Policies and Procedures

for the Accreditation

of Engineering Programs

and *Técnico Superior Universitario*

Associated with Engineering

July 2021

CACEI

Consejo de Acreditación de la Enseñanza
de la Ingeniería, A.C.

ACCREDITATION COUNCIL FOR
ENGINEERING EDUCATION, A.C.

**Policies and Procedures
for the Accreditation
of Engineering Programs
and *Técnico Superior
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Engineering**

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Policies and Procedures for the Accreditation of Engineering and *Técnico Superior Universitario* Associated with Engineering

Accreditation Council for Engineering Education, A. C.

Mexico City, Mexico.

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INTRODUCTION

The *Consejo de Acreditación de la Enseñanza de la Ingeniería, Asociación Civil* (CACEI – Accreditation Council for Engineering Education), was formally constituted on July 6, 1994, as an association whose highest governing body is its General Assembly of Associates. CACEI is comprised of associations representing higher education or professional institutions through ANFEI and CENEVAL; the federal government, represented by the General Directorate of Professions; the productive sector, through the corresponding chambers and by international organizations of engineering professionals.

CACEI is the first accrediting body established in Mexico and performs a function of great importance since it contributes to improving the quality of engineering education. CACEI provides timely, pertinent, and objective information, greatly valued by educational institutions, students, faculty, graduates, employers, and parents for decision-making.

The objective of CACEI is to support Mexican society in promoting social development, based on the education of Engineers and *Técnico Superior Universitario* (TSU - Senior Technician Engineers). They graduate from relevant educational programs recognized by their quality. Its importance lies in that the future of nations is associated with its integration into the global knowledge society and that graduates of higher education institutions must fight positions in a local, national, and international context.

Accreditation is a process created to promote educational programs' quality and relevance, seeking to meet the minimum international standards recognized for high-quality engineering programs. Also, the culture of continuous improvement of academic programs is promoted in higher education institutions (HEIs), incorporating global trends for the education of engineers.

The accreditation process carried out in Mexico is voluntary. However, CACEI considers the criteria and standards internationally accepted by accrediting bodies like those belonging to the Washington Accord and those established by the *Consejo para la Acreditación de la Educación Superior* (COPAES - Council for the Accreditation of Higher Education).

The accreditation is carried out with peer evaluators from the academic and productive sectors around the country, trained in CACEI's evaluation methodology, and their performance is permanently evaluated. CACEI currently has a registry of 1,540 evaluators.

Decisions on the quality of educational programs evaluated are collegial. CACEI, with the information provided to HEIs, aims to support decision-making related to improving them and thus give them objective and relevant elements leading to the generation of an improvement plan with goals, targets, those responsible for them, defined strategies, and

programming to guide the attention of the recommendations and therefore the continuous improvement of their engineering programs.

The reference frameworks for the evaluation for accreditation purposes were designed at different times, the 2018 version for Engineering programs in 2017 and the 2021 version for TSU in 2020. In both cases, all efforts were through collaborative teamwork, with the support of the different collegial bodies involved in CACEI's decision-making.

For the 2018 CACEI's Reference Framework in the international context (MR2018), the responsibility for its design was in charge of representatives of the Academic Committee made up of all the members of the Accreditation Committee, of the *Comisiones Técnicas de Especialidad* (CTE - Discipline Technical Commissions); as well as the General Assembly of Associates of CACEI and COPAES, seeking the representativeness of all the HEI's educating engineers. The Academic Committee aimed to design a framework incorporating international trends and standards established by the Washington Accord and the requirements of the General Framework for Accreditation Processes of Higher Education Academic Programs 2016 of COPAES. The Framework and the methodological process followed by CACEI were evaluated by two internationally recognized engineering accreditation bodies: the Accreditation Board for Engineering and Technology (ABET) of the United States of America and the Canadian Engineers Accreditation Board (CEAB) from Canada. Both issued recommendations that have already been incorporated into the document.

In designing the 2021 Reference Framework for *Técnico Superior Universitario* programs, the different collegiate instances participating in the decision-making of CACEI collaborated. The responsibility was in charge of representatives of the Academic Committee formed by members of the TSU Discipline Technical Commission and representatives of CACEI and the *Coordinación General de Universidades Tecnológicas y Politécnicas* (CGUTyP). The Academic Committee designed a reference framework incorporating international trends and standards set by the Dublin Accord and the requirements set out in the General Framework for Accreditation Processes of Higher Education Academic Programs 2016 of COPAES.

1. STRATEGIC FRAMEWORK OF CACEI

MISSION AND VISION

Mission

Contribute to the improvement of the quality in the education of engineers through the preparation of academic cadres that carry out the evaluation and accreditation with international recognition of the undergraduate higher education programs in engineering taught by public and private institutions, both in the country and abroad, with quality, transparency, confidentiality, professionalism, and honesty.

Vision

By 2021, CACEI:

- Will be an accrediting body internationally recognized for the quality of the services it offers, the transparency of its processes and the reliability of the results, as well as for the professionalism of its evaluators;

- Will be characterized by offering Higher Education Institutions a permanent quality service, through advice and training of faculty;

- Will have certified processes according to international quality standards; and

- Will be linked with the industry and academic sectors and international accrediting bodies of engineering programs.

QUALITY POLICY

Quality policy

CACEI is committed to providing quality services as an accrediting body, recognized nationally and internationally in the evaluation processes for accreditation of undergraduate engineering programs. Also, for the training of academic staff who meet the requirements and the needs and exceed the expectations of public and private higher education institutions. Verifying the standards established for quality programs; through implementing a Quality Management System, CACEI strives to responsibly achieve the continuous improvement of its services and processes with transparency, professionalism, and ethics.

Quality Objectives

1. Be recognized internationally by agencies and institutions as an accrediting body for educational programs in Engineering and *Técnico Superior Universitario*, which meets international standards of quality in its reference frameworks.

2. Provide permanent quality services for undergraduate education in engineering, through the training of faculty that carry out the evaluation of educational programs for international recognition with efficient, pertinent and transparent processes with the recognition of the professionalism of its evaluators in a paradigm of continuous improvement.

3. Become certified with the international standard ISO 9001: 2015.

4. Strengthen CACEI's relationship with the environment through its committed participation, generating and promoting projects and actions through strategic alliances with academic, professional, and governmental organizations for their benefit, particularly by influencing the proposal of associated public policies for the continuous improvement of the education of engineers and *Técnico Superior Universitario*.

5. Provide pertinent information to the different stakeholders (employers, graduates, professional associations, experts, organizations and representatives of the productive and social sectors) as well as students, HEIs, parents and higher education subsystems, through the dissemination of the results of the accreditation to support that it contributes to optimal decision-making.

6. Improve management of the resources (human, material, financial and services), with an emphasis on transparency, to allow ethical and quality management, decision-making based on the current normative framework and contribute to a favorable organizational climate.

Values

- Respect for the law
- Integrity
- Decorum
- Honesty
- Respect
- Impartiality and equality
- Gender equality
- Transparency

- Accountability
- Respect for the environment

GOVERNING BODIES AND COLLEGIATE BODIES

CACEI has different governing bodies for its operation:

- The General Assembly of Associates
- The Executive Council
- The Accreditation Committee
- The Discipline Technical Commissions
- The Academic Commissions
- The Evaluation Committees
- The Appeal Committee
- The General Director and
- Others determined by the General Assembly of Associates.

