



جمهورية العراق
Republic of Iraq



وزارة التعليم العالي والبحث العلمي

Ministry of Higher Education & Scientific Research

جهاز الاشراف والتقويم العلمي

Apparatus of Supervision & Scientific Evaluation

Iraqi Accreditation Council, Criteria, Policies and Procedures for BSc Degrees in Engineering

مجلس تحسين جودة التعليم الهندسي في العراق

Quality Improvement Council
for Engineering Education in Iraq

Jumada Al-Oula, 1439

February, 2018

Quality Improvement Council for Engineering Education in Iraq

1	Dr. Mohammed Abid Atiya	Professor	Vice Minister	Honor Chair
2	Dr. Ihsan Y. Hussain	Professor	University of Baghdad	Chair
3	Dr. Jalal M. Jalil	Professor	Univ. of Technology	Member
4	Dr. Khallel Ibrahim Mahmoud	Professor	Univ. of Technology	Member
5	Dr. Fayadh Mohamed Abed	Professor	Tikrit University	Member
6	Dr. Alaa Karim Mohammed	Professor	University of Baghdad	Member
7	Dr. Zeyad S. M. Khaled	Asst. Prof.	Al-Nahrain Univ.	Member
8	Dr. Ressel Reissan Shakir	Asst. Prof.	University of Dhi Qar	Member
9	Dr. Khalid Rassim Mahmood	Asst. Prof.	University of Anbar	Member
10	Dr. Muna Sabah Kassim	Asst. Prof.	HE Minister Office	Member
11	Dr. Ali Naji Attiyah	Asst. Prof.	University of Kufa	Member
12	Dr. Ahmed Abdulsahib Hashim	Asst. Prof.	Univ. of IT & Com.	Member
13	Dr. Ali Jwied Jaeel	Asst. Prof.	Wasit University	Member
14	Dr. Maathe Abdulwahed Theeb	Asst. Prof.	Mustansiriyah Univ.	Member
15	Dr. Amjad Barzan Abdulghafour	Lecturer	Univ. of Technology	Member
16	Dr. Zaid Ghanim Ali Al-Aqeedi	Lecturer	Al Mansour Univ. Col.	Member
17	Dr. Lwaa Faisal Abdulameer	Lecturer	University of Baghdad	Member & Rapporteur
18	Eng. Omer Ahmed Abbas	Engineer	MOHESR	Representative

**IRAQI ACCREDITATION COUNCIL, CRITERIA, POLICIES AND
PROCEDURES FOR BSc DEGREE IN ENGINEERING**

About this Document

After reviewing the accreditation criteria of the **Washington Accord** signatories (jurisdictional agencies for accreditation of engineering programs within their countries) under the auspices of by the **International Engineering Alliance (IEA)**, it was found that the common criteria of all these agencies are **ABET Criteria**, where ABET is one of the four founders of the Washington Accord and the oldest one. It is also the favorite of most engineering faculties all over the world. The Washington Accord authorizes national accreditation bodies to grant a recognized accreditation within their national geographic boundaries, when these national accreditation bodies are recognized by the International Engineering Alliance (IEA), being one of the Washington Accord signatories.

Accordingly, ABET Criteria have been adopted to be the ground floor to establish the Iraqi National Criteria for the accreditation of the BSc engineering programs for two purposes; the first is to assure consistency and the second is to assure being accepted by the Washington Accord. At the same time, the characteristics of engineering education in Iraq were taken into account by deleting locally invalid aspects and adding aspects related to local factual needs.

Therefore locally invalid education methods, such as cooperative education and work in lieu courses, have been eliminated. Furthermore, seven Students Outcomes that are more suitable for the Iraqi practice have been adopted instead of the eleven Students Outcomes currently adopted by ABET, taking into account that ABET itself are attempting to alter to these seven Students Outcomes in near future.

In addition, new aspects were added concerning strategic planning for education improvement, the role of leadership, learning and teaching strategies, what the campus provide for a conducive learning environment, the role of scientific research and engagement with industry in faculty and resources development, their role in reviewing Students Outcomes, and extending the concept of ethics to cover societal and environmental aspects in order to graduate a patriotic civilized citizen.

Finally altering to Objective Based Education was stressed by the adoption of a vital performance indicator concerning mapping course learning outcomes with the Students Outcomes and Graduate Attitudes.

In terms of the document structure, the need to clarify what is measured in each criterion has been taken into account, in addition to how to be measured and what ruling judgments are entailed. Furthermore, an appendix is attached to demonstrate the suitable Rubrics for each performance indicator to be at the reach of the program evaluators in order to address deficiencies, weaknesses and concerns on equal bases and to achieve consistency in the work of the evaluators.

This document not only explains the criteria in Chapter Two and how they are measured and judged in Chapter Three, it also explains the accreditation policies and procedures in Chapter Four, while Chapter One explains the vision, mission and objectives of the **Accreditation Council** and its responsibilities.

Prof. Dr. Ihsan Y. Hussain
University of Baghdad

Prof. Dr. Jalal M. Jalil
University of Technology

Prof. Dr. Khallel I. Mahmoud
University of Technology

Asst. Prof. Dr. Zeyad S. M. Khaled
Al-Nahrain University

Asst. Prof. Dr. Khalid R. Mahmood
University of Anbar

Asst. Prof. Dr. Ali N. Attiyah
University of Kufa

IRAQI ACCREDITATION COUNCIL, CRITERIA, POLICIES AND PROCEDURES FOR BSc DEGREE IN ENGINEERING

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CHAPTER ONE ABOUT THE COUNCIL

This chapter clarifies the Council's vision, mission, objectives and responsibilities. The recognition of the council and changes to this document are also clarified.

1.1 The Council's Vision

The Council will provide leadership in assuring quality of engineering education in Iraq and stimulating innovation in engineering.

1.2 The Council's Mission

The Council serves the public through the promotion and advancement of engineering education in Iraq.

1.3 The Council's Objectives

The Council aims at the following objectives:

- 1.3.1** Accredite education programs for BSc degrees in engineering in Iraq.
- 1.3.2** Promote quality and innovation in engineering education in Iraq.
- 1.3.3** Consult and assist in the development and advancement of engineering education in Iraq.
- 1.3.4** Communicate with Iraqi constituencies regarding activities and accomplishments.
- 1.3.5** Anticipate and prepare for the changing environment and the future needs of Iraqi constituencies.

1.4 The Council's Responsibilities

The Council is charged with the following responsibilities:

- 1.4.1** The Council is responsible for the approval, continuous review and enhancement of accreditation criteria, policies and procedures stated in this document.
- 1.4.2** The Council administers the accreditation process and makes accreditation decisions based on the accreditation criteria, policy and procedure stated in this document.
- 1.4.3** The Council formulates and implements policies to emphasis on process improvement and uniformity across the Program Evaluating Teams.
- 1.4.4** The Council makes a list of currently accredited programs publicly available.
- 1.4.5** The Council is responsible for the procedures and decisions on all appeals to accreditation actions.

1.5 Recognition of the Council

The Council is recognized by the Ministry of Higher Education and Scientific Research in Iraq, the Iraqi Engineers Syndicate and the Iraqi Engineers Society. The Council's jurisdiction is within the Republic of Iraq.

1.6 Changes to this Document

Changes to this document can be proposed and approved solely by the Council. The Council publicizes proposed changes for public review and comment for one year prior to adoption. The approved changes will be effective in the review cycle immediately following adoption. However, this period may be extended by the Council, where appropriate.

CHAPTER TWO

ACCREDITATION CRITERIA

The Iraqi accreditation criteria for BSc in engineering programs were set to assure the quality of engineering education that satisfies the needs of constituencies. The continuous improvement of the quality of Iraqi engineering programs is intended to satisfy local and international needs for engineers' competences. Each Iraqi institution seeking accreditation of an engineering program shall demonstrate clearly that the program meets the following criteria.

2.1 Criterion 1: Program Educational Objectives

The program should have an approved, realistic and achievable strategic plan including the Program Educational Objectives. PEOs are essential to define, delimit and give direction to the program specifications. The PEOs, which satisfy the needs of program constituencies, shall be consistent with the institutional mission in addition to the accreditation criteria of this document. Published and documented PEOs shall be reviewed periodically by the program constituencies through a documented, systematically utilized and effective process.

Aspects to be considered in this criterion are:

2.1.1 Strategic Planning

The institution must have published vision, mission, values and strategic objectives. It must also have well-documented action plans to fulfill the objectives.

2.1.2 Statement of PEOs

Published Program Educational Objectives PEOs must be put in place and well-documented.

2.1.3 PEOs Consistency with the Mission Statement

The process of relating PEOs to the institutional mission statements must be put in place and well-documented.

2.1.4 Program Constituencies

Really involved constituencies must be declared and how the PEOs meet their needs must be well documented.

2.1.5 PEOs Review Process

The process of periodical review of the PEOs including how the constituencies are involved in this process and how this process is systematically utilized to ensure that the PEOs remain consistent with the institution mission, the program constituents' needs and these criteria must be put in place and well-documented. Reviewing PEOs

is one of the tasks of the Program Assessment Committee that can be accomplished through alumni and industry surveys.

2.2 Criterion 2: Graduate outcomes

The program must have documented published and publicized graduate outcomes that prepare graduates to attain the program educational objectives few years after graduation. The graduate outcomes stated in this document are set according to the Iraqi Engineering Graduate's Attributes shown in Appendix (D) in terms of knowledge, skills, abilities and attitudes. Societal and environmental aspects must also be considered under the title of ethics. Students must be directed towards enhancing the quality of human life and maintaining sustainability principles, cultural heritage and humanitarian and patriotism values. Assessment of the graduate outcomes attained by exit students must be annually carried out upon graduation. Additional graduate outcomes can be articulated by any specific program according to its educational objectives.

Graduate outcomes:

- i) An ability to distinguish, identify, define, formulate, and solve engineering problems by applying principles of engineering, science and mathematics.
- ii) An ability to produce engineering designs that meet desired needs within certain constraints by applying both analysis and synthesis in the design process.
- iii) An ability to create and carry out proper measurement and tests with quality assurance, analyze and interpret results, and utilize engineering judgment to make inferences.
- iv) An ability to skillfully communicate orally with a gathering of people and in writing with various managerial levels.
- v) An ability to perceive ethical and professional responsibilities in engineering cases and make brilliant judgments taking into account the consequences in worldwide financial, ecological and societal considerations.
- vi) An ability to perceive the continual necessity for professional knowledge growth and how to find, assess, assemble and apply it properly.
- vii) An ability to work adequately on teams and to set up objectives, plan activities, meet due dates, and manage risk and uncertainty

Aspects to be considered in this criterion are:

2.2.1 Adopted Graduate Outcomes

Applicable published and publicized graduate outcomes and their coherence to the aforementioned seven graduate outcomes.

2.2.2 Relating GOs to PEOs

How graduate outcomes prepare graduates to attain the program educational objectives.

2.3 Criterion 3: Curriculum

The program shall provide an integrated educational scope that develops the ability of graduates to apply pertinent knowledge and skills to deal with engineering issues. The orientation of the program must manifest itself through program content, teaching and learning methods and faculty qualifications.

The curriculum requirements in this document specify components (subject areas) appropriate to engineering but it does not prescribe specific courses. The program must ensure that the curriculum devotes adequate attention and time to each component, consistent with the outcomes and objectives of the program.

A combination of college level mathematics and basic sciences (some with experimental experience) appropriate to the discipline must satisfy (25%) of the total credit hours of the program and not less than (32) credit hours. Basic sciences are defined as biological, chemical, and physical sciences. Engineering topics, consisting of engineering sciences and engineering design appropriate to the field of study must satisfy (37.5%) of the total credit hours of the program and not less than (48) credit hours. The engineering sciences have their roots in mathematics and basic sciences but carry knowledge further toward creative application. They provide a bridge between mathematics and basic sciences and engineering design. Students must be prepared for engineering practice through curriculum culminating in a major design experience based on the knowledge and skills acquired in earlier course work and incorporating appropriate engineering standards and multiple realistic constraints. Furthermore, a general education component that complements the technical content of the curriculum and is consistent with the program objectives must be included too.

A balanced curriculum shall include all technical and non-technical attributes targeted by the program in addition to balancing core elements and other needed elements. The curriculum shall integrate theory and practice through adequate exposure to laboratory and field work. The course content and sequence shall be appropriate. Adequate time shall be allocated for each element of the course content. The course content shall be continually updated to keep up with scientific, technological and knowledge development and to meet the ever-changing society needs. The curriculum and syllabi must be adequate to prepare students for engineering practice under real life constraints (political, social, ethical, economic, health and safety, manufacturability, environmental and sustainability concerns.)

The program must have teaching, learning and assessment methods that support fulfilling PEOs and attaining GOs. They should be designed and employed in a way that enables students to effectively develop intellectual and practical skills as well as positive attitudes. Learning methods should enable students to take responsibility for their own learning and prepare them for life-long learning. All faculty members must be involved in the development processes of curriculum and teaching-learning methods. Benchmarking can aid in this sense. Development processes also include participation of

peer reviewers and external examiners to assess and evaluate contributions of individual courses and assessment techniques.

Aspects to be considered in this criterion are:

2.3.1 Program Structure and Content

Curriculum must ensure consistency with PEOs and GOs, meeting specified credit hours and distribution, culminating major design experience, adequate time and attention to each component and the additional materials. Team work, project management, communication skills, professional responsibilities and self-learning are part of corresponding outcomes.

2.3.1.1 Study Plan

A well-documented study plan must be put in place showing enough information on offered courses in the form of schedule by year and term along with maximum section enrollments for all courses in the program for the last two terms the courses taught. If there is more than one curricular path, each should be provided alone.

2.3.1.2 Alignment with PEOs

How the curriculum aligns with the program educational objectives must be well documented.

2.3.1.3 Attainment of GOs

How the curriculum and its associated prerequisite structure support the attainment of the graduate outcomes must be well documented.

2.3.1.4 Prerequisite Structure

A flowchart or worksheet that illustrates the prerequisite structure of the program's required courses must be available.

2.3.1.5 Subject Areas Requirements

How the program meets the requirements in terms of hours and depth of study for each of the three subject areas must be well documented. The subject areas are Math and Basic Sciences, Engineering Topics, and General Education specifically addressed by program criteria.

2.3.1.6 Major Design Experience

The major design experience that prepares students for engineering practice and how this experience is based upon the knowledge and skills acquired in earlier coursework while incorporate appropriate engineering standards and multiple design constraints must be well documented.

2.3.1.7 Teaching and Learning Strategies

Teaching, learning and assessment strategies used to implement the program curriculum should guarantee that the students shall truly acquire the targeted knowledge, skills and attitudes expressed as graduate outcomes.

2.3.2 Relating Courses Learning Outcomes to GOs

How the courses learning outcomes actually lead to the achievement of the graduate outcomes must be well documented. Assessment of the achievement of GOs should be employed at both program and course levels. The relationships of CLOs to GOs might need preparing a “Course Portfolio” for each course. A typical course portfolio contents are: course number and name, credits and contact hours, instructor’s or course coordinator’s name, text book (title, author and year), other supplemental materials, specific course information (brief description of the content of the course or catalog description, prerequisites or co-requisites and indicating whether a required, elective, or selected elective course in the program), specific objectives of the course and specific learning outcomes, mapping of CLOs with GOs, strategies of teaching/learning and assessment to achieve the outcomes, copy of notes, copies of exams (instruction copies), and copies of student work.

2.4 Criterion 4: Continuous Improvement

The program shall have appropriate documented process for regularly assessing and evaluating the extent to which the graduate outcomes are being attained. The results shall be systematically utilized as input for the continuous improvement of the program. The information needed for continuous improvement of the program must be well-documented. Sources of information include students, alumni and constituencies comments about the program. A quality management system must be in place to give evidences on how the program quality assessment and improvement is performed, how improvement results are re-assessed, how divergent results are treated, how constituencies are pleased with the results and how to know that. Actions taken to improve the program must be documented too.

An industrial advisory committee representing the organizations that employ graduates shall be utilized to advise the program in reviewing its educational objectives and graduate outcomes. The committee shall periodically review program curriculum and provide hints on current and future needs of the professional fields in which graduates are employed.

Aspects to be considered in this criterion are:

2.4.1 Achievement of Graduate outcomes

2.4.1.1 Assessment Processes

The assessment processes used to gather the data upon which the evaluation of each student outcome is based must be well-documented and put in place.

Including examples of, but not limited to, specific exam questions, student portfolios, internally developed assessment exams, senior project presentations, nationally-normed exams, oral exams, focus groups, or other processes that are relevant and appropriate to the program such as peer reviewing, benchmarking and external assessing. Performance indicators (PIs) for each outcome should be set and appropriate direct and indirect assessment tools for each performance indicator should be selected. It is preferred to use more than one tool for each PI such as a combination of direct and indirect tools. Standardized measures like rubric should be used to measure the level of attainment for each PI.

2.4.1.2 Frequency of Assessment Processes

The targeted frequency with which assessment processes are to be carried out must be put in place and well documented.

2.4.1.3 Expected Level of Attainment

The expected level of attainment for each of the graduate outcomes must be put in place and well documented.

2.4.1.4 Results of Evaluation and Analysis

The results of the evaluation process must be well documented and an analysis must be carried out to explore the extent of factual graduate outcomes attainment.

2.4.1.5 Documentation

How the assessment processes and results are being documented and maintained.

2.4.2 Actions for Continuous Improvement

2.4.2.1 Systematic Data Utilization in Continuous Improvement

How the results of evaluation processes for the graduate outcomes and any other available information are systematically used as input in the continuous improvement of the program. The process must be put in place and well-documented.

2.4.2.2 Re-assessment of Changes Results

How results of any changes are subjected to re-assessment to find whether effective or not must be set and well-documented.

2.4.2.3 Future Plans

Any significant future program improvement plans based upon re-assessment results must be set and well documented.

2.4.2.4 Brief Rationale of Planned Changes

Brief Rationale for each of the planned changes must be set and well documented.

2.4.2.5 Quality Management System Documentation

2.4.2.5.1 Quality Management System must be in place to give evidences on how the program quality assessment and improvement is performed, how improvement results are re-assessed, how divergent results are treated, how constituencies are pleased with the results and how to know that.

2.4.2.5.1 An Industrial Advisory Committee representing the organizations that employ graduates shall be utilized to advise the program in reviewing its educational objectives and graduate outcomes. The committee shall periodically review program curriculum and provide hints on current and future needs of the professional fields in which graduates are employed.

2.5 Criterion 5: Students

The program shall demonstrate its policies for accepting new students as well as its policies for accepting transfer students and the mechanism of awarding equivalent academic credit for courses taken at other institutions. The program shall also demonstrate its processes for evaluating students' performance to assure achievement of graduate outcomes upon graduation hence empowering graduates to accomplish program educational objectives few years after graduation. The processes of monitoring students' progress through their study, advising them regarding curriculum and career issues in addition to ethical awareness and character building shall also be demonstrated. The procedures of satisfying the graduation requirements shall be clear, well documented and implemented.

Aspects to be considered in this criterion are:

2.5.1 Student Admission

The requirements and process of admission must be put in place and well documented in addition to the history of high-school grades of freshman admitted for past five years. Actual number of admitted students vs. the planned number of students to be admitted based on available qualified human resources (faculty and staff) and adequate physical resources (spaces and associated equipment) must be considered in addition to Ministry-mandated articulation requirements that impact admission.

2.5.2 Student Performance and Progress

The processes by which student performance is evaluated and student progress is monitored must be put in place and well documented. How the program ensures and documents that students are meeting prerequisites and how it handles the situation

when a prerequisite has not been met. Transparent, fair, and consistent direct and indirect methods should be employed in the evaluation and monitoring processes.

2.5.3 Students Transfer

The requirements and process for accepting transfer students must be put in place and well documented in addition to Ministry-mandated articulation requirements that impact accepting transfer students and the history of transferred students for past five years. The clearing instructions for transfer credits set to ensure compliance of former and latter programs contents. How the requirements and instructions are announced and documented.

2.5.4 Students' Advising and Extracurricular Activities

The processes by which students are advised regarding curricular and carrier planning must be put in place and well documented including advising and counseling students in three major areas; psychological, academic, and professional.

Extracurricular students' activities aim at students' enthusiasm and motivation through involvement in student representative entities, co-curricular social and environmental activities, sports and other campus activities provided for students to develop their ethical awareness and character building apart from academic development.

2.5.5 Graduation Requirements

The process for ensuring that each graduate complete all graduation requirements of the program according to the specific criteria set by this document must be put in place and well documented. Transcripts of some of the most recent graduates showing how any program options are designated on the transcript.

