



جامعة الأميرة نورة بنت عبدالرحمن
Princess Nourah bint Abdulrahman University

College of Engineering

Quality Management System Manual

(CEN-QMS)

Second Edition

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1. Introduction

The process for a quality management system in college of engineering clears the strengths and weaknesses of the programs in the college and assists in the design and implementation of improvement plans to improve quality of all academic programs. College of Engineering Quality Management System (CEN-QSM) manual (2ed Edition) was developed according to clear and regulated processes and included a detailed programs quality standards and practices and record the development and changes than the last year (2022-2023). This will contribute to drawing clear work procedures, describing regulations, and clearly defining tasks and responsibilities in each area of the quality management system.

Through this guide, the college aims to ensure the quality management of academic programs and unify the efforts made to facilitate the work procedures and closing the Quality Cycle in accordance with quality standards and academic accreditation. Furthermore, to lay out development and improvement plans for the programs relatively to National Center for Academic Accreditation and Assessment (NCAAA) requirements.

1.1 About the College of Engineering

Vision

Excellence in engineering education, scientific research, and community service for women.

Mission

Qualifying skilled and professional female engineers in an innovative educational and research environment to build the national workforce and support economic and societal sustainable development.

1.2 College of Engineering Strategic Goals

The College of Engineering at Princess Noura University relies on 3 strategic goals to achieve its vision and mission:



1. Offering academic programs that ensure the improvement of educational outcomes and support women's participation in the labor market.
2. Supporting innovation, scientific and research production in the engineering field.
3. Enhancing sustainability and community service to ensure institutional advancement.

1.3 College of Engineering (CEN) Organizational Structure

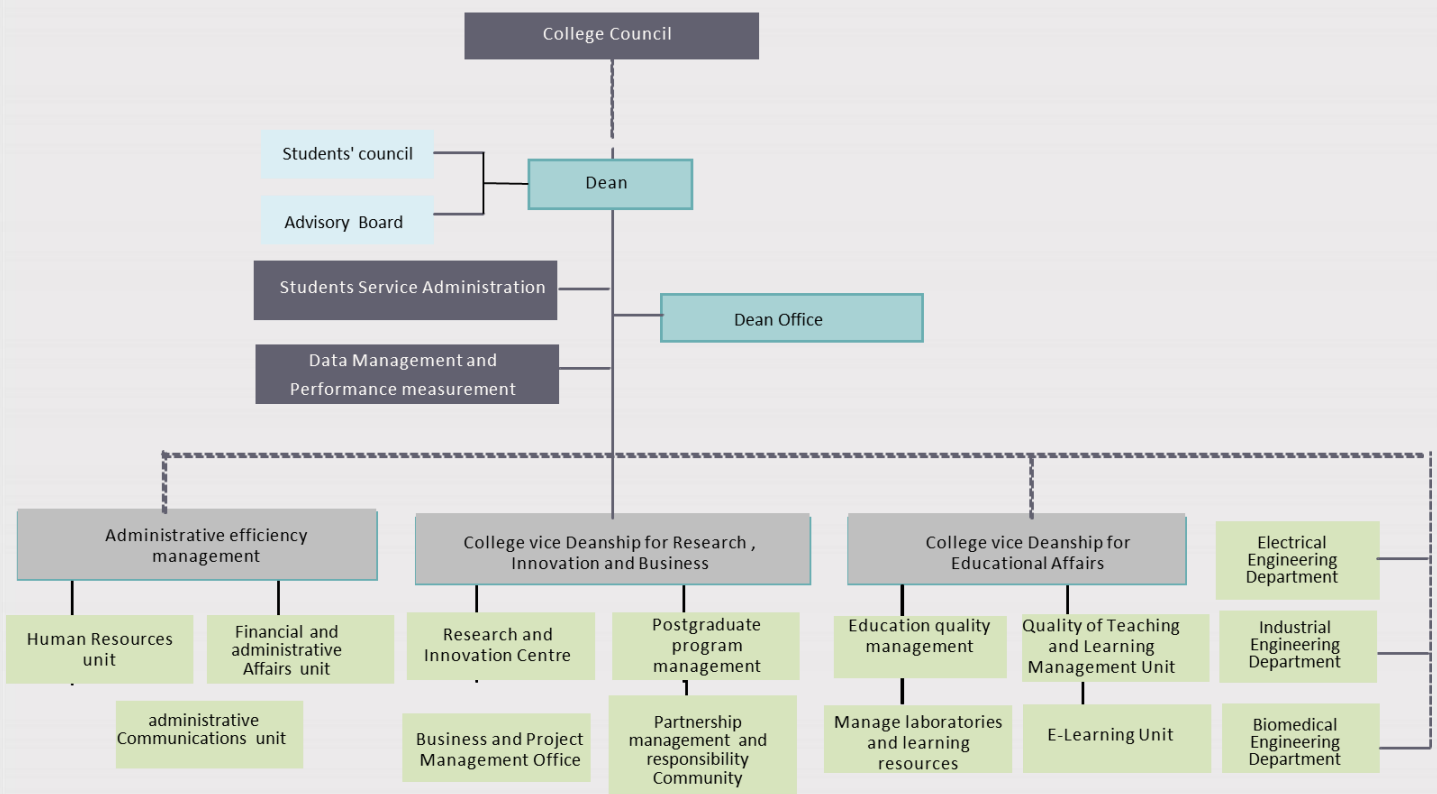


Figure 1: college of Engineering organizational Structure



2. College Teaching and Learning Quality Management Unit

The college teaching and learning quality management unit is following up the programs plans and all preparation processes to implement the required files for accreditation through a quality management system extended for the university quality management system. The implementation and checking stages till ending with improvement plans for closing the quality cycle are as shown in the following flow chart:

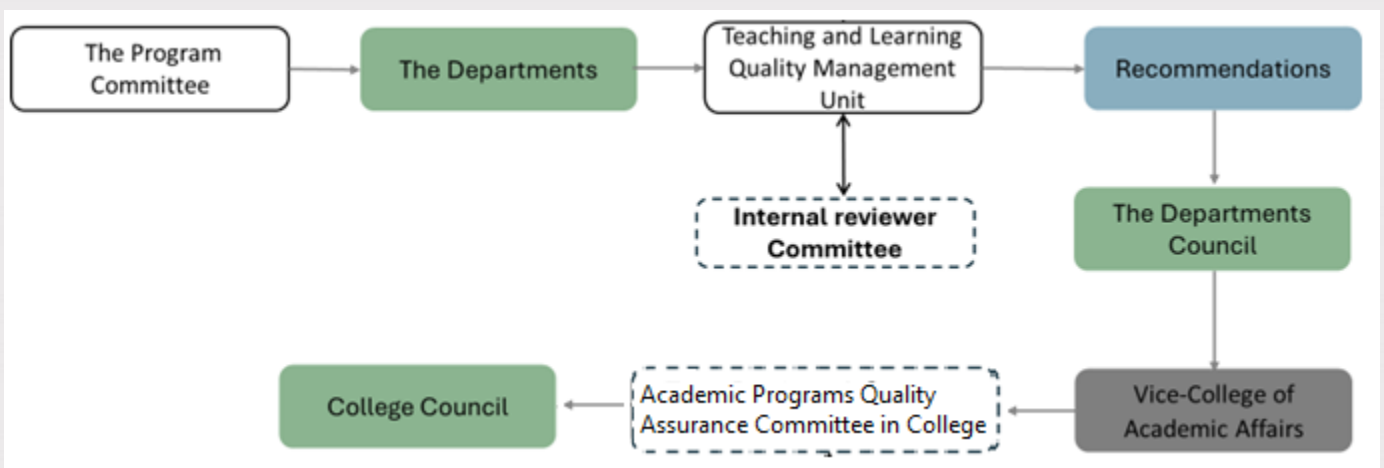


Figure 2: College Teaching and Learning Quality Management Unit flow chart

In addition, the unit is following the program in completing the entire required files for the courses with the electronic quality system, Jadeer. Follow up on the necessary procedures to approve study plans, course specification, and program learning outcomes in terms of compatibility with the National Qualifications Framework and fulfillment of quality assurance standards as shown in the unit flow chart.



The following table shows the positions and tasks assigned by the Development and Quality Deanship for the unit office and coordinator:

Teaching & Learning Quality Management Office	Faculty member	<ol style="list-style-type: none"> 1. Preparing and monitoring the annual plan of the Teaching and Learning Quality Management Office. 2. Contributing to the preparation of the College's operational plan through her membership in the College Strategic Plan Development Committee. 3. Contributing to the fulfillment of quality standards in developed or new programs through her membership in the Academic Programs Development Committee in the college. 4. Promoting the culture of quality and academic accreditation and developing the capabilities of faculty members by nominating them for internal and external training courses in the field of teaching and learning quality, in coordination with the Development and Quality Deanship. 5. Ensuring the completeness of the quality assurance and academic accreditation requirements in all programs, as well as archiving the documents electronically. 6. Monitoring the programs academic accreditation time plans. 7. Activating the implementation of the College Advisory Council recommendations. 8. Monitoring the activation and analysis of the evaluation surveys. 9. Supervising (Quality Friends) and their role in educating their fellow students about the nature of the study in the college. 10. Monitoring the continuous development and improvement of all the academic programs. 11. Collecting the reports and recommendations from all the programs committees and preparing a comprehensive report to be submitted to the College Vice-Dean of Academic Affairs and presented to the Academic Programs Quality Assurance Committee. 12. Any other task assigned in the field of specialization.
College Quality Coordinator	Administrative Member	<ol style="list-style-type: none"> 1. Attending meetings chaired by the Teaching and Learning Quality Manager and taking meeting minutes as directed.



		<ol style="list-style-type: none"> 2. Managing the emails of the Teaching and Learning Quality Management Office. 3. Monitoring administrative procedures to facilitate and expedite the work of quality assurance in the college. 4. Collecting the College's quality documents and ensuring their completeness. 5. Attending the College Advisory Council meetings and taking meeting minutes as directed by the College Dean. 6. Communicating effectively with the programs' quality coordinators. 7. Any other task assigned in the field of specialization.
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For the planning and at an early stage, the college of Engineering formed two committees the first was the advising committee for college of engineering programs accreditation and the other was the committee of internal reviewing.

The following table shows the positions and tasks assigned by the college for the two committee:

Position	Description	Tasks
Advising Committee for College of Engineering Programs Accreditation	College Internal faculty members and external faculty members experienced in quality assurance, program reviewing, and institutional and program accreditation standards	<ol style="list-style-type: none"> 1- Effective identify the needs of professional institutions, and providing consultation and proposals Which helps in developing the program and study plan; To meet the needs of the labor market in the Kingdom. 2- Encouraging professional institutions in the government and private sectors to participate in training programs and educational, including short courses and workshops, as well as lectures and seminars that it provides the program. 3- Contributing to the review of the academic program's mission, goals, objectives, and performance indicators considering scientific and technological developments and labor market requirements, by providing academic and professional insights regarding to education, scientific research and community service. 4- Contributing to reviewing the targeted learning outcomes at the program and course levels, and the extent to which alignment with the National Qualifications Framework and labor market needs. 5- Contribute to reviewing the program description and annual reports, and providing an accurate view of the plan and decisions in terms of its modernity and excellence in achieving the goals and outcomes of the program and providing feedback, which contributes in preparing plans for continuous development and improvement of the program. 6- Evaluation of all curricular and extracurricular program activities considering academic accreditation standards.



		<p>7- Review the results of the program's performance indicators and recommend choosing appropriate external benchmarks.</p> <p>8- Review the characteristics of the program's graduates, which must be made clear in the mission and reflected in the learning outcomes targeted.</p>
Internal Reviewing Committee	College Faculty member experienced in quality assurance, program reviewing, and institutional and program accreditation standards	Reviewing specifications for courses and programs for industrial engineering, systems, and electrical engineering, "communications engineering, electronic engineering," provided that all members of the committee participate in reviewing each program to benefit from their expertise as internal reviewers in cooperation with the program directors



3. Quality Assurance system

College of Engineering Quality Assurance system built to follow the university quality management system guidebook in the four main stages as the Quality cycle (PDCA): Plan, Do, Check and Act. Through these four stages, the planning process begins with an inventory for all quality processes needed for the programs and prepare all the required forms and templates for this stage. After planning stage, the work started for implementation stage to fulfill specifications for courses and programs by programs academic members and all required reports as Program tree, course reports, KPIs, surveys and CLOs & PLOs measuring reports. The reports from the previous stage are checked in the third stage to find out how the program quality procedure provides the required level of program development and sustainability. Finally the fourth stage, act that provides the action plans and assigning the responsibility of development and close the cycle of the quality.

