**PRINCE SATTAM BIN ABDULAZIZ UNIVERSITY**
College of Computer Engineering & Sciences
Information Systems Department

# PROGRAM QUALITY ASSURANCE MANUAL

## Master of Data Science

| | |
|---|---|
| **Document Type** | Program Quality Assurance Manual |
| **Program** | Master of Data Science (MDS) |
| **Department** | Information Systems |
| **College** | College of Computer Engineering & Sciences (CCES) |
| **University** | Prince Sattam Bin Abdulaziz University (PSAU) |
| **Edition** | Second Edition — 2024/2025 |
| **Aligned With** | Institutional QA System Manual, NCAAA Standards |
| **Approved By** | Program Quality Committee |

# Table of Contents

Table of Contents ..... 2
1. Terminologies ..... 4
2. Introduction ..... 6
2.1 Program Mission ..... 6
2.2 Program Goals ..... 6
3. Alignment with the Institutional Quality Assurance System ..... 6
4. Objectives of the Program Quality Assurance System ..... 8
5. Organizational Structure of the MDS Program ..... 9
5.1 Governing Bodies and Councils ..... 9
5.2 Program Quality Committee ..... 9
5.2.1 Duties of the Program Quality Committee ..... 9
5.3 Program Sub-Committees ..... 10
6. Program Quality Assurance System — PDCA Cycle ..... 11
6.1 Phase 1: Plan ..... 11
6.1.1 Program Design and Review ..... 11
6.1.2 Program Operational Plan ..... 11
6.1.3 Course Coordination ..... 11
6.2 Phase 2: Do (Implementation) ..... 11
6.2.1 Orientation and Student Engagement ..... 11
6.2.2 Teaching and Learning ..... 12
6.2.3 Academic Integrity and Ethical Practices ..... 12
6.2.4 Internal Committee Activities ..... 12
6.3 Phase 3: Check (Review and Evaluation) ..... 12
6.3.1 Semester-Level Review ..... 12
a. Course Reports ..... 12
b. Student Evaluation of Courses ..... 12
c. Field Training Reports ..... 1
6.3.2 Annual Review ..... 12
a. Annual Program Report ..... 12
b. KPI Performance Report ..... 13
c. Student and Stakeholder Surveys ..... 13
6.3.3 Consultative Committee Meeting ..... 13
6.3.4 Periodic Review (Every 3–5 Years) ..... 13
a. Self-Study Report (SSR) ..... 13

b. NCAAA Self-Evaluation Standards Covered ..... 13
6.3.5 Internal Audit ..... 14
6.3.6 Benchmarking ..... 14
6.4 Phase 4: Act (Improvement) ..... 14
6.4.1 Improvement Action Plans ..... 14
6.4.2 Types of Improvements ..... 14
6.4.3 Implementation and Follow-Up ..... 14
7. Program Specifications and Reports ..... 15
7.1 Program Specification ..... 15
7.2 Course Specification ..... 15
7.3 Course Report ..... 15
7.4 Annual Program Report ..... 15
7.5 Course File ..... 15
8. Program Key Performance Indicators (KPIs) ..... 16
9. Verification of Student Evaluation and Achievement Standards ..... 17
9.1 Exam Paper Review ..... 17
9.2 Answer Sheet Review ..... 1
9.3 PLO Measurement ..... 17
10. Program Committees and Their Roles ..... 18
10.1 Program Quality Committee ..... 18
10.2 Student Activities and Community Service Committee ..... 18
10.3 Development Committee ..... 18
11. Quality Reporting Calendar ..... 19
12. References ..... 20
13. Approval Data ..... 21