2.6 Criterion 6: Faculty

The program shall demonstrate that the faculty members are of sufficient number and competences to cover all curricular areas of the program and to provide program continuity and proper frequency of course offerings. There shall be sufficient faculty to accommodate adequate levels of student-faculty interaction, student advising and counseling, university service activities, professional development, and interactions with industrial and professional practitioners and employers.

The faculty shall be involved in the process of assessment, evaluation, and continuous improvement of the program. The faculty education, diversity of backgrounds, engineering experience, teaching effectiveness, ability to communicate, level of scholarship, and participation in professional societies can be used to judge their competencies.

The program faculty shall demonstrate sufficient authority to ensure the proper guidance of the program and to develop and implement processes for the evaluation, assessment, and continuing improvement of the program.

The faculty must be capable of providing students an appropriate breadth of perspective and effective instruction in the use of modern technical and non-technical methodologies in careers appropriate to the program educational objectives. The program shall demonstrate an effective professional development plan for its faculty. Scientific research and post-graduate studies (if any) contribute in renovating the faculty knowledge and skills.

Aspects to be considered in this criterion are:

2.6.1 Faculty Qualification

The faculty qualifications and how adequate they are to cover all the curricular areas of the program and meet the program criteria must be well documented. This should include the composition, size, credentials, and experience of the faculty followed by faculty vitae or abbreviated resumes for each instructor or above in rank in an appendix. For courses relating to design, the faculty members in charge of such courses must have adequate design experience and being registered in the Iraqi Engineers Syndicate.

2.6.2 Faculty Workload

The faculty time devoted to the program in terms of workload expectations and requirements must be well documented. Faculty administrative and teaching duties should be appropriately balanced to allow for adequate participation in research, scholarly work, professional development activities, and industrial interaction.

2.6.3 Faculty Size

The adequacy of the faculty size and the extent and quality of faculty interactions with students, student advising and counseling, university service activities, professional development and interactions with industrial and professional practitioners including employers must be well documented.

2.6.4 Faculty Development

The activities of professional development (including scientific research and contribution to post-graduate studies - if any) for each faculty member must be well documented especially in modern teaching and learning methods (e.g. student centered project/problem based education, curriculum design built on objective based education), effective interactive communication, leadership and management skills and others.

2.6.5 Faculty Authority and Responsibility

The role played by the faculty with respect to course creation, modification, and evaluation, their role in the definition and revision of program educational objectives and graduate outcomes, and their role in the attainment of the graduate outcomes in

addition to the roles of others on campus (e.g. dean or provost) with respect to these areas must all be well documented.

2.7 Criterion 7: Administrative Support

The administrative support of the program is expressed by institutional services in addition to the attraction, retention and development of faculty and technical/administrative staff in a way that is adequate to meet all program needs.

Aspects to be considered in this criterion are:

2.7.1 Leadership and Administrative Services

Leadership and administrative services must be adequate to ensure the quality and continuity of the program, and to provide an environment in which graduate outcomes can be attained. Creative interactive leadership must be assured. The leadership must be capable to formulate effective policies, set plans, maximizes funding resources and make decisions for performance development within time frames through a comprehensive quality management system. All tasks must clearly be assigned and authorities must be clearly delegated. An effective published organizational structure that comprises quality assurance entities must be in place. There should be efficient documentation for all activities and issues. Selection of academic leaders must be based on fair logical bases.

2.7.2 Faculty Support

Sufficiency of administrative support for faculty recruitment, retention, promotion and development (including scientific research and post-graduate studies if any) must be well documented including the following:

2.7.2.1 Faculty Recruitment

Efficiency of the policies and processes used for recruiting new faculty to satisfy the program requirements must be well documented.

2.7.2.2 Faculty Retention and Promotion

Efficiency of the strategies used to retain current qualified faculty and promote their ranks must be well documented.

2.7.2.3 Faculty Development

Adequacy of administrative support for continual faculty professional development and how activities such as scientific sabbaticals, scientific fellowships and attending scientific activities abroad are planned and supported must be well documented. Scientific research and post-graduate studies are also included if any.

2.7.3 Technical and Administrative Staff Support

The adequacy of technical and administrative staff to meet the program needs and to provide an environment in which graduate outcomes can be attained must be well documented including the following:

2.7.3.1 Staff Size and Qualification

Adequacy of the technical and administrative staff number and how adequate qualifications do they have.

2.7.3.2 Staff Recruitment and Retention

Efficiency of the policies and processes used for recruiting new technical and administrative staff that satisfy the program requirements and the strategies used to retain qualified staff.

2.7.3.3 Staff Development and Promotion

Adequacy of administrative support for continual professional development of the technical and administrative staff and the strategies used for their promotion must be well-documented.

2.8 Criterion 8: Financial Support

The financial support of the program is expressed by adequacy of the program budget and its funding resources to support teaching and learning, facilities, faculty and staff in a way that is adequate to meet all program needs.

Aspects to be considered in this criterion are:

2.8.1 Funding Resources

The process used to establish and maintain the program budget and all financial resources including both permanent and temporary funds accompanied with evidence of its adequacy and continuity to support the program must be well documented. Cooperation mechanisms with industry can be maintained through research, consultancy and continual education activities.

2.8.2 Program Budget:

2.8.2.1 Teaching and Learning Financial Support:

How adequate financial support is allocated by the institution to facilitate teaching and learning activities and environment with respect to enabling students to attain the graduate outcomes must be well documented.

2.8.2.2 Facilities Financial Support

How sufficient financial resources are provided to acquire, maintain, upgrade, and operate the infrastructures, facilities and equipment appropriate for the

program, and to provide an environment in which graduate outcomes can be attained must be well documented.

2.8.2.3 Faculty Financial Support

How sufficient financial resources are provided for continual faculty professional development such as scientific sabbaticals, scientific fellowships and attending scientific activities abroad. Scientific research and post-graduate studies are also included if any.

2.8.2.4 Staff Financial Support

How sufficient financial resources are provided for continual professional development of the technical and administrative staff.

2.9 Criterion 9: Facilities

The program shall provide classrooms, laboratories, offices, libraries, and all other spaces required to create an effective and encouraging academic environment which in turn supports the attainment of graduate outcomes. Furthermore, modern tools, equipment, computing resources have to be available too. They shall be maintained and upgraded periodically and be accessible for students with suitable direction.

Aspects to be considered in this criterion are:

2.9.1 Built Spaces and Associated Equipment

The adequacy of the program facilities, such as classrooms, laboratories, offices, libraries, other program-related spaces and their associated equipment to support the attainment of the graduate outcomes and to provide an atmosphere conducive to learning must be well documented.

2.9.1.1 Offices and associated equipment for administration, faculty, staff and teaching assistants that are typically available are included.

2.9.1.2 Classrooms and associated equipment that are typically available where the program courses are taught are included.

2.9.1.3 Laboratories and associated tools and equipment including those containing computers (hardware and software) used by the program in addition to the facilities used by the students are included.

2.9.1.4 Campus infrastructure and supportive facilities including hostels, sport centers, recreation centers, health centers, land scape and transportation means shall be adequate to facilitate students' life on campus and to enhance building student character.

2.9.2 Computing Assets

The adequacy and accessibility of all computing resources (workstations, servers, storage, networks and software) used by the students in the program must be well

documented. The hours the various computing facilities are open to students must be stated.

2.9.3 Students Direction and Safety Precautions

How students in the program are provided appropriate direction regarding the use of learning and laboratory tools, equipment, computing resources and other information sources must be well documented.

How the program ensures the facilities, tools, and equipment used in the program are safe for their intended purposes must be well documented.

2.9.4 Maintenance and Upgrading of Facilities

The policies and procedures for maintaining and upgrading learning and laboratory tools, equipment, computing resources, other information sources used by students in the program must be well documented.

2.9.5 Library Services

The adequacy of the library and other information sources to serve the program must be well documented including the adequacy of the library's technical collection relative to the needs of the program and the faculty, the process by which faculty may request the library to order books or subscriptions, the library's systems for locating and obtaining electronic information and any other library services relevant to the needs of the program.

2.10 Specific Program Criteria

Specific program criteria define additional criteria for the curriculum, faculty and other aspects (if any) for each engineering discipline as explained in Appendix (G) where:

- i. Each program must satisfy applicable specific program criteria for a given discipline.
- ii. Requirements stipulated in the specific program criteria of Appendix (G) are mainly directed to the areas of curricular topics and faculty qualifications.
- iii. If a program, by virtue of its title, becomes subject to two or more sets of specific program criteria, then that program must satisfy each set of them; however, overlapping requirements need to be satisfied only once.
- iv. The only lead society for all Engineering Programs in Iraq is the Iraqi Engineers Syndicate.

CHAPTER THREE PROGRAM EVALUATION

The Iraqi accreditation criteria and their corresponding aspects have been already explained in chapter two. This chapter elucidates how these aspects are measured through specific performance indicators using rubrics. The aim of setting performance indicators and rubrics is to help evaluators and programs' administrations to reach objective evaluation judgments.

3.1 PERFORMANCE INDICATORS

3.1.1 for Criterion 1: Program Educational Objectives

The performance indicators of this criterion are summarized for each corresponding aspect as follows:

3.1.1.1 Strategic Planning: Including the following performance indicator:

- 3.1.2.1.1 Applicable published strategic plan including its vision, mission and objectives (statement is well-defined, achievable and publicized)
- 3.1.2.1.2 Consistency of the program strategic plan with the institutional one

3.1.1.2 Statement of the Program Educational Objectives: Including the following performance indicator:

- 3.1.2.2.1 Applicable published and publicized PEOs (statements are well-defined, measurable and achievable)

3.1.1.3 PEOs Consistency with the Mission Statement: Including the following performance indicator:

- 3.1.2.3.1 Relating PEOs to the institution's mission

3.1.1.4 Program Constituencies: Including the following performance indicators:

- 3.1.2.4.1 What Constituencies are involved?
- 3.1.2.4.2 How the PEOs meet the needs of these constituencies

3.1.1.5 PEOs Review Process: Including the following performance indicators:

- 3.1.2.5.1 Processes for periodical review of the PEOs
- 3.1.2.5.2 How constituencies are involved in this process

3.1.2.5.3 How to ensure that PEOs remain consistent with the institutional mission, the program constituents' needs and these criteria

3.1.2 for Criterion 2: Graduate Outcomes

The performance indicators of this criterion are summarized for each corresponding aspect as follows:

3.1.2.1 Adopted Graduate Outcomes: Including the following performance indicator:

3.1.2.1.1 Applicable published and publicized GOs.

3.1.2.1.2 Coherence with the seven GOs of this criterion. It is required to recognize the wider scope of ethics including societal and environmental aspects

3.1.2.2 Relating GOs to PEOs: Including the following performance indicator:

3.1.3.2.1 How the GOs prepare graduates to attain the PEOs

3.1.3 for Criterion 3: Curriculum

The performance indicators of this criterion are summarized for each corresponding aspect as follows:

3.1.3.1 Program Structure and Content: Including the following performance indicators:

3.1.3.1.1 **Study Plan:** adequate attention and time to each component including summer training as a practice-oriented component for industrial training or training in engineering practice

3.1.3.1.2 **Alignment with PEOs:** consistent with the objectives of the program and institution

3.1.3.1.3 **Attainment of GOs:** support the development of a range of intellectual and practical skills and attainment of GOs

3.1.3.1.4 **Prerequisite Structure:** prerequisite flowchart of the program's required courses showing dependency and integration of a balanced curriculum

3.1.3.1.5 **Subject Area Requirements:** (in terms of hours and depth) including study for one year of college level mathematics and basic sciences (biological, chemical, and physical sciences; some with experimental experience), study for one and one-half years of engineering topics appropriate to the field of study, study for general education that complements the technical content in consistence with program and institution objectives

3.1.3.1.6 **Major Design Experience:** that prepares students for engineering practice where public health and safety, global, cultural, social,

environmental, and economic factors must be considered (final-year design project based on knowledge and skills acquired in earlier course work and incorporating appropriate engineering standards and multiple realistic constraints)

3.1.3.1.7 Teaching and Learning Strategies: How program teaching/learning and assessment strategies are appropriate to, consistent with, and support the attainment of GOs.

3.1.3.2 Relating Courses Learning Outcomes to GOs: Including the following performance indicators:

3.1.3.2.1 Abbreviated syllabus of each course must be available showing CLOs.

3.1.3.2.2 Mapping CLOs to GOs: How the courses learning outcomes actually lead to the achievement of graduate outcomes. The relationships of CLOs to GOs might need preparing a “Course Portfolio” for each course. A typical course portfolio contents are: course number and name, credits and contact hours, instructor’s or course coordinator’s name, text book (title, author and year), other supplemental materials, specific course information (brief description of the content of the course or catalog description, prerequisites or co-requisites and indicating whether a required, elective, or selected elective course in the program), specific objectives of the course and specific learning outcomes, mapping of CLOs with GOs, strategies of teaching/learning and assessment to achieve the outcomes, copy of notes, copies of exams (instruction copies), and copies of student work.

3.1.4 for Criterion 4: Continuous Improvement

The performance indicators of this criterion are summarized for each corresponding aspect as follows:

3.1.4.1 Achievement of Graduate outcomes: Including the following performance indicators:

3.1.4.1.1 **Assessment Processes:** used to gather data upon which the evaluation of each student outcome is based. Examples of data collection processes may include, but are not limited to, specific exam questions, student portfolios, internally developed assessment exams, senior project presentations, nationally-normed exams, oral exams, focus groups, industrial advisory committee meetings, or other processes that are relevant and appropriate to the program

3.1.4.1.2 **Frequency of Assessment Processes**

3.1.4.1.3 **Expected Level of Attainment for each of the GOs**

3.1.4.1.4 **Results of Evaluation and Analysis:** the extent to which each of the graduate outcomes is being attained

3.1.4.1.5 **Documentation:** how the data gathered and the results of the performance are documented and maintained in addition to the materials, including student work and other tangible materials that demonstrate achievement of the GOs

3.1.4.2 Actions for Continuous Improvement: Including the following performance indicators:

3.1.4.2.1 **Systematic Data Utilization in Continuous Improvement:** how the results of evaluation processes for the graduate outcomes and any other available information have been systematically used as input in the continuous improvement of the program

3.1.4.2.2 **Re-assessment of Changes Results:** how results of any changes are subjected to re-assessment to find whether effective or not

3.1.4.2.3 **Future Plans:** any significant future program improvement plans based upon recent evaluations

3.1.4.2.4 **Brief Rationale of Planned Changes:** for each of the planned changes

3.1.4.3 Documentation: Including the following performance indicators:

3.1.4.3.1 What does the **Quality Management System** provide for PEOs, GOs and curriculum review? Information such as minutes from meetings where the assessment results are evaluated and recommendations are made is required.

3.1.4.3.2 The feedback and inputs from **stakeholders** (industry advisors, students and alumni), benchmarking and external examiners. For a new program, it also needs to discuss the feasibility of introducing the new program.

3.1.4.3.3 **Other information**, if available, used to assist in continuous improvement such as (participation of faculty, support staff and students in the continual quality improvement process, their professional practice in industry or collaborative projects and invited lecturers or speakers from industry or public bodies

3.1.5 for Criterion 5: Students

The performance indicators of this criterion are summarized for each corresponding aspect as follows:

3.1.5.1 Student Admission: Including the following performance indicators:

- 3.1.5.1.1 Requirements of admission (have policies for accepting new students)
- 3.1.5.1.2 Processes of admission (enforce policies for accepting new students)
- 3.1.5.1.3 High-school grades for freshman admissions for past five years

3.1.5.2 Student Performance and Progress: Including the following performance indicators:

- 3.1.5.2.1 Processes by which student performance is evaluated in relation to student learning outcomes
- 3.1.5.2.2 Processes by which student progress is monitored in relation to prerequisites attainment
- 3.1.5.2.3 How the program ensures that students are meeting prerequisites and how it handles the situation when a prerequisite has not been met
- 3.1.5.2.4 How the program documents that students are meeting prerequisites

3.1.5.3 Students Transfer: Including the following performance indicators:

- 3.1.5.3.1 Requirements and processes for accepting transfer students (Have enforced policies for accepting transfer students)
- 3.1.5.3.2 Transfer credits and clearing (equivalence/exempt) instructions (Have and enforce policies for awarding academic credit for courses taken at other institutions)
- 3.1.5.3.3 Ministry-mandated articulation requirements that impact the program
- 3.1.5.3.4 Transfer students for past five years

3.1.5.4 Students' Advising and Extracurricular Activities: Including the following performance indicators:

- 3.1.5.4.1 Processes by which students are advised regarding curricular and carrier matters
- 3.1.5.4.2 Processes by which students are advised regarding extracurricular activities for enthusiasm, motivation and character building in management, leadership, arts, sports, societal and environmental activities
- 3.1.5.4.3 How often students are advised and who provides the advising (program faculty, departmental, college or university advisor). Sufficiency of faculty members for advising and counseling students in four major areas; psychological, academic, professional, and extracurricular aspects

3.1.5.5 Graduation Requirements: Including the following performance indicators:

- 3.1.5.5.1 Graduation requirements for the program (the degree awarded)

3.1.5.5.2 Have and enforce well-documented procedures to ensure that students who graduate meet all graduation requirements

3.1.1.5.3 Transcripts of some of the most recent graduates: how the program and any program options are designated on the transcript

3.1.6 for Criterion 6: Faculty

The performance indicators of this criterion are summarized for each corresponding aspect as follows:

3.1.6.1 Faculty Qualifications: Including the following performance indicators:

3.1.6.1.1 Appropriate faculty qualifications: Composition, size, credentials, and experience of the faculty including industrial experience and industrial involvement

3.1.6.1.2 Adequate faculty to cover curricular areas: adequate to cover all the curricular areas of the program and meet the program criteria including their competencies in implementing the outcome-based approach to education

3.1.6.1.3 The overall competence of the faculty may be judged by such factors as education, diversity of backgrounds, engineering experience, teaching effectiveness and experience, ability to communicate, enthusiasm for developing more effective programs, level of scholarship and participation in professional societies.

