Kingdom of Saudi Arabia
University of Tabuk
Faculty of Engineering
Department of Civil Engineering

المملكة العربية السعودية
جامعة تبوك
كلية الهندسة
قسم الهندسة المدنية

Quality Assurance Manual

By

Quality Committee
Civil Engineering Department
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Preface of the CEP Quality Manual

The Department of Civil Engineering (CE) at the University of Tabuk, founded in 2007, has been a cornerstone of excellence in engineering education. Since the first intake of students in the preparatory year of 2008, our comprehensive five-year program has been committed to shaping future leaders in civil engineering. Upon successful completion of academic and University requirements, graduates are awarded a Bachelor of Science in Civil Engineering, equipped with the skills and knowledge to meet the evolving demands of the industry. Our first cohort graduated in 2013, and since then, our alums have gone on to contribute significantly to both public and private sectors, playing essential roles in shaping the nation's infrastructure.

Guided by the visionary goals of Saudi Vision 2030 and the mission of the University of Tabuk, the Civil Engineering program is strategically designed to serve both the Kingdom's ambitious projects and the pressing needs of local communities. With ABET accreditation earned in 2018, the program delivers state-of-the-art courses that not only meet international standards but are also tailored to address the specific demands of Saudi Arabia's growing economy. Our curriculum reflects the highest standards of academic rigor. At the same time, our commitment to continuous quality improvement ensures that our graduates are equipped to tackle the most pressing engineering challenges, both regionally and globally.

The program is proud to contribute to the Kingdom's transformative mega-projects, such as NEOM, the Red Sea Project, and others, that are at the heart of Saudi Arabia's future development. By fostering innovation, sustainability, and cutting-edge technological solutions, our graduates are empowered to become leaders in these visionary initiatives. Their work will shape the infrastructure of tomorrow, driving economic diversification and contributing to the realization of Saudi Arabia's Vision 2030.

In addition to addressing the national agenda, the Civil Engineering Department remains deeply committed to serving local communities and fulfilling the region's infrastructure needs. We work closely with local industries, government agencies, and community organizations to ensure that our graduates are prepared to solve critical challenges in areas such as water

management, urban development, and sustainable construction. By aligning with the University of Tabuk's focus on community engagement and societal impact, the program ensures that our engineers contribute to the holistic development of the region, creating resilient and sustainable solutions that benefit the Kingdom at all levels.

Looking ahead, the Civil Engineering Department at the University of Tabuk will continue to innovate and expand its horizons in alignment with Saudi Vision 2030. By embracing advanced technologies, sustainable design principles, and a strong culture of research, our program will remain at the forefront of civil engineering education, preparing graduates who are not only ready to meet today's challenges but are also equipped to shape the future of Saudi Arabia and beyond.

This manual, developed by the quality committee, serves as a comprehensive guide to ensure the highest standards of quality are upheld throughout the Civil Engineering program. It reflects our dedication to academic excellence, research, and community service. It reinforces our commitment to fulfilling the University of Tabuk's vision and the Kingdom's aspirations for a prosperous, sustainable future.

Terms and definitions

Quality

Quality refers to meeting or exceeding the expectations and requirements of the customer who has invested in a product or service. It involves ensuring that the product or service is fit for its intended purpose and performs reliably as expected by the customer.

Academic Quality

Academic quality describes how effectively the educational opportunities provided to students enable them to achieve their academic goals and awards. It encompasses the provision of appropriate and effective teaching, support, assessment, and learning environments, ensuring that students receive a high standard of education that equips them for future success.

Academic Standards

Academic standards define the specific level of achievement that students must attain to earn an academic award, such as a degree. These standards should be consistent across institutions within the Kingdom, ensuring that all students meet the same rigorous criteria regardless of where they study.

Quality Assurance (QA)

Quality Assurance (QA) encompasses a set of systematic review processes and procedures designed to protect and maintain academic standards while enhancing students' learning opportunities. QA ensures that the education provided is of an acceptable quality and aligns with established benchmarks.

Quality System

A Quality System, also referred to as a Quality Assurance (QA) System or Quality Management System (QMS), is a structured framework that ensures the consistent quality of goods, services, or education provided. In the context of academic institutions, a Quality System ensures that educational services meet defined standards and comply with regulatory requirements. Compliance with Quality System Standards is verified through regular audits conducted by certified organizations recognized by the government. For our institution, this compliance is overseen by the National Commission for Academic Accreditation & Evaluation (NCAAA).

Policies

In the context of an academic institution, especially within a civil engineering program, a policy is a formal statement that establishes the guiding principles and standards for decision-making. It is aligned with the institution's educational objectives, accreditation requirements, and management strategies. Policies ensure that academic and administrative decisions are consistent with the program's mission, fostering a structured and coherent approach to education and research.

Procedures

Procedures in an academic setting are "documented processes" that detail the specific steps to be followed to implement the policies effectively. In a civil engineering program, these procedures might involve the steps for course development, student assessments, laboratory safety protocols, or accreditation processes. They clearly outline "who" is responsible for "what" actions, "when" these actions should occur, and "under what criteria" they should be performed. Procedures ensure that academic activities are carried out systematically and in accordance with the program's policies.

Activities/Tasks

Within academic procedures, activities and tasks represent the actionable steps that bring a procedure to life. An activity might involve a specific action, such as conducting a lab experiment, grading a project, or reviewing curriculum content. A task is a more detailed breakdown of an activity, specifying the exact steps a faculty member or student needs to follow. In a civil engineering program, these tasks are crucial for ensuring that complex academic and practical processes are executed accurately and consistently.

Forms

Forms are vital tools in the academic process, used to document and standardize various aspects of the program. They may include course evaluation forms, lab safety checklists, student feedback surveys, or accreditation documentation. Forms facilitate communication, ensure consistency in data collection, and serve as essential records for audits, accreditation reviews, and continuous improvement efforts within the program.

Records

Records are the critical output documents produced because of the following academic procedures. In a civil engineering program, records might include completed course evaluations, documented lab results, accreditation reports, or student performance data. These records are essential for maintaining accountability, tracking progress, and demonstrating compliance with academic policies and standards. They provide a permanent, traceable record of the program's activities and achievements, supporting both internal reviews and external audits.

Course

A course is a structured educational unit offered within a civil engineering program, designed to impart specific knowledge and skills related to various aspects of the field. Each course typically includes a syllabus outlining learning objectives, assessment methods, and required materials, aimed at equipping students with the competencies necessary for their professional development.

Determinants

Determinants are the various factors that influence the development and evolution of components within a civil engineering program. These can include technological advancements, industry demands, regulatory changes, and educational trends. Understanding these determinants is crucial for ensuring that the program remains relevant and effectively meets the needs of both students and the job market.

Instructor

An instructor, also known as a teacher or educator, is an individual tasked with facilitating the learning process within the civil engineering program. Instructors employ a variety of teaching methods to engage students, enhance understanding, and foster critical thinking. They play a pivotal role in guiding students through their academic journey and supporting their professional growth.

Program Committees

Program committees are groups formed to facilitate collaborative decision-making regarding the civil engineering program. These committees address specific program-related issues and

ensure representation from various stakeholders, including faculty, students, and industry experts. Their collaborative efforts are vital for maintaining the program's relevance and quality.

Faculty Members

Faculty members are central to the success of the civil engineering program through their contributions to education, research, and community service.

In the educational domain, they are responsible for delivering high-quality instruction, developing and updating course content, and designing curricula aligned with academic and professional standards. Faculty also play a key role in student advising and counseling, guiding students in academic planning, career development, and personal growth. Additionally, they actively support and encourage participation in extracurricular activities, including student clubs, engineering competitions, technical workshops, and field visits, which foster leadership, teamwork, and real-world problem-solving skills.

In research, faculty members conduct innovative studies addressing critical civil engineering challenges. They publish scholarly work, lead research projects, and integrate students into research activities, promoting a culture of inquiry and innovation within the program.

Through community service, faculty extend their expertise beyond the University. They collaborate with industry and government agencies, engage in outreach programs, participate in professional associations, and contribute to the public discourse on infrastructure and sustainability. These efforts strengthen university community ties and support local and regional development.

By engaging in education, research, community service, student advising, and extracurricular initiatives, faculty members ensure a well-rounded, future-ready engineering education that prepares students to lead and serve society with integrity and competence.

Abbreviations

UT	University of Tabuk
CE	Civil Engineering
CEP	Civil Engineering Program
CLOs	Course Learning Outcomes
FoE	Faculty of Engineering
NCAAA	National Commission for Academic Accreditation & Evaluation
KPI	Key Performance Indicator
PEO	Program Educational Objectives
PO	Program Outcomes
PLOs	Program Learning Outcomes
KSA	Kingdom of Saudi Arabia
NQF	National Qualification Framework KSA
TQM	: Total Quality Management
APR	Annual Program Report
PES	Program evaluation survey
CES	Course evaluation surveys
SES	Student Experience Survey
CSS	Community Services Survey
SAES	Student Advising Evaluation Survey
AASS	Administrative & Academic Staff Survey
SETS	Student Exit Survey
ES	Employers Survey