All the forms used in the quality management processes are updated NCAAA forms for this year 2023-2024.



Figure 3: Quality Cycle



3.1 Plan:

For the planning stage, the programs specify the needs and benchmarking regarding the goals and achievements required for the program quality. The program committee define the goals and the new level which is looking for to achieve the target. The organizational structure shows the college quality system as below.

The organizational structure of the college's quality management system

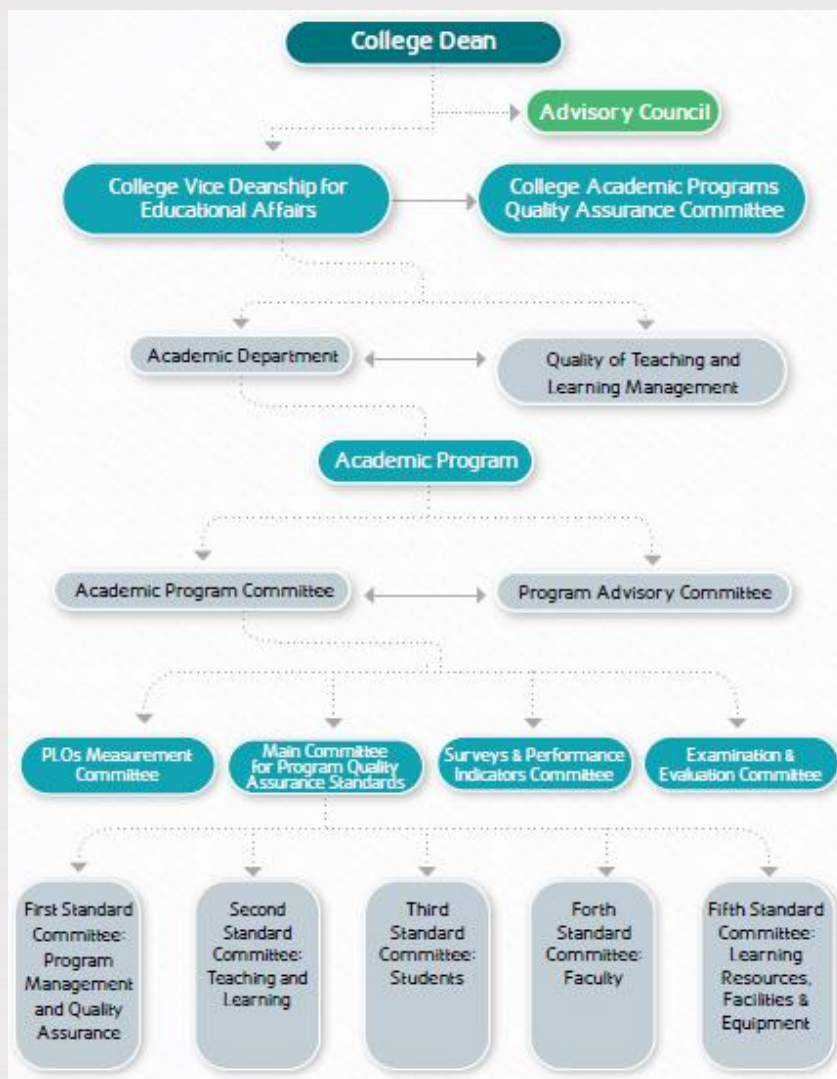


Figure 4: The Organizational Structure of Quality Management System in the college



Development and Quality Deanship as part of its supporting duties for all quality aspects at Princess Nourah Bint Abdul Rahman University (PNU), has adopted the facilitation of quality procedures and processes to ensure the quality of academic programs and unify the efforts made to facilitate the procedures for closing the Quality Cycle in accordance with quality standards and academic accreditation. Furthermore, to lay out development and improvement plans for the program.

The Role of the Development and Quality Deanship (DQD) in Supporting Academic Programs