3.1.6.2 Faculty Workload: Including the following performance indicator:

3.1.6.2.1 Percentage of faculty work time devoted to the program

3.1.6.3 Faculty Size: Including the following performance indicators:

3.1.6.3.1 Extent and quality of student-faculty interaction: effective teaching

3.1.6.3.2 Extent and quality of student advising and counseling

3.1.6.3.3 Extent and quality of university service activities: program service and services required to the university, industry and community through research, publication, and consultancy activities

3.1.6.3.4 Extent and quality of interactions with industrial and professional practitioners and employers

3.1.6.4 Faculty Development: Including the following performance indicators:

3.1.6.4.1 Extent and quality of professional development activities for each faculty member including opportunities in further education, industrial exposure, and implementing the outcome-based approach to education

3.1.6.4.2 Role of scientific research achievements in the professional development of the faculty

3.1.6.4.3 Role of the offered post-graduate programs in the professional development of the faculty

3.1.6.5 Faculty Authority and Responsibility: Including the following performance indicators:

3.1.6.5.1 Role of the faculty with respect to course creation, modification, and evaluation

3.1.6.5.2 Role of the faculty in the definition and revision of PEOs and GOs and their role in the attainment of the GOs

3.1.6.5.3 Roles of others on campus (e.g. dean or provost) with respect to these areas

3.1.7 for Criterion 7: Administrative Support

The performance indicators of this criterion are summarized for each corresponding aspect as follows:

3.1.7.1 Leadership and Administrative Services: Including the following performance indicators:

3.1.7.1.1 Leadership adequacy to ensure the quality and continuity of the program

3.1.7.1.2 Leadership involvement in making decisions that affect the program

3.1.7.1.3 How clearly tasks are assigned and authorities are delegated

3.1.7.1.4 How effective is the organizational structure in serving the Quality Management System

3.1.7.1.5 Efficiency of documentation for all activities and issues

3.1.7.1.6 Adequacy of administrative services provided to the program

3.1.7.2 Faculty Hiring and Retention: Including the following performance indicators:

3.1.7.2.1 Policies and processes used to recruit new faculty

3.1.7.2.2 Strategies used to retain and promote current qualified faculty

3.1.7.2.3 Strategies used for faculty professional development

3.1.7.2.4 Scientific research activities and post-graduate studies if any

3.1.7.3 Technical and Administrative Staff Support: Including the following performance indicators:

3.1.7.3.1 Adequacy of technical and administrative staff in providing adequate support to the educational program (current size and qualifications)

3.1.7.3.2 Policies and processes used to recruit new staff and retain current staff

3.1.7.3.3 Strategies used for continual professional development of the technical and administrative staff and the strategies used for their promotion

3.1.8 for Criterion 8: Financial Support

The performance indicators of this criterion are summarized for each corresponding aspect as follows:

3.1.8.1 Funding Resources: Including the following performance indicator:

- 3.1.8.1.1 Process used to establish the program's budget and continuity of funding resources needed to meet the program needs including sources of both permanent and temporary funds

3.1.8.2 Program Budget: Including the following performance indicators:

- 3.1.8.2.1 Sufficiency of financial support to provide for teaching and learning in terms of graders, teaching assistants, teaching workshops, learning facilitation ... etc.
- 3.1.8.2.2 Sufficiency of financial support to acquire, maintain and upgrade the infrastructures, facilities and equipment used in the program
- 3.1.8.2.3 Sufficiency of financial support to provide for faculty professional development
- 3.1.8.2.4 Sufficiency of financial support to provide for staff professional development

3.1.9 for Criterion 9: Facilities

The performance indicators of this criterion are summarized for each corresponding aspect as follows:

3.1.9.1 Built Spaces and Associated Equipment: Including the following performance indicators:

- 3.1.9.1.1 **Offices and associated equipment:** for administration, faculty, staff and teaching assistants are adequate to support attainment of graduate outcomes and provide an atmosphere conducive to learning
- 3.1.9.1.2 **Classrooms and associated equipment:** are adequate to support attainment of graduate outcomes and provide an atmosphere conducive to learning
- 3.1.9.1.3 **Laboratories and associated tools and equipment:** including those containing computers (hardware and software) are adequate to support attainment of graduate outcomes and provide an atmosphere conducive to learning
- 3.1.9.1.4 **Campus infrastructure and supportive facilities:** including hostels, sport centers, recreation centers, health centers, land scape and transportation means shall be adequate to facilitate students' life on campus and to enhance building student character

3.1.9.2 Computing Assets: Including the following performance indicators:

- 3.1.9.2.1 Adequate computing and information resources in addition to those described in laboratories, which are used by the students in the program including workstations, servers, storage, networks and software.
- 3.1.9.2.2 Accessibility of university-wide computing resources available to all students via various locations and the hours the various computing facilities are open to students
- 3.1.9.2.3 Adequacy of these facilities to support the scholarly and professional activities of the students and faculty in the program

3.1.9.3 Students Direction and Safety Precautions: Including the following performance indicators:

- 3.1.9.3.1 How students in the program are provided appropriate direction regarding the use of the tools, equipment, computing resources, and laboratories
- 3.1.9.3.2 How the facilities, tools, and equipment used in the program are safe for their intended purpose

3.1.9.4 Maintenance and Upgrading of Facilities: Including the following performance indicator:

- 3.1.9.4.1 Policies and procedures for maintaining and upgrading the tools, equipment, computing resources, and laboratories used by students and faculty in the program

3.1.9.5 Library Services: Including the following performance indicators:

- 3.1.9.5.1 Adequacy of the library's technical collection relative to the needs of the program and the faculty
- 3.1.9.5.2 Adequacy of the process by which faculty may request the library to order books or subscriptions
- 3.1.9.5.3 Library's systems for locating and obtaining electronic information, and any other library services relevant to the needs of the program

3.1.10 for Specific Program Criteria

The performance indicators of this criterion are summarized for each corresponding aspect as follows:

- 3.1.10.1 Curricular Topics (if any):** to be imbedded in criterion 5.
- 3.1.10.2 Faculty Qualifications (if any):** to be imbedded in criterion 6.
- 3.1.10.3 Other (if any):** to be imbedded in the suitable criterion.

3.2 EVALUATION JUDGMENT

The program evaluation worksheets summarize the initial evaluation judgment of each program being considered for accreditation and/or extension of accreditation. Initial evaluation worksheets come in two parts (see 3.4). The first part summarizes the identification of shortcomings with respect to criteria and policies. The second part is a detailed description of any identified shortcomings. Shortcomings are shown as a Deficiency (D), Weakness (W), or Concern (C). If no shortcomings are identified the program is considered to be in Compliance to criteria and policies (Y). Sometimes suggestions (Observations) are offered to assist compliant programs in its continuous improvement (O). The evaluation judgment of each performance indicator is carried out by the aid of rubrics specially designed for this purpose (see 3.3). The full definitions are as follows:

3.2.1 Deficiency (D): A deficiency indicates that a criterion, policy, or procedure is not satisfied. Therefore, the program is not in compliance with the criterion, policy, or procedure.

3.2.2 Weakness (W): A weakness indicates that a program lacks the strength of compliance with a criterion, policy, or procedure to ensure that the quality of the program will not be compromised. Therefore, remedial action is required to strengthen compliance with the criterion, policy, or procedure prior to the next review.

3.2.3 Concern (C): A concern indicates that a program currently satisfies a criterion, policy, or procedure; however, the potential exists for the situation to change such that the criterion, policy, or procedure may not be satisfied.

3.2.4 Observation (O): An observation is a comment or suggestion that does not relate directly to the current accreditation action but is offered to assist the institution in its continuing efforts to improve its programs.

3.3 RECOMMENDED ACCREDITATION ACTIONS:

Recommended accreditation actions may vary according to the results of the initial evaluation of each program being considered for accreditation and/or extension of accreditation. Recommended accreditation actions can be one of the following:

3.3.1 NGR (Next General Review): This action indicates that the program has no Deficiencies or Weaknesses. This action is taken only after a Comprehensive General Review and has a typical duration of six years.

3.3.2 IR (Interim Report): This action indicates that the program has no Deficiencies but has one or more Weaknesses. The Weaknesses are such that a progress report will be required to evaluate the remedial actions taken by the institution. This action has a typical duration of two years.

3.3.3 RE (Report Extended): This action indicates that satisfactory remedial action has been taken by the institution with respect to Weaknesses identified in the prior IR action.

This action is taken only after an IR review. This action extends accreditation to the next General Review and has a typical duration of either two or four years.

3.3.4 IV (Interim Visit): This action indicates that the program has no Deficiencies but has one or more Weaknesses. The Weaknesses are such that an on-site review will be required to evaluate the remedial actions taken by the institution. This action has a typical duration of two years.

3.3.5 VE (Visit Extended): This action indicates that satisfactory remedial action has been taken by the institution with respect to Weaknesses identified in the prior IV action. This action is taken only after an IV review. This action extends accreditation to the next General Review and has a typical duration of either two or four years.

3.3.6 SCR (Show Cause Report): This action indicates that a currently accredited program has one or more Deficiencies. The Deficiencies are such that a progress report will be required to evaluate the remedial actions taken by the institution. This action has a typical duration of two years. This action cannot follow a previous SC action for the same Deficiency(s).

3.3.7 SCV (Show Cause Visit): This action indicates that a currently accredited program has one or more Deficiencies. The Deficiencies are such that an on-site review will be required to evaluate the remedial actions taken by the institution. This action has a typical duration of two years. This action cannot follow a previous SC action for the same Deficiency(s).

3.3.8 SE (Show Cause Extended): This action indicates that satisfactory remedial action has been taken by the institution with respect to all Deficiencies and Weaknesses identified in the prior SC action. This action is taken only after either a SCR or SCV review. This action typically extends accreditation to the next General Review and has a typical duration of either two or four years.

3.3.9 NA (Not to Accredite): This action indicates that the program has Deficiencies such that the program is not in compliance with the applicable criteria. This action is usually taken only after a SCR or SCV review, or the review of a previously unaccredited program. Accreditation is not extended as a result of this action.

Note:

If it is a new program, the date at which accreditation is to begin must be indicated. Normally accreditation is retroactive for one year such that it applies to all students who graduated after October 1 of the year preceding the on-site review.

3.4 ASSESSMENT RUBRICS

In order to enable the program evaluator to assess each performance indicator according to the program shortcomings (D, W, and C) (if any), the evaluation judgment of each performance indicator is carried out by the aid of rubrics specially designed for this purpose as listed in Appendix (E). The following is an example of these rubrics:

3.4.1 for Criterion 5: Students

3.4.1.1 Rubrics Title: Have and enforce policies for accepting new students

3.4.1.1.1 Covered Aspect:

2.1.1 Student Admission

3.4.1.1.2 Covered Performance Indicators:

3.1.1.1.1 Requirements of admission

3.1.1.1.2 Processes of admission

3.1.1.1.3 High-school grades for freshman admissions

3.4.1.1.3 Deficiencies:

- No policy (requirements and processes) is adopted for accepting new students.
- The adopted policy (requirements and processes) for accepting new students is not implemented.

3.4.1.1.4 Weaknesses:

- Weak policy (requirements and processes) is adopted for accepting new students.
- The adopted policy (requirements and processes) for accepting new students is not firmly enforced.

3.4.1.1.5 Concerns:

- The policies (requirements and processes) for accepting new students are better to be more firmly enforced.
- The trend in high-school grades of freshman accepted in the last five years are better to be noticed.

3.5 PROGRAM EVALUATOR WORKSHEETS

The program evaluator worksheets summarize the initial evaluation judgment of each performance indicators. These worksheets come in two parts as shown in Appendix (F). The first part summarizes the identification of shortcomings (D, W, and C) (if any). If no shortcomings are identified the program is considered to be in Compliance to criteria and policies (Y). The second part is a detailed description of any identified shortcomings. Sometimes suggestions (Observations) are offered in the second part to assist compliant programs in its continuous improvement (O).

CHAPTER FOUR

ACCREDITATION POLICIES AND PROCEDURES

This chapter clarifies the policies and procedures followed for accreditation, appeals, reconsiderations and complaints.

4.1 Public Release of Information by the Institution

- 4.1.1** Institutions are required to represent the accreditation status of each program accurately and without ambiguity. Programs are either accredited or not accredited. The Council does not rank programs. An institution may not use the same program name to identify both an accredited program and a non-accredited program.
- 4.1.2** Unauthorized use of the Council’s official logo is prohibited. Accredited programs are authorized to use special logos provided by the Council for use on websites, in course catalogs, and in other similar publications. These logos can be requested through the Council at the Council web site.
- 4.1.3** When the Council awards accreditation to a program, the accreditation action indicates only the nature of the next review and is not an indicator of the program’s quality. A program must not publish or imply the length of the period of accreditation. Public announcement of the accreditation action should only relate to the attainment of accredited status. All statements on accreditation status must refer only to those programs that are accredited. No implication should be made that accreditation by the Council applies to any programs other than the accredited ones.
- 4.1.4** Direct quotation in whole or in part from any Council statement to the institution is unauthorized, except as required by a Show Cause action. Correspondence and reports between the Council and the institution are confidential documents and should only be released to authorized personnel at the institution. Any document so released by the institution must clearly state that it is confidential. Wherever law or institution policies require the release of any confidential document, the entire document must be released.
- 4.1.5** The institution must avoid any implication that a program is accredited under criteria against which it has not been evaluated.
- 4.1.6** Institution catalogs and similar publications must clearly indicate the programs accredited by the Council as separate and distinct from any other programs or kinds of accreditation. Each accredited program must be specifically identified as “accredited by the Council accompanied by the Council web site.”
- 4.1.6.1** Each accredited program must publicly state the program’s educational objectives and graduate outcomes.
- 4.1.6.2** Each accredited program must publicly post annual student enrollment and graduation data per program.

- 4.1.7** When a program submits a request for evaluation to the Council, it agrees to disclose publicly its accreditation status to assist external stakeholders, such as students, parents, and the general public, in making appropriate education decisions.
- 4.1.7.1** The Council publicly identifies programs whose accreditation has been denied or withdrawn by the Council itself.
- 4.1.7.2** The Council publicly identifies programs whose accreditation has been placed on Show Cause due to one or more cited deficiencies in Criteria compliance.
- 4.1.7.3** If the Council places a program on Show Cause or denies or withdraws a program's accreditation, then the institution must provide, upon request from the public, a statement summarizing the Council's reasons for the Show Cause accreditation action or the denial or withdrawal of accreditation; that statement can be accompanied by a response from the affected program addressing the Council decision. This statement must be available within 60 days of the final decision by the Council. The Council will post on its public website a notice regarding the availability of this statement from the institution.
- 4.1.7.4** In the event that the program files an official request for appeal, reconsideration, or immediate re-visit in accordance with Section (4.12.6), the 60-day period for public notification will begin when the Section (4.12.6) processes have provided a final accreditation action.
- 4.1.8** The institution must make a public correction if misleading or incorrect information is released regarding the items addressed in Section (4.1.1).

4.2 Confidentiality of Information

- 4.2.1** The Council requires ethical conduct by each volunteer and staff member engaged in fulfilling the mission of the Council. The Council requires that every volunteer and staff member exhibit the highest standards of professionalism, honesty, and integrity. The services provided by the Council require impartiality, fairness, and equity. All persons involved with the Council activities must perform their duties under the highest standards of ethical behavior. Information provided by the institution is for the confidential use of the Council and its agents, and will not be disclosed without specific written authorization of the institution concerned.
- 4.2.2** The contents of all materials furnished for review purposes and discussion during the Council meetings are considered privileged information. The contents of those documents and the accreditation actions taken may be disclosed only by the Council staff and only under appropriate circumstances. All communications between institutions and evaluators or the Council members regarding final accreditation actions must be directed to the Council Chair.
- 4.2.3** The Council publicly identifies programs that have been accredited, placed on Show Cause, and programs for which accreditation was denied or withdrawn by the Council, in accordance with Section (4.1.7) of this manual.

4.3 Conflict of Interest

- 4.3.1** Service as a Council Member, Editor, Team Chair, Program Evaluator or Staff Member creates situations that may result in conflicts of interest or questions regarding the objectivity and credibility of the accreditation process. The Council expects these individuals to behave in a professional and ethical manner, to disclose real or perceived conflicts of interest, and to recuse themselves from discussions or decisions related to real or perceived conflicts of interest. The intent of this policy is to maintain credibility in the accreditation process and confidence in the decisions of these individuals, assure fairness and impartiality in decision-making and avoid the appearance of impropriety.
- 4.3.2** Individuals representing the Council must not participate in any decision-making capacity if they have or have had a close and active association with the institution that is being considered for official action by the Council. Close and active association includes, but is not limited to:
- 4.3.2.1** Current or past employment as faculty, staff, or consultant by the institution;
 - 4.3.2.2** Current or past discussion or negotiation of employment with the institution;
 - 4.3.2.3** Attendance as a student at the institution;
 - 4.3.2.4** Receipt of an honorary degree from the institution;
 - 4.3.2.5** Involvement of a close family relative as a student or employee of the institution;
 - 4.3.2.6** An unpaid official relationship with the institution, e.g., membership of the institution's industry advisory board; or
 - 4.3.2.7** Any reason that prohibits the individual from rendering an unbiased decision.
- 4.3.3** The Council members are not eligible to serve concurrently on the Apparatus of Supervision; nor are staff member in the Apparatus of Supervision eligible to serve as a Council member. Editors serve as ex-officio non-voting members of the Council. The Apparatus of Supervision staff members may observe an accreditation visit, but they are not eligible to serve as program evaluators or Team Chairs.
- 4.3.4** A record of known conflicts of interest will be maintained for every individual involved in the accreditation process. Each individual will be provided the opportunity to update this record annually. The records of conflicts of interest will be utilized in selection of Team Chairs and program evaluators.
- 4.3.5** Each individual representing the Council must sign a conflict of interest and confidentiality statement indicating that s/he has read and understands the Council policy on conflict of interest and confidentiality. The policy on conflict of interest and confidentiality will be presented and discussed at the start of each Council meeting.
- 4.3.6** Individuals must recuse themselves from any portion of a Council meeting involving discussions or decisions for which they have a real or perceived conflict of interest.

4.3.7 The Council will maintain a record of the names of individuals recusing themselves for conflicts of interest at each meeting related to accreditation decision making.

4.4 Accreditation Criteria and Definition of Terms

4.4.1 The General Criteria of Chapter three address requirements for all programs accredited by the Council. These criteria are posted on the Council web site.

4.4.2 The Program specific Criteria of Appendix (G) address program-specific requirements within areas of specialization. These criteria are posted on the Council web site.

4.4.3 Any proposed new criteria or changes to existing criteria will be published for a period of public review and comment. During the review and comment period, proposed criteria will be published in the “Proposed Criteria” section of the appropriate criteria document. The typical review and comment period is one year.

4.5 Eligibility of Programs for Accreditation Review

4.5.1 The Council defines an educational program as an integrated, organized experience that culminates in the awarding of a degree. The program will have program educational objectives, graduate outcomes, a curriculum, faculty and facilities.

4.5.2 Programs will be considered for accreditation if they are offered by an institution of higher education that has verifiable governmental, recognition to confer degrees. The Council accredits individual educational programs. The Council does not accredit departments or institutions.

4.5.3 Programs accredited by the Council are those leading to the professional practice of engineering. The Council accredits a program at the bachelor degree level. All engineering program names must include the word “engineering”.

4.5.4 Program names must meet the Council requirements.

4.5.4.1 The program name must be descriptive of the content of the program.

4.5.4.2 The program name must be shown consistently on transcripts of its graduates, in the institution’s electronic and print publications and on the Council Request for Evaluation (RFE).

4.5.4.3 The program name determines the criteria applicable to its review. Every program must meet the General Criteria of chapter three. If a program name implies specialization(s) for which Program Specific Criteria have been developed, the program must satisfy all applicable Program Specific Criteria. A program may choose to have an option, or similar designation implying specialization within the program, reviewed as a separate program.

4.5.5 To be eligible for an initial accreditation review, a program must have at least one graduate within the academic year prior to the academic year of the on-site review.

4.5.6 A Program Readiness Review (PRR) must be completed for Initial Program Review (IPR) of a program(s) within an institution without previously accredited programs.

An institution contemplating a review for the first time must contact the Council for more information prior to making a formal request.

4.5.6.1 Occurring before the RFE deadline, PRR is a mandatory document screening process that determines an institution's preparedness to have its program(s) reviewed. It serves to reduce the possibility that an institution without previous accreditation experience will expend resources for an on-site review before there are adequate preparations and that the Council will commit volunteer resources before a program is sufficiently prepared for the review.

4.5.6.2 A committee comprising current/former Council staff will perform the screening process.

4.5.6.3 The outcome of a PRR for a program is one of three non-binding options:

- i) a recommendation to submit the RFE in the immediate upcoming accreditation review cycle, addressing the PRR suggestions, if any;
- ii) a recommendation to postpone the RFE submission unless substantive changes in the Self-Assessment Report (SAR) preparation and documentation are made; or
- iii) a recommendation not to submit the RFE in the immediate upcoming accreditation review cycle because it is likely to be rejected.

4.5.7 The Council will inform the public about the harm of degree mills and accreditation mills by posting on the Council website.

4.6 Application and Timeline for Accreditation Review

4.6.1 Programs are considered for accreditation review only at the written request of the institution. An institution contemplating a Council review for the first time must contact the Council for more information prior to making the formal request.

4.6.1.1 An institution wishing to have programs considered for accreditation or reaccreditation must submit to the Council a Request for Evaluation (RFE) not less than six months before the academic year in which the review is desired. The RFE must be signed by the institutional Chief Executive Officer (Dean or equivalent) and must be submitted with one official transcript of a recent graduate for each program listed on the RFE.

4.6.1.2 The Council conducts all reviews in English. Programs must submit all documentation including the SAR, transcripts, display materials, and correspondence in English.

4.6.1.3 An RFE may be modified or withdrawn by the institution at any time up to the beginning of the Council's decision meeting. Changes to the RFE must be in writing, signed by the institutional administrative officer responsible for the accredited programs, and transmitted to the Council Secretary via electronic and physical mail.