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1. Introduction

The quality manual you are reading has been meticulously crafted to serve key purposes within the Civil Engineering Program at the University of Tabuk. Primarily, it acts as a summarized source of information, offering a concise yet comprehensive overview of the quality assurance practices integral to the program. This manual is designed to be a readily accessible reference, providing faculty, staff, and external reviewers with a clear understanding of the quality management systems that support the Civil Engineering Program. This manual highlights essential policies, guidelines, and procedures that enable the Civil Engineering Program to achieve its goals. From curriculum development and student assessment to faculty development and resource management, it outlines the expectations and standards governing the program, ensuring that all stakeholders are aware of their roles and responsibilities. Moreover, the manual aims to maintain high-quality practices across all domains—academic, administrative, and operational. This commitment is crucial for achieving the program's mission and goals and for securing accreditation from relevant academic bodies, which serves as a benchmark indicating that the program meets or exceeds national and international standards. Guided by the broader university framework, the policies and procedures of the Civil Engineering Program align with the University of Tabuk's quality manual, ensuring consistency and allowing the program to leverage best practices established at the institutional level. Total Quality Management (TQM) is central to the ethos of the Civil Engineering Program at the University of Tabuk. It represents a holistic approach that emphasizes the involvement of all members of the organization in the continuous improvement process. Effective TQM begins with leadership commitment, demonstrated by the program's leadership's dedication to quality. They set clear goals, provide necessary resources, and foster a culture of excellence, reflected in regular performance reviews, high standards, and encouragement for innovation among faculty and students. Faculty involvement is crucial to this process, as faculty members are the backbone of the Civil Engineering Program. They are encouraged to engage actively in quality assurance activities, from curriculum development to student assessment. Regular training sessions and

workshops ensure they remain up-to-date with the latest teaching methodologies and quality assurance practices. A student-centered approach is another key element of TQM, focusing on the needs and expectations of the students. The Civil Engineering Program is designed with the student experience at its core, offering high-quality teaching, accessible learning resources, and a supportive environment for academic and professional development. Data-driven decision-making is fundamental to continuous improvement within TQM. The program routinely collects and analyzes data on student performance, faculty effectiveness, resource utilization, and stakeholder feedback. This information is instrumental in identifying areas for improvement, making informed decisions, and tracking the impact of changes over time. Process improvement is inherent to TQM, and the Civil Engineering Program continually reviews and refines its processes to ensure they are efficient, effective, and aligned with the program's goals. This includes aspects ranging from admissions to curriculum delivery, assessment methods, and resource management. Accreditation is vital to quality assurance within the Civil Engineering Program at the University of Tabuk. Maintaining accredited status involves ongoing commitments to regular self-assessment, external reviews, and continuous improvement based on stakeholder feedback. Accreditation provides external validation of the program's quality and is critical for upholding its reputation both nationally and internationally, ensuring that graduates meet rigorous academic and professional standards. To sustain quality across all aspects of the program, a robust quality assurance system has been implemented, incorporating internal audits and external reviews by accrediting bodies and other stakeholders. These mechanisms help assess the effectiveness of the quality management systems in place and provide valuable insights for further improvement. Feedback from students, faculty, employers, and other stakeholders is crucial for driving continuous improvement and is collected through surveys and focus groups. Continuous professional development is encouraged for faculty and staff to keep them informed about the latest advancements in their fields and to support the program's quality. The curriculum is regularly reviewed and updated, ensuring it remains relevant to the evolving needs of students and the industry, with input from faculty, students, and professionals. Stakeholder involvement is fundamental to the quality assurance process in

the Civil Engineering Program. Active engagement with a range of stakeholders, including students, faculty, the advisory board, and accrediting bodies, ensures that the program meets the needs of all parties involved. Student feedback is essential for the continuous improvement of the program, encouraging input on all aspects of their education. Faculty members contribute significantly to program development, drawing on their expertise to shape the curriculum and improve teaching methods. The advisory board provides valuable insights into industry trends and curriculum development, ensuring the education offered is relevant to employers' needs. Close collaboration with accrediting bodies is maintained to ensure adherence to national and international standards.

The Civil Engineering Program at the University of Tabuk is deeply committed to the principles of total quality management and continuous improvement. This quality manual serves as a comprehensive guide to the quality assurance practices that underpin the program, ensuring all stakeholders are informed and aligned with its goals. By maintaining a strong focus on quality across academic, administrative, and operational areas, the program is well-positioned to meet the needs of students, faculty, and industry partners, affirming its status as a leader in civil engineering education.

2. An Overview of the Civil Engineering Program

The Department of Civil Engineering (CE) was founded in 2007, and enrollment in the preparatory year started in the academic year 2008.

The study is of 5 years' duration, including the preparatory year (10 semesters), after which the student obtains a Bachelor of Science in Civil Engineering upon successful satisfaction of program criteria and completion of university requirements. The program serves the goals of the Kingdom of Saudi Arabia's development plan for preparing graduates to fit in different job sectors that serve Saudi society. The program graduated its first cohort of 11 students in the spring of 2012-1013 and 3 students in the summer of 2012-2013. Most of the graduates are already employed in a variety of public and private sectors. The last general review took place in 2018.

The CE program offers a Bachelor of Science (B.Sc.) in Civil Engineering. There are no options or tracks. Students can concentrate on one field from four fields of civil engineering by choosing four departmental electives with the help of their academic advisors. These four fields are:

- Structural & Geotechnical Engineering.
- Construction Engineering & Management.
- Transportation & Highways Engineering.
- Water Resources & Environmental Engineering.

The CE program relies totally on the on-campus mode program during the daytime with traditional Lecture/laboratory education. The CE program is delivered over a consecutive sequence of 8 full semesters (4 years) after completion of a preparatory year (2 semesters). The department follows the credit hour system. Graduation from the program requires 167 credit hours (CHs). Among the total of 167 CHs, 20 CHs represent the university requirements, 62 CHs represent the faculty requirements, and 85 CHs represent the department requirements. Two semesters are offered during each academic year in addition to a summer semester. The duration of each semester is 15 weeks. The period of study in the summer semester is eight weeks with a doubling of the number of hours per week compared to the traditional academic semester.

Students are also required to complete eight weeks of field training in industry under the supervision of both the CE department and the host company. In the last five years, new elective courses have been offered to students. The prerequisites of some courses are raised to the Deanship of Admission and Registration. The laboratories are updated, and new equipment has been received, as discussed in the section on facilities. The environmental engineering laboratory is in the process of being delivered as soon as possible. The UT has signed partnerships with different companies in the industrial and government sectors. These partnerships are beneficial for students and faculty members. The CE program is offered on the University of Tabuk's main campus in the city of Tabuk, Kingdom of Saudi Arabia (KSA). Practical training is offered at a variety of companies throughout the KSA.

3. Mission and Outcomes

Mission of The University of Tabuk

To offer a distinguished university education that meets the needs of society and the job market through an attractive educational, administrative, and technical environment that supports research and innovation.

Mission of the Faculty of Engineering (FoE)

To graduate qualified engineers in accordance with the International Academic Standards and prepare them to meet the changing needs of society. These graduates will be able to compete locally and internationally. The Faculty of Engineering is committed to providing excellent education and pursuing relevant scientific research and partnerships with industry and governmental societies.

Mission of the Department of Civil Engineering

To support the needs of Tabuk region and the Kingdom of Saudi Arabia (KSA) society by providing high quality educational program and contributing to research related to civil engineering profession.

The mission of the department of civil engineering is consistent with the mission of the faculty and the University in community service, high quality education and scientific research.

Program Goals

The Civil Engineering Program is committed to producing graduates who are academically prepared, professionally competent, and socially responsible. These goals serve as a strategic framework to ensure that the program aligns with modern engineering practices, national development priorities, and international academic standards. They guide curriculum development, faculty activities, student engagement, and institutional partnerships, all while fostering innovation, research excellence, and community impact.

The goals of the Civil Engineering Program are as follows:

- **PG1**: Graduating qualified civil engineers equipped with essential skills and knowledge to understand and deal with modern civil engineering trends.
- **PG2**: Serve as a source of engineering expertise in the fields of civil engineering to solve engineering problems.
- **PG3**: Performing scientific research and studies, which address local, regional, and international problems.
- **PG4**: Establishing partnerships with local, regional, and international societies to enhance the education process and scientific research.
- **PG5**: Keeping up with the state-of-practice in civil engineering disciplines through continuous review, evaluation, and modification of the study plan.

Program Educational Objectives (PEOs) or Program Outcomes

Program Educational Objectives (PEOs) or Program Outcomes are broad statements that describe what graduates are expected to attain within five years of graduation. The PEOs support the mission of the institution and are based on the needs of the program's constituencies.

The PEOs for the Civil Engineering Program are that within five years of graduation:

- **PEO 1**: Graduates will establish themselves in successful careers in civil engineering or related fields and will become key team member that can communicate and collaborate effectively in a multidisciplinary environment.

- **PEO 2**: Graduates will take into account economic, environmental, societal and ethical considerations in solving the civil engineering problems.
- **PEO 3**: Graduates will pursue life-long learning, professional development, professional licensure and participation in professional societies or graduate studies.

The mission of the University of Tabuk (UT) emphasizes standard quality education, community service and scientific research. Three Civil Engineering Program PEOs support UT's mission. The achievement of the mission is assessed through direct and indirect measurements, its analysis and benchmarking which include analysis of Program Learning Outcomes (PLOs) and program Key Performance Indicators (KPIs). The mission of the University of Tabuk (UT) emphasizes standard quality education, community service and scientific research. Three Civil Engineering Program PEOs support UT's mission. **Table 1** presents the relationship between the PEOs of the program and the mission of the University.

Table 1. Relationship between the PEOs and the mission of the University

Program Educational Objectives (PEOs)	University of Tabuk Mission		
	To offer a distinguished university education that meets the needs of society and the job market	through an attractive educational, administrative and technical environment	that supports research and innovation
PEO 1: Graduates will establish themselves in successful careers in civil engineering or related fields and will become key team member that can communicate and collaborate effectively in a multidisciplinary environment.	√		
PEO 2: Graduates will take into		√	

account economic, environmental, societal and ethical considerations in solving the civil engineering problems.			
PEO 3: Graduates will pursue life-long learning, professional development, professional licensure and participation in professional societies or graduate studies.			√

4. The organizational Structure

The Civil Engineering Program at the University of Tabuk operates through a structured network of committees, each with distinct roles that contribute to the program's overall success. These committees collaborate closely, ensuring that the curriculum, accreditation standards, assessment practices, lab facilities, and student services are all aligned with the program's mission and the needs of the students. Each committee is responsible for conducting regular meetings, documenting discussions through meeting minutes, and producing an annual report summarizing its activities, achievements, and recommendations for continuous improvement **(*Figure 1)***.

