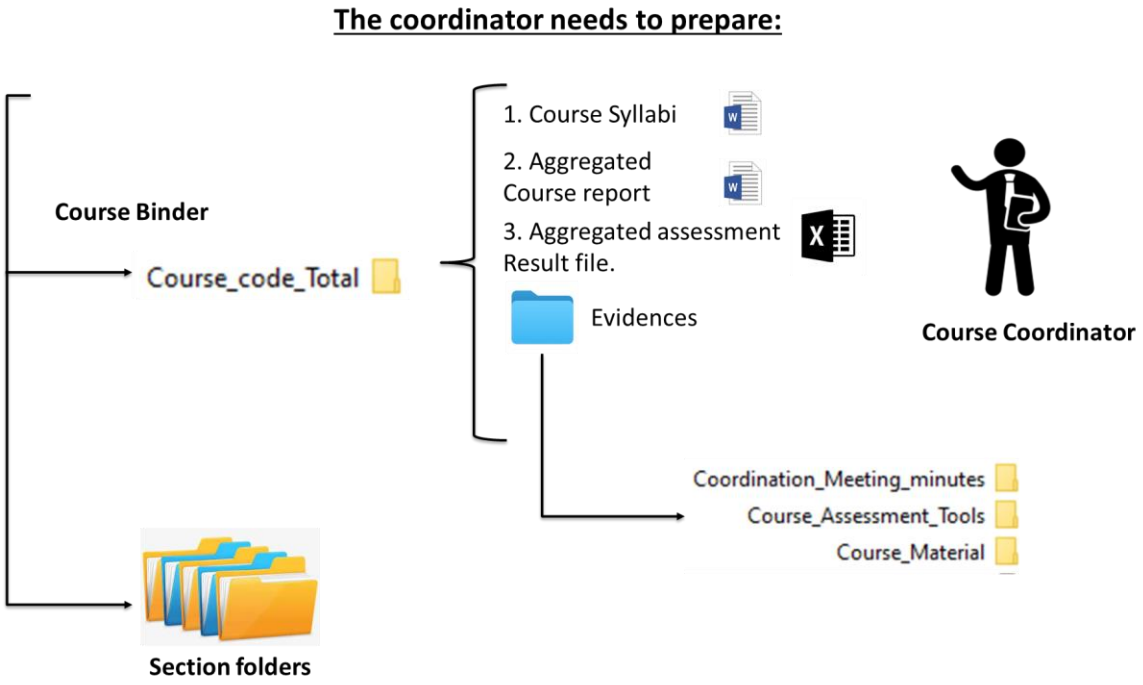



FIGURE 19: TOTAL SUBFOLDER ORGANIZATION

This figure represents the organization of the **Total Subfolder** within the **Course Binder**. The subfolder is the responsibility of the course coordinator, who is required to upload the following key components:

1. **Course Syllabi:**

   The course syllabi must be uploaded at the beginning of the semester. This document, approved by the PLOs Measurement and Assessment Committee, ensures alignment with the program's learning outcomes and assessment strategies. The course coordinator is responsible for ensuring consistency between what was planned in the syllabus and what was actually implemented during the semester. This consistency is verified by the same committee.

2. **Aggregated Course Report:**

   The course coordinator must upload the **Aggregated Course Report**, adhering to the latest version provided by the NCAAA. This report consolidates data and feedback from all course section reports, including necessary improvements and recommendations. The Program Manager reviews and verifies the report's content, discussing its findings with the committee to ensure its validity and usefulness.

3. **Aggregated CLOs Assessment Results:**

   The **Aggregated CLOs Assessment Results** is an Excel file provided by the PLOs Measurement and Assessment Committee. This file includes the assessment measurements for all course sections, enabling the evaluation of students' achievements against the Course Learning Outcomes (CLOs). The coordinator must ensure this document is uploaded for review.

4. **Evidences Subfolder:**

   The **Evidences Subfolder** contains additional documentation critical for ensuring the quality and coordination of the course. This subfolder is further divided into three key sections:

   - **Coordination Meeting Minutes:**

     The course coordinator must upload at least three meeting minutes. These meetings should document discussions and decisions related to course coordination among instructors. The three required meetings typically include:

     - A meeting at the beginning of the course to discuss learning strategies and expectations.
     - A meeting before the midterm exam to discuss progress, challenges, and any adjustments needed.

- A meeting before the final exam to review the semester's progress, identify challenges, and discuss successes and recommendations.

- **Course Assessment Tools:**

  This subfolder contains all unified and common assessment tools used in the course. In the **Master of Computer Science**, midterm and final exams are unified across both male and female sections. Other unified assessments, such as project descriptions or assignments, should also be uploaded here.