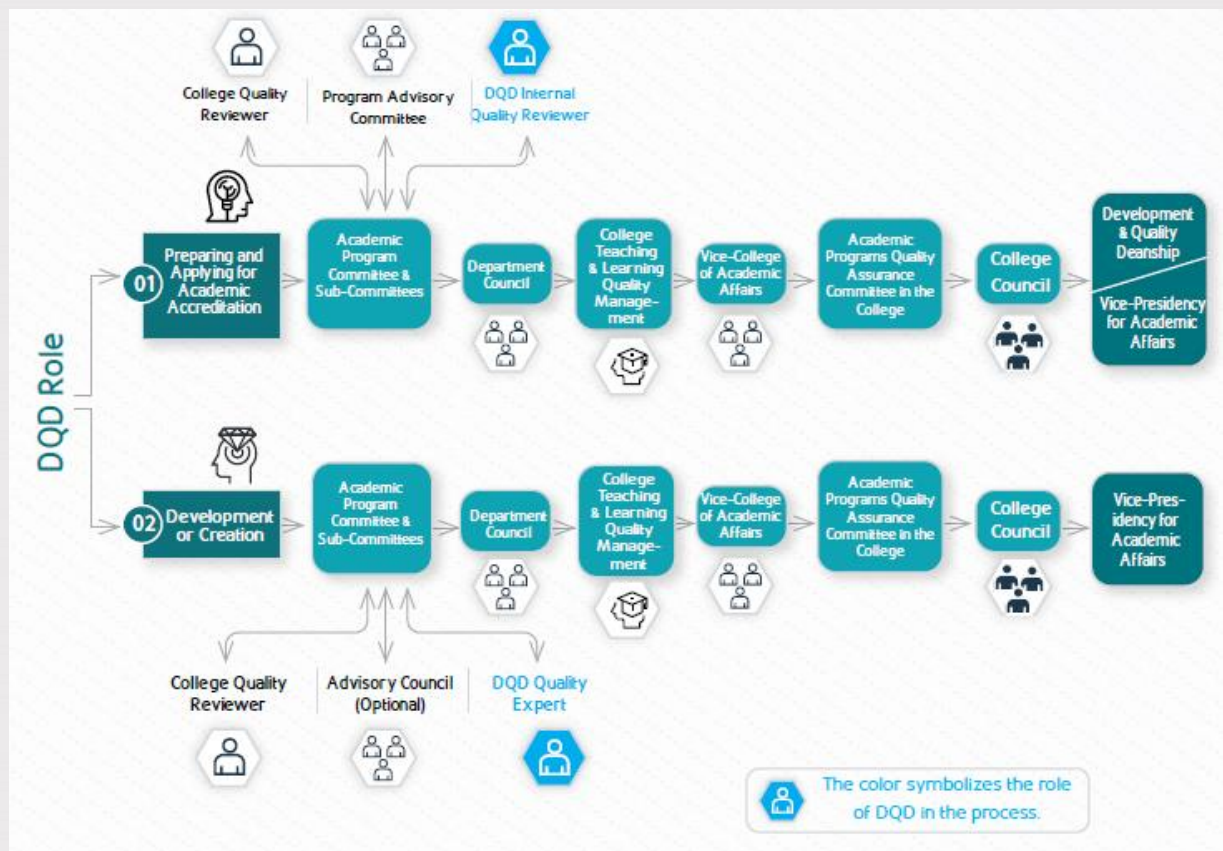


Figure 5: DQD Role Flow chart



The above figure shows the role of the Development and Quality Deanship in supporting the college to reinforce quality management system processes in academic programs, according to two tracks:

- 1- The first track is related to the preparation and applying for program academic accreditation.
- 2- The second track is related to the program development.

3.1.1 The First Track: preparation procedures for program academic accreditation:

In this track, Development and Quality Deanship is keen to provide the academic program with an internal quality reviewer to support the program when applying for accreditation in accordance with the program time plan for accreditation.

Moreover, if the program obtains conditional accreditation, Development and Quality Deanship shall support the program through reviewing the report for removing the condition and ensuring the quality of documents.

In this track, the quality workflow first starts from:

- 1- The Academic Program Committee, which has a continuous and sustained relationship with the program support entities. They provide the program with advice and proposals for amendment or development. The support entities consist of the following: (the college quality reviewer, the program advisory committee, the internal quality reviewer).
- 2- Next, approving the program documents by the Department Council.
- 3- Then, submitting the program documents to the Teaching and Learning Quality Management in the College.
- 4- Afterward, submitting the program document to the academic program quality assurance committee in the college that is named (advising committee for college of engineering programs accreditation) in college of engineering.



5- Submitting the program documents to the College Council for approval.

6- Finally, submitting the program documents to Development and Quality Deanship to ensure the completion of the accreditation requirements before submitting them to NCAAA.

3.1.2 The Second Track: the program development or Creation.

In this track, Development and Quality Deanship is keen to provide the academic program advising through an internal quality reviewer when asking for changes or development in the program.

In this track, the quality workflow first starts from:

- 1- The Academic Program Committee, which has a continuous and sustained relationship with the program support group. This group provides the program with advice and proposals for amendment or development. The support group consists of the following: (the college quality reviewer, Development and Quality Deanship internal quality expert).
- 2- Next, approving the program documents by the Department Council.
- 3- Then, submitting the program documents to the Teaching and Learning Quality Management in the College then vice- college of academic affairs.
- 4- Afterward, submitting the program document to the academic program quality assurance committee in the college that is named (advising committee for college of engineering programs accreditation) in college of engineering.
- 5- Submitting the program documents to the College Council for approval.
- 6- Finally, Submitting the program documents to vice rectorate of academic affairs for approval.



The following table shows the positions and tasks assigned as mentioned in the previous flowchart by the Development and Quality Deanship:

Position	Description	Tasks
The Academic Program Committee	Members in the department	<ol style="list-style-type: none"> 1. Spreading the culture of quality and academic accreditation and building the capabilities of the program members to work in favor of quality assurance and academic accreditation. 2. Planning for the program quality assurance and achieving academic accreditation. 3. Implementing the Quality Management System of PNU (PNU-QMS) and developing a quality management manual for the program that includes the responsibilities of the Academic program committees and ensuring its alignment with the PNU-QMS. 4. Implementing the recommendations of the Program Advisory Committee. 5. Monitoring the implementation of the program quality assurance procedures that include but are not limited to: (the program & course specifications, preparing the program & course annual reports, preparing the self-study report, activating surveys, measuring KPIs, and the program operational plan (Action Plan)). 6. Organizing an external mock review visit for the program. 7. Submitting accreditation documents, preparing the program members for the external review visit, and ensuring the validity of the program's response to NCAAA recommendations, in coordination with the Deanship of Development & Quality. 8. Overseeing the program continuous process of development and improvement. 9. Submitting the comprehensive program report to the Teaching & Learning Quality Manager.
Program Director	Vice-Chair	<ol style="list-style-type: none"> 1. Holding the Academic Program Committee meetings (a minimum of 3 sessions during the semester) to ensure the implementation of the Quality Management System (QMS) and everything related to the process of program development and improvement and closing the quality loop. 2. Monitoring the implementation of the program quality assurance procedures assigned to the Academic Program Committee. 3. Supervising the implementation of the Program Advisory Committee recommendations. 4. Preparing the program development plan in coordination with the Academic Program Committee and monitoring its implementation. 5. Ensuring the completeness of the program's quality documents and archiving them electronically to be approved by the Department Head, and then submitted to the Teaching and Learning Quality Management Office in the College.



		<ol style="list-style-type: none"> 6. Organizing the program mock visit and external review visit, in coordination with the Academic Program Committee. 7. Supervising the students' nominations to be "Quality Friends". 8. Preparing a comprehensive report on the work, recommendations, and development plans of the program committees to be submitted to the Teaching & Learning Quality Manager. 9. Any other task assigned in the field of specialization.
Program Administrative Quality Coordinator	Secretary	<ol style="list-style-type: none"> 1. Attending the Academic Program Committee meetings and taking meeting minutes as directed by the Program Director. 2. Monitoring administrative procedures to facilitate and expedite the work of the Academic Program Committee. 3. Managing the program's emails daily. 4. Reviewing the completeness of quality documents and reporting any error to the Program Director. 5. Archiving the program's quality documents electronically. 6. Communicating effectively with the College Quality Coordinator regarding required quality and accreditation forms. 7. Any other task assigned in the field of specialization.
The Program Learning Outcomes Assessment & Measurement Committee	Members in the department	<ol style="list-style-type: none"> 1. Reviewing the program learning outcomes and ensuring their alignment with the program objectives. 2. Designing the Program and Courses Rubrics and their measurement methods and ensuring their alignment. 3. Identifying the direct and indirect PLOs assessment methods based on the program specification and ensuring their appropriateness, as well as approving any amendment if needed, such as updating the program specification. 4. Addressing the PLOs assessment methods and making recommendations to the program committee. 5. Developing the PLOs measurement plan and determining the courses and levels through which the learning outcomes will be measured. 6. Following up the action plans and development plans of measuring the PLOs. 7. Preparing the program final reports on achieving the learning outcomes and identifying points of strengths, needs and suggestions for development to present them to the Academic Program Committee.
The Examination & Evaluation Committee	Members in the department	<ol style="list-style-type: none"> 1. Developing a plan to review the exams and distributing the tasks among faculty members. 2. Ensuring that the value points for answering each question of the exam are matched to the marking scheme approved by the Program Learning Outcomes Assessment & Measurement Committee. 3. Reviewing the questions of exams and ensuring their alignment with the intended learning outcomes. 4. Calculating and analyzing the results of the exams each semester and providing the appropriate recommendations. 5. Reviewing the results of exams according to the exams review plan and verifying students' results with the mark sheets in all the courses before submitting the results. 6. Calculating and analyzing the results of field training and graduation projects and courses that are not assessed by final exams each semester and providing the appropriate recommendations. 7. Identifying the courses that