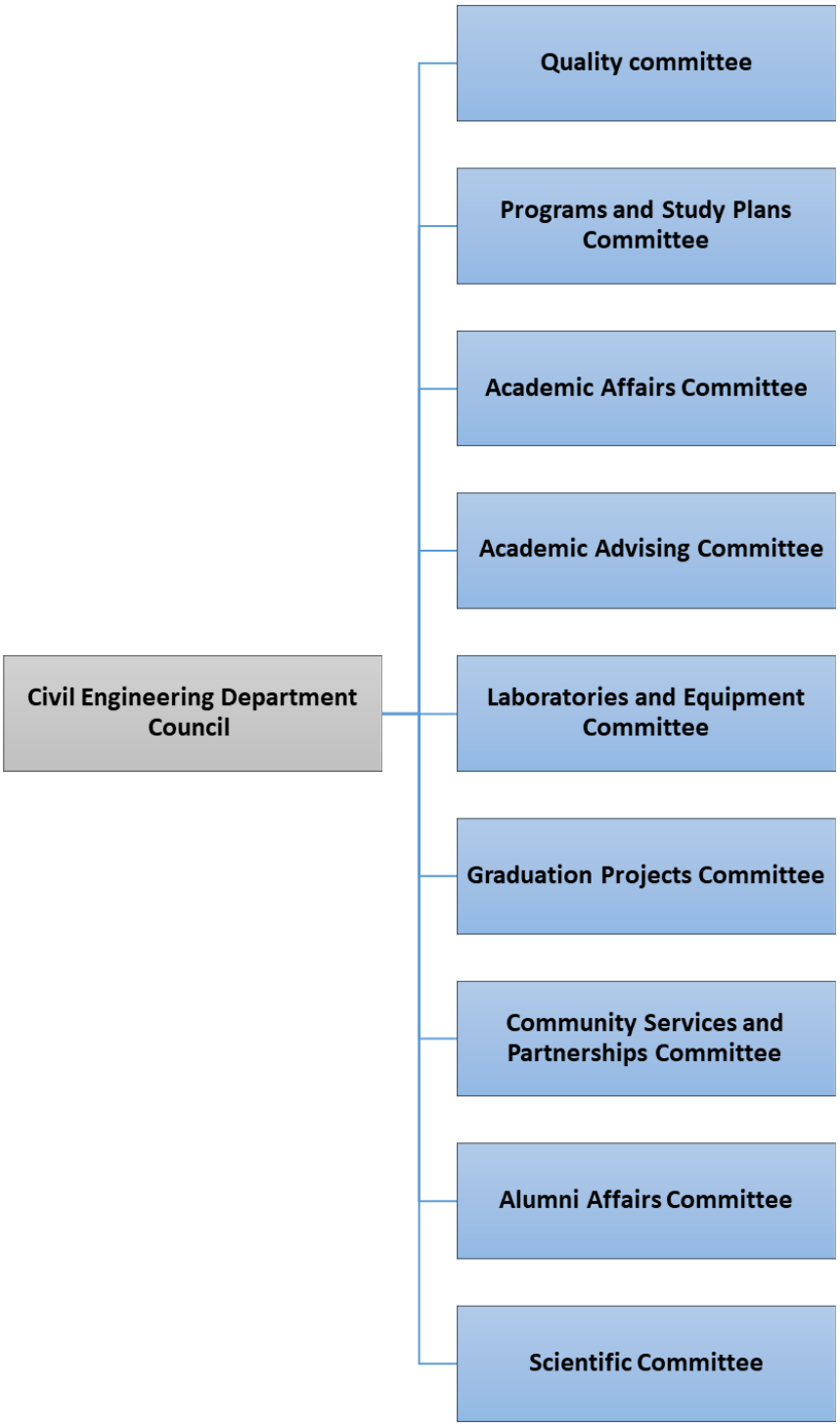

Figure 1. Civil Engineering Committees Flowchart

Quality Committee

- Develop and implement methods to ensure the quality of student learning outcomes across all courses.
- Create rubrics for evaluating student performance to ensure consistency across different courses and projects.
- Collect and analyze data on student performance, including exams, projects, course reports, student surveys, and alumni surveys, to evaluate the effectiveness of teaching methods.
- Conduct regular surveys, including student and alumni surveys, to gather feedback on program effectiveness and areas for improvement.
- Provide feedback to the Programs and Study Plans Committee on areas where curriculum adjustments may be needed based on quality assessments.
- Support the Scientific Committee by providing data and recommendations that may influence research-driven aspects of the curriculum.
- Prepare meeting minutes after each session and compile an annual report detailing quality assurance activities, findings, and recommendations.

Programs and Study Plans Committee

- Design and update the curriculum, informed by feedback from the Quality Committee and student performance data.
- Evaluate and adjust course content regularly to ensure it meets academic standards and industry requirements.
- Review elective offerings, ensuring they align with current industry trends and student interests.
- Align the study plan with university policies, accreditation standards, and the latest assessment data to ensure continuous improvement.
- Collaborate with the Academic Affairs Committee to ensure course offerings meet student needs and academic standards.
- Prepare meeting minutes after each session and compile an annual report detailing curriculum updates, revisions, and alignment with educational standards.

Academic Affairs Committee

- Assist students in selecting their courses according to the study plan at the beginning of each semester.
- Facilitate students' requests to change from one session to another, ensuring they understand their options and the implications.
- Schedule exams and manage room assignments, ensuring that all logistical aspects of examinations are addressed.
- Communicate academic policies and procedures to students to enhance their understanding of course registration and scheduling.
- Gather feedback from students regarding course scheduling and academic affairs, sharing insights with the Programs and Study Plans Committee for continuous improvement.
- Prepare meeting minutes after each session and compile an annual report summarizing academic affairs activities, challenges, and outcomes.

Academic Advising Committee

- Develop comprehensive academic and career advising guidelines to support students in planning their educational and professional paths, including academic and psychological counseling services, and ensure alignment with the curriculum and labor market needs.
- Create and maintain an alumni network that provides mentorship and career support to current students, feeding back insights to the Programs and Study Plans Committee.
- Organize career fairs, workshops, and seminars in collaboration with industry partners and alumni, supporting student job placement.
- Collect feedback from alumni on the effectiveness of the program, including through surveys, and share insights with the Programs and Study Plans Committee for continuous improvement.
- Conduct regular surveys, including alumni surveys, to gather feedback on the program's long-term impact and inform curriculum and career services.
- Prepare meeting minutes after each session and compile an annual report summarizing advising activities, alumni engagement, and career services.

Graduation Projects Committee

- Review and approve graduation project proposals, ensuring they align with academic standards and industry relevance as determined by the Programs and Study Plans Committee.
- Assign faculty mentors to guide students through their projects, ensuring alignment with the curriculum and learning objectives.
- Develop criteria for evaluating graduation projects, coordinating with the Quality Committee to ensure consistency.
- Facilitate partnerships with industry to provide students with real-world project experience, enhancing the practical relevance of their work.
- Organize an exhibition or competition to showcase graduation projects, collaborating with the Alumni Committee for networking and career opportunities.
- Prepare meeting minutes after each session and compile an annual report detailing project proposals, evaluations, and partnerships.

Laboratories and Equipment Committee

- Ensure that laboratories are maintained according to safety standards and provide the necessary support for practical learning.
- Identify and recommend new equipment purchases, aligning with the evolving curriculum needs identified by the Programs and Study Plans Committee.
- Update lab manuals to incorporate new experiments and methodologies, based on curriculum updates and assessment outcomes.
- Develop and implement training programs for students and staff to ensure safe and effective use of lab resources.
- Collaborate with the Quality Committee to evaluate how lab work contributes to learning outcomes, making adjustments as necessary.
- Prepare meeting minutes after each session and compile an annual report summarizing lab maintenance, updates, and contributions to student learning.

Community Services and Partnerships Committee

- Develop and implement outreach programs that involve students and faculty in community projects, showcasing the program's civil engineering expertise.
- Organize volunteer opportunities for students to contribute to community development, linking these activities to learning objectives.
- Host public workshops and seminars on civil engineering topics, engaging the community and enhancing the program's public profile.
- Integrate service-learning projects into the curriculum, collaborating with the Programs and Study Plans Committee to ensure these projects meet educational goals.
- Conduct employer surveys to gather feedback on graduate performance and industry needs, sharing insights with the Programs and Study Plans Committee for curriculum improvement.
- Evaluate the impact of community service initiatives, using feedback to refine and improve future projects, and sharing outcomes with the relevant committees.
- Prepare meeting minutes after each session and compile an annual report detailing community outreach activities, service-learning integration, and impact assessments.

Scientific Committee

- Evaluate applications received from faculty members (applicants), assessing their relevance and potential for advancement.
- Develop research axes to guide the program's research agenda, aligning with both academic goals and industry needs.
- Establish and nurture relationships with partners and industry stakeholders to foster collaboration and enhance research opportunities.
- Facilitate workshops and seminars to promote research initiatives among faculty and students, encouraging active participation in research activities.
- Collect feedback from faculty on research activities and initiatives, sharing insights with the Programs and Study Plans Committee for continuous improvement.
- Prepare meeting minutes after each session and compile an annual report summarizing research activities, collaborations, and outcomes.

Alumni Committee

- Maintain a network of alumni to provide mentorship, career advice, and industry connections for current students.
- Conduct regular surveys and feedback sessions with alumni to assess the program's long-term impact and areas for improvement.
- Collaborate with the Academic Advising Committee and professional services units to organize career fairs, workshops, and other networking events that support students' career development and industry engagement.
- Create and share success stories from alumni to motivate current students and enhance the program's reputation.
- Prepare meeting minutes after each session and compile an annual report summarizing alumni engagement and feedback.

Links Between Committees

- The Quality Committee ensures the effectiveness of the program by providing feedback and data on student outcomes, which influences the curriculum design and updates made by the Programs and Study Plans Committee.
- The Academic Affairs Committee helps students align their course selections with the program's study plan, ensuring the courses are offered as per the curriculum designed by the Programs and Study Plans Committee.
- The Graduation Projects Committee ensures that student projects are in line with the academic program and objectives defined by the Programs and Study Plans Committee.
- The Laboratories and Equipment Committee ensures lab resources and equipment meet the needs of the curriculum developed by the Programs and Study Plans Committee.
- The Community Services and Partnerships Committee works with the Programs and Study Plans Committee to ensure that community service projects are integrated into the curriculum.
- The Scientific Committee informs the Programs and Study Plans Committee about emerging trends in research and industry that should be reflected in the curriculum.

Each committee is responsible for preparing meeting minutes after every session and compiling an annual report summarizing its activities, achievements, and areas for improvement, ensuring transparency and continuous progress.

5. The quality Philosophy

The process of quality improvement in the Civil Engineering Program at the University of Tabuk is a systematic and iterative approach aimed at enhancing the educational experience and outcomes for students. This multifaceted process begins with a comprehensive assessment of current performance levels and the broader educational environment. By evaluating the strengths and weaknesses of the program, stakeholders can identify strategic priorities for improvement, which serve as the foundation for setting clear and achievable objectives.

Once strategic priorities are established, the program develops detailed plans outlining the specific steps required to achieve these objectives. These plans must be comprehensive, addressing various aspects of the program, including curriculum development, teaching methodologies, faculty training, and resource allocation. Implementation of these plans is critical, as it transforms theoretical objectives into actionable steps that directly impact the learning experience.