- 4.6.2** The Accreditation Fee Schedule is posted on the Council web site. The institution will receive an invoice for fees associated with the requested review. Payment is due 45 days from date of the invoice.
- 4.6.3** Prior to the final appointment of the team, the institution will have the opportunity to review all assigned team members with regard to the Council's published Conflict of Interest Policy (Section 4.3). The institution may reject a team member only in the case of real or perceived conflicts of interest.
- 4.6.4** The institution and the Team Chair will mutually determine dates for any on-site review that is required. On-site reviews are normally conducted during September through December of the calendar year in which the review is requested.
- 4.6.5** The institution will submit a SAR or an Interim Report (IR), as required, for each program to be reviewed.
- 4.6.5.1** The SAR or IR is due to the Council Secretary no later than July 1 of the calendar year in which the review is to be conducted.
- 4.6.5.2** The institution will provide the appropriate report directly to the Team Chair no later than July 1.
- 4.6.5.3** The institution will provide the appropriate report directly to each program evaluator at the direction of the Team Chair.
- 4.6.6** When an on-site review is required, the duration of the review is normally three days from team arrival to departure but may be extended or shortened depending on review requirements. Typically the on-site review is conducted from Sunday through Tuesday.
- 4.6.7** As a result of the review, the institution will typically receive a Draft Statement (DS) to the Institution for review and comment.
- 4.6.8** The institution has 30 days from receipt to provide a Due Process Response (DPR) to the DS. This response will be evaluated and used as the basis for revising the DS to create the Final Statement (FS).
- 4.6.9** Final action on each program will be based upon the Council's consideration of the findings in the DS, the analysis of the DPR, and the analysis of additional information received in time for proper consideration. The DS will be modified to reflect these analyses, resulting in a FS that reflects the final action by the Council.
- 4.6.10** The institution will receive the FS and the Summary of Accreditation Actions (SAA) no later than August 31 of the calendar year following the review.

4.7 Program Reviews

- 4.7.1** Reviews are conducted to verify that a program is in compliance with the appropriate accreditation criteria, policies, and procedures. In order for a program to be accredited, all paths to completion of the program must satisfy the appropriate criteria.

4.7.2 Types of Review

4.7.2.1 A Comprehensive Program Review (CPR) addresses all applicable criteria, policies, and procedures.

4.7.2.1.1 A Comprehensive Program Review consists of:

- i) The examination of a SAR prepared by the program and
- ii) An on-site review by a team.

4.7.2.1.2 An Initial Program Review, conducted on a program that is not already accredited, must be a CPR.

4.7.2.1.3 Comprehensive Program Reviews must be conducted for each accredited program at intervals no longer than six years for continuous accreditation, except as provided in Section (4.10).

- i) The Council establishes a six-year cycle of scheduled general reviews for each institution. This general review applies to all programs accredited by the Council. A year in which such a review occurs is called a General Review Year (GRY).
- ii) In a GRY for a given institution, all accredited programs under the purview of the Council will receive a CPR simultaneously.
- iii) The general review cycle will be set by the date on which that the Council accredits its first program at the institution.

4.7.2.2 An IPR occurs between CPRs when Weaknesses or Deficiencies remain unresolved in a prior review. An IPR typically uses the accreditation criteria in effect at the time of the previous CPR. However, an institution may elect to base its IPR on criteria in effect at the time of the last CPR or on those in effect at the time of the IPR.

4.7.2.2.1 A review following an Interim Report (IR) or a Show Cause Report (SCR) accreditation action consists of the examination of an IR prepared by the program addressing Concerns, Weaknesses, and/or Deficiencies that remained unresolved in the FS from the prior review.

4.7.2.2.2 A review following an Interim Visit (IV) or a Show Cause Visit (SCV) accreditation action consists of:

- i) The examination of an IR prepared by the program addressing Concerns, Weaknesses, and/or Deficiencies that remained unresolved in the FS from the prior review, and
- ii) An on-site review focused on Concerns, Weaknesses, and/or Deficiencies that remained unresolved in the FS from the prior review.

4.7.2.2.3 New Concerns, Weaknesses, and/or Deficiencies can be cited if they become evident during the conduct of an IR.

4.7.3 Self-Assessment Report: Educational programs at an institution will be evaluated, in part, on the basis of information and data submitted to the Council in the form of a SAR. The SAR addresses how a program meets each criterion in addition to

applicable policy requirements. The SAR must include information about all methods of program delivery, all possible paths to completion of the degree, and remote offerings if any. To assist programs in completing a SAR, the Council has developed a SAR template that is posted on the Council website.

4.7.4 Final Preparation for On-Site Review

4.7.4.1 Submittal of Transcripts: Prior to arriving on-site, the team will request official transcripts of the most recent graduates from each program. Each program being evaluated will provide official transcripts with associated worksheets and any guidelines used by the advisors.

4.7.4.2 Additional Information: Prior to arriving on-site, the team may request additional information it deems necessary for clarification.

4.7.5 On-Site Review: the PEV team conducts an on-site review to assess factors that cannot be adequately described in the SAR.

4.7.5.1 Teams for on-site reviews will typically consist of a Team Chair and one program evaluator for each program being reviewed. The typical minimum team size is three members.

4.7.5.1.1 Team Chairs will typically be a program evaluator trainee from the approved list maintained by the Council. Program evaluators will typically be selected from the Council list.

4.7.5.1.2 In the case where a program must satisfy more than one set of Program Specific Criteria, there typically will be one program evaluator for each set of Program Specific Criteria to be used in the review.

4.7.5.1.3 For cases such as the following, the team size and/or duration of the on-site review may be adjusted:

- i) A very high degree of overlap between two programs being reviewed.
- ii) A program with multiple sites or nontraditional delivery method.
- iii) An Interim Program Review with a very limited focus.
- iv) A single program seeking reaccreditation.

4.7.5.1.5 A Review Team may include observers at the discretion of the Team Chair and the institution. Observers are typically current or former members of the Council.

4.7.6 Comprehensive Program Review: The Review Team will examine all program aspects to judge compliance with criteria and policies. The team will assist each program in recognizing its strong and weak points. To accomplish this, the team will:

4.7.6.1 Interview faculty, students, administrators, and staff to obtain an understanding of program compliance with the applicable criteria and policies and of specific issues that arise from the examination of the SAR and from the on-site review.

4.7.6.2 Examine the following:

- 4.7.6.2.1 Facilities: to assure the instructional and learning environments are adequate and are safe for the intended purposes. Neither the Council nor its representatives offer opinions as to whether, or certify that, the institution's facilities comply with any applicable rules or regulations pertaining to: fire, safety, building, and health codes, or consensus standards or recognized best practices for safety.
- 4.7.6.2.2 Materials: Evaluators will review samples of displayed course materials including course syllabi, textbooks, example assignments and exams, and examples of student work, typically ranging from excellent through poor.
- 4.7.6.2.3 Evidence that the program educational objectives stated for each program are based on the needs of the stated program constituencies.
- 4.7.6.2.4 Evidence of a documented, systematically utilized, and effective process, involving constituents, for periodic review of the program educational objectives stated for each program.
- 4.7.6.2.5 Evidence of the assessment, evaluation, and attainment of graduate outcomes for each program.
- 4.7.6.2.6 Evidence of actions taken to improve the program.
- 4.7.6.2.7 Student support services to confirm adequacy of services appropriate to the institution's mission and the program's educational objectives and graduate outcomes.
- 4.7.6.2.8 The process for certifying completion of the program and awarding of the degree, including visits with persons responsible to ascertain that the process works as reported.

4.7.6.3 Present the team's factual findings orally at the conclusion of the visit in an Exit Meeting (EM) for the institution's chief executive officer or designee and such personnel as the chief executive officer wishes to assemble.

4.7.6.4 Provide to the dean or other appropriate academic officer, a copy of the Program Audit Form (PAF) for each program reviewed along with an explanation of the seven-day period in which the institution can provide the Team Chair with corrections to any errors of fact in the oral statement or on the PAFs.

4.7.7 Effective Date of Initial Accreditation: For a program obtaining initial accreditation, the accreditation normally will apply to all students who graduated from the program no earlier than the academic year prior to the on-site review. The Council, at the time of the accreditation decision, has the authority to set the date of initial accreditation as conditions warrant, but the date of initial accreditation can be no earlier than two academic years prior to the on-site review. In order for a program to be considered for retroactive accreditation two academic years prior to the on-site review, the program must inform the Team Chair and the program reviewer

prior to the on-site review. The program must also provide the following additional information to the Review Team:

4.7.7.1 Documentation in the SAR that no changes that potentially impact the extent to which an accredited program satisfies the accreditation criteria and policies have occurred during the two academic years prior to that of the Initial Program Review.

4.7.7.2 Transcripts and sample student work for both academic years prior to that of the Initial Program Review.

4.7.8 Interim Program Review

4.7.8.1 Types of Interim Program Reviews: There are two types of IPRs:

4.7.8.1.1 Those that do not require an on-site review (resulting from an Interim Report or Show Cause Report action), and

4.7.8.1.2 Those that require an on-site review (resulting from an Interim Visit or Show Cause Visit action).

4.7.8.2 Composition of IPR Team

4.7.8.2.1 If an on-site review is not required, a Team Chair will typically review an Interim Report or a Show Cause Report.

4.7.8.2.2 If an on-site review is required, Review Teams will typically consist of a Team Chair and one Program Evaluator for each program having an on-site review. The minimum team size for an IPR following a Show Cause Visit action is three persons.

4.7.9 Draft Statement to the Institution: The Team Chair prepares a Draft Statement of preliminary findings and recommendations to be edited by designated member of the Council and for transmission to the institution. The Team Chair will prepare a Draft Statement to the Institution for each review conducted. The Draft Statement will consist of general information plus a program-specific section for each program reviewed.

4.7.9.1 The statement to each program will typically include the following:

4.7.9.1.1 Findings of Fact: A finding of fact indicate a program characteristic that exists and is verifiable through the review process.

4.7.9.1.2 Findings of Shortcomings:

i) Deficiency: A Deficiency indicates that a criterion, policy, or procedure is not satisfied. Therefore, the program is not in compliance with the criterion, policy, or procedure.

ii) Weakness: A Weakness indicates that a program lacks the strength of compliance with a criterion, policy, or procedure to ensure that the quality of the program will not be compromised. Therefore, remedial action is required to strengthen compliance with the criterion, policy, or procedure prior to the next review.

iii) Concern: A Concern indicates that a program currently satisfies a criterion, policy, or procedure; however, the potential exists for the situation to change such that the criterion, policy, or procedure may not be satisfied.

4.7.9.1.3 Findings of Observation: An Observation is a comment or suggestion that does not relate directly to the current accreditation action but is offered to assist the institution in its continuing efforts to improve its programs.

4.7.10 30-Day Due Process: The Team Chair provides the institution with a Draft Statement. The institution may respond in 30 days to report progress in addressing shortcomings or to correct errors of fact in the Draft Statement. This is referred to as the 30-day Due Process Response.

4.7.10.1 Shortcomings are considered to have been resolved only when the correction or revision has been implemented during the academic year of the review and substantiated by official documents signed by the responsible administrative officers.

4.7.10.2 All unresolved shortcomings will be evaluated by the Evaluation Team at the time of the next review.

4.7.10.3 Supplemental Information from the Institution: The Team Chair may, at his or her discretion in consultation with the Council Chair, accept additional information after the 30-day Due Process period. Any such information must be received in time for proper consideration prior to the Decision Meeting of the Council.

4.7.11 Final Statement to the Institution: The Team Chair will prepare a draft of the Final Statement after reviewing the institution's Due Process Response. Designated Member of the Council will edit the draft and the Council will determine the accreditation actions based on this draft. The Final Statement to the Institution will be completed after all updates from the Decision Meeting are incorporated.

4.7.12 Accreditation Actions: The decision on program accreditation rests with the Council. The following actions are available to the Council.

4.7.12.1 NGR (Next General Review): This action indicates that the program has no Deficiencies or Weaknesses. This action is taken only after a Comprehensive General Review and has a typical duration of six years.

4.7.12.2 IR (Interim Report): This action indicates that the program has one or more Weaknesses. The Weaknesses are such that a progress report will be required to evaluate the remedial actions taken by the institution. This action has a typical duration of two years.

4.7.12.3 IV (Interim Visit): This action indicates that the program has one or more Weaknesses. The Weaknesses are such that an on-site review will be required to evaluate the remedial actions taken by the institution. This action has a typical duration of two years.

- 4.7.12.4 SCR (Show Cause Report):** This action indicates that a currently accredited program has one or more Deficiencies. The Deficiencies are such that a progress report will be required to evaluate the remedial actions taken by the institution. This action has a typical duration of two years. This action cannot follow a previous SC action for the same Deficiency(s). The Council expects the institution to provide a statement to the students, faculty, and the public summarizing the Council's reasons for the Show Cause accreditation action and specific corrective actions the program intends to implement to maintain accreditation.
- 4.7.12.5 SCV (Show Cause Visit):** This action indicates that a currently accredited program has one or more Deficiencies. The Deficiencies are such that an on-site review will be required to evaluate the remedial actions taken by the institution. This action has a typical duration of two years. This action cannot follow a previous SC action for the same Deficiency(s). The Council expects the institution to provide a statement to the students, faculty, and the public summarizing the Council's reasons for the Show Cause accreditation action and specific corrective actions the program intends to implement to maintain accreditation.
- 4.7.12.6 RE (Report Extended):** This action indicates that satisfactory remedial action has been taken by the institution with respect to Weaknesses identified in the prior IR action. This action is taken only after an IR review. This action extends accreditation to the next General Review and has a typical duration of either two or four years.
- 4.7.12.7 VE (Visit Extended):** This action indicates that satisfactory remedial action has been taken by the institution with respect to Weaknesses identified in the prior IV action. This action is taken only after an IV review. This action extends accreditation to the next General Review and has a typical duration of either two or four years.
- 4.7.12.8 SE (Show Cause Extended):** This action indicates that satisfactory remedial action has been taken by the institution with respect to all Deficiencies and Weaknesses identified in the prior SC action. This action is taken only after either a SCR or SCV review. This action typically extends accreditation to the next General Review and has a typical duration of either two or four years.
- 4.7.12.9 NA (Not to Accredite):** This action indicates that the program has Deficiencies such that the program is not in compliance with the applicable criteria. This action is usually taken only after a SCR or SCV review, or the review of a new, unaccredited program. Accreditation is not extended as a result of this action. This action can be appealed as specified in the Appeals Section (4.12.6) of this document.

4.7.12.9.1 An Executive Summary of the findings leading to the not-to-accredit action will be provided to the institution along with the Final Statement.

4.7.12.9.2 A “Not to Accredit” action, as a result of a “Show Cause” focused review, is effective September 30 of the year of the “not to accredit” decision, pending final action on any request from the institution for immediate revisit, reconsideration, or appeal.

4.7.12.9.3 For accredited programs, the Council will require the institution to formally notify students and faculty affected by the revocation of the program’s accredited status, not later than September 30 of the calendar year of the “not to accredit” action and to remove the accreditation designation from all program catalog copy, electronic and print.

4.7.12.10 T (Terminate): This action is generally taken in response to a request by an institution that accreditation be extended for a program that is being phased out. The intent is to provide accreditation coverage for students remaining in the program. The duration of this action may be up to three years. This action may not follow either Show Cause action.

4.8 Changes during the Period of Accreditation

4.8.1 The institutional administrative officer responsible for the accredited programs will notify the Council Secretary of changes that potentially impact the extent to which an accredited program satisfies the accreditation criteria or policies. A third party may also notify the Council Secretary of a change to an accredited program. The institution provides the Council Secretary with detailed information about the nature of each change and its impact on the accredited program. Such changes include, but are not limited to:

4.8.1.1 Changes related to criteria

4.8.1.1.1 Students

4.8.1.1.2 Program Educational Objectives

4.8.1.1.3 Graduate outcomes

4.8.1.1.4 Continuous Improvement

4.8.1.1.5 Curriculum

4.8.1.1.6 Faculty

4.8.1.1.7 Facilities

4.8.1.1.8 Institutional Support

4.8.1.1.9 Program Criteria

4.8.1.2 Changes related to policies

4.8.1.2.1 Program name

4.8.1.2.2 Methods or Venues of Program Delivery

4.8.1.2.3 Institutional Authority to Provide Post-secondary Education

4.8.1.2.4 Status of Institutional Accreditation

4.8.1.2.5 Decision to Terminate a Program’s Accreditation

4.8.1.2.6 Decision to Terminate an Accredited Program (Section 4.9)

4.8.2 The Council will review the information provided by the institution and any third party as follows:

4.8.2.1 The Council Secretary sends copies of the information provided by the institutions or the third party to the Council Chair and to two of the Council members.

4.8.2.2 The selected Council members review the documentation provided and make recommendations to the Council Chair within 30 days.

4.8.2.2.1 These Council members may request additional information through the Council Secretary.

4.8.2.2.2 These Council members will recommend either that accreditation be maintained for the duration of the current accreditation period or that a focused on-site review be required to determine the accreditation status of the changed program.

4.8.2.3 The Council Chair will review the recommendations and make one of the following decisions:

4.8.2.3.1 The program must provide specific additional information.

4.8.2.3.2 Accreditation will be maintained for the duration of the current accreditation period.

4.8.2.3.3 A focused on-site review is required to determine the accreditation status of the changed program and the review will be scheduled in the earliest available review cycle. Based on the recommendation coming from the focused on-site review, the accreditation status of the program may be changed upon vote of the Council members.

4.8.2.4 The Council Secretary will notify the institution of the Council's decision.

4.8.2.5 If an immediate focused on-site review is required and the institution declines to do so, this action shall be cause for revocation of accreditation of the program under consideration (Sections 4.11.5 and 4.11.6).

4.8.2.6 If an accredited program ceases to exist or ceases to be offered by an institution, the program accreditation will terminate as of the date the program ceases to exist or ceases to be offered.

4.9 Program Termination by Institution

4.9.1 An institution may decide to terminate an accredited program from its offerings. In the case where the program's termination date is beyond the expiration date of the current period of accreditation, extension of accreditation up to three years may be granted to cover students remaining in the program.

4.9.1.1 If the request for termination is synchronous with a scheduled review of the program, the institution submits a Request for Evaluation (RFE) indicating the decision to terminate the program. The program submits a Termination Plan, in

lieu of the SAR or IR, by July 1 after the RFE is submitted. The normal review process is followed per Section (4.6), as appropriate.

4.9.1.2 If the request for termination is not synchronous with a scheduled review of the program, the institutional administrative officer responsible for accredited programs will notify the Council Secretary per Section (4.8.1). The institution provides a Termination Plan, as described below. The process described in Section (4.8.2) above will be invoked.

4.9.1.3 The Termination Plan demonstrates the program's ability to continue delivery of an accredited program during its phase-out. The Plan should include the following information:

4.9.1.3.1 Name of Institution;

4.9.1.3.2 Name of Program;

4.9.1.3.3 The number of students remaining in the program with the expected date of graduation for the last student;

4.9.1.3.4 Copies of all notices to students in the program regarding the discontinuation of the program;

4.9.1.3.5 The name, official position, and contact information of the individual responsible for the continuing administration of the program;

4.9.1.3.6 The names of the faculty members teaching all required technical courses and any other courses specific to the program. Courses being taught in connection with other programs whose accreditation is being continued need not be covered in the report;

4.9.1.3.7 Biographical data sheets for all persons included in (4.9.1.3.5) and (4.9.1.3.6) above;

4.9.1.3.8 Description of how the program will continue to support student attainment of the outcomes;

4.9.1.3.9 Descriptions of any substitutions or major changes in the curriculum since the time of the last accreditation review or that are planned through to the termination of the program;

4.9.1.3.10 Descriptions of how instructional laboratory facilities will be maintained for remaining students;

4.9.1.3.11 Descriptions of advising processes that will be available to students remaining in the program; and

4.9.1.3.12 Descriptions of any remedial actions taken with respect to any Weaknesses remaining at the time of the last accreditation review.

4.9.1.4 If the requested extension is more than six years from the date of the most recent general review, an on-site termination review will be required.

4.9.1.4.1 The on-site termination review will be focused on the Termination Plan.

4.9.1.4.2 The on-site termination review will be conducted by a Team Chair only and will typically be a one-day visit.

4.9.1.5 If an on-site termination review is not required, the Termination Plan will be reviewed by a Council member.

4.9.1.6 A decision on the “Termination” action will be made by the Council.

4.10. Continuation of Accreditation

From time to time programs may find it necessary to seek an extension of accreditation outside a scheduled review.

4.10.1 The program must submit an official request to the Council with a detailed rationale for the request.

4.10.2 Continuation of accreditation beyond a normal scheduled review year requires the Council approval and can be granted only under very limited circumstances:

4.10.2.1 Events clearly beyond the control of the institution that prevent the program from preparing for the review and/or prevents the team from conducting a complete on-site review.

4.10.2.1.1 Length of continuation is limited to one year.

4.10.2.1.2 General review year would not change.

4.10.2.2 Desire of the Council to change the general review year to achieve a better balance in the Council workload.

4.10.2.2.1 The change must be agreeable to the institution.

4.10.2.2.2 Length of continuation is limited to one year.

4.10.2.2.3 General review year would change accordingly.

4.11 Revocation of Accreditation

If, during the period of accreditation, a program appears to be no longer in compliance with criteria or policies, the Council may institute Revocation for Cause according to the following procedures:

4.11.1 The Council will notify the institution, providing a comprehensive document showing the reasons why revocation is being considered.