The General Assembly of Associates is the highest body of CACEI and has the following powers:

- Discuss and, where appropriate, approve the report of activities that the General Director, after issuing the Commissioner's report.
- Resolve the matters submitted for consideration by the General Director.
- Appoint and revoke the members of the Executive Council and the General Director in the terms of its Bylaws.
- Discuss, modify and, where appropriate, approve the annual work plan and the financial budget for expenses and income that the General Director presents.
- Monitor compliance with the Bylaws, the regulations, as well as the agreements and decisions taken by the General Assembly of Associates.
- Grant, revoke and substitute powers; and
- All those activities that are considered in the Bylaws.

Additionally, it is granted the powers to:

- Dissolve the Association.
- Change the purpose of the Association.
- Transform the Association or merge it with one or more other associations or societies.
- Appoint and revoke the members of the Executive Council and the General Director in the terms of its Bylaws.

- Take all those decisions that modify the Bylaws.

The General Assembly of Associates is integrated by: the National Association of Colleges and Schools of Engineering, A.C.; the General Directorate of Professions of the Secretariat of Education; the National Center for Higher Education Assessment, A. C.; the National Chamber of Consulting Companies; the College of Civil Engineers of Chiapas, A.C.; the College of Civil Engineers of Chihuahua, A. C.; the College of Civil Engineers of the State of Jalisco, A. C .; the College of Civil Engineers of Mexicali, A.C.; the College of Civil Engineers of the Municipalities of Cozumel and Solidaridad, A.C.; the College of Civil Engineers of Sinaloa, A.C.; the College of Civil Engineers of Yucatán, A.C.; the College of Civil Engineers of Zacatecas, A.C.; the College of Mining Engineers, Metallurgists and Geologists of Mexico, A.C.; the College of Geological Engineers of Mexico, A.C.; the College of Mechanical and Electrical Engineers, A.C.; the College of Petroleum Engineers of Mexico, A.C.; the National College of Industrial Engineers, A.C.; the National Association of Chemical Engineers and Chemists, A.C., and the Mexico Council of The Institute of Electrical and Electronic Engineers (IEEE).

The Executive Council has the following powers and obligations:

- Provide guidelines for the formulation of CACEI's work and budget programs and present them to the General Assembly of Associates for analysis and, where appropriate, approval.

- Approve the members of the Discipline Technical Commissions (CTE) and the Technical Secretaries who will coordinate the CTE, at the proposal of the Genral Director.

- Review the report on the status of CACEI's administration presented by the General Director, which includes the corresponding decision prepared by the Commissioner and, where appropriate, turn over to the General Assembly of Associates the observations it deems pertinent.

- Monitor the progress of CACEI, in accordance with its scheduled programs.

The Executive Council is made up of:

- The President, who is the same person chairing the General Assembly of Associates.

- Four members, one for each of the following sectors: 1) the associated engineering professional colleges, 2) the Association of Engineering Schools and Faculties (ANFEI), 3) the federal government sector, and 4) the productive and/or social sector.

Additionally, there is the Accreditation Committee, which, according to the Bylaws, has the function of reviewing the accreditation process of the programs, the self-evaluation reports, the reports of the Evaluation Committees (Visiting Teams), and that of the corresponding Discipline Technical Commission. This Committee is solely responsible for issuing the final decision on whether or not a program's accreditation is granted. It is made up of the Technical Secretaries of the Discipline Technical Commissions and the General Director.

The Discipline Technical Commissions have the following functions:

- Propose to the Executive Council, through the General Director, those persons who, having met the requirements established by CACEI, meet the profile to be evaluators and join its Register.

- Propose to the General Director the evaluators that will make up the Evaluation Committees (Visiting Teams) for the different educational programs.

- Prepare proposals addressed to the Executive Council about changes or improvements in the criteria, parameters and standards established in the Reference Framework for accreditation and, in general, suggestions for the improvement of processes considering the current regulations of COPAES.

- Recommend to the Accreditation Committee the level of decision of the accreditation of the educational program.

Each Discipline Technical Commission (CTE) has a Technical Secretary appointed by the Executive Council, whose function is to coordinate it. The CTEs are composed of academics from different higher education institutions, members of the productive sector, and professional associations. In its integration, the representativeness of the enrollment of the various engineering programs whose programs are the scope of action of the Commission is taken care of. By policies established by CACEI, all CTEs in their integration are represented by the public, federal or state universities, the technological system, and private institutions.

The Appeals Committee has the following functions:

- Respond to appeal requests from HEIs that request a review of the decisions issued by the Accreditation Committee.
- Analyze the information received about the program.
- Issue a decision on the appeals heard.
- Respond to requests from the HEIs, to extend the validity of the accreditation of programs of three to five years.
- Issue a decision on the requests heard.

The Mid-Term Committee has the following functions:

- Review and analyze the improvement plans sent by HEIs related to their accredited programs.
- Analyze and issue a decision on the Improvement Plans.
- Review and analyze the Mid-term reports of the programs sent by HEIs.
- Issue a decision on the Mid-term reports.

The Evaluation Committees (CEs - Visiting Teams) are responsible for performing the evaluation processes for accreditation purposes. The CEs are made up of an evaluator, preferably a member of the Specialty Technical Commission, with coordination functions, with extensive academic, professional, and evaluation experience. Plus, two or more evaluators depending on the program's size, meeting the defined profile and that are incorporated into CACEI's Evaluators Register.

CACEI evaluators have one or more degrees in a engineering discipline, have a long experience in teaching, research, technological development, or the industry, and are members of CACEI's Evaluators Register. Likewise, evaluators receive training by CACEI on the methods, procedures, and standards that must be met while conducting the evaluations of engineering programs. When visiting the HEIs to which they are assigned, the evaluators meticulously comply with the procedures and protocols established by CACEI and COPAES, and they also adhere to the code of ethics and the standards set by CACEI.

In sum, CACEI's evaluators are key actors in the accreditation process and contribute in a fundamental way to the development, progress, and improvement of HEIs and Mexico's engineering programs.

Academics or professionals who belong to or would like to join CACEI's Registry of Evaluators must meet the following requirements:

- Hold a bachelor's degree or higher in engineering or related areas; 2) have at least ten years of accumulated academic experience or academic, administrative work, preferably with a category of Assistant Professor or higher, in one or more HEIs; or a bachelor's degree in the engineering area and accumulated experience of 15 years of an academic experience or academic, administrative work. In either case, they must have recognition or prestige in the educational environment of their community and in those institutions in which they have participated; or

- Possess the academic degree of bachelor's degree in engineering, at least, with relevant professional development and experience of more than ten years in their specialty and, in addition, be active in it.

- Additionally, they must have characteristics inherent to the actors that participate in the evaluation and accreditation processes, such as:

  - Capacity for analysis and synthesis.
  - Ability to manage personal relationships.
  - Observation and communication skills.
  - Objectivity in the issuance of judgments.
  - Provision for permanent updating on issues related to evaluation and accreditation.
  - Commitment to fulfill the commitments acquired with CACEI promptly.
  - Recognized honesty.

- Likewise, the evaluator must meet the following requirements:

  - Authorization and support of the institution or company where provides its services.
  - Availability to travel to the evaluation visits to the different institutions assigned to them.
  - Actively participate in the training process aimed at evaluators.

- For emerging educational programs or not yet considered in any of the Discipline Technical Commissions, the academic or professional requirements that the evaluators must meet will be established by an Ad Hoc Committee appointed by the Executive Council at the proposal of the General Director.

- In the context of the COVID-19 contingency from March 2020, CACEI launched the hybrid mode assessment online for the evaluation visits of the educational programs, considering the recommendations and best international practices. The process includes an ad hoc schedule that depends on the HEI's characteristics, without omitting any activity and taking care of the technical rigor of the Reference Framework. The visit could include the figure of the Observer, if the Visiting Team considers it necessary, to be responsible for checking facilities, laboratories, and workshops that support the educational program.