Monitoring the implementation process is an ongoing effort, involving continuous data collection and analysis to evaluate the effectiveness of the actions taken. This monitoring process is essential for identifying any deviations from expected outcomes, allowing for timely adjustments to be made. In this context, the program must remain agile, ready to adapt strategies as new information and feedback emerge.

A structured approach to assessment is fundamental, with two primary timeframes for more formal evaluations. The first is an annual assessment, which focuses on monitored performance metrics and allows for necessary adjustments to be made in real-time. This regular review process ensures that the program remains aligned with its goals and can quickly respond to emerging challenges or opportunities for improvement.

The second timeframe involves a longer cycle of assessment, where major reviews are conducted. These comprehensive evaluations typically coincide with external accreditation reviews from bodies such as the National Commission for Academic Accreditation and

Assessment (NCAAA) or the Accreditation Board for Engineering and Technology (ABET). These external reviews are critical, as they provide an objective evaluation of the program's quality, aligning its practices with national and international standards.

In preparation for these accreditation cycles, the Civil Engineering Program must strategically plan its quality assurance initiatives. This involves ensuring that internal assessments and quality improvement activities align with the timeline and requirements of the accrediting bodies. By doing so, the program not only demonstrates its commitment to maintaining high educational standards but also utilizes the feedback from these reviews to inform its ongoing development.

A crucial aspect of this quality improvement process is recognizing that quality is a cultural attribute within the program. It requires a collective commitment from all stakeholders—faculty, staff, students, and industry partners—to foster an environment that prioritizes excellence. This culture of quality encourages continuous engagement, open communication, and a shared responsibility for maintaining high standards across all aspects of the program.

The cyclical nature of quality improvement emphasizes that the process is not a one-time effort but an ongoing commitment to excellence. Each phase of the cycle—planning, implementation, monitoring, adjustment, and assessment—feeds into the next, fostering a culture of continuous improvement. Major plans may encompass a series of activities that unfold over several years, with each step carefully assessed at various milestones. This approach ensures that the program remains proactive in addressing emerging challenges and adapting to the evolving landscape of civil engineering education.

The quality improvement process in the Civil Engineering Program is a comprehensive and dynamic endeavor. By systematically assessing current performance, setting strategic priorities, and implementing plans while continuously monitoring outcomes, the program aims to achieve its objectives. The alignment of internal assessments with external accreditation cycles further enhances its commitment to quality, ensuring that it meets the expectations of stakeholders while preparing graduates to excel in their professional endeavors. Ultimately, by embedding a culture of quality within the program, the Civil Engineering Program at the University of Tabuk

positions itself as a leader in civil engineering education, dedicated to fostering excellence and innovation.

6. Documentation, Reporting, and tools for Quality Assurance Continuous Improvement

To maintain and enhance the quality of the CEP, several tools and processes are employed for documentation, reporting, and records management. These tools help in monitoring, evaluating, and improving various aspects of the program, ensuring that it meets both internal and external standards. The primary tools used include:

Course Reports

Course reports provide a comprehensive analysis of each course, covering essential aspects such as student results, grade distribution, comments on student grades, course learning outcomes, and course learning outcomes assessment results. They also include recommendations, topics not covered, and a course improvement plan, if necessary. This detailed documentation helps in identifying strengths and areas for improvement within each course.

Annual Program Report

The annual program report compiles data and evaluations to provide an overview of the program's performance over the academic year. It includes program statistics and assessments, such as the program learning outcomes assessment and analysis according to the PLOs assessment plan, evaluation of courses, students' evaluation of program quality, scientific research and innovation during the reporting year, community partnership, other evaluations (if any), program key performance indicators (KPIs), challenges and difficulties encountered by the program, and the program development plan. This comprehensive report ensures that the program continuously evolves and adapts to meet academic and industry standards.

Standardized Exam Cover Page

All instructors are required to use a standardized exam cover page designed and approved by the EE department. This cover page records critical data, including the course learning outcomes (CLOs) that will be assessed in the exam, mapping between the questions and the CLOs, the maximum grade for each question, and the student's grade for each question. This ensures consistency and clarity in the assessment process.

CLO-PLO Mapping

CLOs for each course are prepared and mapped to the program learning outcomes (PLOs). The CLOs and the mapping are approved by the EE department and included in the course specifications. This alignment ensures that each course contributes effectively to the overall program learning outcomes.

Assessment Excel File

To streamline calculations, the BSc EE program has developed an assessment tool using Microsoft Excel. This tool is employed by the instructor to compute the assessment results for the PLOs associated with the course under evaluation. The Excel file takes the data from the exam cover page (Question-CLO mapping) and CLO-PLO mapping as input, generating the percentage of PLO attainment in the course. This efficient tool aids in precise and consistent assessment across courses.

Student Outcome Assessment Report (SOAR)

The instructors of the courses considered in the assessment process use the data obtained from the Excel sheet to prepare the SOAR form. This form can be considered the course-level assessment of PLOs. The SOAR form includes the following data: course information, summary of assessment results, instructor's comments and recommendations for improvement of the assessment process, instructor's comments on the assessment results, and recommendations for improvement of student outcome attainment. The SOAR form is incorporated into the course binder, and the information it contains is integrated into the course report. This form simplifies the process for the assessment committee to gather assessment data from individual courses.

PLO Assessment Report

The PLOs Assessment Report for the Civil Engineering Program serves as a vital tool for aggregating assessment data collected from various courses and evaluation methods. It provides a program-level overview of how effectively students are achieving the intended learning outcomes by the time they graduate. This comprehensive report offers insights into the attainment levels of each PLO, helping to identify both strengths and areas requiring enhancement. By analyzing trends and outcomes across academic years, the program can implement data-driven improvements, refine course content, strengthen teaching strategies, and align learning activities with professional standards. The report also supports accreditation requirements and ensures that Civil Engineering graduates are fully equipped with the essential knowledge, technical skills, and problem-solving abilities required by the industry. Ultimately, it enables continuous improvement and quality assurance across all aspects of the educational process.

End of Semester Reports

At the end of each semester, program committees prepare comprehensive reports to summarize the activities, achievements, challenges, and future plans. These reports ensure that all efforts and outcomes are documented and reviewed for continuous improvement.

Comprehensive Follow-Up Reports

These reports track the implementation of operational plan initiatives, improvement plans from different components such as KPIs report, PLO assessment report, surveys analysis report, etc. Regular follow-up ensures that the plans are executed, and necessary adjustments are made promptly.

Surveys and Feedback Forms and Analysis Reports

Surveys and feedback forms are vital tools for gathering input from students, faculty, alumni, and employers. These insights are then analyzed to create comprehensive reports that identify program strengths and weaknesses. These reports serve as the foundation for developing actionable improvement plans, ensuring the program continuously enhances student experiences, aligns curriculum with industry needs, and strengthens its reputation for graduate success.

Key Performance Indicators (KPIs) Reports

Key Performance Indicators (KPIs) are essential metrics used to evaluate the program's performance relative to target, internal, and external benchmarks. These metrics include, but are not limited to, student learning experiences as assessed through course evaluations, program completion rates, first-year student retention, employability rates, postgraduate enrollment, the student-to-teaching staff ratio, and faculty research productivity.

The report provides a comprehensive analysis of these KPIs to pinpoint areas of strength and identify opportunities for improvement. This analysis informs the development of actionable improvement plans aimed at driving continuous enhancement of the program.

Assessment Rubrics for Professional PLOs

Rubrics provide clear criteria for evaluating professional program learning outcomes. They help ensure consistency and objectivity of the assessment process.

7. Closing the quality loop

In the ever-evolving field of civil engineering, maintaining high standards of education and program effectiveness is paramount. The CEP is committed to fostering excellence through a robust process of continuous improvement. This process involves systematically reviewing and refining the program based on feedback, data analysis, and action plan implementation. The goal is to ensure that the program not only meets but exceeds the expectations of students, alumni, and employers, while also staying aligned with industry standards and advancements.

Continuous improvement is a fundamental aspect of quality assurance in higher education. It entails a cycle of regular assessment, feedback collection, and data analysis to identify areas for enhancement and implement effective solutions. For the CEP, this process is vital to ensure that the program remains relevant, rigorous, and responsive to the needs of its stakeholders. The feedback loop involves multiple stages, from gathering input through various surveys to analyzing data, developing action plans, and monitoring their implementation. Each stage is crucial for refining the program and achieving its educational objectives.

Feedback collection is the cornerstone of the continuous improvement process. By systematically gathering insights from current students, alumni, employers, and other stakeholders, the CEP can gain a comprehensive understanding of the program's strengths and areas for improvement. This feedback is collected through a series of targeted surveys designed to capture various dimensions of the educational experience. These include course evaluations, student experience surveys, program evaluations, alumni feedback, and employer satisfaction assessments. Each survey is strategically timed to capture relevant information at different stages of the student lifecycle and post-graduation.

Once feedback is collected, the next step involves data aggregation and analysis. The data from surveys, along with detailed course specifications and reports, provide a rich source of information for evaluating the program's performance. Course specifications outline the objectives, content, and learning outcomes for each course, ensuring they align with the

program's overall goals. Course reports offer an in-depth analysis of course performance, including student outcomes and feedback. The Annual Program Report (APR) synthesizes this data to provide a comprehensive overview of the program's effectiveness, highlighting both successes and areas needing improvement.

Committee involvement is essential for translating data into actionable improvements. Various committees play critical roles in reviewing feedback, analyzing data, and implementing changes. The Programs and Study Plans Committee, for example, is responsible for reviewing and approving curriculum modifications based on feedback and course reports. The Laboratories and Equipment Committee ensures that laboratory resources and equipment meet program standards. The Quality Committee oversees assessment and accreditation processes, while other committees focus on specific aspects of the program, such as alumni affairs, academic advising, and senior design projects.

Action plan development and implementation are key steps in addressing identified issues. Based on the analysis of data and feedback, committees develop detailed action plans outlining specific actions, responsibilities, and timelines. These plans may involve updating course content, enhancing learning resources, or modifying program structures. The implementation of these action plans is closely monitored to ensure that changes are effectively executed and lead to the desired improvements.

Monitoring and follow-up are critical for assessing the impact of implemented changes. Continuous monitoring involves tracking progress against the goals set in the action plans and using feedback from subsequent surveys and evaluations to gauge the effectiveness of the changes. Regular follow-ups ensure that previous action plans are reviewed and adjusted as needed to maintain momentum and achieve ongoing improvements.