4.11.2 The institution will be asked to provide an analysis and response to the reasons provided by the Council.

4.11.3 An on-site review may be scheduled to evaluate the reasons provided by the Council.

4.11.4 If the on-site review and/or the institution’s response fail to demonstrate compliance with accreditation criteria and/or policies, accreditation will be revoked.

4.11.5 The Council will promptly notify the institution of such revocation. The notice will be accompanied by a supporting statement detailing the cause for revocation.

4.11.6 Revocation for Cause constitutes a Not to Accredite (NA) action and the institution may appeal.

4.12. Appeals, Reconsiderations, and Immediate Re-Visits

4.12.1 Appeals, requests for reconsideration, and requests for immediate revisits may be made only in response to not-to-accredit actions. Further, those appeals or requests for reconsideration may be based only upon the grounds that the not-to-accredit decision of the Council was inappropriate because of errors of fact or failure to conform to the Council's published criteria, policies, or procedures. Only conditions known to the Council at the time of the Council's decision will be considered by the Council in the cases of appeals or requests for reconsideration. In the case of a request for immediate revisit, substantive improvements and corrective actions taken prior to the request and documented by the institution will also be considered.

4.12.2 In lieu of an immediate appeal, an institution may first request reconsideration or an immediate revisit. If such a request is denied, the institution may appeal the original not-to-accredit action. Requests for reconsideration or an immediate revisit must be made in writing to the Council Chair within 30 days of receiving notification of the not-to-accredit action.

4.12.3 Appeals must be made in writing to the Council Chair within 30 days of receiving notification of the not-to-accredit action or notification of the denial of a request for reconsideration or an immediate revisit.

4.12.4 Immediate Revisit

4.12.4.1 A program that has received a not-to-accredit action may be a candidate for an immediate revisit if it will undergo substantive and documented improvement before the onset of the next accreditation cycle. In such cases, the institution must submit a written request for an immediate revisit to the Council Chair within 30 days of receiving notification of the not-to-accredit action. This request must be accompanied by 10 copies of a report stating the actions already taken to eliminate the deficiencies cited in the Council's statement to the institution. This report should contain appropriate documentation of substantive improvements and corrective actions taken, and should support the request for a revisit. The institution is cautioned, however, that the extent to which corrective actions have not been made effective may make a revisit unproductive.

4.12.4.2 The Council shall accept or deny the institution's request within 15 days of the Council's receipt of the institution's request for immediate revisit. This action will be based solely on the report and supporting documentation supplied by the institution in accordance with the nature of the deficiencies which led to the not-to-accredit action.

4.12.4.3 If the Council judges that an immediate revisit is not warranted, the request will be denied with a statement of reasons and a reiteration of the institution's right to pursue an appeal of the not-to-accredit action.

4.12.4.4 When an immediate revisit is granted by the Council, the institution shall be deemed to have waived its right to appeal either the original not-to-accredit action or the action that will result from the revisit. If the request for revisit is granted, the institution will be charged the regular visitation fee for the revisit.

4.12.4.5 If, following the immediate revisit, the Council, upon unanimous vote, judges that the institution is correct in its claim of substantive improvement, the Council may overturn the not-to-accredit decision and grant whatever accreditation action it deems appropriate, within the choices that were available to the Council itself.

4.12.5 Reconsideration

4.12.5.1 A program that has received a not-to-accredit action may be a candidate for reconsideration if it can demonstrate that there were major, documented errors of fact in the information used by the Council in arriving at the not-to-accredit decision. In such cases, the institution must submit a written request for reconsideration to the Council Chair within 30 days of receiving notification of the not-to-accredit action. This request must be accompanied by 10 copies of a report specifying the major, documented errors of fact and how such errors contributed to the not-to-accredit action, along with substantiating documentation.

4.12.5.2 The Council Chair shall accept or deny the institution's request for reconsideration of the not-to-accredit decision within 15 days of the Council's receipt of the institution's request for reconsideration. This action will be based solely on the report and supporting documentation supplied by the institution in accordance with the nature of the deficiencies which led to the not-to-accredit action.

4.12.5.3 If the Council judges that reconsideration is not warranted, the request for reconsideration will be denied with a statement of reasons and a reiteration of the institution's right to pursue an appeal of the not-to-accredit action.

4.12.5.4 When reconsideration is granted by the Council, the institution shall be deemed to have waived its right to appeal either the original not-to-accredit action or the action that will result from the reconsideration.

4.12.5.5 If, following reconsideration, the Council, upon unanimous vote, judges that the institution is correct in its claim of such error leading to an erroneous conclusion by the Council, the executive committee may overturn the not-to-accredit decision and grant whatever accreditation action it deems appropriate, within the choices that were available to the Council itself. The new accreditation action must be decided by unanimous vote of the Council.

4.12.6 Appeal

- 4.12.6.1** Only not-to-accredit actions may be appealed. A notice of appeal must be submitted in writing by the chief executive officer of the institution to the Council Chair within 30 days of receiving notification of the not-to-accredit action. This submission must include the reasons why the not-to-accredit decision of the Council is inappropriate because of either errors of fact or failure of the Council to conform to the Council's published criteria, policies, or procedures.
- 4.12.6.2** Upon receipt of a notice of appeal, the Council Chair will notify the Council of the appeal and will select three or more past members of the Council to serve as an appeal committee. Current members of the Council are ineligible to serve on the appeal committee. At least one former member of the Council will be experienced as a program evaluator. The Council Chair will designate one former member of the Council as chair of the appeal committee.
- 4.12.6.3** The appeal committee will be provided with copies of all documentation that has been made available to the institution during the different phases of the accreditation cycle, including the institution's due process response and other materials submitted by the institution or by the Council.
- 4.12.6.4** The institution is required to submit a response (normally one page) to the Council's executive summary previously sent to the institution. The institution may also submit other material it deems necessary to support its appeal. However, such materials must be confined to the status of the program at the time of the accreditation action of the Council and to information that was then available to the Council.
- 4.12.6.5** It is emphasized that improvements made to a program subsequent to the decision meeting of the Council will not be considered by the appeal committee.
- 4.12.6.6** The Council may submit written materials beyond the statement to the institution and the executive summary for clarification of its position. Such materials must be provided to the institution and appeal committee at least 60 days prior to the date of the committee's meeting. Any rebuttal by the institution must be submitted to the committee at least 30 days prior to the committee meeting.
- 4.12.6.7** The appeal committee will meet and, on behalf of the Council Chair, consider only the written materials submitted by the institution and the Council in arriving at its determination. Representatives from the institution and the Council may not attend this meeting. The appeal committee's decision is limited to the options available for the not-to-accredit determination. The appeal committee's findings and its decision will be reported to the Council in writing by the appeal committee chair. The decision rendered by the appeal committee is the final decision of the Council.

4.12.6.8 The institution and the Council will be notified in writing of this decision, and the basis for the decision, by the Council Chair within 15 days of the final decision.

4.13 Complaints

4.13.1 It is the policy of the Council to review all complaints received from any source, including students, against either an accredited program or the Council itself that are related to compliance with the Council's criteria, policies or procedures and to resolve any such complaints in a timely, fair, and equitable manner. Furthermore, it is the policy of the Council to retain all documentation associated with any such complaint received against an accredited program for a period of not less than one accreditation cycle (typically six years), and for a period of not less than (5) years for any complaints received against the Council itself.

4.13.2 Accredited programs must maintain a record of student complaints made to the institution and upon written request make that record available to the Council.

4.13.3 The Council will not pursue complaints that are not in writing or that are anonymous. The receipt of a complaint will be acknowledged to the complainant within (14) days.

4.13.4 The Council cannot assume authority for enforcing the policies of programs or institutions regarding faculty, professional staff, or student rights. The Council does not adjudicate, arbitrate, or mediate individual grievances against a program or institution.

4.13.5 Complaints will be reviewed initially by the Council Chair. If the complaint is not within the purview of the Council, the complainant will be notified and no further action will be taken. If the complaint appears to warrant further investigation, the Council Chair will forward a copy of the complaint to the Council or institutional authorities within (14) days of receipt of the complaint. The complainant will be notified within (14) days of the receipt whether the complaint falls within the purview of the Council and the next steps in the investigative process.

4.13.6 Complaints against an Institution or its Programs

4.13.6.1 If the complaint appears to warrant further investigation, the Council Chair will forward a copy of the complaint to the Council and to the principal administrative officers of the institution within (14) days of receipt of the complaint with a request for an institutional response within (30) days. The institutional response will be reviewed by the Council within (30) days of receipt of the institutional response.

4.13.6.2 If the Council determines that the institutional response satisfactorily addresses the issue or issues raised in the complaint, the matter will be considered closed. Within (14) days of the determination, the complainant will be informed in writing of the results of the determination.

4.13.6.3 In the event that an institutional response is not received by the Council within (30) days of the request for the response, or if the response is not deemed to have satisfactorily resolved the issue, the Council may initiate further proceedings as circumstances warrant, up to and including revocation of accreditation.

4.13.6.4 If the institution has released incorrect or misleading information regarding the accreditation status of the institution or program, the contents of visit reports and final statements, or the accreditation action taken by the Council, the institution will be required to make a public correction.

4.13.7 Complaints against the Council

4.13.7.1 If the complaint is concerned with the Council's criteria, policies, or procedures or with the implementation of these, the Council Chair will forward a copy of the complaint to the Council within (14) days of receipt.

4.13.7.2 If it appears that a Council representative or an individual working on behalf of the Council may have violated the Council's criteria, policies, or procedures, that individual will be asked to respond to the issues raised in the complaint within (30) days. The Council will make its determination within (30) days of receipt of the response. The complainant will be notified of the final action of the Council in writing within (14) days of the determination.

4.13.7.3 If the Council determines that a violation has occurred, the Council will counsel the responsible party and may take further action as circumstances warrant, up to and including termination as a Council representative. If the Council finds that a violation of its policies or procedures has occurred which may have had an effect on the accreditation action, the Council may initiate further proceedings as circumstances warrant, up to and including an immediate revisit to the institution.

4.13.7.4 Complaints against the Council employees will be handled in accordance with the Council Employee Operations & Procedures Manual and may result in actions up to and including termination of employment.

APPENDIX (A)

GENERAL DEFINITIONS (AFTER ABET)

Mission Statement

Mission statement is a formal, short, written statement of the purpose of the institution. The mission statement should guide the actions of the institution, spell out its overall goal, provide a sense of direction, and guide decision-making. It provides the framework or context within which the institution's strategies are formulated.

Program Educational Objectives

Program educational objectives are broad statements that describe what graduates are expected to attain within a few years of graduation. Program educational objectives are based on the needs of the program's constituencies.

PEOs in general can be:

- Have the knowledge and skills, including design and problem analysis and solving necessary for a successful career in engineering.
- Continue to develop knowledge using modern design tools and new technologies in engineering.
- Continue to learn through appropriate continuing education processes.
- Be admitted to and succeed in graduate study in internationally recognized universities.

Graduate outcomes

Graduate outcomes describe what students are expected to know and be able to do by the time of graduation. These relate to the skills, knowledge, and behaviors that students acquire as they progress through the program.

Performance Criteria

Specific, measurable statements identifying the performance required to meet the outcomes, confirmable through evidence (standards, rubrics, specification, metrics, etc.).

ABET Engineering Criteria (EC2000)

It is a set of outcomes-based criteria by which the program is evaluated. It focuses on what the students have learned or what they can actually do. It requires engineering programs to:

- i. Define their own objectives and outcomes in consultation with their constituencies.
- ii. Measure their performance.
- iii. Introduce program improvement where appropriate.

Assessment

Assessment is one or more processes that identify, collect, and prepare data to evaluate the attainment of graduate outcomes. Effective assessment uses relevant direct, indirect, quantitative and qualitative measures as appropriate to the outcome being measured. Appropriate sampling methods may be used as part of an assessment process.

Evaluation

Evaluation is one or more processes for interpreting the data and evidence accumulated through assessment processes. Evaluation determines the extent to which graduate outcomes are being attained. Evaluation results in decisions and actions regarding program improvement.

Constituencies

Constituencies may include students, alumni, faculty, parents, employers, community and the government.

Advisory Committee

An advisory committee with representation from organizations being served by the program graduates must be utilized to periodically review the program's curriculum and advise the program on the establishment, review, and revision of its program educational objectives. The advisory committee must provide advisement on current and future aspects of the technical fields for which the graduates are being prepared.

Faculty Vitae

Appendices of abbreviated consistent 2-page resumes (Times New Roman 12 point font) for each instructor or above in rank showing; Name and rank, Education (degree, discipline, institution and year), Academic experience (institution, rank, title, when and full time or part time), Non-academic experience (company or entity, title, brief description of position, when and full time or part time), Certifications or professional registrations, Current membership in professional organizations, Honors and awards, Service activities (within and outside of the institution), Brief list of the most important publications and presentations from the past five years (title, co-authors if any, where published and/or presented and date of publication or presentation), and Brief list of the most recent professional development activities.

Program Background

Background information about the program and the institution must be included at the beginning of the Self-Study or Self-Assessment Report prepared by the Department. Background information consist of; **Contact information** (contact persons names, mail, telephone and e-mail), **Program history** (start year and major changes thereafter, especially recent ones), **Options** (including tracks and concentrations), **Organizational**

structure (text and chart to describe the administrative structure of the program and above), **Program delivery modes** (traditional lecture/laboratory is the only mode adopted in Iraq), **Program Locations** (All locations where the program or a portion of the program is regularly offered including dual degrees, international partnerships, etc., **Public Disclosure** (information concerning all the places where the PEOs, GOs, annual student enrollment and graduation data is posted or made accessible to the public including URLs, **Results of previous evaluation** in case of being evaluated before (observed deficiencies, weaknesses and concerns) and **Actions taken** (to address them including effective dates).

Institutional Summary

An institutional summary must be appended to the Self-Study Report including; The Institution (Name and address of the institution, Name and title of the chief executive officer of the institution, Name and title of the person submitting the Self-Study Report and Name the organizations by which the institution is now accredited and the dates of the initial and most recent accreditation evaluations), Type of Control (Description of the type of managerial control of the institution, e.g., governmental or privet-profit), Educational Unit (Describe the educational unit in which the program is located including the administrative chain of responsibility from the individual responsible for the program to the chief executive officer of the institution including names and titles. An organization chart may be included), Academic Support Units (List the names and titles of the individuals responsible for each of the units that teach courses required by the program being evaluated), Non-academic Support Units (List the names and titles of the individuals responsible for each of the units that provide non-academic support to the program being evaluated, e.g., library, computing facilities, placement, tutoring, etc.), Credit Unit (It is assumed that one semester or quarter credit normally represents one class hour or three laboratory hours per week. One academic year normally represents at least 28 weeks of classes, exclusive of final examinations. If other standards are used for this program, the differences should be indicated, and finally Program Enrollment and Degree Data and Personnel.

APPENDIX (B)
DEFINITIONS RELATED TO GRADUATE OUTCOMES
(AFTER ABET)

Engineering Problem-Solving

It is the use of sound reasoning, engineering analysis, creativity and judgment to identify problems and formulate solutions both for well-defined and ill-defined problems.

Application of Mathematics and Science

Understanding and properly applying principles from math. and science to engineering problems.

Use of Engineering Tools

Using appropriate engineering tools and techniques including computational hardware & software to simplify & automate problem solving

Design and Conduct Experiments and Analyze Data

Design and conduct experiments to test hypotheses, to understand component function or to investigate phenomena using appropriate interpretive methods to understand data, analyze trends and draw conclusions.

Design a Component, System or Process

It means the iterative process of designing a component, system or process in which mathematics, basic sciences and engineering sciences are applied to convert resources optimally to meet stated needs.

Team Work (Multidisciplinary)

It means two or more individuals from different disciplines using skills to work together toward successful completion of a mutual objective.

Professionalism and Ethics

Recognizing the need for an ethical response to an issue and acting in a manner consistent with integrity, moral standards and codes.

Communication Skills

It means efficient and effective writing, speaking and presenting of concepts and results of a project in an understandable manner to audience.

Global and Social Context of Engineering

It means understanding the effect of engineering solutions on the local, national and global community.

Lifelong Learning Skills

Pursuing and maintaining currency of knowledge and professional needs continually improving.

Knowledge of Contemporary Issues

Exhibiting knowledge of current issues that apply to the discipline and being able to intelligently discuss world happenings.

Leadership

Responsibly providing or accepting delegations, implicitly or explicitly leading and/or managing people or technical projects in a way that will achieve excellent results.

APPENDIX (C)
CURRICULUM-RELATED DEFINITIONS
(AFTER ABET)

Engineering Design

It is the process of devising a system, component, or process to meet desired needs. It is a decision-making process (often iterative), in which the basic sciences, mathematics, and the engineering sciences are applied to convert resources optimally to meet these stated needs.

Study Year

One study year is the lesser of; 32 semester hours (or equivalent) or one-fourth of the total credits required for graduation.

Subject Areas

The curriculum must effectively develop the following subject areas in support of graduate outcomes and program educational objectives; mathematics, physical and natural science, technical content, social sciences and humanities and communications in an integrated program.

Mathematics

The program must develop the ability of students to apply mathematics to the solution of technical problems including the application of integral and differential calculus or other mathematics appropriate to the graduate outcomes and program educational objectives. Algebra, trigonometry, and an introduction to mathematics above the level of algebra and trigonometry, Integral and differential calculus, or other appropriate mathematics above the level of algebra and trigonometry, constitutes the foundation mathematics for baccalaureate programs.

Physical and Natural Science

The basic science content of the program must include physical or natural science with laboratory experiences as appropriate to the discipline. The basic science content can include physics, chemistry, or life and earth sciences that support program educational objectives. This component must include laboratory experiences which develop expertise in experimentation, observation, measurement, and documentation.

Technical Content

The technical content of the program must focus on the applied aspects of science and engineering in that portion of the engineering spectrum closest to product improvement, manufacturing, construction and operational functions. It must develop the skills,

knowledge, methods, procedures, and techniques associated with the discipline and appropriate to the goals of the program. It also must develop the depth of technical specialty and:

- i. Represent at least 1/3 of the total credit hours for the program but no more than 2/3 of the total credit hours for the program.
- ii. Include a technical core that prepares students for the increasingly complex technical specialties they will experience later in the curriculum. The technical core must provide the prerequisite foundation of knowledge necessary for the technical specialties.
- iii. Laboratory activities must develop student competence in the use of analytical and measurement equipment common to the discipline and appropriate to the goals of the program.
- iv. Technical courses must develop student knowledge and competence in the use of standard design practices, equipment and tools, techniques, and computer hardware and software appropriate to the discipline and goals of the program.
- v. Capstone (Final Year Project) or other integrating experiences must draw together diverse elements of the curriculum and develop student competence in focusing both technical and non-technical skills in solving problems.

Social Sciences and Humanities

The social sciences and humanities content must support technical education by broadening student perspective and imparting an understanding of diversity and the global and societal impacts of technology.

Communications

The communications content must develop the ability of graduates to:

- i. Plan, organize, prepare, and deliver effective technical reports in written, oral, and other formats appropriate to the discipline and goals of the program.
- ii. Incorporate communications skills throughout the technical content of the program.
- iii. Utilize the interpersonal skills required to work effectively in teams.

The Integration of Content

Programs must provide a capstone or integrating experience that develops student competencies in applying both technical and non-technical skills in solving problems.

Cooperative Education

When used to satisfy prescribed elements of these criteria, credits based upon cooperative/internships or similar experiences must include an appropriate academic component evaluated by the program faculty.

APPENDIX (D)
GRADUATES ATTRIBUTES IN THE IRAQI ENGINEERING
PROGRAMS FOR BSc DEGREES

Graduates attributes are descriptive of what it means to be a graduate of a higher education institution in terms of attitudes and approaches in addition to skills and abilities and how to approach learning and knowledge, self-development and contributing to the world development. Skills, abilities and attributes mean different things in different contexts and disciplines. They are not simply taught but developed through meaningful experiences and the processes of learning and reflection. Although there are some common areas, graduates attributes are unique to every student because students will have their own starting points, progress and experiences in these areas while at the University which will shape them as individuals.