# 1. Terminologies

| Term | Definition |
|---|---|
| Academic Program | A set of courses and practical elements leading a student to an academic degree upon successful completion. |
| Accreditation | A peer process whereby a recognized body grants public recognition to an institution or program that meets established national standards of educational quality. |
| Academic Standard | Specific criteria approved by the institution, derived from national/international references, including the minimum skills and knowledge graduates should acquire. |
| Academic Reference Standard | Reference points against which program standards are compared; they outline general expectations about achievement levels graduates must meet. |
| Action Plans | A set of activities designed in clear sequence to accomplish specific goals, including timelines, responsibilities, and measurable indicators. |
| Annual Program Report | A self-evaluation report prepared at the end of each academic year, covering academic activities, performance indicators, learning outcome achievements, and improvement plans. |
| Benchmarking | A systematic process of evaluating performance against a model — internally (same department across years) or externally (peer institutions) — to identify gaps and best practices. |
| Continuous Improvement | An ongoing effort to enhance processes, programs, and services through regular planning, monitoring, evaluation, and corrective actions. |
| Course File | A portfolio of evidence from a course, including the course specification, instructor CV, assessments, student samples, and evaluation results. |
| Credit Hours | The measure of the educational credit assigned to a course, based on hours per week of instruction. |
| Documentation | The systematic archiving and recording of work data and reports that can be analyzed to inform decision-making. |
| External Benchmarks | Reference data from peer programs or institutions at local, regional, or international levels, used for comparative performance analysis. |
| Institutional QA System | The overarching quality assurance framework of PSAU, to which all program-level QA activities must align. Governed by the Deanship of Development and Quality. |
| Internal Quality Assurance | Procedures undertaken internally by the institution to monitor, maintain, and improve performance quality across all academic and administrative units. |
| Key Performance Indicators (KPIs) | Measurable variables used to assess program performance by comparing actual results against planned targets, internal benchmarks, and external benchmarks. |
| Learning Outcomes | Knowledge, skills, and competencies students are expected to achieve upon completing a program or course; must align with the NQF. |

| Term | Definition |
|---|---|
| NCAAA | National Commission for Academic Accreditation and Assessment — the national body responsible for academic accreditation and quality assurance in Saudi higher education. |
| NQF (SAQF) | National Qualifications Framework — the Saudi Arabian framework that defines qualification levels, learning domains, and expected graduate attributes. |
| PDCA Cycle | Plan–Do–Check–Act: the four-phase continuous improvement cycle forming the backbone of the institutional and program QA systems. |
| Program Quality Committee | The committee responsible for overseeing and implementing the program quality assurance manual within the Master of Data Science program. |
| Quality Assurance (QA) | The set of policies, procedures, and systematic activities designed to maintain and improve the quality of academic and administrative processes. |
| Quality Management System (QMS) | An organized framework of processes, responsibilities, and resources that governs all quality-related activities at institutional and program levels. |
| Self-Study Report (SSR) | A comprehensive, evidence-based report evaluating a program's compliance with NCAAA accreditation standards, prepared by the program team. |

# 2. Introduction

The Program Quality Assurance Manual for the Master of Data Science (MDS) program at Prince Sattam Bin Abdulaziz University (PSAU) has been developed in full alignment with the Institutional Quality Assurance System Manual issued by the Deanship of Development and Quality. This manual operationalizes the institutional QA framework at the program level, ensuring that all quality activities, committees, reports, and improvement actions within the MDS program are consistent with, and feed directly into, the university-wide QA system.

The manual is structured around the Plan–Do–Check–Act (PDCA) continuous improvement cycle — the same model mandated by the institutional QA system — and complies with the Standards for Quality Assurance and Accreditation set by the National Commission for Academic Accreditation and Assessment (NCAAA), as well as the requirements of the National Qualifications Framework (NQF). It reflects PSAU's commitment to the Vision 2030 goals of producing highly trained graduates and achieving international academic distinctions.

This second edition has been revised following the NCAAA accreditation visit, incorporating auditor recommendations — particularly the recommendation to implement an effective quality assurance and management system explicitly aligned with the institutional quality system. All sections have been updated to reflect the institutional framework, ensure consistency in roles, committees, procedures, and reporting cycles, and strengthen the program's quality culture.

## 2.1 Program Mission

To equip students with advanced knowledge and practical skills in data science — encompassing data manipulation, statistical analysis, machine learning, and data visualization — thereby empowering them to contribute to research, industry, and community through innovative and ethical use of data.

## 2.2 Program Goals

**The new program goals**

(a) Deliver a distinguished and high-quality education in data science that meets international academic standards and equips students with strong analytical and computational skills.

(b) Advance innovative and applied research in data science that contributes to the knowledge economy and supports national and regional development priorities.

(c) Foster ethical responsibility, professional conduct, and leadership skills among graduates to ensure effective and responsible use of data in diverse real-world contexts.

(d) Promote lifelong learning, adaptability, and self-development to prepare graduates for emerging trends and future challenges in data science and technology.