Reporting and evaluation complete the cycle of continuous improvement. APR document the progress and impact of changes, providing a comprehensive assessment of program effectiveness and alignment with strategic goals. Regular reviews of the APR and action plans ensure that the program remains relevant and responsive to evolving needs and external benchmarks.

Feedback Collection

In CEP, various committees play crucial roles in maintaining and enhancing the program's quality and effectiveness. Each committee is tasked with specific responsibilities that contribute to the overall success and continuous improvement of the program. While detailed descriptions of their functions and duties have been outlined previously, this introduction provides a brief overview of the key tasks and responsibilities of these committees. Their coordinated efforts ensure that the program remains responsive to industry standards, meets educational objectives, and delivers a high-quality learning experience for students

CEP Surveys:

- **Program Evaluation Survey (PES)**

The Program Evaluation Survey gathers feedback from students, faculty, and alumni regarding the overall effectiveness of the Civil Engineering Program. This survey assesses how well the program aligns with its learning outcomes, industry expectations, and educational objectives. It helps identify areas of improvement in curriculum design, teaching methods, and resources, ensuring continuous enhancement of the program quality.

- **Course Evaluation Surveys (CES)**

The Course Evaluation Surveys allow students to provide their opinions on individual courses within the Civil Engineering Program. These surveys focus on various aspects of the courses, including content relevance, teaching quality, assessment methods, and course materials. Feedback from these surveys is used by instructors and department heads to improve course delivery and ensure that they meet academic and professional standards.

- **Student Experience Survey (SES)**

The Student Experience Survey collects information about the overall student experience during their time in the Civil Engineering Program. This survey covers areas such as academic support, campus facilities, extracurricular activities, and interactions with faculty. The goal is to improve the environment in which students learn and grow, addressing any challenges that may hinder student satisfaction and success.

- **Community Services Survey (CSS)**

The Community Services Survey evaluates the Civil Engineering Program's engagement with the broader community. It assesses the program's involvement in outreach initiatives, community projects, and partnerships with local organizations. This survey helps identify ways in which the program can better serve the community and contribute to its development while fostering a sense of social responsibility among students and faculty.

- **Student Advising Evaluation Survey (SAES)**

The Student Advising Evaluation Survey focuses on the quality of academic advising provided to students. It seeks feedback on the accessibility, knowledge, and supportiveness of academic advisors. This survey helps ensure that students receive effective guidance in course selection, career planning, navigating academic challenges, promoting better academic outcomes and personal development.

- **Administrative & Academic Staff Survey (AASS)**

The Administrative & Academic Staff Survey evaluates the performance and effectiveness of both administrative and academic staff within the Civil Engineering Program. This survey seeks input on staff responsiveness, efficiency in handling academic and non-academic matters, and the overall professionalism of the department. The results of this survey are used to enhance the management of the program and improve support for students and faculty alike.

These surveys play a critical role in maintaining high standards in the Civil Engineering Program and ensuring continuous improvement across all aspects of academic and administrative services.

- **Student Exit Survey**

The Student Exit Survey is administered to students in their final semester of the Civil Engineering Program, just prior to graduation. As individuals who have completed the full academic journey, graduating students are uniquely positioned to provide meaningful feedback on all aspects of their educational experience. The survey gathers their perceptions on curriculum quality, teaching effectiveness, academic advising, available resources and facilities, as well as their overall satisfaction with the program. It also assesses how well they feel prepared for professional practice or further academic pursuits. The insights collected through this survey

play a vital role in the program's continuous improvement efforts, informing decision-making and strategic planning to enhance the quality of education and student services.

- **Employers Survey (ES)**

The Employers Survey (ES) is conducted to obtain direct feedback from employers who have hired graduates of the Civil Engineering Program. These employers offer valuable insights into the performance, competencies, and workplace readiness of alumni. The survey assesses key areas such as technical knowledge, problem-solving skills, communication abilities, teamwork, ethical conduct, and adaptability to real-world engineering challenges. By evaluating how well graduates meet industry expectations, the Employers Survey helps the program align its educational outcomes with market demands. The collected data is carefully analyzed and used to support curriculum development, enhance graduate employability, and strengthen partnerships with the industry. This feedback is a critical component in ensuring that the program remains responsive, competitive, and professionally relevant.

Data Collection and Analysis

- **Data Aggregation:** Collect and review data from surveys, course specifications, and course reports. Course specifications outline course objectives, content, and learning outcomes, ensuring alignment with program goals. Course reports provide detailed performance analysis, including student outcomes and feedback.
- **Annual Program Report (APR):** Prepare the APR using data collected, including survey results, course reports, and other performance indicators. Analyze trends, compare Key Performance Indicators (KPIs) with internal and external benchmarks, and integrate feedback to provide a comprehensive overview of the program's strengths and areas for improvement.

Action Plan Development and Implementation

- **Action Plan Creation:** Develop specific action plans as part of the APR to address identified issues. These plans include detailed actions, assigned responsibilities, and implementation timelines.

- **Execution:** Implement these action plans, which may involve updating course content, improving learning resources, or modifying program structures.

Monitoring and Follow-Up

- **Ongoing Evaluation:** Continuously monitor the effectiveness of the implemented changes. Use feedback from subsequent surveys and evaluations to assess the impact of the changes.
- **Follow-Up:** Regularly review the progress of previous action plans to ensure they are achieving their intended outcomes and make adjustments as needed.

Reporting and Evaluation

- **Annual Program Reports (APR):** Document the progress and impact of changes. Evaluate program effectiveness, alignment with strategic goals, and identify any further actions required. The APR serves as a key document for internal review and external accreditation.
- **Regular Reviews:** Conduct regular reviews to ensure that the action plans and program adjustments are aligned with the evolving needs and objectives of the CEP.

8. A Comprehensive Review and Continuous Improvement Framework for the CEP

The CEP is dedicated to maintaining excellence through a robust and ongoing process of review and enhancement. This commitment is achieved through a detailed program cycle review every five years, complemented by annual evaluations to ensure continuous improvement in quality and relevance. This framework encompasses a thorough evaluation of the program's effectiveness, curriculum relevance, and alignment with current industry standards.

At the outset of the five-year cycle review, the program's objectives and goals are critically assessed to determine their alignment with the latest developments in civil engineering and the evolving needs of stakeholders. This involves gathering and analyzing data from a variety of

sources, including surveys, course reports, and performance metrics. These data points provide essential insights into the program's strengths and areas needing improvement.

Feedback from a diverse range of stakeholders, including current students, alumni, employers, and industry partners, is integral to this process. Engaging with these stakeholders ensures a comprehensive understanding of the program's impact and highlights specific areas that may require attention. Analyzing this feedback helps identify common themes and areas for enhancement, ensuring that the program remains responsive to its community.

A key aspect of the five-year review is the evaluation of the curriculum. This involves a thorough examination to ensure that it meets industry standards, incorporates recent technological advancements, and addresses emerging challenges in civil engineering. Each course is reviewed for content relevance, quality, and alignment with program objectives. Benchmarking against peer institutions and industry standards helps pinpoint gaps and opportunities for improvement.

Following the review, a detailed action plan is crafted to address the identified issues. This plan outlines specific steps, assigns responsibilities, and sets timelines for implementation. The action plan is then presented to relevant committees, such as the Programs and Study Plans Committee, for approval and integration into the program's strategic objectives. Once approved, the plan is executed, which may involve updating the curriculum, course content, and other program elements.

The implementation of the action plan is closely monitored to ensure its effectiveness. This ongoing monitoring involves regular evaluations and feedback mechanisms to track progress and make necessary adjustments. This process ensures that changes achieve the desired outcomes and remain aligned with the program's goals, maintaining high standards of quality.

In addition to the five-year review, the CEP conducts annual reviews to ensure continuous quality improvement and responsiveness to stakeholder needs. The **APR** is prepared each year to document progress, assess the impact of recent changes, and identify emerging issues.

Survey data is an essential component of these reviews, with a focus on key surveys including the **PES**, which assesses students' perceptions of the program's Structure, content, and relevance to their academic and career goals. The **CES** gathers feedback on teaching quality and course material, while the **SES** provides insights into students' overall experience within the program, covering both academic and social aspects.

The **CSS** evaluates the program's contributions to community engagement and outreach, ensuring alignment with broader societal needs. Furthermore, the **SAES** measures student satisfaction with academic advising, focusing on the quality of support and guidance provided. The **AASS** collects feedback from faculty and staff regarding program management, academic resources, and administrative support. The Civil Engineering Program regularly administers the **SETS** to graduating students as a key tool for continuous improvement. This survey captures valuable feedback on the quality of instruction, the relevance of the curriculum, the adequacy of laboratory and field experiences, and the effectiveness of student support services. The insights gained from **SETS** are systematically analyzed and used by the program committees to identify strengths, address gaps, and implement strategic enhancements that align with academic goals and industry expectations. Moreover; **ES** gathers feedback from companies and organizations that have employed graduates of the Civil Engineering Program. It evaluates the graduates' technical skills, professional behavior, and ability to adapt to workplace challenges. The results are used to enhance curriculum relevance, improve graduate readiness, and strengthen collaboration with industry partners.

Together, these surveys provide a comprehensive analysis of the program's performance and stakeholder satisfaction, enabling the **APR** to present a robust evaluation and support the CEP in maintaining high standards of education and community service.

Regular meetings with committees, such as the Quality Committee and the Programs and Study Plans Committee, are held to review annual performance data and address any immediate concerns. This ensures that short-term issues are addressed promptly, contributing to the program's continuous improvement.

Reviewing previous action plans is also crucial in the annual review process. The effectiveness of these plans is assessed to ensure they continue to meet their objectives. Adjustments are made as needed to refine and enhance the outcomes, maintaining a continuous cycle of improvement.

Curriculum reviews are conducted periodically, both as part of the five-year cycle and in response to annual evaluations. These reviews ensure the curriculum remains relevant by incorporating new knowledge and technologies and addressing emerging needs in civil engineering. New courses may be developed, and existing ones modified based on identified needs and advancements in the field. Adequate resources, including faculty, materials, and technology, are allocated to support these updates and ensure the curriculum's effectiveness.

Through this comprehensive review and continuous improvement framework, the Civil Engineering Program ensures it remains a leading program that responds to industry changes and provides high-quality education. This rigorous process upholds the program's commitment to excellence and meets the needs of its students and stakeholders.