- The evaluation visit in situ or hybrid mode can be:

  - Visits of a single program. These visits are carried out by three evaluators, where one of them is appointed by the Discipline Technical Commission as the visit coordinator.

- Multi-program visits. This are simultaneous visits of two to five programs. It is performed by a group of evaluators and each team is integrated by two evaluators for each program. The Discipline Technical Commission (CTE) appoints one of them as coordinator, and among the corresponding CTEs is designated the General Coordinator of the visit, which oversees all programs.

- Coordinators of in situ visits and hybrid mode should meet the following requirements:

  - Have more than four years participating as an evaluator of an accrediting body or the equivalent of more than five visits.
  - Belong to a Discipline Technical Commission.
  - Possess leadership skills to lead a team.
  - Have powers to delegate and supervise responsibilities.
  - Lead problem solving.
  - Have the capacity for negotiation, conflict management and teamwork.

- The General Coordinators of on-site visits and in hybrid mode must meet the following requirements:

  - Have previous experience visiting as coordinator of, at the least five visits evaluation.
  - Ability to lead a large team of evaluators.
  - Show knowledge of the educational context to assess how relevant educational programs of HEIs considering its context.
  - Ability to manage the schedule of activities.
  - Possess leadership skills and to lead a team.
  - Have the capacity for negotiation, conflict management and teamwork.

- Functions of the evaluators in on-site visits and in hybrid modality:

  - Participate in all face-to-face or virtual meetings planned in the schedule.
  - Carry out and analyze, considering the criteria and standards issued by CACEI the self-evaluation, as well as the evidence from the self-assessment.
  - Register in SIGA observations in the matrix comments. This review begins from the moment they receive the documents of the visit.
  - Support Coordinator Visit in completing the report´s evaluation of the program on the platform of SIGA.

- Functions of the Coordinator of the Visit in situ or in hybrid mode (single program):

  - Analyze and agree with members of the Visiting Teams the proposed schedule sent by CACEI and validated jointly with the IES.

  - Organize at least four meetings by videoconference with the members of the program's evaluation committee who will participate in the visit.

  - Make comments and observations on the documents and evidence submitted in the self-assessment, mainly in the common indicators to the programs, on the SIGA platform and promptly follow up on the comments made by the other evaluators who are part of the team.

  - Request, if necessary, additional evidence, using SIGA, 30 calendar days before the visit, when inconsistencies or gaps are identified in the revised self-assessment report. The last request for additional evidence may be required up to 15 calendar days before the visit. In previous meetings with the responsible for the Program of the HEI must attend and clarify the doubts of these requests.

  - Make sure to comply with all the activities established in the schedule, in a timely manner, taking care to abide by the established times.

  - At the beginning of the visit, present the members of the Evaluation Committee to the authorities and members of the HEI, indicating the training and institution from which they come. The Coordinator is the spokesperson for the Committee before the highest authority of the HEI.

  - In the final meeting of the visit, must inform the authorities responsible for the evaluated program, orally, what was found in the pre-evaluation (strengths and weaknesses).

  - To be the spokesperson and the person responsible on behalf of CACEI for conducting the opening and closing sessions in the evaluation visit, whatever the modality in which it is carried out.

  - Complete the reports requested in the SIGA, resulting from the collegiate analysis of the self-evaluation and visit, with the support of the other evaluators of the Visiting Team, taking care of the technical rigor and the grounded analysis that accompany the recommendations.

- Functions of the Coordinator of the Visit in situ or hybrid mode (multiple visits):

  - Validate the proposed schedule for the IES and ratify or propose adjustments to it, if required.

- Organize at least four meetings by videoconference with the evaluation committee members of the program that will be visited. Record the agreements in the SIGA comment matrix.

- Make comments and observations on the documents and evidence submitted in the self-assessment on the SIGA platform and promptly follow up on the comments made by the other evaluators who are part of their list.

- Request, if necessary, additional evidence, using the SIGA platform, 30 calendar days before the visit, when inconsistencies or gaps are identified in the revised self-assessment. The last request for additional evidence may be asked up to 15 calendar days before the visit. In previous meetings with the responsible for the Program should address and clarify the doubts of these requests.

- Ensure to comply with all the activities established in the schedule on time, taking care to abide by the appointed times.

- Heed the recommendations of the General Coordinator and permanently coordinate with him.

- Starting the visit, at the meeting with the responsible for the Program, inform verbally what was found in the pre-evaluation.

- Complete the reports requested in the SIGA platform, resulting from the collegiate analysis of the self-evaluation and visit, with the support of the other evaluators of the Visiting Team, taking care of the technical rigor and the informed analysis that accompany the recommendations.

- Functions of the General Coordinator in multiple visits on site or mixed mode:

- Be the spokesperson and responsible on behalf of CACEI for conducting the opening and closing sessions in the evaluation visit, whatever the modality it is carried out.

- Ensure compliance with all scheduled activities and meetings with the Visiting Teams before and after the visit.

- Starting the visit, present the Visiting Teams (CEs) members to the authorities and members of the HEI, indicating their background and institution from which they come. The General Coordinator is the spokesperson for the CEs before the highest authority of the IES.

- In the final meeting of the visit, verbally inform the authorities responsible for the evaluated Program what was found in the pre-evaluation (strengths and weaknesses).

- Maintain permanent communication with the members of the Visiting Teams and follow up on the activities associated with the group or individual evaluation of the self-assessment.

- Convene videoconferences with Coordinators of the visit to unify criteria and agree on the final schedule. These meetings can be before or after the visit.

- Validate with the responsible of the HEI the schedule of the visit. If there is any proposal adjustment to the schedule, it must be justified, and the HEI must accept the changes.

- Verify and supervise the fulfillment of all the activities and meetings on the schedule.

- Evaluate the common indicators and, based on the observations made by the Visiting Teams, issue a scoring proposal for all programs in the SIGA comment matrix. To perform this function, the General Coordinator will support and interact with the Visit Coordinators.

- Have effective communication with the Coordinators of the Visit and with the evaluators and those responsible for the HEI.

- Coordinate internal meetings of the Visiting Teams.

- Review the congruence of the scoring assigned to the common indicators and verify that it is registered in the reports completed in the SIGA platform.

INTERNATIONAL COLLABORATION

CACEI belongs to several international organizations, being the most important:

- Western Hemisphere Initiative (WHI). Integrated by the Accreditation Board for Engineering and Technology (ABET -USA), the Canadian Engineering Accreditation Board (CEAB -Canada), the Institute for Quality and Accreditation of Computer, Engineering and Technology Programs (ICACIT - Peru). WHI aims to promote cooperation among agencies involved in accreditation issues.

- *La Red Iberoamericana para la Acreditaciv≥n de la Calidad de la Educación Superior* (RIACES - Ibero-American Network for Accreditation of Quality in Higher Education). An association of agencies and organizations for the evaluation and accreditation of the quality of higher education, whose members must have

competencies recognized by their respective governments in this matter. The main purposes of RIACES is to promote cooperation and exchange among Latin American countries in the evaluation and accreditation of the quality of higher education, to facilitate the transfer of knowledge and information for the development of activities in each country that seek the strengthening and qualification of the processes of evaluation and accreditation of degrees or academic programs and Higher Education Institutions (HEI), as well as of the governmental entities involved in the conduction of these processes and to stimulate the reflection on future scenarios of Latin America's higher education from the perspective of evaluation and accreditation as an instrument of permanent improvement of the quality of the institutions and the programs that they impart.

- *El Acuerdo de Lima* (The Lima Accord). It is a multilateral agreement between agencies of Latin American and Caribbean Countries responsible for the accreditation of engineering programs at the undergraduate level within their jurisdiction. The signatories of this agreement are committed to the development and recognition of good practices in engineering education and work together so that once the programs are accredited, the substantial equivalence of such programs is recognized among the signatory bodies. This Accord facilitates the mobility of engineering professionals.