Knowledge Profile

1. A systematic, theory-based understanding of the natural sciences applicable to the discipline (e.g. calculus-based physics).
2. Conceptually-based mathematics, numerical analysis, statistics and formal aspects of computer and information science to support analysis and modeling applicable to the discipline.
3. A systematic, theory-based formulation of engineering fundamentals required in the engineering discipline.
4. Engineering specialist knowledge that provides theoretical frameworks and bodies of knowledge for the accepted practice areas in the engineering discipline; much is at the forefront of the discipline.
5. Knowledge that supports engineering design in a practice area.
6. Knowledge of engineering practice (technology) in the practice areas in the engineering discipline.
7. Comprehension of the role of engineering in society and identified issues in engineering practice in the discipline: ethics and the professional responsibility of an engineer to public safety; the impacts of engineering activity: economic, social, cultural, environmental and sustainability.
8. Engagement with selected knowledge in the research literature of the discipline.

Attributes Profile

1. **Engineering Knowledge:** Apply knowledge of mathematics, science, engineering fundamentals and an engineering specialization to the solution.
2. **Problem Analysis:** Identify, formulate, research literature and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences.
3. **Design/development of solutions:** Design solutions for complex engineering problems and design systems, components or processes that meet specified needs with appropriate consideration for public health and safety, cultural, societal, and environmental considerations.
4. **Investigation:** Conduct investigations of complex problems using research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of information to provide valid conclusions.
5. **Modern Tool Usage:** Create, select and apply appropriate techniques, resources, and modern engineering and IT tools, including prediction and modeling, to complex engineering activities, with an understanding of the limitations.
6. **The Engineer and Society:** Apply reasoning informed by contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant professional engineering practice.
7. **Environment and Sustainability:** Understand the impact of professional engineering solutions in societal and environmental contexts and demonstrate knowledge of and need for sustainable development.
8. **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of engineering practice.
9. **Individual and Team work:** Function effectively as an individual, and as a member or leader in diverse teams and in multi-disciplinary settings.
10. **Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
11. **Project Management and Finance:** Demonstrate knowledge and understanding of engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

12. **Lifelong learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

Range of Problem Solving

Engineering problems which cannot be resolved without in-depth engineering knowledge, much of which is at, or informed by, the forefront of the professional discipline, and have some or all of the following characteristics:

1. **Range of conflicting requirements:** Involve wide-ranging or conflicting technical, engineering and other issues.
2. **Depth of analysis required:** Have no obvious solution and require abstract thinking, originality in analysis to formulate suitable models.
3. **Depth of knowledge required:** Requires research-based knowledge much of which is at, or informed by, the forefront of the professional discipline and which allows a fundamentals-based, first principles analytical approach.
4. **Familiarity of issues:** Involve infrequently encountered issues.
5. **Extent of applicable codes:** Are outside problems encompassed by standards and codes of practice for professional engineering.
6. **Extent of stakeholder involvement and level of conflicting requirements:** Involve diverse groups of stakeholders with widely varying needs.
7. **Consequences:** Have significant consequences in a range of contexts.
8. **Interdependence:** Are high level problems including many component parts or sub-problems.

Range of Engineering Activities

Complex activities mean engineering activities or projects that have some or all of the following characteristics:

1. **Range of resources:** Involve the use of diverse resources (and for this purpose resources includes people, money, equipment, materials, information and technologies).
2. **Level of interactions:** Require resolution of significant problems arising from interactions between wide-ranging or conflicting technical, engineering or other issues.

3. **Innovation:** Involve creative use of engineering principles and research-based knowledge in novel ways.
4. **Consequences to society and the environment:** Have significant consequences in a range of contexts, characterized by difficulty of prediction and mitigation.
5. **Familiarity:** Can extend beyond previous experiences by applying principles-based approaches.

Professional Competency Profiles

1. **Comprehend and apply universal knowledge:** Comprehend and apply advanced knowledge of the widely-applied principles underpinning good practice.
2. **Comprehend and apply local knowledge:** Comprehend and apply advanced knowledge of the widely-applied principles underpinning good practice specific to the jurisdiction in which he/she practices.
3. **Problem analysis:** Define, investigate and analyze complex problems.
4. **Design and development of solutions:** Design or develop solutions to complex problems.
5. **Evaluation:** Evaluate the outcomes and impacts of complex activities.
6. **Protection of society:** Recognize the reasonably foreseeable social, cultural and environmental effects of complex activities generally, and have regard to the need for sustainability; recognize that the protection of society is the highest priority.
7. **Legal and regulatory:** Meet all legal and regulatory requirements and protect public health and safety in the course of his or her activities.
8. **Ethics:** Conduct his or her activities ethically.
9. **Manage engineering activities:** Manage part or all of one or more complex activities.
10. **Communication:** Communicate clearly with others in the course of his or her activities.
11. **Lifelong learning:** Undertake CPD activities sufficient to maintain and extend his or her competence.

12. **Judgment:** Recognize complexity and assess alternatives in light of competing requirements and incomplete knowledge. Exercise sound judgment in the course of his or her complex activities.
13. **Responsibility for decisions:** Be responsible for making decisions on part or all of complex activities.

Terminology

The following definitions apply to the terms used in this document which are equivalent to the terms used in other engineering education standards.

Branch of Engineering: a generally-recognized, major subdivision of engineering such as the traditional disciplines of Chemical, Civil, or Electrical Engineering, or a cross-disciplinary field of comparable breadth including combinations of engineering fields, for example Mechatronics, and the application of engineering in other fields, for example Bio-Medical Engineering.

Complementary (Contextual) Knowledge: Disciplines other than engineering, basic and mathematical sciences, that support engineering practice, enable its impacts to be understood and broaden the outlook of the engineering graduate.

Continuing Professional Development: the systematic, accountable maintenance, improvement and broadening of knowledge and skills, and the development of personal qualities necessary for the execution of professional and technical duties throughout an engineering practitioner's career.

Engineering Sciences: include engineering fundamentals that have roots in the mathematical and physical sciences, and where applicable, in other natural sciences, but extend knowledge and develop models and methods in order to lead to applications and solve problems, providing the knowledge base for engineering specializations.

Engineering Design Knowledge: Knowledge that supports engineering design in a practice area, including codes, standards, processes, empirical information, and knowledge reused from past designs.

Engineering Discipline: synonymous with branch of engineering.

Engineering Fundamentals: a systematic formulation of engineering concepts and principles based on mathematical and natural sciences to support applications.

Engineering Management: the generic management functions of planning, organizing, leading and controlling, applied together with engineering knowledge in contexts including the management of projects, construction, operations, maintenance, quality, risk, change and business.

Engineering Problem: is a problem that exists in any domain that can be solved by the application of engineering knowledge and skills and generic competencies.

Engineering Practice Area: a generally accepted or legally defined area of engineering work or engineering technology.

Engineering Specialty or Specialization: a generally-recognized practice area or major subdivision within an engineering discipline, for example Structural and Geotechnical Engineering within Civil Engineering; the extension of engineering fundamentals to create theoretical frameworks and bodies of knowledge for engineering practice areas.

Engineering Technology: is an established body of knowledge, with associated tools, techniques, materials, components, systems or processes that enable a family of practical applications and that relies for its development and effective application on engineering knowledge and competency.

Formative Development: the process that follows the attainment of an accredited education program that consists of training, experience and expansion of knowledge.

Manage: means planning, organizing, leading and controlling in respect of risk, project, change, financial, compliance, quality, ongoing monitoring, control and evaluation.

Mathematical Sciences: mathematics, numerical analysis, statistics and aspects of computer science cast in an appropriate mathematical formalism.

Natural Sciences: Provide, as applicable in each engineering discipline or practice area, an understanding the physical world including physics, mechanics, chemistry, earth sciences and the biological sciences,

Practice Area: in the educational context: synonymous with generally-recognized engineering specialty; at the professional level: a generally recognized or distinctive area of knowledge and expertise developed by an engineering practitioner by virtue of the path of education, training and experience followed.

Solution: means an effective proposal for resolving a problem, taking into account all relevant technical, legal, social, cultural, economic and environmental issues and having regard to the need for sustainability.

Sub-discipline: Synonymous with engineering specialty.

Substantial Equivalence: applied to educational programs means that two or more programs, while not meeting a single set of criteria, are both acceptable as preparing their respective graduates to enter formative development toward registration.

APPENDIX (E)
ASSESSMENT RUBRICS

For Criterion 1: Program Educational Objectives

R_{1,1}: Rubrics Title: Published PEOs and being consistent with institutional mission, the needs of the program constituencies, and these criteria

Covered Aspects:

- 2.1.1 Strategic Planning
- 2.1.2 Statement of PEOs
- 2.1.3 PEOs consistency with the Mission Statement
- 2.1.4 Program Constituencies

Covered Performance Indicators:

- 3.1.1.1.1 Applicable published strategic plan
- 3.1.1.1.2 Consistency of the program strategic plan with the institutional one
 - 3.1.1.2.1 Adopted published and publicized PEOs
 - 3.1.1.3.1 Relating PEOs to the institution's mission
 - 3.1.1.4.2 How the PEOs meet the needs of these constituencies

Deficiencies:

- No strategic plan is available or no consistency of the strategic plan with the institutional one.
- No PEOs are available.
- PEOs are inconsistent with the institution's mission.
- PEOs are inconsistent with the constituencies needs.

Weaknesses:

- The strategic plan is weakly consistent with the institutional one.
- PEOs are weakly consistent with the institution's mission.
- PEOs are weakly consistent with the constituencies needs.
- PEOs are not published.

Concerns:

- PEOs are better to be more consistent with the institution's mission.
- PEOs are better to be more consistent with the program's constituencies needs.
- PEOs are better to be more publicized.

R_{1,2}: Rubrics Title: Documented PEOs are systematically utilized and periodically reviewed involving program constituencies

Covered Aspects:

- 2.1.4 Program Constituencies (continued)
- 2.1.5 PEOs Review Process

Covered Performance Indicators:

- 3.1.1.4.1 What Constituencies are involved
- 3.1.1.5.1 Processes for periodical review of PEOs
- 3.1.1.5.2 How constituencies are involved
- 3.1.1.5.3 How to ensure that PEOs remain consistent with the institutional mission, the program constituents' needs and these criteria

Deficiencies:

- No process for periodical review of PEOs is available.
- No program's constituencies other than program administrators are involved in the periodic review of PEOs.
- Constituencies are ineffectively involved in reviewing PEOs.
- Nothing performed to ensure that PEOs remain consistent with the institutional mission, the program constituents' needs and these criteria.

Weaknesses:

- Weak process for periodical review of PEOs is available.
- Few program's constituencies other than program administrators are involved in the periodic review of PEOs.
- Effectiveness of the constituencies' involvement in the periodic review of PEOs is weak.
- Weak actions are performed to ensure that PEOs remain consistent with the institutional mission, the program constituents' needs and these criteria.

Concerns:

- It's better to involve all constituencies in the periodic review of PEOs.
- The process is better to be systematic and more effective.
- The process is better to be well documented.

For Criterion 2: Graduate outcomes

R_{2,1}: Rubrics Title: Program has documented GOs that prepare graduates to attain PEOs

Covered Aspects:

- 2.2.1 Adopted Graduate outcomes
- 2.2.2 Relating GOs to PEOs

Covered Performance Indicators:

- 3.1.2.1.1 Applicable published and publicized GOs
- 3.1.2.2.1 How GOs prepare graduates to attain PEOs

Deficiencies:

- No GOs are adopted.
- No documentation made to show the relation between GOs and PEOs.
- No relation is noticed between GOs and PEOs.

Weaknesses:

- The adopted GOs are not published.
- Weak documentation made to show the relation between GOs and PEOs.
- Weak relations are noticed between GOs and PEOs.

Concerns:

- The published GOs need to be publicized.
- The documentation of how GOs prepares graduates to attain the related PEOs needs to be more precise.

R_{2,2}: Rubrics Title: Coherence of each SO with the related SO of the seven GOs of this criterion.

Covered Aspects:

- 2.2.1 Adopted Graduate outcomes (continued).

Covered Performance Indicators:

3.1.2.1.2 Coherence with the seven GOs of this criterion.

Deficiencies:

- One or more than one SO is entirely not covered by any of the adopted GOs.

Weaknesses:

- One or more than one SO is weakly covered by any of the adopted GOs.

Concerns:

- One or more than one SO is better to be more precisely covered by the adopted GOs.

For Criterion 3: Curriculum

R_{3,1}: Rubrics Title: Devotes adequate attention and time to each component, consistent with the outcomes and objectives of the program and institution

Covered Aspects:

2.3.1 Program Structure and Contents

Covered Performance Indicators:

3.1.3.1.1 Study Plan

3.1.3.1.2 Alignment with PEOs

3.1.3.1.3 Attainment of GOs

3.1.3.1.4 Prerequisite Structure

Note: If there is more than one curricular path, demonstration should be provided for each path separately.

Deficiencies:

- No supporting evidence on how the program devotes adequate attention and time to each professional component in a balanced study plan is available (including information on course offerings in the form of a recommended schedule by year and term).
- No supporting evidence on how the study plan ensures consistency with the outcomes and objectives of the program and institution is available.
- No supporting evidence on how the study plan ensures prerequisite requirements is available.

Weaknesses:

- Weak evidence on how the program devotes adequate attention and time to each professional component in a balanced study plan (including information on course offerings in the form of a recommended schedule by year and term).
- Weak evidence on how the study plan ensures consistency with the outcomes and objectives of the program and institution.
- Weak evidence on how the study plan ensures prerequisite requirements.

Concerns:

- Evidence on how the program devotes adequate attention and time to each professional component in a balanced study plan is better to be more precise.
- Evidence on how the study plan ensures consistency with the outcomes and objectives of the program and institution is better to be more precise.
- Evidence on how the study plan ensures prerequisite requirements are better to be more precise.

R_{5,2}: Rubrics Title: One year of college level mathematics and basic sciences (biological, chemical, and physical sciences; some with experimental experience)

Covered Aspects:

2.3.1 Program Structure and Content (continued)

Covered Performance Indicators:

3.1.3.1.5 Subject area requirements: Mathematics and Basic Sciences

Deficiencies:

- No supporting evidence on how the program meets the requirements of mathematics and basic sciences.

Weaknesses:

- Weak evidence on how the program meets the requirements of mathematics and basic sciences.

Concerns:

- Study materials (textbooks and alike) of mathematics and basic sciences are better to be updated.

R_{3,3}: Rubrics Title: One and one-half years of engineering topics appropriate to the field of study

Covered Aspects:

2.3.1 Program Structure and Content (continued)

Covered Performance Indicators:

3.1.3.1.5 Subject area requirements (continued): Engineering Topics

Deficiencies:

- No supporting evidence on how the program meets the requirements of engineering topics.

Weaknesses:

- Weak evidence on how the program meets the requirements of engineering topics is available.

Concerns:

- Study materials (textbooks and alike) of engineering topics are better to be updated.

R_{3,4}: Rubrics Title: General education component that complements the technical content and is consistent with program and institution objectives

Covered Aspects:

2.3.1 Program Structure and Content (continued)

Covered Performance Indicators:

3.1.3.1.5 Subject area requirements (continued): General Education

Deficiencies:

- No supporting evidence on how the program meets the requirements.

Weaknesses:

- Weak evidence on how the program meets the requirements.

Concerns:

- Study materials (textbooks and alike) of general education are better to be updated.

R_{3,5}: Rubrics Title: Culminates in a major design experience based on knowledge and skills acquired in earlier course work and incorporating appropriate engineering standards and multiple realistic constraints

Covered Aspects:

2.3.1 Program Structure and Content (continued)

Covered Performance Indicators:

3.1.3.1.6 Major design experience

Deficiencies:

- No supporting evidence on how the program meets the requirements major design experience.

Weaknesses:

- Weak evidence on how the program meets the requirements major design experience.

Concerns:

- Major design experience is better to be slightly upgraded.

R_{3,6}: Rubrics Title: Teaching and Learning Strategies

Covered Aspects:

2.3.1 Program Structure and Content (continued)

Covered Performance Indicators:

3.1.3.1.7 Teaching and Learning Strategies

Deficiencies:

- No evidence that teaching and learning strategies lead to GOs attainment.

Weaknesses:

- Weak evidence that teaching and learning strategies lead to GOs attainment.

Concerns:

- Evidences that teaching and learning strategies lead to GOs attainment are to be well-documented.

R_{3,6}: Rubrics Title: Relating Courses Learning Outcomes and GOs

Covered Aspects:

2.3.2 Mapping Courses Learning Outcomes and GOs

Covered Performance Indicators:

3.1.3.2.2 Mapping CLOs to GOs

Deficiencies:

- No supporting evidence on how CLOs relate to GOs.
- No or weak relation between CLOs and GOs.

Weaknesses:

- Weak evidence on how CLOs relate to GOs.

Concerns:

- CLOs relation to GOs is better to be enhanced and be well-documented.

Note: Abbreviated courses syllabi are supplementary evidence for being compliant to (5.1). No rubrics are needed.

For Criterion 4: Continuous Improvement

R_{4.1}: Rubrics Title: Regular use of appropriate, documented processes for assessing and evaluating the extent to which the graduate outcomes are being attained

Covered Aspects:

2.4.1 Achievement of Graduate outcomes

Covered Performance Indicators:

3.1.4.1.1 Assessment Processes

3.1.4.1.2 Frequency of Assessment Processes

3.1.4.1.3 Expected Level of Attainment for each of the GOs

3.1.4.1.4 Results of Evaluation and Analysis

3.1.4.1.5 Documentation

Deficiencies:

- No assessment processes for GOs attainment are adopted.
- No evaluation processes for GOs attainment are adopted.

Weaknesses:

- Weak assessment processes for GOs attainment are adopted.
- Weak evaluation processes for GOs attainment are adopted.
- Targeted levels of GOs attainment are low.
- Evaluation of GOs attainment show low achievement.
- Assessment and evaluation processes are not frequently and systematically carried on.
- Assessment and evaluation processes are not well-documented.

Concerns:

- Targeted levels of GOs attainment are better to be elevated.
- Attainment of GOs is better to be enhanced.
- Assessment and evaluation processes are better to be more frequently and systematically carried on.
- Assessment and evaluation processes are better to be more precisely documented.

R_{4.2}: Rubrics Title: Results of evaluations systematically utilized as input for the continuous improvement of the program

Covered Aspects:

2.4.2 Continuous Improvement Actions

Covered Performance Indicators:

3.1.4.2.1 Systematic data utilization in continuous improvement

3.1.4.2.2 Re-assessment of changes results

3.1.4.2.3 Future plans

3.1.4.2.4 Brief rationale of planned changes

Deficiencies:

- No data utilization in continuous improvement is available.

- Neither monitoring nor re-assessment of implemented improvement changes is carried out.
- No future plans for continuous improvement are set.

Weaknesses:

- Weak data utilization in continuous improvement is noticed.
- Weak re-assessment of implemented improvement changes is carried out.
- Weak future plans for continuous improvement are set.

Concerns:

- Data utilization, re-assessment of implemented improvement changes and future plans in continuous improvement is better to be more systematic.

R_{4,3}: Rubrics Title: Documentation of other information related to continuous improvement

Covered Aspects:

2.4.2.5 Documentation

Covered Performance Indicators:

3.1.4.3.1 What does QMS provide for the program continuous improvement?

3.1.4.3.2 The feedback and inputs from stakeholders and others

3.1.4.3.3 Other information, if available, used to assist in continuous improvement

Deficiencies:

- No QMS is adopted.
- Feedback and inputs from stakeholders and others are not documented.

Weaknesses:

- Weak QMS is adopted.
- Feedback and inputs from stakeholders and others are weakly documented.

Concerns:

- QMS is better to be enhanced.
- Documentation of feedback and inputs from stakeholders and others is better to be more precise.
- Other information used to assist in continuous improvement is better to be well-documented.

For Criterion 5: Students

R_{5,1}: Rubrics Title: Have and enforce policies for accepting new students

Covered Aspects:

2.5.1 Student Admission

Covered Performance Indicators:

3.1.5.1.1 Requirements of admission

3.1.5.1.2 Processes of admission

3.1.5.1.3 High-school grades for freshman admissions

Deficiencies:

- No policy (requirements and processes) is adopted for accepting new students.

- The adopted policy (requirements and processes) for accepting new students is not implemented.

Weaknesses:

- Weak policy (requirements and processes) is adopted for accepting new students.
- The adopted policy (requirements and processes) for accepting new students is not firmly enforced.

Concerns:

- The policies (requirements and processes) for accepting new students are better to be more firmly enforced.
- The trend in high-school grades of freshman accepted in the last five years are better to be noticed.

R_{5,2}: Rubrics Title: Evaluate student performance (to foster learning outcomes attainment)

Covered Aspects:

2.5.2 Student Performance and Progress

Covered Performance Indicators:

3.1.5.2.1 Processes of student performance evaluation

Deficiencies:

- No processes are adopted for student performance evaluation.