- **Course Material:**

  This subfolder contains all shared course materials, such as lecture slides, lab booklets, and any other instructional resources used during the semester. These materials provide a complete record of the course's delivery and ensure consistency across all sections.

### 10.3.3. SECTION SUBFOLDER CONTENT

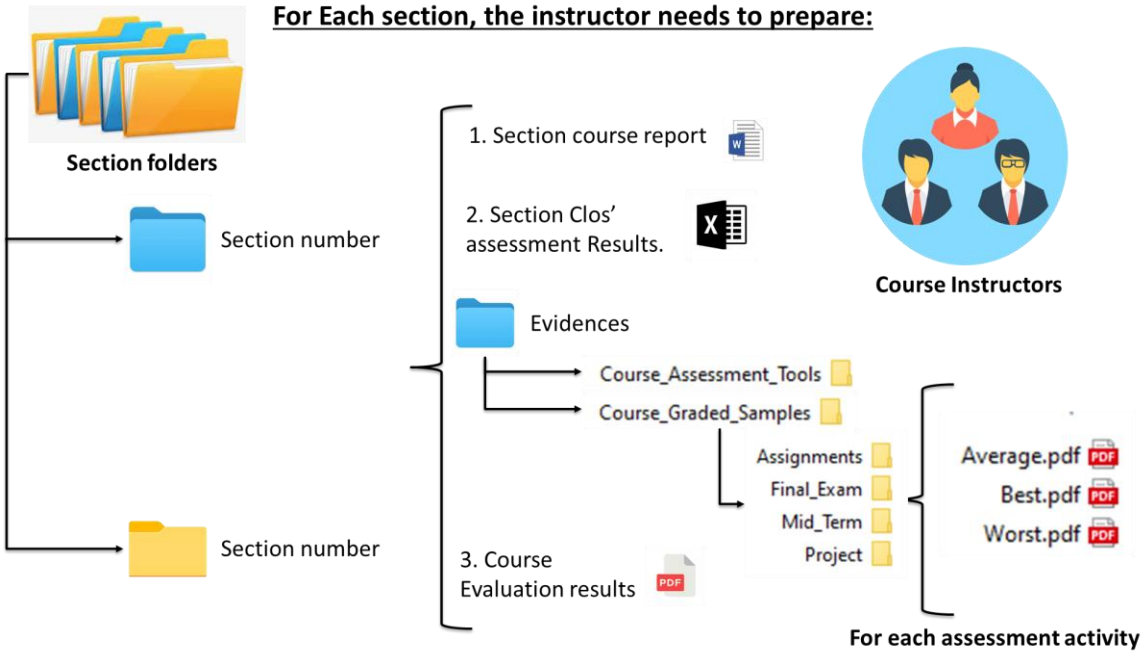



FIGURE 20: SECTION SUBFOLDER ORGANIZATION

Figure 20 represents the **Section Details Subfolder**, which is to be prepared by each course instructor for the specific course section(s) they are responsible for. This subfolder ensures that all section-level details are documented comprehensively and aligned with the course's quality standards. Each instructor must create a separate folder for their section, containing the following components:

1. **Course Section Report:**

   Each instructor must complete and include the **Course Section Report** using the latest version provided by the NCAAA. This report is essential for summarizing the section's outcomes, performance, and challenges. It should include:

   - **Results and Feedback:** A detailed analysis of student performance, including results and any feedback regarding the section.
   - **Improvement Actions:** Specific actions proposed to address issues identified through student results and CLO (Course Learning Outcomes) measurements.
   - **Issues and Missed Content:** If any issues arose during the section or if certain chapters or content were not covered, these must be documented here along with explanations and justifications.

2. **CLOs Measurement File:**

   The **CLOs Measurement File** is an Excel file provided by the course coordinator. This file consolidates the assessment results for all CLOs in the section. Instructors must ensure that:

   - The file is filled accurately with the section-specific CLO results.
   - No changes are made to the **CLO-Assessment Tools Map**, as this has already been finalized by the PLOs Measurement and Assessment Committee and approved by the course coordinator.
   - CLO results are reported precisely as per the established mapping.

3. **Course Evaluation Results:**

   This file contains the results of the student survey evaluating the course. The instructor must download this file directly from the **section homepage** via the Academic Services section on MyQU. It provides insights into students' feedback about the course content, teaching effectiveness, and overall experience, which are crucial for improvement actions.

4. **Evidence Subfolder:**

   The **Evidence Subfolder** is divided into two parts, each addressing different aspects of section-specific evidence:

   - **Non-Unified Assessment Tools:**
     This subfolder is **mandatory** if the section uses any assessment tools that differ from those used in other sections of the course. Only non-unified tools, such as unique assignments, quizzes, or projects, should be uploaded here to ensure they are accounted for.