- The Accreditation Board for Engineering and Technology (ABET). It is the accrediting organization of the United States of America for engineering, technology and applied science education programs and it is the organization with which CACEI has had the longest and lasting working interaction. Since the creation of CACEI, ABET has shared its experiences and good practices in accreditation processes, helping CACEI achieve its entry as a provisional member of the Washington Accord. Given the prestige that ABET has at international level, 53 Mexican engineering programs have applied for and obtained accreditation granted by this organization. However, ABET has been respectful and established as a requirement to be accredited by CACEI first. This is undoubtedly a recognition of the quality and rigor of CACEI accreditation processes.

- The Washington Accord. Founded in 1989, is an international agreement between agencies responsible for accrediting engineering programs from different countries. It recognizes the substantial equivalence of programs accredited by these agencies and recommends that graduates of programs accredited by any of the member organizations of this agreement be recognized by all other bodies that are signatories to the agreement. The full signatories of the Accord are:

- Accreditation Board for Engineering and Technology, USA.
- Accreditation Board for Engineering Education of Korea.
- Association for Engineering Education Russia.
- Association for Evaluation and Accreditation of Engineering Programs, Turkey.
- Board of Engineers Malaysia.
- *Colegio Federado de Ingenieros y de Arquitectos de Costa Rica*.
- China Association for Science and Technology.
- Engineers Australia.
- Engineers Canada.
- Engineering Council South Africa.
- Engineering Council United Kingdom.
- Engineers Ireland.
- Hong Kong Institution of Engineers.
- *Instituto de Calidad y Acreditación de Programas de Computación, Ingeniería y Tecnología*, Peru.
- Institute of Engineering Education Taiwan.
- Institution of Engineers Singapore.
- Institution of Engineers Sri Lanka.
- Institution of Professional Engineers New Zealand.
- Japan Accreditation Board for Engineering Education.
- National Board of Accreditation, India.
- Pakistan Engineering Council.

The accrediting agencies in engineering that have provisional member status in the Washington Accord are the following:

- *Agencia Acreditadora Colegio de Ingenieros de Chile*.
- Board of Accreditation for Engineering and Technical Education, Bangladesh.
- *Consejo de Acreditación de la Enseñanza de la Ingeniería*, Mexico.
- Council of Engineers, Thailand.
- Indonesian Accreditation Board for Engineering Education.
- Myanmar Engineering Council, Burma.
- Philippine Technological Council.

- On the other hand, for the accreditation of engineering technicians' programs, the Dublin Acord was established in 2002, which currently has nine members:

- Accreditation Board for Engineering and Technology, USA.
- Accreditation Board of Engineering Education of Korea.
- Board of Engineers Malaysia.
- Canadian Council of Technicians and Technologist.

- Engineers Australia.
- Engineering Council South Africa.
- Engineering Council United Kingdom.
- Engineering Ireland.
- Engineering New Zealand.

CACEI enjoys recognition in the community of international engineering to be distinguished as a provisional member of the Agreement of Washington. In addition to being the only accrediting body of engineering programs in Mexico that evaluates with international standards and making collaborative alliances with other countries, which places it as a leader at the forefront of internationalization in its field.

In 2014, CACEI, in their concern for advancing the internationalization of engineering programs in our country, signed with the National Agency of Quality Assessment and Accreditation (ANECA) of Spain a strategic cooperation agreement to grant certificates EUR -ACE Seal ® programs previously accredited by CACEI, as a guarantee of its quality. One of the fruits of this alliance is that it substantially simplifies the certification process for the benefit of HEIs. In 2017, six programs in total, two per institution, from the Autonomous University of Nuevo León, the Autonomous University of San Luis Potosí, and the Autonomous University of Yucatán received the EUR-ACE ® Seal. In 2019, added two more programs from the Autonomous University of Nuevo León and the *Veracruzana* University. In 2021 it is expected to certify 12 engineering programs from the School of Engineering of the National Autonomous University of Mexico (UNAM) and four from the Autonomous University of Baja California. The EUR-ACE ® Seal allows Mexican engineering companies to demonstrate that they have international quality standards comparable to those of the European Economic Community member countries.

2. EVALUATION PROCESS

The evaluation process includes the bodies that participate according to the functions indicated in the previous section and defined in CACEI's Bylaws.

The accreditation process defined by CACEI incorporates the good practices of international and national accreditation bodies. It is based on a methodological framework similar to that used by other accrediting bodies and on the regulations indicated by COPAES.

The methodology used by CACEI is based on the characteristics described in its reference frameworks, based on the identification, validation and fulfillment of criteria, indicators and standards that support the achievement of the graduate attributes, educational objectives and commitments and obligations described in the educational program for objective, valid and reliable decision-making by the different decision-making bodies of CACEI.

The evaluation process for accreditation purposes has a pragmatic nature, so it is sought to have a translation as faithful as possible of the subjective and interpretation aspects; that is to say, the referents of the academic work of a program. It is intended that in the issuance of value judgments on educational programs, there is objectivity and a single criterion so that the accreditation decisions issued by CACEI are based on common bases and are as homogeneous as possible.

The participation of different collegiate bodies, representative of the various higher education subsystems, in the several review stages (Evaluation Committees, Discipline Technical Commissions, and Accreditation Committee) guarantees a review from different instances that ensures effectiveness and transparency of the process.

The evaluation of engineering programs for accreditation purposes represents a strategic decision aimed at continuous improvement and different actors from the institution participate in this process. To generate the best conditions to go through the different stages of this cycle successfully, it is recommended:

- Generate a permanent process of awareness and a culture of evaluation among managers, faculty, and the institution in general.

- Develop and implement policies from the top down that allow having evidence in the different courses of what students know and can do and monitoring the achievement of educational objectives and graduate attributes.

- Establish policies that allow the participation of the productive sector through stakeholders in the systematic and periodic review to update the courses and guarantee the relevance of the curriculum.

- Involve in due time and form the faculty and support areas of the program in the accreditation process.

- Prepare faculty so that they can demonstrate the achievements of the students' learning described in the different courses and the compilation of the most significant learning materials.

- Select for the sample and the self-assessment the student's most significant and representative learning products.

- Select student learning products and teaching and evaluation materials for faculty that demonstrate the achievement of graduate attributes and the engineer's responsibility to society.

- Among the learning evaluation products include rubrics, surveys, exams, various evaluation methods, and procedures that make it possible to demonstrate their congruence with the educational and academic model and the achievement of the graduate's profile.

- Design a tactical plan for accreditation with responsibilities and times and follow-up.

- Establish an Accreditation Committee looking for its coordinator to have:

  - Credibility before faculty and different areas;
  - Direct and open contact with management;
  - Direct and agile communication with the different actors in the process;
  - Good relations with the different areas involved in the accreditation process; and
  - Leadership.

- Establish contact with CACEI to have the necessary support for the accreditation process.

- Verify the internal consistency of the information.

GENERAL POLICIES

The evaluation process for accreditation purposes will adhere to the following general policies or guidelines, adapting to the characteristics of the program and considering the subsystem to which it belongs, its regulations, modality, and educational option; without these adjustments giving rise to a categorization in the quality of the evaluated educational programs of Engineering and *Técnico Superior Universitario* associated with engineering.

I. The evaluation process must:

- Be oriented primarily to continuous improvement of the program and compliance with established standards.

- Provide reliable information about the situation of the educational program, analyzing the strengths and weaknesses found, as well as its improvement plan.