		<p>have high deviations, reviewing the comments on students grades in these courses' reports, and preparing a report on the reasons of deviation.</p> <p>8. Investigating students' exam-related issues (students excused absences, re-marking requests, grievances of students related to grades) before submitting them to the department council.</p> <p>9. Receiving and investigating students' exam-related complaints and recommending the legal actions to be taken before submitting them to the department council.</p> <p>10. Suggesting the appropriate training for faculty members on assessment methods such as, workshops for developing exams questions.</p> <p>11. Preparing and submitting an annual report on the committee activities to the program committee.</p>
The Surveys & Performance Indicators Committee	members in the department	<ol style="list-style-type: none"> 1. Preparing and monitoring the activation plan for the program's surveys and performance indicators. 2. Conducting a performance benchmarking and comparison at the program level. 3. Monitoring surveys response rates and increasing them by publishing the surveys links among target groups. 4. Collecting and analyzing the program's performance indicators values. 5. Presenting and addressing the results to the Academic Program Committee. 6. Preparing the necessary program surveys & KPIs reports and ensuring the implementation of the development plans. 7. Preparing and submitting the final reports the Academic Program Committee.
Chair of the Main Committee for Program Quality Assurance Standards	Department Head	<ol style="list-style-type: none"> 1. Leading and organizing the program accreditation activities. 2. Preparing an implementation plan with a specific timeline to complete the accreditation requirements. 3. Overseeing the sub-committees to ensure the implementation of the required tasks within the specified dates. 4. Supervising and monitoring the implementation of the action plans submitted by the sub-committees. 5. Supervising the training of the academic, technical, and administrative members in the College and qualifying them regarding accreditation requirements and standards. 6. Supervising the dissemination of quality and accreditation culture. 7. Documenting stages of completion in approved meeting minutes and following up on them. 8. Reviewing the interim and final completion reports. 9. Supervising the mock visit and external review visits, in coordination with the Program Director. 10. Arranging for the initial evaluation visit by the Deanship of Development and Quality. 11. Leading the meetings, distributing tasks, and communicating with the work team. 12. Supervising the preparation of the evidence room to receive the review team, in coordination with the Program Director. 13. Following-up on the annual follow-up report for the accredited program. 14. Monitoring the Achievements of fulfilling the conditions for the accredited program (if applicable).



Chairs of the Sub-Committees		<ol style="list-style-type: none"> 1. Examining the program status on fulfilling each standard. 2. Developing an action plan to meet each standard and ensure achieving academic accreditation. 3. Preparing the program's members and stakeholders (students / alumni / employers) for the external review visit by holding workshops to inform them about the program self-study report. 4. Preparing the final version of the program self-study report by preparing the part of the assigned standard. 5. Fulfilling the recommendations of the Review Panel Report after the accreditation visit. 6. Leading the meetings, distributing tasks, and communicating with the work team. 7. Meeting the requirements of the annual follow-up report for the accredited program. 8. Meeting the requirements of fulfilling the conditions for the accredited program (if applicable).
Members of the Sub-Committees	Members in the department	<ol style="list-style-type: none"> 1. Gathering the appropriate evidence based on accreditation requirements and standards. 2. Monitoring the process of activating the program's surveys and reports. 3. Completing KPIs data collection and reports. 9. Preparing the initial draft of the program self-study report by preparing the part of the assigned standard. 4. Fulfilling the independent opinion comments on the program self-study report. 5. Working on the annual follow-up report for the accredited program. 6. Working on fulfilling the conditions for the accredited program (if applicable). 7. Preparing monthly and periodic achievements reports. 8. Attending the meetings.
The Program Advisory Committee	College Internal members and external members according to the required	<ol style="list-style-type: none"> 1. Identifying the needs of professional institutions and providing advice and suggestions to assist in the development of the program and its study plan, to meet labor market needs. 2. Encouraging professional institutions of both public and private sectors to participate in the training and educational programs offered by the program, including short courses and workshops, as well as lectures and seminars. 3. Reviewing the program's mission, goals, objectives, and performance indicators in light of new scientific and technological developments and labor market requirements, by providing an academic and professional insight regarding education, scientific research and community service. 4. Reviewing the program and course intended learning outcomes, and their compatibility with the National Qualifications Framework and labor market needs. 5. Reviewing the program specification and annual reports and providing feedback on the study plan & courses in terms of their novelty and distinction in achieving the program's objectives and outcomes, which helps in preparing the program's continuous development and improvement plans.