# 3. Alignment with the Institutional Quality Assurance System

The MDS program QA system is a direct extension of the PSAU Institutional Quality Assurance System. The institutional system defines the overarching framework, policies, and governance structures; the program QA system operationalizes these at the program level. The table below maps the key institutional QA components to their corresponding program-level counterparts.

| Institutional QA Component | Program-Level Implementation | Responsible Party |
|---|---|---|
| Quality Policy | Program QA Manual (this document) | Program Quality Committee |
| PDCA Cycle (4 Phases) | Plan, Do, Check, Act at program level | Program Coordinator & QA Committee |
| Internal QA Committee | Program Quality Committee | Quality coordinator (Chair) |
| Annual Operational Plan | Program Annual Operational Plan | Program Coordinator |
| Course Reports | Course Reports (NCAAA T-107) | Course Instructors |
| Annual Program Report | Annual Program Report (NCAAA T-106) | Program Coordinator |
| Self-Study Report | Program SSR (NCAAA TI-111) | Program QA Committee |
| KPIs (20 institutional) | 13 Program KPIs for postgraduate programs | Program QA Committee |
| Benchmarking (internal & external) | Internal and external benchmarking reports | Program QA Committee |
| Student Surveys | Course evaluation, program satisfaction surveys | QA & Accreditation Unit |
| Consultative Committee | Program Advisory/Consultative Committee | Program Coordinator |
| Improvement Plans | Program Improvement Action Plans | Program Quality Committee |

# 4. Objectives of the Program Quality Assurance System

The objectives of the MDS Program QA System are fully consistent with the objectives stated in the PSAU Institutional QA System Manual and aim to:

1. Support the program's quality assurance process by establishing an effective system linked to the Deanship of Development and Quality, covering all activities and contributing to the achievement of the program's mission and strategic goals.
2. Monitor all academic program processes and ensure the quality of their outputs, enabling decision-makers to identify strengths and areas for improvement.
3. Achieve transparency and equity in all procedures among all program stakeholders — faculty, students, and administrators.
4. Ensure optimal utilization of all available resources — human, material, and technological.
5. Sustain engagement of external beneficiaries (employers, graduates) in program improvement through regular surveys and feedback mechanisms.
6. Fulfill the requirements of NCAAA academic accreditation standards and the National Qualifications Framework (NQF).
7. Conduct continuous monitoring of progress against strategic goals and measure the degree of achieved improvement.

**Figure 1. Program Quality PDCA Cycle**

# 5. Organizational Structure of the MDS Program

The MDS program operates within the governance framework of the Information Systems Department and the College of Computer Engineering and Sciences. Program quality management is embedded within the college's Development and Quality Vice Deanship structure and is carried out through the following hierarchy (Figure 2):

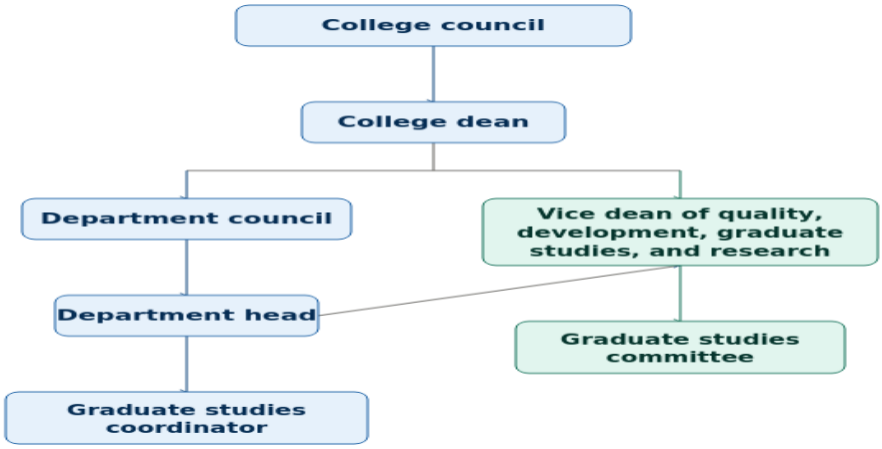


*Figure 2. Organizational Structure of the Master of Data Science Program*

## 5.1 Governing Bodies and Councils

The program is governed through the following councils, whose compositions and duties are fully consistent with the institutional manual:

- College Council — chaired by the College Dean; approves programs, policies, and annual reports.
- Department Council — chaired by the Department Head; convenes biweekly; discusses program operations, KPIs, and improvement plans.
- Development and Quality Council (College Level) — oversees QA culture, institutional/programmatic accreditation, and self-evaluation.