- Include a wide range of activities: interviews and surveys with the different stakeholders; observations to physical spaces and laboratories and workshops; analysis of the achievements of students and faculty and review of the evidence provided in the self-assessment report and follow the previously defined assessment schedule.

- Follow the criteria, indicators, and standards defined in the reference frameworks that ensure that the accreditation decision guarantees compliance with the good quality standards defined for educational programs.

- Ensure compliance with what is established in the reference frameworks for the accreditation of Engineering and *Técnico Superior Universitario* programs associated with Engineering; which requires a documentary review of the self-assessment, on the one hand; and on the other, the evaluation visit by the Evaluation Committee appointed by the Discipline Technical Commission.

- Ensure that the decision issued by the Accreditation Committee, the highest-ranking body in terms of accreditation in the process, considers the proposals of the Evaluation Committees and the recommendations of the Discipline Technical Commissions.

II. It is important to consider that, to be in the starting conditions for the accreditation of an educational program, the Basic Requirements Necessary for Program Accreditation established by COPAES must be met, which to the letter say:

"It is a condition of a program to be evaluable, that it has at least one cohort of graduates, and that at least one calendar year has elapsed since then.

That the academic program is in the database and that it has assessable quality, in accordance with the provisions of the General Directorate of Higher University Education (DEGESU), of the Secretariat of Education.

It has the Official Validity Registry (RVOE) in the case of private higher education institutions or the Agreement of Authorization, Incorporation or recognition of the validity of studies in the case of public universities."

III.   It is the evaluators' responsibility to collect and analyze in-depth all the evidence that the institution presents on the program before the visit, without discarding it beforehand and, if necessary, incorporating it into the evaluation report.

IV.   The support or guidance elements included in the reference frameworks, such as formats, *cédulas*, tables, guides, among others, under no circumstances must induce external evaluators to understand that their role is limited to making comparisons of the documents; even less; Copy verbatim what was expressed by the institution in the self-assessment report.

V.   The evaluation process includes formative evaluation in different stages, one before the on-site evaluation visit. The institution is informed about gaps in its self-assessment, which can be completed 30 calendar days before the visit and up to 15 calendar days before the visit.

VI.   Whether in the hybrid-mode or on-site, the evaluation visit will be carried out only during regular class periods, excluding exam periods and vacations because the conditions for meetings with students and faculty are not presented, interviews with academic administrative staff, or visits to the facilities.

DESCRIPTION OF THE ASSESSMENT PROCEDURE FOR ACCREDITATION PURPOSES

Based on the conception of a continuous improvement cycle, the evaluation procedure for accreditation purposes is carried out considering three stages: Self-evaluation, External Evaluation, and Monitoring. This section describes each of the steps of the three stages of the procedure to evaluate engineering and *técnico superior universitario* programs associated with engineering.

Phase 1. Self-Assessment of the Program

The first phase corresponds to the self-assessment of the program, which includes from the time the educational program decides to carry out its evaluation process for accreditation purposes until the capture of the self-assessment report in the Accreditation Management Information System (SIGA). Figure 1 shows a diagram synthesizing this phase explained below.
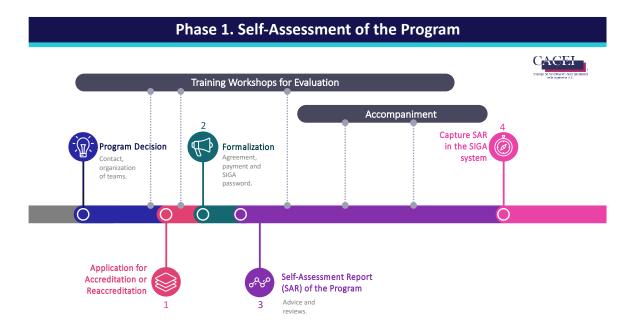
Phase 1. Self-Assessment of the Program

Figure 1. Phase 1 of the Accreditation Process.

1. *Application for Accreditation or Reaccreditation*

The institution must access the Accreditation Management Information System (SIGA) platform of CACEI to start with its accreditation application by filling out online a form called "Zero Sheet."

There is the Manual for the Registration of the Accreditation Application, which explicitly describes the completion of this electronic form step by step. This Manual can be found on CACEI's web portal (www.cacei.org.mx) in the Resources section → Documents of Interest → Manuals of the SIGA System → Registration of the Accreditation Application.

In addition to completing the Zero Sheet for accreditation or reaccreditation, the program must send the following documents to CACEI - as indicated in the Manual for the Registration of the Accreditation Application:

1. Objectives of the Program.
2. Application for accreditation.
3. Profile of the graduate based on competencies.
4. Scope or field of insertion of graduates.
5. Official Registry document, which must contain a registration key issued by SEP/DGP.
6. Educational Objectives of the Program.
7. Graduate Attributes.

Once the Zero Sheet and the requested documents have been received, CACEI notifies the institution of the information necessary to sign the Services Agreement and the corresponding payment that the HEI must make for its formalization. CACEI will send a service agreement form between CACEI and the HEI by email, completed by the IES, and the bank details for the corresponding deposit. The letter issued by CACEI to the IES contains:

1. The cost of the accreditation process.
2. The bank details to make the payment of the accreditation service.
3. Information on the current Framework of Reference; as well as the supporting documents identified on the agency's website.

Through the person in charge of the educational program, the HEI will receive an email to notify the control number of the evaluation process. This control number is necessary to request from the Academic Direction of CACEI the access code (username and password) to the SIGA system.

In case the data that identifies the educational program in this email is not correct, the IES must send an email to acreditacion@cacei.org.mx with the accurate information.

2. *Formalization of the Accreditation Process*

The formalization includes three commitments: the signing of the Professional Services Agreement, payment of the accreditation fee, and the delivery of the code to access the self-assessment completion platform, the SIGA system.

The Academic Direction must give timely follow-up to the fulfillment of these activities. The person in charge of the educational program will review the Services Agreement and, once revised, will send it signed to the following electronic address: administracion@cacei.org.mx.

The HEI will make the payment for the accreditation services and send a copy of the proof of the deposit made to the following electronic address: administracion@cacei.org.mx.

Similarly, once the payment has been made, the IES will request your access code to the SIGA through an email addressed to acreditacion@cacei.org.mx that includes the control number mentioned in the previous step.

CACEI will send the access codes to the SIGA to the person in charge of the educational program to the mail registered in Zero Sheet as the mail of the person in charge of the process.

3. Self-Assessment Report

Before the self-assessment process, CACEI suggests training the team participating in the process, taking the workshops offered by CACEI to have mastery of the concepts for this task. It is recommended to consult the catalog of workshops in the WEB portal of CACEI, in the section of Workshops → Catalog of courses.

CACEI offers ongoing advice to the groups responsible for the process and the program. The advice can be requested from the Academic Direction of CACEI through the coordinator or responsible when required.

4. Capture of the Self-Assessment Report in the SIGA System

The HEI will register and deliver the self-assessment to CACEI using the Accreditation Management Information System (SIGA). CACEI has available the User Manual, Filling of the Self-Assessment, explicitly designed for this purpose. This information can be found on CACEI's web portal, in the Resources → Documents of Interest → Siga System Manuals →Filled with Self-Evaluation. The educational program will capture the answers for each of the six electronic questionnaires that correspond to the criteria through the SIGA system. In addition, the *cédulas*, evidence, and analysis required by the Reference Framework must be attached.

Once the evaluation request has been formalized, the payment has been made, and the agreement signed, the program has a maximum period of one year to upload the self-assessment report to the SIGA system.