   - **Course Graded Samples:**

     This subfolder contains graded student work as evidence of the evaluation process. For each assessment tool used (e.g., exams, assignments, or projects), the instructor must provide three samples representing:

     - **The Best Performance:** Work demonstrating the highest achievement.
     - **The Average Performance:** Work reflecting average performance among students.
     - **The Worst Performance:** Work illustrating the lowest achievement level.

     These samples are crucial for documenting grading consistency and assessment fairness across the section.

The **Section Details Subfolder** ensures that each instructor provides a clear and complete record of their section's performance, challenges, and evidence of assessment practices. This structure supports consistency, transparency, and accountability across all sections of the course. It also enables the course coordinator and relevant committees to review and address any section-specific issues, contributing to the continuous improvement of the course.

# 11. Program Plans and Reports

## 11.1. Program Operational Plan

Primarily, the **Computer Science program operational plan** focuses on monitoring the attainment of the program's goals. It includes initiatives that are agreed upon by the program committee to enhance program performance and ensure the achievement of its objectives. The program adopts an annual operational plan; however, initiatives spanning longer time periods are also monitored and evaluated annually.

Each initiative consists of one or more projects, with each project broken down into a set of tasks. These tasks are assigned to specific parties, and their execution is monitored through relevant **program KPIs (Key Performance Indicators)**. Additionally, the required resources and the duration for executing each task are identified to ensure efficient implementation.

Based on the program's achievements, analyzed performance, and the operational plan report from the previous academic year, the program committee is responsible for developing the operational plan for the current academic year. The **Computer Science program** utilizes the operational plan template provided by the **DDQ (Deanship of Development and Quality)**. For further reference, the template can be found in **Appendix A**.

## 11.2. Program Reports

By the end of the academic year, the **program manager** is responsible for preparing the **Operational Plan Report**. This report evaluates the achievement of the operational

objectives based on the related performance indicators, identifying strengths, areas for improvement, and priorities for development. Based on this analysis, a development plan is created to guide future enhancements.

Additionally, the **program manager** collects all the **Program Achievements Reports** using the unified form distributed by the **DDQ**. These reports provide a comprehensive summary of the program's key accomplishments throughout the academic year. The collected reports are discussed during an **Academic Program Committee** meeting, submitted to the **Department Council** for approval, and the key achievements are shared with stakeholders to keep them informed about the program's performance.

At the beginning of the next academic year, after gathering and approving all required data, the program manager prepares the **Annual Program Report** using the official **NCAAA program report form**. This report is presented in an **Academic Program Committee** meeting and subsequently submitted to the **Department Council** for approval.

### 11.3. PROGRAM DEVELOPMENT PLAN

The **Program Development Plan**, presented in **Section E** of the **Annual Report**, represents a key component of the **Operational Plan** for the new academic year. This plan is developed based on the recommendations discussed and presented in the following reports:

1. **PLOs Assessment Report**: Highlights areas for improvement based on the analysis of Program Learning Outcomes (PLOs).
2. **KPIs Analysis Report**: Provides insights into program performance based on Key Performance Indicators (KPIs).
3. **Surveys Analysis Report**: Summarizes feedback from various stakeholders, including students, faculty, and employers, to identify areas of enhancement.
4. **Operational Plan Report**: Focuses on the non-achieved operational objectives from the previous year.

5. **Quality Committees Reports**: Addresses new challenges, initiatives, and objectives identified by the quality committees.
6. **Supporting Committees Reports**: Includes reports from the **Training Committee**, **Scientific Research Committee**, and **Community Services Committee**, highlighting their contributions and areas for development.

The **Program Development Plan** outlines the proposed development actions, assigns a responsible party for each task, and establishes a timeline for execution. Tasks are distributed according to their nature to the relevant committees, which incorporate these tasks into their respective **Executive Plans**. These execution plans serve as a follow-up tool to monitor progress and ensure the successful implementation of the development actions.

## 12. APPENDIX A

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|---|---|---|---|
| NCAAA Program Forms |  | PLOs/GA assessment plan |  |
| CoC Course Syllabi |  | PLOs/GA assessment report |  |
| Comprehensive Matrix for CLOs assessments |  | Faculty/ Staff Training plan template |  |
| Master's degree study plan template |  | Faculty/ Staff Training report template |  |

| | | | |
|---|---|---|---|
| Program /Course Update QU Guide. | | Surveys Analysis report | |
| Program Update Form | | KPIs Analysis report | |
| Equivalency courses form | | Exit Exam template | |
| Grade Adjustment Form | | Committee executive plan template | |
| Operational Plan template | | Annual Committee executive plan report | |
| Operational Plan report template | | Committee meeting minute template and Follow up template | |

## 13. SPECIFICATION APPROVAL DATA

| | |
|---|---|
| COUNCIL / COMMITTEE | |
| REFERENCE NO. | |
| DATE: | |