## 5.2 Program Quality Committee

The Program Quality Committee is the primary body responsible for implementing this manual at the program level. It reports to the Department Council and coordinates with the College QA and Accreditation Unit. The committee composition for the academic year 1446/1447 AH is as follows:

| Member | Role |
|---|---|
| Dr. Mohsin Bilal | Chairman |
| Dr. Abubaker Eljialy | Member |
| Dr. Imtithal Elnour | Member |
| Dr. Mohammed Yousuf | Member |

### 5.2.1 Duties of the Program Quality Committee

- Review and align the program QA framework and policies with the institutional QA system.
- Define the program-level QA structure: roles, sub-committees, and responsibilities.

- Draft and maintain the Program QA Manual in alignment with the Institutional QA System Manual.
- Oversee implementation of the PDCA cycle at the program level.
- Coordinate with the college QA and Accreditation Unit on all quality activities.
- Prepare and submit periodic quality reports to the Department Council.
- Review course reports, annual program reports, and KPI results; propose improvement actions.
- Manage internal and external review processes (including NCAAA self-study).
- Administer student, faculty, and employer satisfaction surveys.
- Monitor the achievement of Program Learning Outcomes (PLOs).

## 5.3 Program Sub-Committees

The following sub-committees operate under the Program Quality Committee:

| Sub-Committee | Key Responsibilities | Reports To |
|---|---|---|
| Internal Audit Committee | Review course files, exam papers, course reports; ensure NCAAA compliance | Program QA Committee |
| Data & Statistics Committee | Collect, analyze, and report KPIs and survey data | Program QA Committee |
| Learning Outcomes Committee | Monitor PLO measurement, alignment, and achievement | Program QA Committee |
| Consultative (Advisory) Committee | External stakeholder engagement; labor market alignment | Department Council |
| Student Activities Committee | Plan and evaluate student activities and community service | Department Head |
| Development Committee | Prepare departmental development plans and training programs | Department Head |

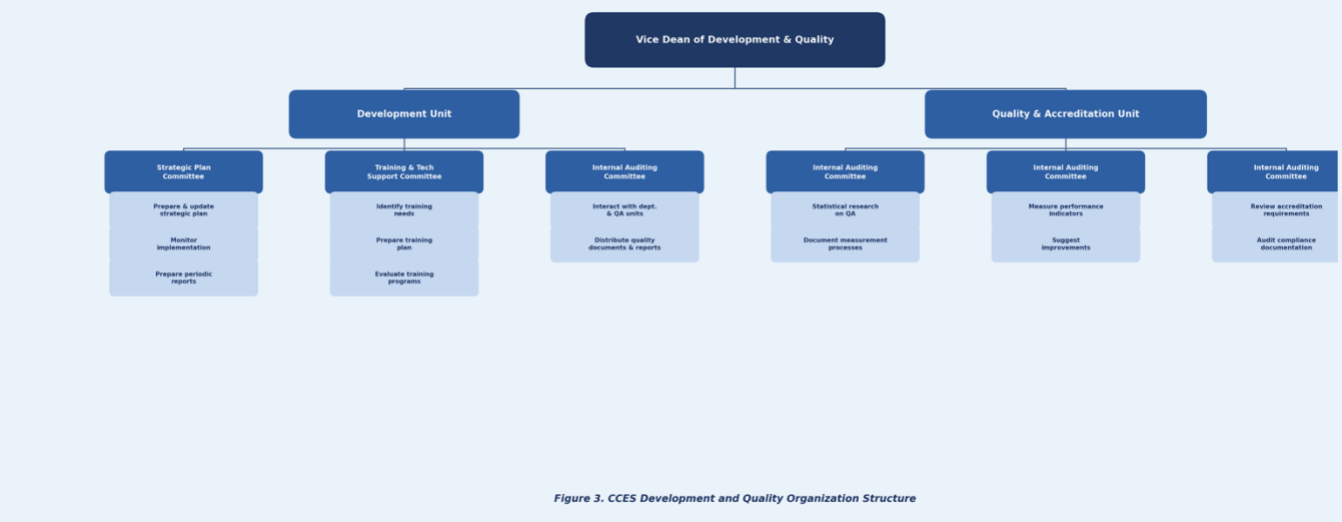


*Figure 3. CCES Development and Quality Organization Structure*

# 6. Program Quality Assurance System — PDCA Cycle

In alignment with the institutional QA system, the MDS program applies the PDCA (Plan–Do–Check–Act) cycle — also known as the Deming Cycle — as the overarching methodology for continuous quality improvement. The cycle is applied with the full participation of all program stakeholders through clearly defined roles, committees, and timelines.