Once completed, it is recommended the HEI check that: all questions have been answered, all cédulas have been appropriately completed, and, in addition, attached evidence corresponding to each question in an organized way and indicator. Once this work is finished, the educational program will send its Self-Assessment Report by the SIGA system and immediately receive confirmation of receipt by CACEI through an email. If you do not receive such confirmation, please send an email to acreditacion@cacei.org.mx.

Phase 2. External Evaluation

The second phase, External Evaluation, covers the time the Evaluation Committee (Visiting Team) is appointed until the final decision is issued. Includes the activities shown in Figure 2, which are described below.
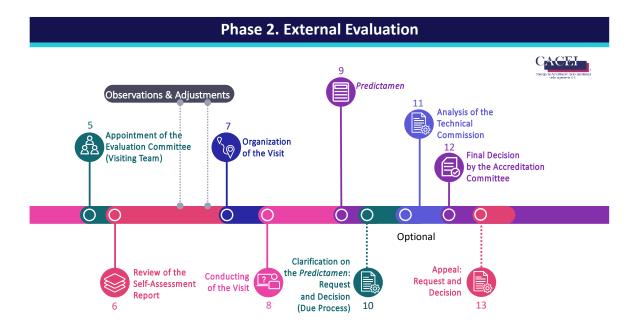
Figure 2. Phase 2 of the Accreditation Process.

5. *Appointment of the Evaluation Committee (Visiting Team)*

The Discipline Technical Commissions define the Evaluation Committee of each Program, for which they select the three evaluators responsible for the process among the evaluators with training in the program and incorporated in the Register of Evaluators of CACEI and consider for their selection:

a. Have the appropriate profile for the evaluation of the program (same or related training).

b. Include in the Evaluation Committee an evaluator with an appropriate profile that arises from the same subsystem of the program to be evaluated, considering the allocation policies of the Evaluation Committees.

c. None of the evaluators selected must be from the State where the HEI is located or have any link with the HEI for professional or academic services.

The Evaluation Committee is submitted to validation by the HEI for ratification and thus avoid any conflict of interest.

When sending the self-assessment report (SAR), the educational program must propose to CACEI three possibilities of dates of evaluation visit considering that the minimum period required for the review of the SAR by the evaluators is 45 calendar days. The proposal should therefore assume that the proposed dates should be later than that period. Suppose the IES does not send the proposal in the immediate days.

CACEI, through the Academic Directorate, will contact the person in charge of the program to define them within a maximum period of two working days after the established response date.

After confirming the availability of the evaluators for a visit, CACEI will notify the educational program which of the three proposals is feasible, taking into account the needs of the HEI. The HEI must confirm that it accepts the proposed date as well as the agenda of the visit.

The planning of the visit may have a variable duration, considering the modality in which it is carried out; that is, it can vary between two to five days considering the needs and availability of the actors subject to evaluation.

6. *Review of the Self-Assessment Report by the Evaluation Committee*

Since the IES delivers the self-assessment report through the SIGA system, the Evaluation Committee (CE) receives it. The CE has 45 calendar days to analyze it considering the criteria and standards defined by CACEI and the evidence, cédulas, and arguments that support the level of compliance with the object subject to evaluation.

Each of the team members of evaluators must, in an informed manner, report the observations detected in this review, identifying strengths, weaknesses, and areas of opportunity that allow the continuous improvement of the program. During this stage, there is an interaction between the Evaluation Committee and the program. Evaluators can request additional evidence from the educational program, using SIGA as a medium. The program has 30 calendar days before the visit to integrate information on inconsistencies or gaps in the self-assessment identified by the Evaluation Committee. The program may receive the last request for additional evidence 15 calendar days before the visit.

7. *Organization of the Evaluation Visit*

Based on the revision of the self-assessment report, the Evaluation Committee (Visiting Team) may adjust with the head of the educational program of the IES the Agenda of Activities. Without omitting any of the activities proposed in the agenda provided by CACEI, the program can make adjustments to schedules and dates or include some additional activity, but in no case omit any of these.

If the visit is carried out in the mixed modality, CACEI will provide access to the platform (SIGA) to carry out the virtual meetings of the previously agreed agenda.

8. Conducting the Evaluation Visit

Those in charge of the educational program are responsible for resolving the logistics of the visit; that is, to have sufficient spaces; summon groups or actors to be interviewed; guide the evaluators in the facilities and have a space for the analysis of the equipment, among the most relevant aspects. The visit will be made, either in person or virtual, as previously agreed.

The Evaluation Committee must organize the activities to comply on time with the defined Agenda, prepare the reports established for the evaluation and provide the institution in oral form with an exit report highlighting identified strengths and weaknesses. It is relevant to mention that, in this report, a level of accreditation of the program be established in no case.

9. Issuance of the Predictamen

After concluding the activities corresponding to the Agenda, within 24 hours, the Evaluation Committee issues the *Predictamen* indicating the proposal for a prior decision and the justified recommendations that will address the areas of opportunity identified. The *Predictamen* is three reports registered in the SIGA system by the coordinator with the consensus of the members. The *Predictamen* includes the summary of indicators, the Matrix of strengths and weaknesses (SWOT), and the extensive report. It is worth mentioning that this *Predictamen* is a previous document submitted for clarification by the IES.

10. Clarification on the Predictamen (Due Process, optional)

Once the Evaluation Committee formulates the *Predictamen* through the SIGA system, the Academic Direction, within no more than 24 hours, will send the *Predictamen* to the educational program to be reviewed and issue reasoned clarifications on the comments included in the document. The program will have seven calendar days, from receiving the *Predictamen*, to present the clarifications to the comments supported by evidence or information incorporated in the self-assessment report or during the visit. In case of not having access to it, the HEI can contact the Academic Direction of CACEI or directly with the Coordinator of the Evaluation Committee.

The Academic Direction sends to the Evaluation Committee the clarifications sent by the program within no more than 24 hours. The Evaluation Committee analyzes them because the substantiation is based on evidence or information previously provided. The members meet by videoconference to generate a proposal for change or ratification of the evaluation of the indicators. The result of this deliberation may

be the ratification of the Predictamen or an adjustment, depending on the substantiated support provided by the HEI, where it verifies having achieved the level of compliance established in the evaluation standards.

The Evaluation Committee's Coordinator generates a proposal for change or ratification in evaluating the indicators, which must be sent within the following seven days, at the latest, to acreditacion@cacei.org.mx.

11. Analysis of the Discipline Technical Commission

The *Predictamen* issued by the Evaluation Committee, in a period not exceeding 90 days, must be analyzed by the Discipline Technical Commission of the corresponding discipline. They are responsible for reviewing the internal consistency of the proposal, compliance with technical rigor in assigning the score, and the clarity in the wording of the recommendations and the justification.

The time established for this analysis is flexible depending on the number of programs reviewed by the Evaluation Committee and the degree of complexity of the cases analyzed. The Discipline Technical Commission seeks, through collegiate work, that the revised *predictámenes* maintain homogeneous criteria in assigning the scores given to the indicators. The result of this stage is a proposal for a decision.

12. Final Decision by the Accreditation Committee

The Accreditation Committee is the highest body that establishes the final decision of an educational program. Therefore, once reviewed by the Evaluation Committee and the Discipline Technical Commission, the decision proposal reaches the Accreditation Committee based on the prior critical review of the *Predictamen* issued by the evaluators. Based on the above, the Accreditation Committee seeks to identify compliance in the evaluation of the criteria and standards established by CACEI and the clarity and objectivity of the recommendations. In addition, it seeks to guarantee the consistency, reliability, and relevance of the recommendations.

Based on this analysis, the Accreditation Committee issues the final decision for the evaluated educational program. Accredited programs must comply with the recommendations issued in the minutes of the Accreditation Committee.

This stage has a variable duration depending on the number of programs evaluated by this Committee.