Weaknesses:

- Weak processes are adopted for student performance evaluation.
- Processes are either few or weakly implemented.

Concerns:

- Processes are better to be well documented.

R_{5,3}: Rubrics Title: Monitor student progress (meeting prerequisites)

Covered Aspects:

3.1.5.1.2 Student Performance and Progress (Continued)

Covered Performance Indicators:

3.1.5.2.2 Processes of student progress monitoring

3.1.5.2.3 How to ensure meeting prerequisites

3.1.5.2.4 How to document students meeting prerequisites

Deficiencies:

- No processes are adopted for student progress monitoring.

Weaknesses:

- Weak processes are adopted for student progress monitoring.
- Processes are either few or weakly implemented.

Concerns:

- Processes are better to be well documented.

R_{5.4}: Rubrics Title: Have and enforce policies for awarding academic credit for courses taken at other institutions + 2.5.1

Covered Aspects:

2.5.3 Transfer Students

Covered Performance Indicators:

3.1.5.3.1 Requirements and processes for accepting transfer students

3.1.5.3.2 Transfer credits and clearing instructions

3.1.5.3.3 Ministry-mandated articulation impact

3.1.5.3.4 Transfer students for past five years

Note: Ministry-mandated articulation requirements that impact the program are better to be inclusively put into consideration.

Deficiencies:

- No policies (requirements, processes and transfer credits) are adopted for accepting transfer students.

Weaknesses:

- Weak policies (requirements, processes and transfer credits) are adopted for accepting transfer students.
- Policies (requirements, processes and transfer credits) do exist but they are not firmly enforced.

Concerns:

- The policies (requirements, processes and transfer credits) for accepting transfer students are better to be more firmly enforced and the trend in high-school grades of transfer students in the last five years are better to be noticed.

R_{5.5}: Rubrics Title: Advising students and extracurricular activities

Covered Aspects:

2.5.4 Advising Students and Extracurricular Activities

Covered Performance Indicators:

3.1.5.4.1 Processes for advising students regarding curricular and carrier matters

3.1.5.4.2 Processes for advising students regarding extracurricular activities

3.1.5.4.3 How often students are advised, who provides that

Deficiencies:

- No processes are adopted for student advising by program faculty, departmental, college or university advisors.

Weaknesses:

- Weak processes are adopted for student advising by program faculty, departmental, college or university advisors.
- Processes are either rarely or Weakly implemented (insufficient support from higher administrations is offered)

Concerns:

- The processes for student advising are better to be frequently and systematically carried on by program faculty, departmental, college or university advisors.

R_{5.6}: Rubrics Title: Have and enforce procedures to ensure and document that students who graduate meet all graduation requirements

Covered Aspects:

2.5.5 Graduation Requirements

Covered Performance Indicators:

3.1.5.5.1 Graduation requirements

3.1.5.5.2 Well-documented procedures to ensure that graduates meet the requirements

3.1.5.5.3 Transcripts of some of the most recent graduates

Note: Transcripts of some of the most recent graduates (student records) are provided as supplementary evidence for being compliant to (5.5). No rubrics are needed for this aspect.

Deficiencies:

- No graduation requirements are available.
- No processes are adopted to ensure that students meet the graduation requirements.

Weaknesses:

- Weak graduation requirements are available.
- Weak processes are adopted to ensure that students meet the graduation requirements.

Concerns:

- The graduation requirements and processes are better to be well-documented.

For Criterion 6: Faculty

R_{6.1}: Rubrics Title: Appropriate qualifications

Covered Aspects:

2.6.1 Faculty Qualifications

Covered Performance Indicators:

3.1.6.1.1 Appropriate faculty qualifications

Deficiencies:

- No supporting evidence on faculty qualifications is available.

Weaknesses:

- Weak evidence on faculty qualifications is available.

Concerns:

- Faculty qualifications are better to be upgraded.

R_{6.2}: Rubrics Title: Sufficient number and competencies to cover all curricular areas

Covered Aspects:

2.6.1 Faculty Qualifications (continued)

2.6.2 Faculty Workload

Covered Performance Indicators:

3.1.6.1.2 How adequate to cover all areas

3.1.6.1.3 The overall competence of the faculty

3.1.6.2.1 Share of time devoted to the program

Deficiencies:

- No supporting evidence on faculty number to cover all curricular areas is available.
- No supporting evidence on faculty competencies to cover all curricular areas is available.

Weaknesses:

- Weak evidence on faculty number to cover all curricular areas is available.
- Weak evidence on faculty competencies to cover all curricular areas is available.

Concerns:

- Few faculty members are better to be added.
- Very few faculty competencies are better to be developed.

R_{6.3}: Rubrics Title: Adequate levels of student-faculty interaction

Covered Aspects:

2.6.3 Faculty Size

Covered Performance Indicators:

3.1.6.3.1 Extent and quality of student-faculty interaction

Deficiencies:

- No supporting evidence on student-faculty interaction is available.

Weaknesses:

- Weak evidence on student-faculty interaction is available.

Concerns:

- The student-faculty interaction is better to be enhanced.

R_{6.4}: Rubrics Title: Adequate levels of student advising and counseling

Covered Aspects:

2.6.3 Faculty Size (continued)

Covered Performance Indicators:

3.1.6.3.2 Extent and quality of student advising and counseling

Deficiencies:

- No supporting evidence on student advising and counseling is available.

Weaknesses:

- Weak evidence on student advising and counseling is available.

Concerns:

- Student advising and counseling is better to be enhanced.

R_{6.5}: Rubrics Title: Adequate levels of university service activities

Covered Aspects:

2.6.3 Faculty Size (continued)

Covered Performance Indicators:

3.1.6.3.3 Extent and quality of university service activities

Deficiencies:

- No supporting evidence on university service activities is available.

Weaknesses:

- Weak evidence on university service activities is available.

Concerns:

- The university service activities are better to be enhanced.

R_{6,6}: Rubrics Title: Adequate levels of interaction with practitioners and employers

Covered Aspects:

2.6.3 Faculty Size (continued)

Covered Performance Indicators:

3.1.6.3.4 Extent and quality of interactions with industrial and professional practitioners, as well as employers of students

Deficiencies:

- No supporting evidence on interaction with practitioners and employers is available.

Weaknesses:

- Weak evidence on interaction with practitioners and employers is available.

Concerns:

- The interaction with practitioners and employers is better to be enhanced.

R_{6,7}: Rubrics Title: Adequate levels of professional development

Covered Aspects:

2.6.4 Faculty Development

Covered Performance Indicators:

3.1.6.4.1 Extent and quality of professional development

3.1.6.4.2 Role of scientific research achievements

3.1.6.4.3 Role of the offered post-graduate programs

Note: It is believed that scientific research achievements and rolling post-graduate programs will have significant effect in professional development of faculty. Programs shall benefit from recommended observations (O) in this context. So the minimum judgment of these two aspects is (O) in order not to affect ABET scale of assessment.

Deficiencies:

- No supporting evidence on professional development is available.

Weaknesses:

- Weak evidence on professional development is available.

Concerns:

- Professional development is better to be enhanced.

R_{6,8}: Rubrics Title: Sufficient authority for program guidance and implementation of processes for evaluation, assessment, and continuous improvement

Covered Aspects:

2.6.5 Faculty Authority and Responsibility

Covered Performance Indicators:

3.1.6.5.1 Role of faculty in course creation, modification and evaluation.

3.1.6.5.2 Role of faculty in definition and revision of PEOs and GOs and GOs attainment

3.1.6.5.3 Roles of others on campus

Deficiencies:

- No supporting evidence on faculty authority is available.

Weaknesses:

- Weak evidence on faculty authority is available.

Concerns:

- The extent of faculty authority is better to be enhanced.

For Criterion 7: Administrative Support

R_{7.1}: Rubrics Title: adequate leadership and administrative services to meet program needs

Covered Aspects:

2.7.1 Leadership and administrative services

Covered Performance Indicators:

3.1.7.1.1 Leadership adequacy to ensure the quality and continuity of the program

3.1.7.1.2 Leadership involvement in making decisions

3.1.7.1.3 How clearly tasks are assigned and authorities are delegated

3.1.7.1.4 How effective is the organizational structure

3.1.7.1.5 Efficiency of documentation for all activities and issues.

3.1.7.1.6 Adequacy of administrative services provided to the program

Deficiencies:

- No supporting evidence is available on how leadership and administrative services are adequate to ensure the quality and continuity of the program.
- No supporting evidence is available on leadership involvement, tasks and authorities, organizational structure efficiency and documentation system.

Weaknesses:

- Weak evidence is available on how leadership and administrative services are adequate to ensure the quality and continuity of the program.
- Weak evidence is available on how the leadership involvement, tasks and authorities, organizational structure efficiency and documentation system.

Concerns:

- Leadership and administrative support is better to be enhanced to ensure the quality and continuity of the program including leadership involvement, tasks and authorities, organizational structure efficiency and documentation system.

R_{7.2}: Rubrics Title: adequate administrative support to faculty to meet program needs

Covered Aspects:

2.7.2 Faculty Support

Covered Performance Indicators:

3.1.7.2.1 Policies and processes used to recruit new faculty

3.1.7.2.2 Strategies used to retain and promote current qualified faculty

3.1.7.2.3 Strategies used for faculty professional development

3.1.7.2.4 Scientific research activities and post-graduate studies if any

Deficiencies:

- No supporting evidence is available on how the resources available to the program are sufficient to attract and retain, and provide for the continued professional development of a qualified faculty.

Weaknesses:

- Weak evidence is available on how the resources available to the program are sufficient to attract and retain, and provide for the continued professional development of a qualified faculty.

Concerns:

- The resources available to the program are better to be enhanced in order to attract and retain a qualified faculty and to provide for the continued professional development of a qualified faculty.

R_{7.3}: Rubrics Title: adequate administrative support to staff to meet program needs

Covered Aspects:

2.7.3 Technical and Administrative Staff Support

Covered Performance Indicators:

3.1.7.3.1 Adequacy of staff size and qualifications

3.1.7.3.2 Policies and processes to recruit and retain staff

3.1.7.3.3 Strategies used for continual professional development and promotion

Deficiencies:

- No evidence is available on how staff (both administrative and technical) provided to the program is adequate to meet program needs.
- No evidence is available on how staff (both administrative and technical) is recruited, retained, promoted and developed in order to meet program needs.

Weaknesses:

- Weak evidence is available on how staff (both administrative and technical) provided to the program is adequate to meet program needs.
- Weak evidence is available on how staff (both administrative and technical) is recruited, retained, promoted and developed in order to meet program needs.

Concerns:

- Staff recruiting, retaining, promoting and development are better to be enhanced to assure meeting program needs.

For Criterion 8: Financial Support

R_{8.1}: Rubrics Title: adequate funding resources to meet program needs

Covered Aspects:

2.8.1 Funding Resources

Covered Performance Indicators:

3.1.8.1.1 Budget establishment and continuity of adequate funding sources

Deficiencies:

- No evidence is available on how the program's budget is established and what funding sources are available.

Weaknesses:

- Weak evidence is available on how the program's budget is established and what funding sources are available.

Concerns:

- Adequate funding sources provided to the program are better to be enhanced to assure meeting all program needs.

R_{8.2}: Rubrics Title: adequate program budget to meet program needs

Covered Aspects:

2.8.2 Program Budget

Covered Performance Indicators:

- 3.1.8.2.1 Financial support to provide for teaching and learning.
- 3.1.8.2.2 Financial support to acquire, maintain and upgrade the assets
- 3.1.8.2.3 Financial support to attract, retain, promote and provide for the continued professional development of a qualified faculty
- 3.1.8.2.4 Financial support to attract, retain, promote and provide for the continued professional development of a qualified staff

Deficiencies:

- No evidence is available on how adequate is the financial support provided for teaching and learning processes.
- No evidence is available on how adequate is the financial support provided to acquire, maintain and upgrade the assets.
- No evidence is available on how adequate is financial support to attract, retain, promote and provide for the continued professional development of a qualified faculty including scientific research.
- No evidence is available on how adequate is financial support to attract, retain, promote and provide for the continued professional development of a qualified staff.

Weaknesses:

- Weak evidence is available on how adequate is the financial support provided for teaching and learning processes.
- Weak evidence is available on how adequate is the financial support provided to acquire, maintain and upgrade the assets.
- Weak evidence is available on how adequate is financial support to attract, retain, promote and provide for the continued professional development of a qualified faculty including scientific research.
- Weak evidence is available on how adequate is financial support to attract, retain, promote and provide for the continued professional development of a qualified staff.

Concerns:

- Financial support provided to the program is better to be enhanced to assure meeting all program needs and to acquire, maintain and upgrade the infrastructures, facilities, and equipment used in the program in addition to attract, retain, promote and provide for the continued professional development faculty and staff including scientific research.

For Criterion 9: Facilities

R_{9,1}: Rubrics Title: Built spaces and associated equipment are adequate to support attainment of graduate outcomes and provide an atmosphere conducive to learning

Covered Aspects:

2.9.1 Built Spaces and Associated Equipment

Covered Performance Indicators:

3.1.9.1.1 Offices and associated equipment

3.1.9.1.2 Classrooms and associated equipment

3.1.9.1.3 Laboratory and associated equipment

3.1.9.1.4 Campus infrastructure and supportive facilities

Deficiencies:

- No supporting evidence is available on how adequate is the built spaces and associated equipment.
- The built spaces and associated equipment is crucially inadequate to support attainment of graduate outcomes and provide an atmosphere conducive to learning.

Weaknesses:

- Weak evidence is available on how adequate is the built spaces and associated equipment.
- The built spaces and associated equipment is slightly inadequate to support attainment of graduate outcomes and provide an atmosphere conducive to learning.

Concerns:

- The built spaces and associated equipment are better to be enhanced to support attainment of graduate outcomes and provide an atmosphere conducive to learning.

R_{9,2}: Rubrics Title: Modern tools, equipment, computing assets, and laboratories are available, accessible, and systematically maintained and upgraded

Covered Aspects:

2.9.2 Computing Assets

2.9.4 Maintenance and Upgrading of Facilities

Covered Performance Indicators:

3.1.9.2.1 Adequate computing and information resources

3.1.9.2.2 Accessibility of university computing resources

3.1.9.2.3 Adequacy to support the professional activities

3.1.9.4.1 Policies and procedures for maintaining and upgrading the tools, equipment, computing resources, and laboratories used by students and faculty in the program

Deficiencies:

- No supporting evidence is available on how the computing and information resources, tools, equipment, and laboratories used by students and faculty in the program are adequate, accessible, modern or systematically maintained and upgraded in order to support professional activities.

Weaknesses:

- Weak evidence is available on how the computing and information resources, tools, equipment, and laboratories used by students and faculty in the program are adequate, accessible, modern or systematically maintained and upgraded in order to support professional activities.

Concerns:

- Adequacy, accessibility, maintenance and upgrading of computing and information resources, tools, equipment, or laboratories used by students and faculty in the program is better to be enhanced to support professional activities.

R_{9,3}: Rubrics Title: Students provided appropriate direction regarding the use and safety precautions of the tools, equipment, computing resources and laboratories

Covered Aspects:

2.9.3 Students Direction and Safety Precautions

Covered Performance Indicators:

3.1.9.3.1 How appropriate direction is available

3.1.9.3.2 Safety Precautions

Deficiencies:

- No supporting evidence is available on students' direction regarding the use and safety precautions of computing and information resources, tools, equipment and laboratories.

Weaknesses:

- Weak evidence is available on students' direction regarding the use and safety precautions of computing and information resources, tools, equipment and laboratories.

Concerns:

- Students' direction regarding the use and safety precautions of computing resources, tools, equipment and laboratories is better to be enhanced.

R_{9,4}: Rubrics Title: Adequate library services

Covered Aspects:

2.9.5 Library Services

Covered Performance Indicators:

3.1.9.5.1 Adequacy of the library's technical collection

3.1.9.5.2 Adequacy of the process of request by faculty

3.1.9.5.3 Library's systems for obtaining

Deficiencies:

- No supporting evidence is available on how adequate are the library's technical collection, the process of request by faculty and the library's systems for locating and obtaining electronic information.

Weaknesses:

- Weak evidence is available on how adequate are the library's technical collection, the process of request by faculty and the library's systems for locating and obtaining electronic information.

Concerns:

- The library's technical collection, the process by which faculty may request the library to order books or subscriptions and the library's systems for locating and obtaining electronic information are better to be enhanced.

For Program Specific Criteria

Rubrics Title: Program Specific Criteria

Covered Aspects:

- Curricular topics (if any)
- Faculty qualifications (if any)
- Other (if any)

Covered Performance Indicators:

- Curricular topics (within Criterion 3)
- Faculty qualifications (within Criterion 6)
- Other (within related Criterion)

Note 1: Curricular topics are to be embedded within (Criterion 3: Curriculum) in order to ensure consistency of assessment and evaluation.

Note 2: Faculty qualifications are to be embedded within (Criterion 6: Faculty) in order to ensure consistency of assessment and evaluation.

Note 3: Others are to be embedded within the related (Criterion) in order to ensure consistency of assessment and evaluation.

Note 4: If a program, by virtue of its title, becomes subject to two or more sets of Program Criteria, then that program must satisfy each set of Program Criteria; however, overlapping requirements are better to be satisfied only once.

For Accreditation Policy and Procedure Aspects

Rubrics Title: Ethical Requirements

Covered Aspects:

- Public release of information by the institution or program
- Program names must meet the requirements of this document
- Facilities adequate and safe for the intended purpose

Note: These ethical requirements are to be examined but not to be assessed.

**APPENDIX (F)
PROGRAM EVALUATION WORKSHEETS**

(Academic Year) PROGRAM EVALUATOR WORKSHEET (No.1)

For each Deficiency (D), Weakness (W) and/or Concern (C) shown on the preceding program evaluator worksheet, please summarize the basis for your conclusion in the appropriate box. If a potential shortcoming changes in level or is resolved during the campus visit, provide an explanation for how it was resolved or changed. This worksheet is to be filled by each evaluator.