## 6.1 Phase 1: Plan

The Planning Phase establishes the strategic direction and operational framework for all program activities. It is anchored in the institutional strategic plan and NCAAA standards.

### 6.1.1 Program Design and Review

- Program design complies with: NCAAA standards, NQF requirements, Saudi Classification of Programs and Majors (Ministerial Decision No. 75), and labor market needs.
- Programs are reviewed for alignment with the university's and college's mission, goals, and strategic plan.
- Program goals and learning outcomes are clearly defined, measurable, and aligned with NQF qualification levels.
- Program specifications, course descriptions, and curriculum plans are prepared using NCAAA templates (T-103, T-104).

### 6.1.2 Program Operational Plan

The Program Quality Committee prepares an annual operational plan at the beginning of each academic year, including:

- Goals aligned with the university's strategic plan.
- Planned activities with specific timelines, responsible parties, and performance indicators.
- Target values for all KPIs.
- Resource requirements.

The operational plan is approved by the Department Council and submitted to the Deanship of Development and Quality as required.

### 6.1.3 Course Coordination

- Course coordinators are assigned at the beginning of each semester by the Department Council.
- Coordinators ensure uniformity of course specifications, assessment methods, and learning outcomes across all sections.

## 6.2 Phase 2: Do (Implementation)

The Implementation Phase encompasses all activities carried out during each academic semester to ensure that teaching, learning, and administrative processes are executed at the required quality level.

### 6.2.1 Orientation and Student Engagement

- An orientation session is held in the second week of each semester to introduce: university systems and regulations, college and program information, academic advising procedures, and program goals and learning outcomes.
- Academic advising is provided throughout the semester; faculty office hours are published at the beginning of each semester.

### 6.2.2 Teaching and Learning

- Faculty members implement course plans, use diverse and active teaching strategies, and foster critical thinking and self-directed learning.
- Teaching strategies are aligned with program learning outcomes and the NQF.
- Course learning outcomes (CLOs) are mapped to program learning outcomes (PLOs) using the CLO–PLO mapping matrix.
- Learning resources — textbooks, databases, digital library resources — are made available and kept current.
- Student assessment follows the methods specified in course descriptions; both direct and indirect assessment methods are employed.

### 6.2.3 Academic Integrity and Ethical Practices

The program is committed to upholding academic integrity, intellectual property rights, and ethical research conduct in all its academic, research, and administrative activities, in accordance with institutional policies and regulations.

### 6.2.4 Internal Committee Activities

- Internal Quality Assurance Committee: meets regularly to review documents and compliance.
- Student Activities and Community Service Committee: implements approved plans for student engagement.
- Development Committee: executes training and development activities according to the plan.

## 6.3 Phase 3: Check (Review and Evaluation)

The Review and Evaluation Phase constitutes the core monitoring mechanism of the program QA system. It operates at three levels — semester, annual, and periodic (every 3–5 years) — consistent with the institutional QA manual.

### 6.3.1 Semester-Level Review

At the end of each semester, the following reviews are conducted:

#### a. Course Reports

Each course instructor prepares a Course Report (NCAAA Template T-107) covering: statistical analysis of student grades, level of achievement of CLOs, topics not covered and reasons, and a course improvement plan. Where a course has multiple sections, the course coordinator prepares a consolidated report. Reports are reviewed by the Program Quality Committee and submitted to the Department Council.

#### b. Student Evaluation of Courses

Student course evaluation surveys are administered each semester through the university's quality management system. Results are analyzed and used to inform course and program improvement.

### 6.3.2 Annual Review

At the end of each academic year, the following reviews are completed:

#### a. Annual Program Report

The Program Coordinator, in coordination with the Program Quality Committee and faculty members, prepares the Annual Program Report (NCAAA Template T-106). The report includes:

- Program statistics (enrolment, completion, graduation rates, gender distribution).
- Achievement of program learning outcomes (PLO measurement results).