9. Program Planning, implementation, delivery, and reporting

UT published the first version of the procedural guide for programs and study plans in the academic year 2014/2015. The second updated version was published in 2019/2020 and the third updated version was released in 2021. The guide contains all procedures for the programs' establishment, accreditation, forms, and all other procedures. All programs in UT should be committed to UT policies, standards, and procedures that are published in the manual.

The CEP is committed to the institutional policies, standards, and procedures in the design,

development, and modification of the curriculum. Introduction of a new program in UT starts with assessing the needs for this program, followed by preparing a program specification document that specifies the main program objectives, learning outcomes satisfying the NQF domains, teaching strategies, and assessment methods to measure the PLOs.

All course specifications are then prepared according to the NCAAA standards and forms and updated accordingly. Appropriate learning outcomes for each course as well as teaching strategies and assessment methods and the distribution of the course topics are developed. Courses are prepared to achieve program goals and learning outcomes. The teaching and learning methodologies followed in each course are according to those stated in the course specification, which is considered as a contract between the instructor and the students. In the department council meeting is held to review and discuss all issues related to the course and the results of previous improvement plans, then plan for course delivery, check facilities and resources and distribute the tasks and responsibilities. Throughout the course, the course coordinator continuously monitors all course activities, ensuring the plan for delivery is followed and facilitates difficulties and overcome obstacles faced during its delivery, gathering evidences for completion of course file and completing the course report. After the final assessment and release of exam results a post departmental meeting is to discuss the results, and Course Evaluation Survey analysis, get feedback from instructors, and finalize the course report and course file. The coordinator submits the course file and the course report enclosing recommendations for improvement and an action plan. The course reports are prepared using NCAAA forms and provide an opportunity for the instructors to highlight issues they experienced or noted to which the intended learning outcomes had been achieved. Students' results in course reports can be updated after the release of the exam results.

The CEP regularly evaluates the feedback from beneficiaries to ensure that the program is achieving its mission and goals. Feedback is provided to all faculty members, course coordinators and administration. The course and program reports are used annually to assess the quality of education and any obstacles facing the quality of this process. Proposed changes are presented, discussed, and approved according to the type and percentage of changes to the

authorized level as stated in the UT procedural manual for programs and study plans.

The levels for approval changes in UT courses and programs are summarized in ***Table (2)***. Any modification in the program plan must be documented and approved. The CE program strictly follows the university regulations in this concern.

The levels for approval changes in UT courses and programs are summarized in ***Table (2)***

Table 2. Levels for approval changes in UT courses and programs

Intended curriculum changes	**Final Level of Approval**
Program Level	
Changes including a program's mission, objectives, title, program length (total number of years/levels/ hours), program learning outcomes, program specification, study plan, and adding co-requisites or prerequisites	UT Standing committee of programs and study plans
Changes in ordering of PLOs, program KPIs, course code	Administration of Academic Programs and Study Plans in UT.
Program KPIs	FoE and CEP Council
Change in the facilities, operational plan, dropping program co- requisites or pre-requisites	FoE Council
Course Level	
Changes in the title, credit hours, length of period for teaching, timing in the program plan, update of course specification affecting >25% of course Learning Outcomes (CLOs), language of teaching	Standing committee of programs and study plans in UT

Course code	Administration of Academic Programs and Study Plans in UT
Changes in course policies and regulations	FoE council
Course teaching strategies, <25% change in CLOs, textbooks, reference materials, updates in Engineering knowledge in related topics, distribution of topics/weeks, methods for assessment; measurement and evaluation grading systems.	CEP Council

10. Course planning, implementation, delivery, and reporting

The Course coordinator is a leader of successful implementation of Integrated curriculum. At Faculty of Engineering–University of Tabuk, Course coordinator is responsible for ensuring effective management of the course, its conduction according to what is stated in course specification and ensure using teaching, learning and assessment strategies and the methods designed in course specifications to achieve the course learning outcomes and the aligned program learning outcomes. The course coordinator is also responsible for ensuring that delivery and management of the course follows Faculty and University educational policies and regulations. The course coordinator is responsible for maintaining, updating all course data and information (course specification, timetable, exam copies, course report etc.) to assure that this information will help other parties for governing program planning, implementation, and evaluation.

Responsibility of Course Coordinators and Instructors

- Actively participate in all course activities in all its phases (planning, implementation, evaluation, and improvement).
- Act professionally within the team.
- Chairing the course team and arranging for team meetings (Pre and post course meeting).
- Set the calendar of team meetings.

- Supervise all the tasks and activities of the course team.
- Ensure that the course is conducted as scheduled with adherence to the schedule and teaching plan.
- Communicate regularly with the students to monitor any deviation from the teaching schedule.
- Ensure that all course documents are prepared and go through the appropriate approval procedures.
- Deal with questions and problems related to the course conduction and management.
- Ensure that all educational materials, resources, and facilities are ready when required for the students and teaching staff.
- Work with the relevant units/committees to create efficient systems to support the delivery of the course.
- Ensure that the course is being run in accordance with general faculty and university guidelines.
- Ensuring that all academic staff teaching the course are clearly and well informed by what is required from them through group and/or individual meetings as appropriate.
- Ensure that the students are oriented with the course learning outcomes, contents, teaching and learning strategies, assessment methods, required educational resources, student support and counseling and their roles in course evaluation and improvement.
- Clarifying the course requirements and the assessment methods for the students at the beginning of teaching every course
- Provide ongoing guidance to the teaching staff of the course and deal with any problems that rise.
- Provide ongoing guidance to the students and deal with any questions and problems.
- Monitor the progress of the course and provide feedback to teaching staff and the students if required.
- Monitoring the commitment of the teaching staff to implementing the teaching strategies and the approved assessment methods mentioned in the course specification.

- Encourage instructors to exchange ideas and provide support for each other.
- Clarifying the requirements of students' attendance in the course and monitoring the extent of their commitment
- Monitoring attendance and counseling for their better performances
- Preparing and updating course documents and materials
- Update course specifications based on previous course reports, NCAAA templates and guidelines, and recommendations and feedback from the quality committee.
- Put and follow up course timetable, including all teaching and practical training activities besides teaching and simulation session.
- Updates student's study guide, exam blueprints and active teaching materials
- Implement and monitor course improvement plan.
- Assuring high quality student assessment
- Setting up clear plan for post exam tasks as marking and correction of exam papers, item analysis, discussion of the students' results, approval of the student grades and finally set a recommendation for improvement.
- Collecting the feedback on the course from a variety of sources, including students through electronic surveys, teaching staff, and other staff, to identify areas for improvement, both in terms of syllabus and materials design and administrative systems.
- Measurement of achievement of CLOs and verify the students' achievement levels, their grades distribution, and their program completion rate in coordination with quality and development unit.
- Collecting the data essential for preparation of course report.
- Analyzing the feedback and statistical data and report on the course
- Identifying the training needs related to the course

11. Program Quality Assurance and Review Cycle

Course Level

At the end of each course, the course coordinators submit the course files and course reports on the NCAAA forms. The minimum requirements for course evaluation should include a summary and analysis of the final marks of students with comments on grade distribution, item analysis, measurement of the achievement CLOs, effectiveness of planned teaching and assessment strategies for CLOs, course evaluation by students and other evaluators, and an action plan for improvement that may include rising issues or proposals for change.

- Course reports are prepared by the course coordinators on NCAAA forms.
- The program quality committee review the submitted course reports and check their completion and prepares a collective report on the plan of improvement in the submitted reports.
- The collective report and all course reports are approved by the department council meeting.
- The Course Reports are also submitted electronically to the Deanship of Development and Quality through Maaeyar Plus.
- The deanship of development and quality revises all the submitted reports and ensures that they fulfill the requirements of program accreditation and then submits them to the higher standing committee of academic accreditation and quality assurance.
- The higher standing committee of academic accreditation and quality assurance revises the course reports and ensures the fulfillment of the CLOs and sends its recommendations to the Deanship of Quality and Academic Accreditation.
- The Deanship of Quality and Academic Accreditation sends the recommendation to the program coordinator for follow up.
- The program coordinator sends the recommendations to the concerned departments, course instructor, and committees for execution, and follow up of implementation of the improvement plan with supporting entity if needed. The results are recorded in the course report of the next academic year.

Program Level

The quality management of the program is implemented through the PDCA cycle (***Figure 2***) and monitored on a regular basis using an appropriate evaluation mechanism to support the continuous improvement of the program and its activities and ensure that it is achieving its mission, goals and learning outcomes. The step of the program assessment process is shown in ***Figure 3***.

Figure 2. Quality Cycle

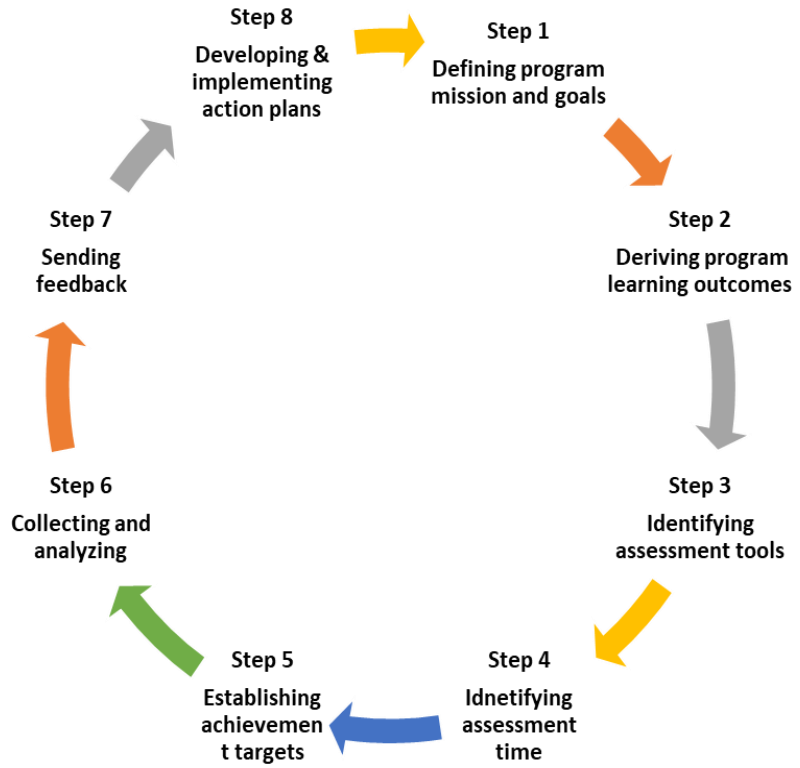

Figure 3. Steps of the Program Assessment Process.