CACEI communicates to the HEIs the final decision endorsed by all the members of the Accreditation Committee in no less than seven business days and no more than 10 days.

13. Appeal: Request and Decision (optional)

If a program that was not accredited wishes to request a reconsideration of its decision, it may request a review of its case by the Appeals Committee, an independent body from the Accreditation Committee. For this purpose, the program must send CACEI a report with the arguments and evidence by which it considers that the program complies with the established standards within 21 calendar days after receiving its opinion.

The program's report goes through a review of the Appeals Committee. In a period between 30 and 40 days after delivery, the HEI is summoned to defend its reconsideration. The decision issued by the Appeal Committee after the analysis meeting between the institution and the committee is final.

Phase 3. Continuous Improvement

The third phase, Continuous Improvement, aims to follow up on the PE's commitments. It starts with the Improvement Plan until the Recommendation Compliance Report. It can be seen summarized in Figure 3 and comprises the activities described below.
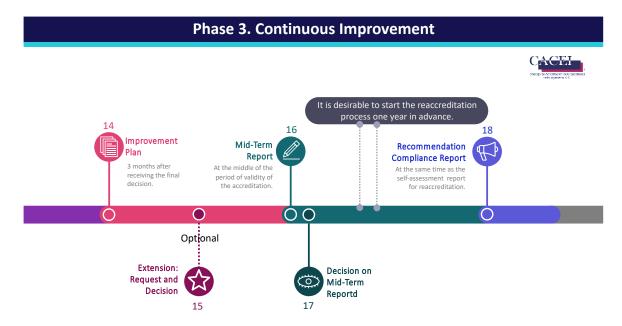

Figure 3. Phase 3 of the Accreditation Process.

14. Improvement Plan

Once the program receives the accreditation decision, it must prepare its Improvement Plan, for which it has three months after receiving its accreditation.

The term begins with the minutes of the Accreditation Committee delivery in which the evaluation process's final decision is issued.

The Improvement Plan and its scope are the sole responsibility of the accredited educational program institution. CACEI will issue a letter of receipt of this. The Mid-Term Committee will not give a decision; it will only review whether it complies with all the recommendations issued in the final decision.

The Improvement Plan must address the recommendations issued by the Accreditation Committee and consider the areas of opportunity identified in the evaluation. It is a strategic document that consists of a plan that will include all the goals, actions, strategies, and essential objectives to increase the quality of the Educational Program.

The Improvement Plan design must consider the following:

- The accreditation decision, the self-assessment of the educational program, the requirements established in CACEI's Reference Framework, as appropriate, and the needs declared in the Institution's Development Plan; as well as the trends that guarantee its relevance considering the contributions of the Stakeholders and the faculty of the program.

- Address all the recommendations stated in the minutes of the Accreditation Committee.

- Have a statement of goals, improvement actions, analysis of their impact, as well as those responsible and the term in which they will be carried out.

  - o Goals are possible solutions to the recommendation or area of opportunity detected. Accredited educational programs must establish them considering compliance with the indicators' recommendations and the resources they have. These goals must have measurable results and the dates of the partial and total achievements.
  - o The improvement actions consist of the description of activities necessary to achieve the goals. These must be feasible, relevant, measurable, and concrete. In addition, they must contribute to the achievement of the corresponding goals, contemplate results and evidence, and evaluate these on time.
  - o The impact should refer to the benefits obtained by meeting the goals considering the objectives of the analysis criteria of the Reference Frameworks.
  - o The person in charge. The position in the HEI organization of the person in charge of monitoring the fulfillment of the goals must be declared.

- The term is the time in which it is declared that the goals will be met. This period should not exceed the validity of the accreditation and should be considered partial compliance goals.

- The Improvement Plan will only be delivered through SIGA. To use the SIGA module, reviewing the User Manual, Filling the Improvement Plan is suggested. This information can be found on CACEI's website, in Resources → Documents of Interest → Manuals of the SIGA System → Completed Self-assessment.

- The following is suggested to the working group that is going to prepare the Improvement Plan:

  - Clearly identify areas for improvement in the educational program, considering the standards defined to obtain accreditation, and analyze the possible causes that have led to the situation identified.
  - Identify and delimit the possible causes that affect the aspect subject to improvement and establish the possible solutions.
  - Define the objectives, proposed goals, and the expected results.
  - Define the relevant actions to be undertaken; These must be feasible, relevant, and measurable.
  - Define the necessary resources to use (material or human) to achieve the objectives, goals, and actions.
  - Establish a detailed and viable schedule for the fulfillment of the Improvement Plan within a maximum period of five years.
  - Assign those responsible for the process of implementation and monitoring of the Improvement Plan.

It is important to consider the following:

- If this plan does not meet the requirements established by CACEI, the HEI must address the recommendations and forward them for review and validation again.
- If an accredited educational program does not deliver the Improvement Plan, CACEI may revoke the accreditation per the established regulations.

15. Extension: (optional)

Programs with accreditation for three years may extend for two more years if they request it during the first 18 months after the PE accreditation. For these purposes, the educational program must send CACEI a request for an extension of the accreditation in no less than one year and no longer than 18 months from the accreditation. It must be accompanied by a document that demonstrates arguments

and evidence of compliance with only the indicators previously rated at the level of "*is partially achieved*." No other indicators should be included.

The review of said documentation will be in charge of the Appeal Committee, which will review the evidence and arguments. In response to said request, the Committee will determine whether to ratify the three-year term or grant the extension for two more years. The extension request may only be submitted once, and the evaluation of these cases may be subject to an evaluation visit to the institution to validate the improvement in the applicant program.

16. Mid-Term Report

Accredited programs must submit to CACEI a Mid-Term Report that demonstrates the follow-up and attention to the recommendations issued in the minutes of the Accreditation Committee. It will explain the actions and strategies carried out and present the corresponding evidence. This report will be subject to evaluation and, if the recommendations are not sufficiently addressed, CACEI may revoke the accreditation. The delivery date of the Mid-Term Report depends on two factors: the first, the term of the accreditation, which can be granted for five or three years; the second, whether IES is going to request the extension of the term of the accreditation and the time elapsed since its accreditation to request it. The following figures describe the cases that may arise.

Case 1. *Accredited programs valid for five years.*

The Mid-Term Report must be delivered within **2.5 years** or after 30 months of issuing the accreditation decision (Figure 4).
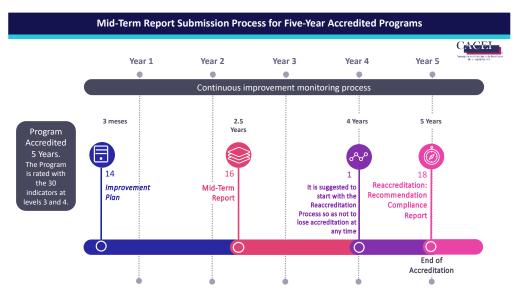

Figure 4. Mid-Term Report Submission, Programs Accredited 5 Years.

Case 2. *Programs accredited for three years that submit a Request for Extension of Validity between months 12 and 18 after the issuance of their accreditation decision (Figure 5).*

For the educational programs accredited for three years that present their Request for Extension of the Term of the Accreditation between the months 12 to 18 of the issuance of their accreditation decision, two situations may arise:

- Faced with a favorable accreditation decision, the Mid-Term Report must be submitted after 2.5 years,
- In the event of an unfavorable accreditation decision, the report must be submitted no later than 3 months after receiving the accreditation decision.
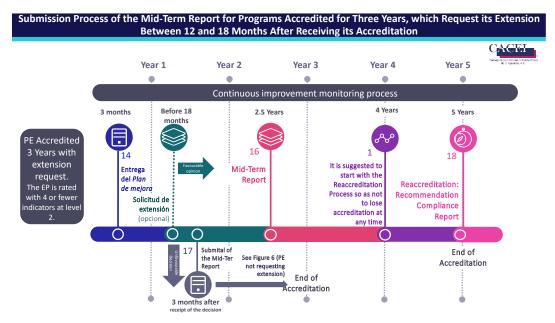

Figure 5. Mid-Term Report Submission, Programs Accredited 3 Years that Do Not Request Extension of its Term.