		<p>6. Evaluating all the program activities, both curricular and extracurricular, considering the academic accreditation standards.</p> <p>7. Reviewing the results of the program performance indicators and recommend the selection of appropriate external benchmarks.</p> <p>8. Reviewing the program's graduate attributes, which should be clear in its mission statement and reflected in its intended learning outcomes</p>
Internal reviewer for the program	internal reviewer for the program when it is eligible for an international or national accreditation	<ol style="list-style-type: none"> 1. Meeting with the Academic Program Committee to coordinate the internal review process. 2. Reviewing the program's quality management system to ensure the completion of the process and closing the quality loop. 3. Reviewing the program tree: (program mission, objectives and graduate attributes, and their alignment with the department/college/university missions). 4. Reviewing the program learning outcomes (PLOs), their performance indicators and rubrics, as well as the PLOs measurement plan, reports, and development plans. 5. Reviewing the program and course specifications. 6. Reviewing the program annual report and samples of the course reports. 7. Reviewing the KPIs reports, surveys, and their development plans. 8. Providing the necessary consultations for the program in the field of quality to prepare the program for any stage in the quality and accreditation process. 9. Offering training workshops mandated by the Deanship of Development & Quality and transferring expertise in the field of quality and academic accreditation. 10. Any other task assigned in the field of specialization.
college quality reviewer	member of the college and an internal reviewer with experience in the field of quality	<ol style="list-style-type: none"> 1. Contributing to the formulation of the college's general policies on quality assurance and academic accreditation through her participation in the "Committee for the Development of Academic Programs and Graduate Studies Programs". 2. Providing advice and recommendations regarding the implementation plans of the college through her participation in the "Committee for the Development of the College Strategic Plan". 3. Reviewing topics submitted to the "Standing Committee for Study Plans and Curricula", such as but not be limited to: (programs development - creating new programs - creating an exit point – major program modifications). 4. Organizing workshops in the field of quality for the college members, as well as organizing special meetings for the program when needed.
The Deanship's	Faculty member experience	<ol style="list-style-type: none"> 1. Contributing to the formulation of the Deanship's general policies.



Quality Expert	d in quality assurance, program reviewing, and institutional and program accreditation standards	<ol style="list-style-type: none"> 2. Providing consultations and suggestions on the Deanship's strategic plans. 3. Supporting the Deanship organizationally by reviewing its website, and attached documents and forms, as well as reviewing accomplishment reports and providing feedback and suggestions for improvement. 4. Reviewing topics raised by the colleges regarding the development or creation of programs. 5. Assisting in preparing training courses in the field of quality assurance to transfer experience, as well as reviewing training packages. 6. Any other task assigned in the field of specialization.
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All related links regards DQD Role Flow chart are found in the following QR code:



DQD Role Flow chart



3.2 Do (Implementation):

3.2.1 Program Tree

The program tree is considered one of the most important pillars in developing an academic program and achieving quality assurance standards. It clarifies the connection between the program mission, objectives and learning outcomes, which is reflected in the course learning outcomes.

The program tree includes the alignment of the following key elements:

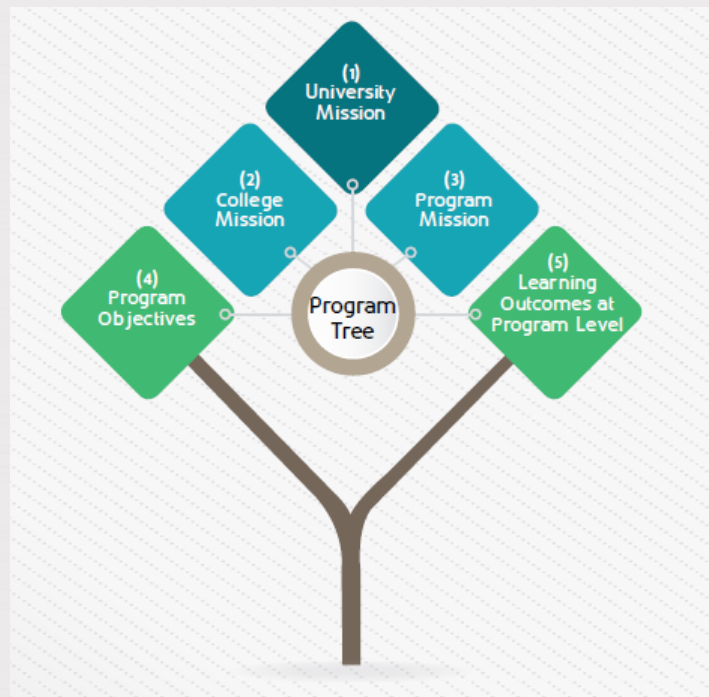


Figure 6: Program Tree



3.2.2 Program, Course and Field Experience Specifications:

All specifications documents for each program and its courses are created according to the latest version of the NCAAA forms. Considering that the programs objectives and learning outcomes are compatible with the mission of the college and university through each Program aligned matrices, the achievement of the program's objectives shall directly contribute to the achievement of the university mission and graduate attributes (Alignment matrix for each program).



3.2.3 Program Learning Outcomes Measurement Procedure

For the importance of measuring and monitoring students' achievement and performance accurately, the program learning outcomes are measured periodically by using the electronic quality system (Jadeer). This process is subject to the principles and policies undertaken by the program Learning Outcomes Assessment & Measuring Committee.

The efficiency and accuracy of the measurement and evaluation processes in terms of objectivity, transparency, and effectiveness are verified by the used mechanisms and tools that ensure the continuous quality of the processes.

Program Learning Outcomes Measurement designed to be illustrated as the following:

- Direct method
- Indirect method

For the direct measuring method, the Program Learning Outcomes Mapping Matrix links the learning outcomes of the program with selected mandatory courses with the program identity according to the following levels:

- P = Practiced
- M = Mastered

The Learning Outcomes Assessment & Measuring Committee and the course coordinators create a measuring plan within a maximum of two years for one measurement cycle for the core courses in the practiced and Mastered level that have been selected for the measurement process. The results of students' achievement in these courses, extracted from the electronic quality system (Jadeer), are projected onto the Program Learning Outcomes (PLOs) according to the measuring plan as follows:

- Measure the achievement of each PLO from the courses assessment results.
- Analyze the results to get the strengths, weakness, and points of improvements.
- Formulate recommendations and actions for improvement process based on different results for each of the PLOs.



- PLO assessment report is written at the end of the academic year and includes all the following components:
 - Results
 - Analysis
 - Recommendations
 - Actions with a timeline and assigned responsibilities.

Program Learning Outcome Assessment & Measurement committee follows-up the action plan implementation. Additionally, the program conducts a comprehensive review and assessment of the PLOs as a measure of program quality improvement every program cycle.

For the indirect measuring method, surveys are the most important tool for collecting data and information.

The Quality surveys used in the college for all programs are built in the university Electronic Quality System (Jadeer) and are categorized for two services:

- The stakeholders' (students, alumni, and employer) satisfaction with the quality of the educational process.
- The stakeholders' (student, faculty, and administrative staff) satisfaction with the university's services and environment.