- The course coordinators submit the finalized approved course report
- s to the Quality Committee
- The Quality Committee forms a team and puts and approves the operational plan for writing the APR. The operational plan encloses the distribution of tasks, the coordination of meetings, writing and finalization of the APR. The APR summarizes the quality of the program performance and sets action plans for the improvement of the educational process and other processes.
- The Quality Committee revises and approves the APR and submits it to the department council for approval and submission to the faculty council.
- The faculty council discusses the APR, approves it, and submits it to the Deanship of Quality and Academic Accreditation.

- The Deanship of Quality and Academic Accreditation revises the APR and ensures its fulfillment of the requirement of program accreditation, and submits it to the higher standing committee of academic accreditation and quality assurance.
- The higher standing committee of academic accreditation and quality assurance revises the completion of the measurement of the PLOs and sends its recommendations to the Deanship of Quality and Academic Accreditation.
- The Deanship of Quality and Academic Accreditation sends the recommendations to the program coordinator and follows their implementation.
- The program coordinator sends the recommendations to the concerned entity.
- The Quality Committee follows the execution of the improvement plans and the percentage of achievement of the improvement plans is reported in the APR of the next year.

Table 3. The Quality assurance Procedures at the course and Program level

Activity Name	End of Course	Annually	Responsibility
Course Reports (CRs)	√		Course Coordinator
Course Binder Submission	√		Course Coordinator
Operational Plan Report		√	Quality Committee
Program KPI Report Preparation and Analysis		√	Quality Committee
Annual Program Report (APR) Preparation		√	Quality Committee
APR Revision		√	Deanship of Graduate Studies & Development
APR		√	FoE Council

Activity Name	End of Course	Annually	Responsibility
Actions Plan Preparation and Distribution		√	Quality Committee
Actions Plan Execution Assessment		√	Program Chair

Table 4. CEP Surveys

	Survey	Period	Repetition per Academic Year
1	CES	At the end of each Semester 15 & 16th week	2
2	PES	At the end of Second Semester 15 & 16th week	1
3	CSS	End of each academic year	1
4	SAES	At the end of each Semester 15 & 16th week	2
5	AASS	End of each academic year	1
6	SES	At the end of Second Semester 15 & 16th week	1
7	SETS	End of second semester	1
8	ES	End of academic yea	1

The quality committee may assign faculty members or request support from another committee and then forward the findings to the findings to the quality committee.

Table 5. Timeframe of Program Evaluation

Activity Name	Monthly	Start of the Course	End of the Course	Annually	Every Accreditation Cycle
Committee meetings	√				
CEP council meetings	√				
FoE Council Meeting	√				
Course Binder			√		
Course Evaluation Surveys			√		
Course Reports			√		
Needs Assessment and Checking the Resources				√	
Teaching Plan and Schedules				√	
Program KPI Report and Analysis				√	
Operational plan Report and Analysis				√	
Stakeholders' surveys Report and Analysis				√	

Activity Name	Monthly	Start of the Course	End of the Course	Annually	Every Accreditation Cycle
PLOs & GAs measurement, analysis, report finalization with the improvement plan				√	
APR & the Improvement Plan				√	
CRs and APR Revision/Recommendations by Deanship of Graduate Studies & Development				√	
Improvement Plan Distribution, Execution and Assessment				√	
Advisory committee meetings and recommendations				√	
Independent Program Review (SSRP)					√
Review of Program & course Specifications and LOs and study plan				√ (Internal review) (Minor change)	√ (External review) (Major change)
Program mission, goals, GAs and operational plan					√

Activity Name	Monthly	Start of the Course	End of the Course	Annually	Every Accreditation Cycle
Program SWOT Analysis Preparation and Reporting					√
Self-Evaluation Scale					√
Self-Study Report of the program (SSRP)					√

Table 6. Program Evaluation Matrix

Evaluation Areas/Aspects	Evaluation Sources/References	Evaluation Methods	Evaluation Time
Effectiveness of teaching and assessment methods	Students, Alumni, faculty, employers	Exam results and Course reports PLOs achievement APR Program leaders-students meeting CEP surveys National exam results	Annually

Evaluation Areas/Aspects	Evaluation Sources/References	Evaluation Methods	Evaluation Time
Learning resources	Students, Alumni, faculty, employers	CRs APR CEP surveys	Annually
Overall quality of the program	Students, Graduates, Alumni, Faculty, Employers, Advisory Committee	Course reports APR Operational plan report KPIs reports Program goals report PLOs report Stakeholders survey report Advisory Committee meetings	Annually

12. Key Performance Indicators (KPIs) and Benchmark

KPIs are specific forms of evidence used by the faculty to measure and assess the quality of academic performance. They are among the most important tools for evaluating the quality of academic programs based on the criteria and guidelines of the NCAAA. KPIs play a key role in decision-making, monitoring, and driving continuous development and improvement.

The NCAAA has identified 11 KPIs at the program level, all of which align with evolving accreditation standards. These 11 KPIs are the minimum required to be periodically measured. However, academic programs may incorporate additional KPIs if deemed necessary for ensuring program quality.

For the CE program, 11 KPIs from the NCAAA framework have been adopted, along with five additional KPIs specific to the CE operational plan, making a total of 16 KPIs. These additional KPIs are considered vital for providing further insights into the performance and continuous improvement of the CE program.

Levels of Each KPI

It is expected that the program measures the KPIs with benchmarking using the appropriate tools, such as (Surveys, Statistical data, etc.) according to the nature and objective of each indicator, as well as determining the following levels for each indicator:

- **Actual performance**

  Refers to the finding outcome determined when the KPI is measured or calculated. It represents the actual reality of the present situation. A finding benchmark is also an internal benchmark.
- **Targeted performance level**

  Refers to the anticipated performance level or desired outcome (goal or aim) for a KPI. A target benchmark is also an internal benchmark.
- **Internal reference (Internal benchmark)**

  Refer to benchmarks that are based on information from inside the program or institution. Internal benchmarks include target or finding benchmark data results from previous years.
- **External reference (External benchmark)**

  Referring to benchmarks from similar programs that are outside the institution, it refers to other institutions (national or international).
- **New target performance level**

Refers to the establishment of a new or desired performance level or goal for the KPI that is based on the outcome of the KPI analysis.

Selection of KPIs:

For each KPI, an acceptable target level to be achieved is set based on the program's strategic goals the comparative data of the internal and external benchmarking, with the intention to gain performance growth with a minimum rate of 5% annually.

For each KPI the following values are measured:

Target KPI: This is determined according to the KPIs measurements of the internal and external benchmarking. Hence, it is the new target KPI of the former academic year.

Actual KPI: This is the actual level of the current year's performance.

New target KPI: This is determined in consideration of the actual benchmark.

KPI Analysis

Refers to a comparison and contrast of the benchmarks to determine strengths and recommendations for improvement.

- For the achieved target KPI level, a holding of the new targeted level is kept for an additional year to establish and maintain good practice before setting an increment of the new target KPI.
- A 5% growth rate is considered an acceptable improvement of the practice when setting a new target KPI level.
- If the target is not achieved the previous target will be held as a new target for the year after, with investigating the reasons and delineating a plan for improvement to reach the targeted performance.

To ensure a comprehensive and data-driven evaluation of the CEP, various sources of information are utilized, providing a well-rounded view of program performance, student progress, and stakeholder satisfaction.

The CEP operational plan reports detail the implementation of strategic goals tracking progress in academic, administrative, and resource management objectives. Feedback from key surveys such as the PES, CES, SES, CSS, SAES, and AASS is central to evaluating the program's effectiveness. These surveys gather valuable insights from students, alumni, employers, and staff, offering a multi-dimensional analysis of strengths and areas for improvement.

The Stakeholder Satisfaction with Learning Resources Report compiles feedback on the quality and availability of essential learning resources, ensuring alignment with academic needs. Additionally, official student records from the University's secure internal system (e-Register) provide essential data on student enrollment, course grades, and academic progress, enabling effective tracking of student success and retention.

The National Progress Test results serve as a critical benchmark for assessing the knowledge and competencies of CEP students relative to national standards, helping to identify areas requiring curriculum enhancements. Finally, CEP staff records from human resources offer insights into faculty qualifications, workload, and professional development, ensuring that faculty resources are effectively managed to maintain high teaching standards.

Together, these sources create a comprehensive framework for evaluating the CEP, supporting data-driven improvements in education quality, stakeholder satisfaction, and program performance.

Data Analysis Methodology

The data analysis methodology employed for evaluating the CEP is systematic, robust, and designed to deliver meaningful insights into the program's performance across various metrics. The analysis is primarily performed using Microsoft Excel for Microsoft 365, which offers advanced data processing and visualization tools to streamline the evaluation process. The analysis is centered around Key Performance Indicators (KPIs), which are critical for tracking

progress and ensuring that the program meets its objectives in academic and operational areas. The KPIs used in the analysis are presented in one of the following formats to reflect the program's performance accurately:

- Weighted Mean: This method is employed for surveys and satisfaction assessments, where responses are scored on a scale of 5. A score of 3/5 is considered the minimum threshold of satisfaction, acting as a cut-off level. The weighted mean provides a nuanced perspective by giving greater importance to certain factors based on their relevance or importance to the program's success.
- Proportion: In cases where data is categorical or binary (e.g., yes/no responses), proportions are used to calculate the ratio of specific outcomes to the total outcomes. This metric is particularly useful in understanding distributions, such as the proportion of students meeting specific academic criteria or the proportion of courses meeting defined standards.
- Percentage of Performance: This format is used to represent the level of achievement relative to an expected target or baseline. For instance, if the target pass rate for a particular course is 90%, and the actual pass rate is 85%, the percentage of performance would reflect the gap between the two, offering a clear indicator of where improvements are necessary.

The outcomes of all KPIs are converted into percentages to provide a consistent basis for comparison. By expressing performance metrics as percentages, the final performance of the CEP can be easily calculated for the academic year of interest. This standardized approach allows for clear comparisons across different areas of the program, such as student satisfaction, course quality, faculty performance, and resource utilization.

A key component of the data analysis process is the examination of trends in the CEP's performance over time. To do this, rates of growth (increment) or decline (decrement) are calculated. These rates offer insights into whether the program is improving, stagnating, or declining in specific areas. For instance, if the weighted mean satisfaction score for a course improves from 3.5 to 4.0 over two years, this would indicate positive growth. Conversely, if the

proportion of students passing a key examination decreases, it would signify a decrement that may warrant further investigation and corrective action.