- Performance against KPIs — actual vs. target, internal and external benchmarks.
- Academic, research, and community service activities.
- Difficulties and administrative obstacles encountered.
- Program improvement plan for the following academic year.

The report is presented to and approved by the Department Council, then submitted to the College Development and Quality Vice Deanship.

### b. KPI Performance Report

A dedicated KPI report is prepared annually, covering all 13 postgraduate program KPIs defined by NCAAA. The report includes: actual values, targets, internal benchmarks (prior year), external benchmarks (peer institutions), analysis of gaps, and proposed improvement actions.

### c. Student and Stakeholder Surveys

The following surveys are administered annually in accordance with the institutional survey calendar:

- Course evaluation surveys (students).
- Program satisfaction surveys (students).
- Facilities and learning resources satisfaction surveys (students and faculty).
- Faculty member satisfaction surveys.
- Employer satisfaction surveys (competency of graduates).
- Graduate employment surveys.

## 6.3.3 Consultative Committee Meeting

The Consultative Committee — composed of external stakeholders including employers, industry representatives, and distinguished alumni — meets at least once per academic year to review program relevance, curriculum alignment with labor market needs, and graduate competencies. Meeting recommendations are documented and submitted to the Department Council for action.

## 6.3.4 Periodic Review (Every 3–5 Years)

A comprehensive periodic review is conducted every 3–5 years, aligned with NCAAA accreditation cycles. This review constitutes the basis for the program's Self-Study Report (SSR).

### a. Self-Study Report (SSR)

The SSR provides a detailed, evidence-based evaluation of the program's quality across all NCAAA standards. It is prepared by the Program QA Committee with the participation of all program stakeholders — faculty, students, administrators, and external reviewers — organized into standard committees. The process follows the institutional internal SSR review mechanism, which includes submission to the Deanship of Development and Quality, internal review, program response, and final submission.

### b. NCAAA Self-Evaluation Standards Covered

- Mission and Goals
- Program Management and Quality Assurance
- Teaching and Learning
- Students
- Teaching Staff
- Learning Resources, Facilities, and Equipment
- Research and Projects

### 6.3.5 Internal Audit

The Internal Audit Committee conducts regular audits of program documents and processes, including:

- Review of program and course specifications for NCAAA compliance.
- Review of course files (completeness and quality).
- Verification of exam paper quality (validity, clarity, coverage of CLOs, differentiation).
- Verification of student answer sheet correction (accuracy, fairness, consistency).
- Verification of PLO achievement measurement.

### 6.3.6 Benchmarking

In line with the institutional QA system, the MDS program conducts both internal and external benchmarking:

- Internal benchmarking: comparing current program performance against prior years' data to monitor trends.
- External benchmarking: comparing performance against peer postgraduate programs at comparable Saudi, regional, or international universities.

Benchmarking results are documented and used to set improvement targets in the annual operational plan.

## 6.4 Phase 4: Act (Improvement)

The Improvement Phase directly follows the Review Phase. Based on the findings, gaps identified, and recommendations generated, improvement plans are developed and executed.

### 6.4.1 Improvement Action Plans

Improvement plans are prepared using the following template, consistent with the institutional QA system:

| Recommendation | Improvement Actions | From | To | Responsible Party |
|---|---|---|---|---|
| [Source recommendation] | [Specific action steps] | [Start date] | [End date] | [Committee/Person] |

Improvement plans are approved by the Department Council and their implementation is monitored through the Program Quality Committee.

### 6.4.2 Types of Improvements

- Minor improvements: modifications to course content, teaching methods, or assessment tools — approved at program/department level.
- Major improvements: changes to program goals, learning outcomes, curriculum structure — require College Council approval and may trigger an update to the program specification (T-103).
- Strategic improvements: changes to program mission, major restructuring — require University Council endorsement.

### 6.4.3 Implementation and Follow-Up

- The Program Quality Committee tracks the implementation of all improvement actions against defined timelines.
- Progress is reported in the Annual Program Report and the KPI report.
- Completed improvements are documented and archived as evidence for accreditation.