The program assesses its performance annually by using validated surveys, including:

- The students' satisfaction with the quality of the courses.
- The students' evaluation of the program (at the Middle of the Program)
- The students' evaluation of the program (at The End of Program)
- The graduate's evaluation of the program
- The employers' evaluation of the program's graduates
- The satisfaction with the services and environment of the University (Students, Faculty, and administrative staff)



The surveys are activated through the electronic quality system (Jadeer), within a time plan announced by the Measurement and Evaluation Administration of Development and Quality Deanship.

To increase the number of responses in the surveys at the graduate's level and for the faculties and administrative staff satisfaction about the University Services and Environment, the system surveys are re-built using google forms and delivered to the stakeholders.

Graduate evaluation for the year 1445

The employee Evaluation for the year 1445

Academic Saff evaluation for the year 1445



Program Surveys & Performance Indicators Committee design development plans according to the results to improve services to stakeholders as follows:

- Distribution of surveys to target population at the specific time.
- Collection of the surveys data and analyzing the results to find the strength points and areas for improvements.
- The surveys reports are then submitted to the program committee to be discussed and write a complete assessment report for the surveys including the following (Results, Analysis: strengths and weaknesses, Recommendations, and Action plans)
- The follow up of the action plan takes place annually by the program committee.

3.2.4 Key Performance Indicators (KPIs):

Performance indicators are important tools for evaluating the quality of educational institutions and programs and monitoring their performance. Key performance indicators (KPIs) are measured using several tools, such as surveys, statistical data, etc. according to the nature and objective of each indicator.

The National Center for Academic Accreditation and Assessment (NCAAA) has (11 indicators) at the program level, that contribute to measure the performance of the academic program, all of which are consistent with the program accreditation standards (Alignment matrix for each program is required). The program could use another performance indicators for its quality assurance.

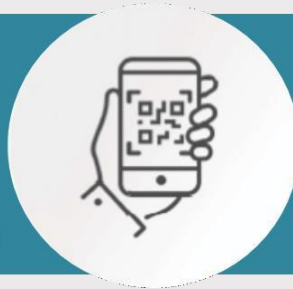
KPIs are measured using different methods based on the objective of the KPI including surveys and statistical data, etc. KPIs are measured during the academic year by Program Surveys & Performance Indicators Committee to evaluate the quality of academic programs and monitor their performance as follows:



- Analyze the KPIs results to identify strengths and weaknesses.
- Prepares a comprehensive report on the program KPIs that includes the following points:
 - Measurement.
 - Results.
 - Analysis (identifying strengths and weaknesses).
 - Comparisons by positions.
 - Positive or negative change in performance.
 - Recommendations.
 - Development plan.



Program KPI
Tables



Programmatic
KPI



3.3 Check

At this stage, The Program Learning Outcomes Assessment & Measurement Committee collects and analyzes the results of measurements for the learning outcomes to identify points of strengths and areas of improvement in the program. For this process the following reports are required:

- Course Report.
- Field Experience Report.
- Annual Program Report, including:
 - Learning Outcomes Measurement Results.
 - Surveys Results.
 - KPIs Results.

3.3.1 The Course Report:

It is required as one of the course portfolio files that is prepared by the course instructor.

The course report includes a few elements, the most important of which are:

- 1) Students' results, comments, and recommendations on the results.
- 2) Table of course learning outcomes assessment results and recommendations based on the results.
- 3) Topics not covered (if any) and their impact on learning outcomes and the compensating actions.
- 4) Teaching strategies and assessment methods.
- 5) Methods of verification of the credibility of students' results.
- 6) Course development plan (if any).

The course report is kept on the electronic quality system (Jadeer) with all other portfolio files upload as follows:



- Updated CV for the instructor.
- Course specification
- Midterm and final exams and model answers
- Sample of students' grades in midterms and final exams.
- Sample of students grading rubric in practical Exams and assignments.
- Exam peer evaluation.
- Students' success rate in the course.

The program director has an access on the system to reach all files and deliver them to the different program committees as the responsibility of each committee.

3.3.2 The field experience training:

College of engineering has a training guideline by the field experience training unit are shown in the following QR code.



For the field experience training report, training guidelines forms are filled by the faculty member in participation with the field supervisor. The field experience training report includes the following number of elements:



1. Training delivery and assessment, including:
 - Field experience and supervisor identification.
 - Training and assessment methods.
 - Differences in evaluation and verification of the credibility of students' results.
2. Students' results and comments and recommendations on the results.
3. Learning outcomes assessment results and recommendations.
4. Students' evaluation of the quality of field experience training and supervisory staff.
5. Difficulties and challenges and their impact on the program and the compensating actions taken.
6. field experience training improvement plan including improvement actions and plans for the next semester/year.

3.3.3 Annual Program Report:

The program annual report will be filled by the program director in coordination with the members of the program committee. The annual program report includes number of important statistics and results, which contribute to drawing the road map for the program and identifying strengths and areas of improvement, and the recommendations that are detailed in the implementation procedures of the program. The annual program report main elements are:

1. Implementation of the previous action plan.
2. Program Statistics, including Students statistics and Analysis of program statistics.
3. Program learning outcomes assessment with The Program Development Plans prepared be the Program Learning Outcomes Assessment & Measurement Committee and attach them to the annual program report.
4. Summary of course reports, focusing on Teaching of planned courses and their reports, Courses with variations, and Result analysis of course reports.
5. Program activities and the analysis of the evaluation results in the field of Student counseling and support, Professional development activities for faculty and other staff, Research and innovation, and Community partnership.



6. Programs evaluate and analyze conducting evaluation surveys and aggregated results, as follows:

- Results of the student evaluation of the courses and the developmental recommendations.
- Results of the student evaluation of the program and the program response.
- Results of any other evaluations and the program response.
- Results of the program key performance indicators

The process of quantitative data analysis begins with calculating the performance result to determine the extent to which the indicator has achieved its target value during the measurement period and the extent to which the program has achieved the targeted outcomes. The process of benchmarking for the program is done, according to what has been stated by the program committee in the planning stage, through comparing the actual values of performance indicators to the previous targets and calculating the result using fixed equations based on the polarity of the indicator, then analyzing the gaps and including the improvement proposals within the program development plan.

7. Difficulties and challenges that faced the program, their impact on the program and the compensating action taken.

8. Program improvement plan, with consideration to the following:

- Priorities for improvement.
- Actions.
- Actions responsibility.
- Date (end and start).
- Achievement indicators.
- Target benchmark.