In addition to tracking performance over time, benchmarking is an integral part of the analysis. Internal benchmarking involves comparing current performance to previous years within the same program, enabling the identification of long-term trends. External benchmarking compares the program's performance to industry standards, national averages, or similar programs at other institutions. This external perspective is crucial for ensuring that the CEP remains competitive and aligns with broader academic and industry expectations.

The annual assessment cycle of KPIs ensures that the CEP is regularly evaluated and that adjustments can be made promptly to address emerging issues. Figures 4 and 5, which are referenced in the analysis, visually represent this cycle, detailing how data is collected, analyzed, and interpreted. The annual cycle typically begins with the collection of data from various sources, including student surveys, faculty evaluations, academic performance records, and resource utilization reports.

Once the data is gathered, it is processed through Excel to calculate the various KPIs. These KPIs are then compared to previous years' data and external benchmarks to assess where the program stands relative to its goals. The final step in the cycle involves generating reports that summarize the findings, highlighting areas of strength and pinpointing areas that require improvement. These reports are instrumental in guiding decision-making at both the administrative and faculty levels, ensuring that the CEP remains responsive to the needs of students, staff, and external stakeholders.

The data analysis methodology used for evaluating the Civil Engineering Program is comprehensive and systematic. By utilizing KPIs presented as weighted means, proportions, or percentages of performance, the analysis provides clear, actionable insights into program performance. The calculation of growth or decline rates, coupled with internal and external benchmarking, enables a thorough comparative and trending analysis. The annual assessment cycle ensures that the program undergoes continuous evaluation and improvement, maintaining its alignment with both institutional goals and industry standards. Through this

rigorous approach, the CEP can sustain high levels of quality, satisfaction, and academic success year after year.

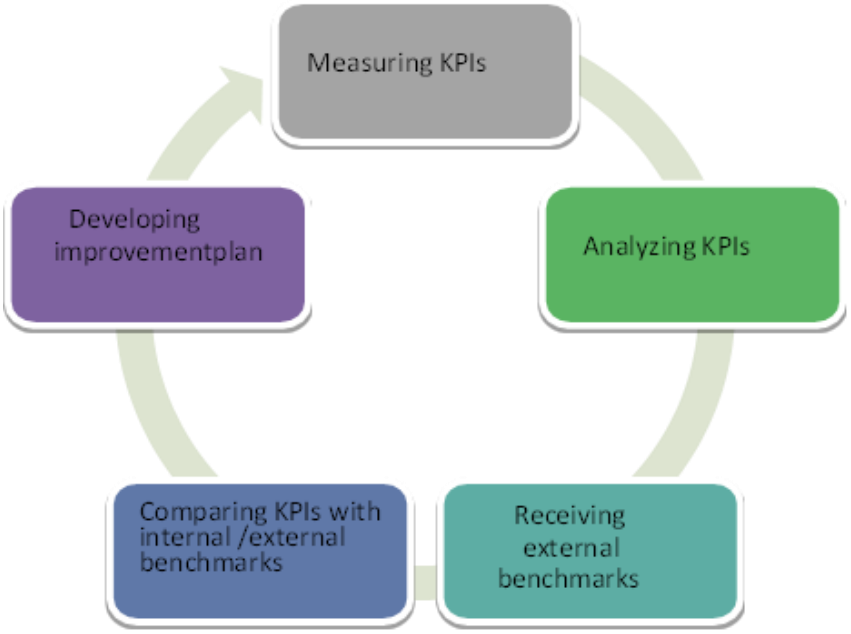

Figure 4. KPIs annual assessment cycle

Table 7. CEP KPIs

Indicator	Statement	Time for measurement	Data Measurement Provider	Measurement Responsibility	Measurement Tools
KPI-P-01	Students' Evaluation of Quality of Learning Experience in the Program	Assessing the overall educational quality of the program	Quality Committee	Quality Committee	Student Surveys, Data Analysis Reports
KPI-P-02	Students' Evaluation of the Quality of the Courses	Assessing the quality of individual courses	Quality Committee	Quality Committee	Course Evaluation Surveys, Analysis Reports
KPI-P-03	Completion Rate	Tracking student success in completing the program	Academic Affairs Coordinator	Academic Affairs Committee	Student Records, Graduation Statistics
KPI-P-04	First-Year Students' Retention Rate	Measuring student retention from year to year	Academic Advising Committee	Academic Affairs Committee	Enrollment and Program data
KPI-P-05	Students' Performance in Professional and/or National Examinations	Measuring program effectiveness based on examination results	Programs and Study Plans Committee	Programs and Study Plans Committee	Exam Results, Benchmark and Program data
KPI-P-06	Graduates' Employability and Enrollment in Postgraduate Programs	Evaluating graduate outcomes in the job market and further studies	Alumni Committee	Alumni Committee	Graduate Surveys, and Employer Feedback

Indicator	Statement	Time for measurement	Data Measurement Provider	Measurement Responsibility	Measurement Tools
KPI-P-07	Employers' Evaluation of Graduates' Proficiency	Measuring employer satisfaction with graduate skills and knowledge	Graduation Projects Committee	Community Services Committee	Employer Surveys
KPI-P-08	Ratio of Students to Teaching Staff	Assessing teaching resources and class size	Quality Committee	Academic Affairs Committee	Program data
KPI-P-09	Percentage of Publications of Faculty Members	Evaluating faculty's scholarly contributions	Scientific Committee	Scientific Committee	Publication Databases
KPI-P-10	Rate of Published Research per Faculty Member	Assessing research output quality and frequency	Scientific Committee	Scientific Committee	Publication Index Reports (UT Index)
KPI-P-11	Citations Rate in Refereed Journals per Faculty Member	Measuring the impact of faculty research in the academic community	Scientific Committee	Scientific Committee	Scopus, Web of Science, Google Scholar Metrics
Additional KPIs Report PG 2.1	Number of held workshops	Assessing the frequency of professional development workshops held annually	Community Services and Partnerships Committee	Community Services and Partnerships Committee	Annual Committees report
Additional	Percentage of Faculty	Measuring	Community Services	Community	Annual Committees

Indicator	Statement	Time for measurement	Data Measurement Provider	Measurement Responsibility	Measurement Tools
KPIs Report PG 2.2	members doing volunteer work from the total number of Faculty members in the department	faculty involvement in community or academic volunteer activities	and Partnerships Committee	Services and Partnerships Committee	report
Additional KPIs Report PG 4.1	Number of partnerships established and maintained annually to enhance industry collaboration and academic engagement	Evaluating collaboration with industry and academic partners	Community Services and Partnerships Committee	Community Services and Partnerships Committee	Annual Committees report
Additional KPIs Report PG 4.2	The number of alliances, joint research projects, and exchange programs.	Measuring engagement in joint research and international collaboration	Community Services and Partnerships Committee	Scientific Committee & Community Services Committee	Collaboration Records, Research and Exchange Program Reports
Additional KPIs Report PG 5.1	Percentage of adopting specialized standards for Civil Engineering announced by NCAAA Evaluation of the program curriculum and learning outcomes	Evaluating the integration of specialized standards into the curriculum and learning outcomes	Programs and Study Plans Committee	Programs and Study Plans Committee	Curriculum Mapping Reports, NCAAA Benchmarking

Indicator	Statement	Time for measurement	Data Measurement Provider	Measurement Responsibility	Measurement Tools
	through feedback from stakeholders				

13. Benchmarking and Improvement Cycle

It is a systemic and continuous process for measuring the program's performance by comparing it to another program within or outside this University to identify the causes of the gap and work to address them and reach the best performance. Benchmarking is a vital process for maintaining the high quality of performance of any program and ensuring continuous quality improvement (***Figure 5***). It allows for comparing the performance of various aspects of the program with respect to the good practices recommended by the NCAAA.

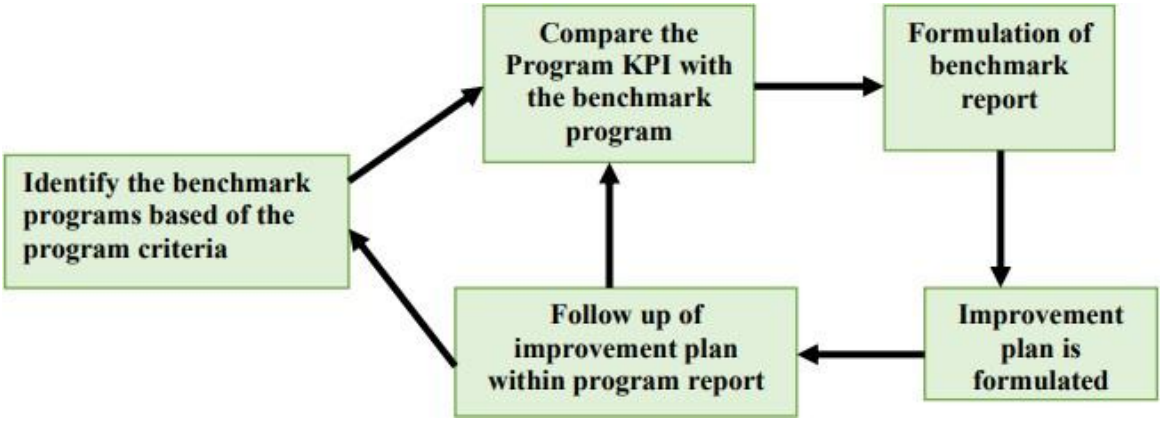

Figure 5. KPI Improvement Cycle

The Importance of Benchmarking

- Rationalization of expenditure.
- Providing continuous learning opportunities.
- Provide an opportunity to move internally and externally towards better models.
- Providing cooperation opportunities between local organizations.
- Adopting an organizational culture aimed at solving problems.
- Assisting the foundation in precisely defining the gap between its performance and that of the leading institutions in its field of work.
- It helps to provide the appropriate climate and enhances the desire for leadership of the

institution and its employees to adopt a policy of change towards all that is better and new.

- Helping define critical processes, give them the necessary attention and priority in implementation, and actively contribute to developing individual and group creativity.
- It actively contributes to increasing the chances of achieving additional benefits for the program.
- The external focus of the benchmarking method creates external competitive measures that necessarily increase the efficiency and effectiveness of internal performance quality measures and make them more competitive.