# 7. Program Specifications and Reports

## 7.1 Program Specification

The Program Specification (NCAAA Template T-103) provides comprehensive information about the MDS program, including its mission, goals, learning outcomes, curriculum structure, teaching strategies, and assessment methods. It is reviewed and updated at the beginning of each academic year and after each periodic review cycle. All updates are approved by the Department Council.

## 7.2 Course Specification

Course Specifications (NCAAA Template T-104) are prepared for every course before its first delivery and are updated in response to internal/external auditor comments, course report findings, or curriculum review decisions. Each specification includes: course identity, objectives, topics, CLOs mapped to PLOs, teaching strategies, and assessment methods.

## 7.3 Course Report

A Course Report (NCAAA Template T-107) is prepared by the course instructor at the end of each semester, covering: grade distribution analysis, CLO achievement, uncovered topics, student evaluation results, and a course improvement plan. For multi-section courses, the coordinator prepares a consolidated report.

## 7.4 Annual Program Report

Prepared annually (NCAAA Template T-106), the Annual Program Report documents the full academic year's activities, PLO measurement results, KPI performance, benchmarking, student satisfaction survey results, and the improvement plan for the following year. It is approved by the Department Council and submitted to the Deanship of Development and Quality.

## 7.5 Course File

Each course instructor maintains a Course File (portfolio) containing: course outline, instructor CV, course specification, course report (prior semester), teaching materials samples, assessment samples with model answers, student answer sample, and student evaluation summary. Course files are submitted to the Program Quality Coordinator for review by the Internal Audit Committee.

# 8. Program Key Performance Indicators (KPIs)

The MDS program adopts the 13 KPIs for postgraduate programs defined by NCAAA, as required by the institutional QA system. KPI values are measured annually, compared against target, internal benchmarks, and external benchmarks, and reported in the Annual KPI Report. The following table presents the program KPIs:

| # | Key Performance Indicator | Description |
|---|---|---|
| 1 | Percentage of achieved indicators of the program operational plan objectives | Percentage of KPIs that achieved the targeted annual level to the total number of targeted KPIs. |
| 2 | Students' evaluation of quality of learning experience in the program | Average overall rating of final-year students for quality of learning experience on a 5-point scale (annual survey). |
| 3 | Students' evaluation of quality of courses | Average students' overall rating of course quality on a 5-point scale (annual survey). |
| 4 | Students' evaluation of quality of scientific supervision | Average students' overall rating of scientific supervision quality on a 5-point scale. |
| 5 | Average time for students' graduation | Average time (in semesters) spent by students to complete the program. |
| 6 | Rate of students dropping out of the program | Percentage of students who did not complete the program relative to the same cohort. |
| 7 | Graduates' employability | Percentage of graduates employed within one year of graduation. |
| 8 | Employers' evaluation of graduates' competency | Average overall rating of employers for graduate competency on a 5-point scale (annual survey). |
| 9 | Students' satisfaction with provided services | Average student satisfaction with services (academic advising, facilities, etc.) on a 5-point scale. |
| 10 | Ratio of students to faculty members | Total number of students to total full-time equivalent faculty members in the program. |
| 11 | Percentage of faculty members' distribution based on academic ranking | Distribution of faculty by academic rank (Professor, Associate, Assistant). |
| 12 | Proportion of faculty members leaving the program | Proportion leaving annually (excluding age retirement) to total faculty members. |
| 13 | Satisfaction of beneficiaries with learning resources | Average satisfaction with learning resources (adequacy, diversity, support services) on a 5-point scale. |

# 9. Verification of Student Evaluation and Achievement Standards

The verification of student evaluation processes and standards of achievement is the responsibility of the Internal Audit Committee, operating under the Program Quality Committee. The verification process covers:

## 9.1 Exam Paper Review

The Internal Audit Committee reviews exam papers to verify:

- Validity, clarity, and independence of questions.
- Freedom from answer-bearing statements.
- Coverage of all course CLOs.
- Differentiation between student performance levels (knowledge, comprehension, application).
- Alignment with the assessment method specified in the course description.

## 9.2 PLO Measurement

Program Learning Outcomes are measured using both direct and indirect methods. Direct methods include course assessment results (CLO–PLO mapping matrix). Indirect methods include student satisfaction surveys, employer surveys, and graduate surveys. Results are documented in the PLO Measurement Report and used to update the program improvement plan.