Field Experience Report



Course Report



Annual Program Report



3.4 Act

The improvement phase focuses on monitoring the implementation of development plans derived from various sources such as: the reports of the programs, relevant committees, surveys, KPIs, or feedback from stakeholders) to identify and execute improvement steps through action plans with defined timelines and responsibilities.

It also includes ensuring compliance with academic program self-evaluation requirements based on program quality assurance standards and preparing for program accreditation. This phase utilizes development plan templates and accreditation documentation.

The role of the Academic Programs Quality Assurance Committee in the College is highlighted in ensuring the programs compliance with all required reports and verifying their accuracy, and in following up on the implementation of recommendations to close the quality cycle, as illustrated in the continuous improvement process flowchart below:



Figure7: The Process of Monitoring the Continuous Improvement of Academic Programs at PNU



Quality Assurance Committee to schedule periodic reviews of the college's academic programs, according to the following steps:

- 1) All requirements must be submitted and verified for completeness, including: (Program and course specifications - operational and implementation plans- course reports and assessment of learning outcomes at the end of each semester - program annual report and development plans - quarterly report on the activation of quality and advisory committees), and other documents, through the Academic Program Committee authorized to submit the documents and program requirements.
- 2) Next, approving the program documents by the Department Council.
- 3) Then, submitting the program documents to the Quality of Teaching and Learning Management of the College, which in turn submits the program documents to the Vice-Deanship of Academic Affairs of the college.
- 4) Reviewing the program documents by the Quality Assurance Committee to verify the completeness and provide feedback.
- 5) Afterward, submitting the program documents to the College Council for approval.
- 6) Finally, submitting the program documents the DQD for verification and feedback and then to the Vice-Presidency for Academic Affairs (for diploma and bachelor's programs, providing feedback, and approving the final reports to ensure, review, evaluate, and improve academic programs and courses at all levels.



3.4.1 The Program Self-Evaluation Scales (SES):

At this fourth stage of the Quality Cycle, a Self-Evaluation Scales for Programs, that is merged within the Self-Study Report, used to conduct an evaluation objectively based on program quality assurance standards. The SES used for planning, self-review, and supporting quality improvement strategies for academic programs. Self-evaluation procedures begin in the middle of the academic program period (i.e.: two years before applying for accreditation and before self-study preparation).

The Main Committee for Accreditation assigns the evaluation of each standard to the sub-committees. The evaluation of the quality level is based on specific elements that the evaluation process depends on for all the criteria listed under each standard. These elements of evaluation of the criteria are composed of the following:

- The extent of availability of the criterion elements and components
- The quality level of application for each element.
- The regularity of application and assessment, and the availability of evidence.
- The continuous improvement and level of results in the light of indicators and benchmarks
- The Excellence and creativity in the elements of the criterion practices

The program should support the SES with evidence, proofs, and indicators demonstrating the level of quality.



The quality of program performance is evaluated in two steps:

1. Evaluation of the criterion.
2. Evaluation of the standard

It is to be noted that no program shall be admitted for accreditation unless it has obtained a compliance level of at least (3 points) in each of the five standards and in each of the essential criteria.

The Program Accreditation Standards:

No.	Main criteria	Sub-Criteria	No. of Criteria
1	Program Management & Quality Assurance	Program Management	9
		Program Quality Assurance	3
2	Teaching & Learning	Learning Outcomes	5
		Curriculum	7
		Quality of Teaching and Students' Assessment	6
3	Students	Students	7
4	Teaching Staff	Teaching Staff	6
5	Learning Resources, Facilities & Equipment	Learning Resources, Facilities & Equipment	5
Total	5	8	48

The academic program shall identify the strengths and areas of improvement. It should be noted that the document shall also include an independent opinion part to support self-evaluation processes with an evaluation carried out by a person(s) outside the college.

The following are QR codes for the SES forms:





3.4.2 The Program Self- Study Report (SSRP):

The periodic self-study review of the academic program is considered an entry point to continuous improvement of the performance, and preparation of the necessary development plans. The SSRP is considered one of the most important components of the accreditation requirements that are submitted to NCAAA, as it provides a clear and comprehensive idea of the reality of this program and helps the external review team in evaluating the performance and the extent to which the specified criteria have been met. The following is a QR code for the SSRP form.



QR code for the SSRP form

3.4.2.1 Purpose of the Program Self-Study:

- Evaluating the performance of the academic program and achieving the desired goals.
- Determining the quality level of the program outcomes and the extent to which the study plan objectives are achieved.
- Continuous planning to develop the program outcomes and strengthening the bonds with the community and meeting its needs.



3.4.2.2 The Importance of Self-Study:

The SSRP is the core document for both the internal and external evaluation of the academic program and the cornerstone in the development of the academic process. This is achieved through the following:

- The participation of all faculty members and employees in preparing and writing the SSRP, as quality is a collective responsibility.
- Identifying strengths and areas of improvement and enhancing transparency through internal quality reviews.
- Committing to making distinguished academic and scientific changes aimed at building a culture of distinguished learning in the program.

3.4.2.3 Stages of the Self-Study Process:

Stage 1: Providing the Necessary Resources: This stage aims to provide the necessary human and financial resources to start preparing the program self-study. Also, form the main committee for accreditation standards according to the formation attached in the following QR code.



DQD Role Flow chart



Stage 2: Reviewing the Academic Program: The purpose of this stage is to review the basic components of the academic program in accordance with the requirements of academic accreditation and identify strengths and areas of improvement.

Stage 3: Preparing the Self-Study Report (SSRP):

In this stage, the program prepares a written document of the self-study and supporting annexes (paper or electronic), including sufficient evidence that proves fulfilling the standards of program accreditation, and completing all the contents of the (SSRP) form.

The Main Committee for Accreditation in the program shall divide the preparation of the SSRP among the sub-committees that were formed with respect to each of the program accreditation standards. Each sub-committee prepares an initial draft of the SSRP for the assigned NCAAA standard, including all the supporting data and evidence.

The Main Committee for Accreditation shall unify the reports of the sub- committees into one report, while ensuring the consistency of its contents, eliminating repetition, and completing shortcomings.



Figure 7: Stages of the Self-Study Process



After completing the SES and SSRP, the program shall obtain the approval of the university administration to apply for national academic accreditation and sign the contract, then implements the steps as in the University Quality Management System to reach the target for accredited Programs for college of Engineering.



Figure 8: the steps to reach accredited Programs after sign the contract.

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