Institution			
Program Name		Program Evaluator	

Criterion	Comments
1. PROGRAM EDUCATIONAL OBJECTIVES	
Published and consistent with the institution's mission, the needs of the program's constituencies and these criteria	
Documented, systematically utilized and effective process, involving program constituencies, for the periodic review of the program educational objectives in consistence with the institution's strategic plan	
2. GRADUATE OUTCOMES	
Documented graduate outcomes that prepare graduates to attain the program educational objectives	
(1) ability to distinguish, identify, define, formulate, and solve engineering problems by applying principles of engineering, science and mathematics	
(2) ability to produce engineering designs that meet desired needs within certain constraints by applying both analysis and synthesis in the design process	
(3) ability to create and carry out proper measurement and tests with quality assurance, analyze and interpret results, and utilize engineering judgment to make inferences	
(4) ability to skillfully communicate orally with a gathering of people and in writing with various managerial levels	
(5) ability to perceive ethical and professional responsibilities in engineering cases and make brilliant judgments taking into account the consequences in worldwide financial, ecological and societal considerations	
(6) ability to perceive the continual necessity for professional knowledge growth and how to find, assess, assemble and apply it properly	
(7) ability to work adequately on teams and to set up objectives, plan activities, meet due dates, and manage risk and uncertainty	
Additional outcomes articulated by the program	

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3. CURRICULUM	
Devotes adequate attention and time to each component, consistent with the outcomes and objectives of the program	
One year of college level mathematics and basic sciences	
One and one-half years of engineering topics appropriate to the field of study	
General education component that complements the technical content and is consistent with program objectives	
Culminates in a major design experience based on knowledge and skills acquired in earlier course work and incorporating appropriate engineering standards and multiple realistic constraints	
Program teaching/learning and assessment methods are appropriate to, consistent with, and support the attainment of GOs	
Courses learning outcomes lead to the achievement of graduate outcomes	
4. CONTINUOUS IMPROVEMENT	
Regular use of appropriate, documented processes for assessing and evaluating the extent of graduate outcomes attainment	
Results of evaluations are systematically utilized as input for the continuous improvement of the program	
Documentation of QMS, feedback and inputs from stakeholders and other information used in continuous improvement	
5. STUDENTS	
Have and enforce policies for accepting new students	
Evaluate student performance (to foster learning outcomes attainment)	
Monitor student progress (meeting prerequisites)	
Have and enforce policies for accepting transfer students and awarding academic credit for courses taken at other institutions	
Advise students regarding curricular, career matters and extracurricular activities	
Have and enforce well-documented procedures to ensure that students who graduate meet all graduation requirements	
6. FACULTY	
Appropriate qualifications	
Sufficient number and competencies to cover all curricular areas	
Adequate levels of student-faculty interaction	
Adequate levels of student advising and counseling	
Adequate levels of university service activities	
Adequate levels of interaction with practitioners and employers	
Adequate levels of professional development	
Sufficient authority for program guidance and implementation of processes for continuous improvement	
7. ADMINISTRATIVE SUPPORT	
Leadership and administrative services are adequate to ensure the quality and continuity of the program	
Administrative support is sufficient to attract and retain, and provide for the continued professional development of a qualified faculty	
Administrative support is sufficient to attract and retain, and provide for the continued professional development of a qualified technical and administrative staff	

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8. FINANCIAL SUPPORT	
Funding resources are adequate to meet the program needs (Sufficient to acquire, maintain, and operate infrastructure, facilities, and equipment and to provide an environment to attain graduate outcomes)	
Program budget is sufficient to meet the program needs (Sufficient to acquire, maintain, and learning and teaching activities to attain graduate outcomes)	
Program budget is sufficient to meet the program needs (Sufficient to acquire, maintain, and operate infrastructure, facilities, and equipment and to provide an environment to attain graduate outcomes)	
Program budget is sufficient to attract and retain, and provide for the continued professional development of a qualified faculty	
Program budget is sufficient to attract and retain, and provide for the continued professional development of a qualified technical and administrative staff	
9. FACILITIES	
Adequate to support attainment of graduate outcomes and provide an atmosphere conducive to learning: classrooms, offices, laboratories, Campus infrastructure and supportive facilities, and associated equipment	
Modern tools, equipment , computing resources, and laboratories are available, accessible, and systematically maintained and upgraded	
Students provided appropriate direction regarding the safe use of tools, equipment, computing resources, and laboratories	
Adequate library services and computing and information infrastructure	
PROGRAM SPECIFIC CRITERIA	
Specific curricular topics (if any)	
Specific faculty qualifications (if any)	
Other (if any)	
ACCREDITATION POLICY AND PROCEDURE	
Public release of information by the institution or program	
Program names must meet ABET requirements	
Facilities adequate and safe for the intended purpose	

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(Academic Year) PROGRAM EVALUATION TEAM WORKSHEET (No.2)
(Click on and type directly into shaded areas) (This worksheet is to be filled jointly by the team)

Institution			
Program Name		Program Evaluators	
Team Chair		Visit Dates	

Enter "C" for concern, "W" for weakness, and "D" for deficiency	Pre-visit	Post-visit
If the program has no deficiencies or weaknesses, check this line.		
1. PROGRAM EDUCATIONAL OBJECTIVES		
Published and consistent with the institution's mission, the needs of the program's constituencies and these criteria		
Documented, systematically utilized and effective process, involving program constituencies, for the periodic review of the program educational objectives in consistence with the institution's strategic plan		
2. GRADUATE OUTCOMES		
Documented graduate outcomes that prepare graduates to attain the program educational objectives		
(1) ability to distinguish, identify, define, formulate, and solve engineering problems by applying principles of engineering, science and mathematics		
(2) ability to produce engineering designs that meet desired needs within certain constraints by applying both analysis and synthesis in the design process		
(3) ability to create and carry out proper measurement and tests with quality assurance, analyze and interpret results, and utilize engineering judgment to make inferences		
(4) ability to skillfully communicate orally with a gathering of people and in writing with various managerial levels		
(5) ability to perceive ethical and professional responsibilities in engineering cases and make brilliant judgments taking into account the consequences in worldwide financial, ecological and societal considerations		
(6) ability to perceive the continual necessity for professional knowledge growth and how to find, assess, assemble and apply it properly		
(7) ability to work adequately on teams and to set up objectives, plan activities, meet due dates, and manage risk and uncertainty		
Additional outcomes articulated by the program		
4. CURRICULUM		
Devotes adequate attention and time to each component, consistent with the outcomes and objectives of the program		
One year of college level mathematics and basic sciences		
One and one-half years of engineering topics appropriate to the field of study		
General education component that complements the technical content and is consistent with program objectives		
Culminates in a major design experience based on knowledge and skills acquired in earlier course work and incorporating appropriate engineering standards and multiple realistic constraints		
Program teaching/learning and assessment methods are appropriate to, consistent with, and support the attainment of GOs		
Courses learning outcomes lead to the achievement of graduate outcomes		
4. CONTINUOUS IMPROVEMENT		
Regular use of appropriate, documented processes for assessing and evaluating the extent of graduate outcomes attainment		
Results of evaluations are systematically utilized as input for the continuous improvement of the program		
Documentation of QMS, feedback and inputs from stakeholders and other information used in continuous improvement		
5. STUDENTS		
Have and enforce policies for accepting new students		
Evaluate student performance (to foster learning outcomes attainment)		
Monitor student progress (meeting prerequisites)		
Have and enforce policies for accepting transfer students and awarding academic credit for courses taken at other institutions		
Advise students regarding curricular, career matters and extracurricular activities		
Have and enforce well-documented procedures to ensure that students who graduate meet all graduation requirements		

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6. FACULTY		
Appropriate qualifications		
Sufficient number and competencies to cover all curricular areas		
Adequate levels of student-faculty interaction		
Adequate levels of student advising and counseling		
Adequate levels of university service activities		
Adequate levels of interaction with practitioners and employers		
Adequate levels of professional development		
Sufficient authority for program guidance and implementation of processes for continuous improvement		
7. ADMINISTRATIVE SUPPORT		
Leadership and administrative services are adequate to ensure the quality and continuity of the program		
Administrative support is sufficient to attract and retain, and provide for the continued professional development of a qualified faculty		
Administrative support is sufficient to attract and retain, and provide for the continued professional development of a qualified technical and administrative staff		
8. FINANCIAL SUPPORT		
Funding resources are adequate to meet the program needs (Sufficient to acquire, maintain, and operate infrastructure, facilities, and equipment and to provide an environment to attain graduate outcomes)		
Program budget is sufficient to meet the program needs (Sufficient to acquire, maintain, and learning and teaching activities to attain graduate outcomes)		
Program budget is sufficient to meet the program needs (Sufficient to acquire, maintain, and operate infrastructure, facilities, and equipment and to provide an environment to attain graduate outcomes)		
Program budget is sufficient to attract and retain, and provide for the continued professional development of a qualified faculty		
Program budget is sufficient to attract and retain, and provide for the continued professional development of a qualified technical and administrative staff		
9. FACILITIES		
Adequate to support attainment of graduate outcomes and provide an atmosphere conducive to learning: classrooms, offices, laboratories, Campus infrastructure and supportive facilities, and associated equipment		
Modern tools, equipment , computing resources, and laboratories are available, accessible, and systematically maintained and upgraded		
Students provided appropriate guidance regarding the safe use of tools, equipment, computing resources, and laboratories		
Adequate library services and computing and information infrastructure		
PROGRAM SPECIFIC CRITERIA		
Specific curricular topics (if any)		
Specific faculty qualifications (if any)		
Other (if any)		
ACCREDITATION POLICY AND PROCEDURE		
Public release of information by the institution or program		
Program names must meet ABET requirements		
Facilities adequate and safe for the intended purpose		

(Academic Year) PROGRAM AUDIT SUMMARY (Worksheet No.3)

Institution		Visit Dates	
Program Name		Benchmark Program	
Team Chair		Program Evaluators	
Type of Review	General/Interim	Corresponding year of Criteria used, if interim	

Use “C” for concern, “W” for weakness, and “D” for deficiency. ¹	Previous Shortcomings	Exit Meeting	Seven Day Response	Draft Statement		Final Statement	
				T. Chair	Editor	T. Chair	Editor
If the program has no deficiencies or weaknesses check this line.							
1. PROGRAM EDUCATIONAL OBJECTIVES							
2. GRADUATE OUTCOMES							
3. CURRICULUM							
4. CONTINUOUS IMPROVEMENT							
5. STUDENTS							
6. FACULTY							
8. ADMINISTRATIVE SUPPORT							
8. FINANCIAL SUPPORT							
9. FACILITIES							
PROGRAM SPECIFIC CRITERIA							
ACCREDITATION POLICIES AND PROCEDURES							

1Definition of terms:

- **Concern:** A concern indicates that a program currently satisfies a criterion, policy, or procedure; however, the potential exists for the situation to change such that the criterion, policy, or procedure may not be satisfied.
- **Weakness:** A weakness indicates that a program lacks the strength of compliance with a criterion, policy, or procedure to ensure that the quality of the program will not be compromised. Therefore, remedial action is required to strengthen compliance with the criterion, policy, or procedure prior to the next evaluation.
- **Deficiency:** A deficiency indicates that a criterion, policy, or procedure is not satisfied. Therefore, the program is not in compliance with the criterion, policy, or procedure.

**DETAILED EXPLANATION OF SHORTCOMINGS
(To be attached to the audit summary) (Worksheet No.4)**

Institution		Visit Dates	
Program Name		Benchmark Program	
Team Chair		Program Evaluators	
Type of Review	General/Interim	Corresponding year of Criteria used, if interim	

The following comments provide detailed information on the shortcomings indicated on the Program Audit Summary.	
1. PROGRAM EDUCATIONAL OBJECTIVES	
2. GRADUATE OUTCOMES	
3. CURRICULUM	
4. CONTINUOUS IMPROVEMENT	
5. STUDENTS	
6. FACULTY	
7. ADMINISTRATIVE SUPPORT	
8. FINANCIAL SUPPORT	
9. FACILITIES	
PROGRAM CRITERIA	
ACCREDITATION POLICIES AND PROCEDURES	

APPENDIX (G)
PROGRAM SPECIFIC CRITERIA
(After ABET)

Each program must satisfy applicable Program Specific Criteria that provide the specificity needed for interpretation of the baccalaureate level criteria as applicable to a given discipline. Requirements stipulated in the Program Specific Criteria are limited to the areas of curricular topics and faculty qualifications. If a program, by virtue of its title, becomes subject to two or more sets of Program Specific Criteria, then that program must satisfy each set of Program Specific Criteria; however, overlapping requirements need to be satisfied only once.

Programs having Specific Criteria are:

- 1. Architectural Engineering**
- 2. Biomedical Engineering**
- 3. Chemical Engineering**
- 4. Civil Engineering**
- 5. Electrical, Electronics, Computer, and Communications Engineering**
- 6. Environmental Engineering**
- 7. Manufacturing Engineering**
- 8. Materials Engineering**
- 9. Mechanical Engineering**
- 10. Mining Engineering**
- 11. Optics and Photonic Engineering**
- 12. Petroleum Engineering**
- 13. Surveying Engineering**
- 14. Software Engineering**

Faculty Specific Criterion for All Aforementioned Programs:

Programs must demonstrate that faculty members teaching courses that are primarily design in content are qualified to teach the subject matter by virtue of professional licensure or by educational and design experience. The faculty expertise for the professional area must encompass all major elements of the field. Evidence must be provided that the program faculty understand professional practice and maintain currency in their respective professional areas. Program faculty must have responsibility and sufficient authority to define, revise, implement, and achieve program objectives.

PROGRAM CRITERIA FOR ARCHITECTURAL ENGINEERING

(And similarly named engineering programs or similar modifiers in their titles)

Curriculum

The program must demonstrate that graduates can apply mathematics through differential equations, calculus-based physics, and chemistry. The four basic architectural engineering curriculum areas are building structures, building mechanical systems, building electrical systems, and construction/construction management. Graduates are expected to reach the synthesis (design) level in one of these areas, the application level in a second area, and the comprehension level in the remaining two areas. The engineering topics required by the general criteria shall support the engineering fundamentals of each of these four areas at the specified level. Graduates are expected to discuss the basic concepts of architecture in a context of architectural design and history. The design level must be in a context that: Considers the systems or processes from other architectural engineering curricular areas, Works within the overall architectural design, Includes communication and collaboration with other design or construction team members, Includes computer-based technology and considers applicable codes and standards, and Considers fundamental attributes of building performance and sustainability.

PROGRAM CRITERIA FOR BIOMEDICAL ENGINEERING

(And similarly named engineering programs or similar modifiers in their titles)

Curriculum

The structure of the curriculum must provide both breadth and depth across the range of engineering and science topics consistent with the program educational objectives and graduate outcomes. The curriculum must prepare graduates with experience in: Applying principles of engineering, biology, human physiology, chemistry, calculus-based physics, mathematics (through differential equations) and statistics; Solving bio/biomedical engineering problems, including those associated with the interaction between living and non-living systems; Analyzing, modeling, designing, and realizing bio/biomedical engineering devices, systems, components, or processes; and Making measurements on and interpreting data from living systems.

PROGRAM CRITERIA FOR CHEMICAL ENGINEERING

(And similarly named engineering programs or similar modifiers in their titles)

Curriculum

The curriculum must provide a thorough grounding in the basic sciences including chemistry, physics, and/or biology, with some content at an advanced level, as appropriate to the objectives of the program. The curriculum must include the engineering application of these basic sciences to the design, analysis, and control of chemical, physical, and/or biological processes, including the hazards associated with these processes.

PROGRAM CRITERIA FOR CIVIL ENGINEERING

(And similarly named engineering programs or similar modifiers in their titles)

Curriculum

The curriculum must prepare graduates to apply knowledge of mathematics through differential equations, calculus-based physics, chemistry, and at least one additional area of basic science; apply probability and statistics to address uncertainty; analyze and solve problems in at least four technical areas appropriate to civil engineering; conduct experiments in at least two technical areas of civil engineering and analyze and interpret the resulting data; design a system, component, or process in at least two civil engineering contexts; include principles of sustainability in design; explain basic concepts in project management, business, public policy, and leadership; analyze issues in professional ethics; and explain the importance of professional licensure.

**PROGRAM CRITERIA FOR ELECTRICAL, ELECTRONICS, COMPUTER
OR COMMUNICATIONS ENGINEERING**

(And similarly named engineering programs or similar modifiers in their titles)

Curriculum

The structure of the curriculum must provide both breadth and depth across the range of engineering topics implied by the title of the program.

The curriculum must include probability and statistics, including applications appropriate to the program name; mathematics through differential and integral calculus; sciences (defined as biological, chemical, or physical science); and engineering topics (including computing science) necessary to analyze and design complex electrical and electronic devices, software, and systems containing hardware and software components.

The curriculum for programs containing the modifier “electrical,” “electronic(s),” “communication(s),” or “telecommunication(s)” in the title must include advanced mathematics, such as differential equations, linear algebra, complex variables, and discrete mathematics.

The curriculum for programs containing the modifier “computer” in the title must include discrete mathematics.

The curriculum for programs containing the modifier “communication(s)” or “telecommunication(s)” in the title must include topics in communication theory and systems.

The curriculum for programs containing the modifier “telecommunication(s)” must include design and operation of telecommunication networks for services such as voice, data, image, and video transport.

PROGRAM CRITERIA FOR ENVIRONMENTAL ENGINEERING

(And similarly named engineering programs or similar modifiers in their titles)

Curriculum

The curriculum must prepare graduates to apply knowledge of mathematics through differential equations, probability and statistics, calculus-based physics, chemistry (including stoichiometry, equilibrium, and kinetics), an earth science, a biological science, and fluid mechanics. The curriculum must prepare graduates to formulate material and energy balances, and analyze the fate and transport of substances in and between air, water, and soil phases; conduct laboratory experiments, and analyze and interpret the resulting data in more than one major environmental engineering focus area, e.g., air, water, land, environmental health; design environmental engineering systems that include considerations of risk, uncertainty, sustainability, life-cycle principles, and environmental impacts; and apply advanced principles and practice relevant to the program objectives. The curriculum must prepare graduates to understand concepts of professional practice, project management, and the roles and responsibilities of public institutions and private organizations pertaining to environmental policy and regulations.

PROGRAM CRITERIA FOR MANUFACTURING ENGINEERING

(And similarly named engineering programs or similar modifiers in their titles)

Curriculum

The program must prepare graduates to have proficiency in (a) materials and manufacturing processes: ability to design manufacturing processes that result in products that meet specific material and other requirements; (b) process, assembly and product engineering: ability to design products and the equipment, tooling, and environment necessary for their manufacture; (c) manufacturing competitiveness: ability to create competitive advantage through manufacturing planning, strategy, quality, and control; (d) manufacturing systems design: ability to analyze, synthesize, and control manufacturing operations using statistical methods; and (e) manufacturing laboratory or facility experience: ability to measure manufacturing process variables and develop technical inferences about the process.

PROGRAM CRITERIA FOR MATERIALS ENGINEERING

(And similarly named engineering programs or similar modifiers in their titles)

Curriculum

The curriculum must prepare graduates to apply advanced science (such as chemistry, biology and physics), computational techniques and engineering principles to materials systems implied by the program modifier, e.g., ceramics, metals, polymers, biomaterials, composite materials; to integrate the understanding of the scientific and engineering principles underlying the four major elements of the field: structure, properties, processing, and performance related to material systems appropriate to the field; to apply and integrate knowledge from each of the above four elements of the field using

experimental, computational and statistical methods to solve materials problems including selection and design consistent with the program educational objectives.

PROGRAM CRITERIA FOR MECHANICAL ENGINEERING

(And similarly named engineering programs or similar modifiers in their titles)

Curriculum

The curriculum must require students to apply principles of engineering, basic science, and mathematics (including multivariate calculus and differential equations); to model, analyze, design, and realize physical systems, components or processes; and prepare students to work professionally in either thermal or mechanical systems while requiring topics in each area.

PROGRAM CRITERIA FOR MINING ENGINEERING

(And similarly named engineering programs or similar modifiers in their titles)

Curriculum

The program must prepare graduates to apply mathematics through differential equations, calculus-based physics, general chemistry, and probability and statistics as applied to mining engineering problem applications; to have fundamental knowledge in the geological sciences including characterization of mineral deposits, physical geology, structural or engineering geology, and mineral and rock identification and properties; to be proficient in statics, dynamics, strength of materials, fluid mechanics, thermodynamics, and electrical circuits; to be proficient in engineering topics related to both surface and underground mining, including: mining methods, planning and design, ground control and rock mechanics, health and safety, environmental issues, and ventilation; to be proficient in additional engineering topics such as rock fragmentation, materials handling, mineral or coal processing, mine surveying, and valuation and resource/reserve estimation as appropriate to the program objectives. The laboratory experience must prepare graduates to be proficient in geologic concepts, rock mechanics, mine ventilation, and other topics appropriate to the program objectives.

PROGRAM CRITERIA FOR OPTICAL OR PHOTONIC ENGINEERING

(And similarly named engineering programs or similar modifiers in their titles)

Curriculum

The structure of the curriculum must provide both breadth and depth across the range of engineering topics implied by the title of the program. The curriculum must prepare students to have knowledge of and appropriate laboratory experience in: geometrical optics, physical optics, optical materials, and optical and/or photonic devices and systems.

The curriculum must prepare students to apply principles of engineering, basic sciences, mathematics (such as multivariable calculus, differential equations, linear

algebra, complex variables, and probability and statistics) to modeling, analyzing, designing, and realizing optical and/or photonic devices and systems.

PROGRAM CRITERIA FOR PETROLEUM ENGINEERING

(And similarly named engineering programs or similar modifiers in their titles)

Curriculum

The program must prepare graduates to be proficient in mathematics through differential equations, probability and statistics, fluid mechanics, strength of materials, and thermodynamics; design and analysis of well systems and procedures for drilling and completing wells; characterization and evaluation of subsurface geological formations and their resources using geoscientific and engineering methods; design and analysis of systems for producing, injecting, and handling fluids; application of reservoir engineering principles and practices for optimizing resource development and management; the use of project economics and resource valuation methods for design and decision making under conditions of risk and uncertainty.

PROGRAM CRITERIA FOR SOFTWARE ENGINEERING

(And similarly named engineering programs or similar modifiers in their titles)

Curriculum

The curriculum must provide both breadth and depth across the range of engineering and computer science topics implied by the title and objectives of the program.

The curriculum must include computing fundamentals, software design and construction, requirements analysis, security, verification, and validation; software engineering processes and tools appropriate for the development of complex software systems; and discrete mathematics, probability, and statistics, with applications appropriate to software engineering.

PROGRAM CRITERIA FOR SURVEYING OR GEOMATICS ENGINEERING

(And similarly named engineering programs or similar modifiers in their titles)

Curriculum

The curriculum must prepare graduates to work competently in one or more of the following areas: boundary and/or land surveying, geographic and/or land information systems, photogrammetry, mapping, geodesy, remote sensing, and other related areas.