# 10. Program Committees and Their Roles

## 10.1 Program Quality Committee

Composition (Academic Year 1446/1447 AH):

| Member | Role |
|---|---|
| Dr. Mohsin Bilal | Chairman |
| Dr. Abubaker Eljialy | Member |
| Dr. Imtithal Elnour | Member |
| Dr. Mohammed Yousuf | Member |

Key Tasks:

- Monitor quality levels within the program and work toward continuous improvement.
- Supervise preparation of course files and all program documents.
- Receive and coordinate with NCAAA and other academic accreditation teams.
- Submit reports and meeting minutes to the Head of Department.
- Execute any other duties assigned by the Head of Department.

## 10.2 Student Activities and Community Service Committee

Responsibilities include:

- Preparing general plans for student activities in the department.
- Encouraging and adopting student initiatives and working toward their implementation.
- Submitting reports and minutes to the Head of Department.
- Executing any other tasks assigned by the Head of Department.

## 10.3 Development Committee

Responsibilities include:

- Creating developmental plans for the department and program.
- Identifying training needs in quality assurance and academic accreditation.
- Preparing and implementing training plans for faculty and staff.
- Submitting reports and meeting minutes to the Head of Department.

# 11. Quality Reporting Calendar

The following reporting cycle is implemented in alignment with the institutional QA system and the NCAAA annual reporting calendar:

| Report / Activity | Content | Frequency | Responsible Party |
|---|---|---|---|
| Operational Plan | Goals, activities, KPI targets, timeline | Annual (start of year) | Program QA Committee |
| Course Syllabi | Topics, CLOs, assessment, resources | Each semester | Course Instructors |
| Student Orientation | Program introduction, advising, systems | Each semester (Week 2) | Program Coordinator |
| Student Course Evaluation Survey | Course quality assessment | Each semester | QA & Accreditation Unit |
| CLO–PLO Mapping | Linking CLOs to PLOs each semester | Each semester | Course Instructors |
| Course Report (T-107) | Grade analysis, CLO achievement, improvement plan | End of each semester | Course Instructors / Coordinator |
| Internal Audit | Exam review, course file review | Each semester | Internal Audit Committee |
| Annual Program Report (T-106) | Full year activities, PLOs, KPIs, improvement plan | Annual (end of year) | Program Coordinator |
| KPI Report | 13 KPIs: actual, target, internal & external benchmark | Annual | Data & Statistics Committee |
| Satisfaction Surveys (students, employers, graduates) | Satisfaction levels and feedback | Annual | QA & Accreditation Unit |
| Consultative Committee Meeting | Labor market alignment, graduate competencies | Annual (at least once) | Program Coordinator |
| Benchmarking Report | Internal and external comparisons | Annual | Program QA Committee |
| Self-Study Report (SSR) | Comprehensive NCAAA standards evaluation | Every 3–5 years | Program QA Committee (all members) |
| Improvement Action Plans | Actions from review findings | Continuously | Program QA Committee |

# 12. References


1. Institutional Quality Assurance System Manual — Deanship of Development and Quality, Prince Sattam Bin Abdulaziz University (Second Edition, 2025).
2. NCAAA Standards for Quality Assurance and Accreditation of Higher Education Programs, National Commission for Academic Accreditation and Assessment.
3. National Qualifications Framework (NQF/SAQF) — Kingdom of Saudi Arabia.
4. PSAU Organizational Manual — Prince Sattam Bin Abdulaziz University.
5. NCAAA Templates: T-103 (Program Specification), T-104 (Course Specification), T-107 (Course Report), T-106 (Annual Program Report), TI-111 (Self-Study Report).
6. PSAU Deanship of Development and Quality — https://ddq.psau.edu.sa/

# 13. Approval Data

| | |
|---|---|
| **Document Title** | Program Quality Assurance Manual — Master of Data Science |
| **Edition** | Second Edition |
| **Date of Approval** | _____ AH / _____ CE |
| **Approved By** | Department Council — Information Systems Department |
| **Council Meeting No.** | _____ / _____ |
| **Date of Meeting** | _____ AH |
| **Next Review Date** | _____ AH / _____ CE |

**Signatures:**

| Head of Department | Vice Dean — Development & Quality | Dean of College |
|---|---|---|
| | | |
| *Signature / Stamp* | *Signature / Stamp* | *Signature / Stamp* |