Caso 3. *Three-year accredited programs that do not request an Extension of Term (Figure 6).*

Suppose the educational program accredited for three years decides not to use its right to request the extension of its term. In that case, it must notify CACEI and submit its Mid-Term Report 18 months after the issuance of its accreditation decision.
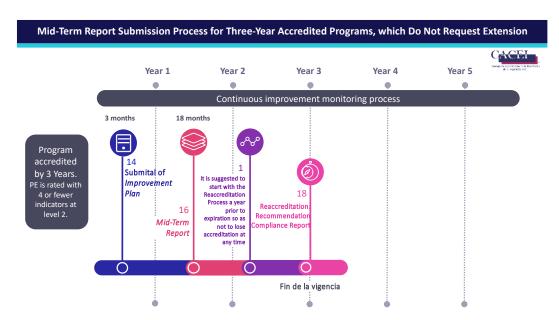
Mid-Term Report Submission Process for Three-Year Accredited Programs, which Do Not Request Extension

Year 1   Year 2   Year 3   Year 4   Year 5

Continuous improvement monitoring process

3 months   18 months

Program accredited by 3 Years. PE is rated with 4 or fewer indicators at level 2.

14
Submital of *Improvement Plan*

16
Mid-Term Report

1
It is suggested to start with the Reaccreditation Process a year prior to expiration so as not to lose accreditation at any time

18
Reaccreditation Recommendation Compliance Report

Fin de la vigencia

Figure 6. Mid-Term Report Submission, Programs Accredited 3 Years that Do Request Extension of its Term.

17. Decision on Mid-Term Report

The Mid-Term Reports of the programs sent by higher education institutions are reviewed and analyzed by the Mid-Term Academic Committee to issue a decision.

18. Recomendation Compliance Report

It is the last step in the monitoring process of continuous improvement. It consists of a *Recommendation Compliance Report* that must be submitted by all accredited programs that wish to be re-evaluated at the end of the term of their accreditation to obtain a reaccreditation.

Said report has the purpose of describing the antecedents, the improvement actions carried out, the goals, and the results achieved during the term of the accreditation actions, evidencing the improvement of the educational program and the attention to the recommendations. It must have the following characteristics:

- The inputs suggested for its preparation are the accreditation decision, the *Improvement Plan*, the *Mid-Term Report*, the objectives of each analysis criterion, CACEI's Reference Framework, and the results and evidence generated in the continuous improvement process.

- It must contain a report of the activities carried out to meet the established goals and each recommendation issued in the accreditation report.

- The report must declare results for each indicator that has received a recommendation in the accreditation decision, with evidence of achievement.

- This report must be delivered through a downloadable format found on CACEI's website, in Accreditation → Process → Accreditation → Step 14 → Download the Recommendations Follow-up Report format. Subsequently, it must be sent to the email acreditacion@cacei.org.mx.

Figure 7 shows a diagram that integrates all the process steps described in this section.
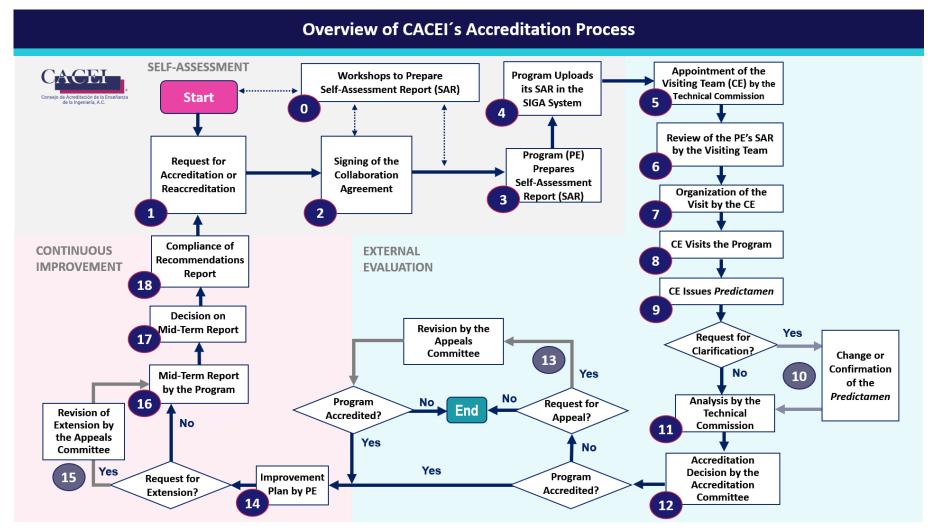
Figure 7. Overview of CACEI's Accreditation Process.

REQUIREMENTS TO OBTAIN PROGRAM ACCREDITATION

The results-oriented CACEI Reference Frameworks evaluate Engineering Programs and *Técnico Superior Universitario* associated with Engineering through six Criteria. Each criterion is made up of different indicators evaluated according to the following levels of compliance:

2018 CACEI's Reference Framework in the international context.			
1	2	3	4
Not achieved.	Partially achieved.	Achieved, with the risk of non-compliance during the term of the accreditation.	Achieved or exceeded.

2021 Reference Framework for *Técnico Superior Universitario* programs. Criteria and indicators.			
1	2	3	4
Not achieved	Partially achieved.	Achieved.	Exceeded.

The accreditation process can grant decisions from among three possible results: 1) Accredited five years, 2) Accredited three years, or 3) NOT Accredited.

Accreditation may be granted for five or three years, as indicated in the following table:

VALIDITY	2021 Reference Framework for *Técnico Superior Universitario* programs. Criteria and indicators.	2018 CACEI's Reference Framework in the international context.
Five years	If it meets or exceeds all indicators.	All the indicators: "Achieved" or "Exceeded."
Three years	If it partially achieves three or fewer indicators and does not have any indicator in "Not achieved". If it is reaccreditation, up to three indicators may be evaluated with "Partially achieved", as long as they do not correspond to criteria 3 and 4; the rest must be evaluated with "Achieved" or "Exceeded."	If four or fewer indicators are "Partially achieved" and there is no indicator in "Not achieved."

The decision of *NOT Accredited* will be issued in accordance with the following:

2021 Reference Framework for *Técnico Superior Universitario* programs. Criteria and indicators.	2018 CACEI's Reference Framework in the international context.
If four or more indicators are "Partially achieved"; or if one or more indicators obtain the level "Not achieved."	If five or more indicators are "Partially achieved"; or if one or more indicators obtain the level "Not achieved."

3. FINAL CONSIDERATIONS

The evaluation of Engineering and *Técnico Superior Universitario* programs for accreditation purposes represents a strategic decision aimed at continuous improvement, with the participation of the different actors of the program. For this exercise to be efficient and effective, it is imperative not to lose sight of the following aspects:

- Actively participate in the workshops offered by CACEI to accompany HEIs in their self-assessment process.

- Carefully review and revise the 2018 CACEI's Reference Framework in the international context or the 2021 Reference Framework for *Técnico Superior Universitario* programs, as appropriate.

- On the criteria and indicators, pay attention and carefully review the table of minimum contents and the laboratories of the different programs.

CACEI provides the HEIs with an accompaniment while completing the self-assessment. The accompaniment should be requested from the Academic Directorate.