

(Translation Document)



Rule and Procedure for Accreditation of Engineering Education  
(2<sup>nd</sup> Revision)

Guideline Document  
for

Accreditation of Engineering Educational Program

Accreditation Cycle Starting Academic Year 2019 to 2024

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## Document Control Table

Revised No.	Revised Items	Approved by	Date
2	<p>Chapter 2</p> <ul style="list-style-type: none"> <li>- objectives.</li> </ul> <p>Chapter 3</p> <ul style="list-style-type: none"> <li>- the whole chapter relating to accreditation policy and concepts, prescribing educational programs, revising accreditation result and conditions, establishing cost and expense bearing.</li> </ul> <p>Chapter 4</p> <ul style="list-style-type: none"> <li>- the whole chapter relating to appointments and roles subcommittee, working group, program evaluator team, designated TABEE subcommittee, coordinator, and coordinating staff.</li> </ul> <p>Chapter 5</p> <ul style="list-style-type: none"> <li>- multiple programs visit.</li> <li>- roles of designated TABEE subcommittee, intervenor working group.</li> <li>- exit meeting and TABEE decision meeting</li> <li>- program visit schedule to 2 days visit, 1 day follow up visit</li> <li>- accreditation result and follow-up review</li> </ul> <p>Chapter 6</p> <ul style="list-style-type: none"> <li>- Criterion 4 Continuous Improvement</li> <li>- Criterion 5 Curriculum</li> <li>- Criterion 7 Facility</li> <li>- Criterion 8 Institutional Support</li> </ul> <p>Chapter 7</p> <ul style="list-style-type: none"> <li>-schedule</li> </ul> <p>Chapter 8</p> <ul style="list-style-type: none"> <li>-curriculum and conditions</li> </ul> <p>Chapter 9</p> <ul style="list-style-type: none"> <li>-text editing and readiness preparation</li> </ul> <p>Chapter 11</p> <ul style="list-style-type: none"> <li>- accreditation result and tables</li> </ul> <p>Chapter 14</p> <ul style="list-style-type: none"> <li>- the whole chapter</li> </ul> <p>Appendix</p> <ul style="list-style-type: none"> <li>- text editing and rearrange forms and documents</li> </ul>		

## Table of Contents

1. Introduction
2. Definition, Objectives and Scope of Accreditation
  - 2.1 Definition
  - 2.2 Objectives
  - 2.3 Scope of Accreditation
3. Accreditation Principles
  - 3.1 Accreditation Procedure
  - 3.2 Accreditation Cycle
  - 3.3 Educational Program Eligible to Accreditation
  - 3.4 Application and Preparation Prior to Program Visit
  - 3.5 Program Evaluation
  - 3.6 Consideration for Accreditation Result
  - 3.7 Revision of Accredited Program Curriculum
  - 3.8 Appeal Request
  - 3.9 Publicizing of Accredited Program
  - 3.10 Confidentiality
  - 3.11 Accreditation Cost
  - 3.12 Conflict of Interest
4. Appointments and functions of Subcommittee, Workgroup, Program Evaluator Team, and Coordinating staff.
  - 4.1 TABEE Subcommittee
  - 4.2 Intervenor Workgroup
  - 4.3 Program Evaluator Team
  - 4.4 Program Evaluator Team Leader
  - 4.5 Designated Coordinator for Program Visit and Accreditation Report
  - 4.6 Coordinating Staff
5. Accreditation Procedure
  - 5.1 Document Review
  - 5.2 Program Visit
  - 5.3 Accreditation Reporting
6. Accreditation Criteria
  - 6.1 Criterion 1 Students
  - 6.2 Criterion 2 Program Educational Objectives
  - 6.3 Criterion 3 Program Outcomes
  - 6.4 Criterion 4 Continuous Improvement
  - 6.5 Criterion 5 Curriculum

6.6 Criterion 6 Faculty

6.7 Criterion 7 Facilities

6.8 Criterion 8 Institutional Support

7. Schedule

8. Program Curriculum Eligible to Accreditation

9. Application, Documentation, and Preparation Prior to Program Visit

10. Accreditation Administration

11. Accreditation Result and Reporting

12. Appeal

13. Publicity of Accredited Program

14. Assistance to Educational Institution

15. List of Accreditation Documents

16. Attachment

Attachment 1	Definition and Terms
Attachment 2	Template for Program Self-Evaluation Report
Attachment 3	Checklist for Program Evaluation
Attachment 4	Template for Accreditation Report
Attachment 5	Description of Knowledge Contents for Basic Engineering and Specific Engineering
Attachment 6	Council of Engineers Rule for Accreditation of Engineering Education 2017

## **1. Introduction**

This Rule and Procedure for Accreditation of Engineering Education (2nd revision) shall be used as a reference document for accreditation of engineering education program that offers a bachelor degree of engineering within the Kingdom of Thailand during accreditation cycle for academic year 2019 – 2024. This document is prepared and approved by The Council of Engineers Thailand (COET) according to The Council of Engineers Thailand Rule for Accreditation of Engineering Education (Year 2017).

## **2. Definitions, Objectives and Scope of Accreditation**

### **2.1 Definitions**

For organizations and personnel involving in accreditation of engineering education to have thoroughly understanding of related roles, functions, principles procedures, and operational framework of the accreditation of engineering educational program, the Thailand Accreditation Board of Engineering Education (TABEE), therefore, provides the explanation of definitions and terms relating to the accreditation as they are prescribed in Attachment 1 Definitions and Terms.

### **2.2 Objectives**

The Thailand Accreditation Board of Engineering Education (TABEE), the Council of Engineers Thailand (COET), sets up the objectives of accreditation of engineering educational program as followings;

1. To evaluate program outcomes and quality of engineering education program management as prescribed by TABEE of the Council of Engineers Thailand and corresponding to recognized international educational accord.
2. To promote educational institution for providing quality education and continuous quality improvement to program students.
3. To publicize, to inform and to ensure society, students and individuals that engineering graduate from the accredited program has adequately attained program outcomes according to required graduate attributes for engineering profession and corresponding to recognized international educational accords.

### **2.3 Scope of Accreditation**

The accreditation of engineering educational program prescribed within this document is used for recognition of engineering educational program at the bachelor degree level with equivalent to 4 years education period and graduation requirements from 120-150 credits in semester system.

## **3. Accreditation Principles**

Accreditation of engineering education is an evaluation process on management of educational program that the Council of Engineers Thailand (COET) offers to educational Institutions in

Thailand on a requisition for accreditation of the engineering educational program. The educational institution should voluntarily follow on rules and procedures prescribed within this document and additional operating guidelines relating to the accreditation of engineering education of the COET.

### **3.1 Accreditation Procedure**

Accreditation procedure, that is operated by TABEE of COET, is considered as an evaluation process on educational program outcomes and effectiveness of program management that is administrated by educational institution to confirm that graduate of the engineering program has adequately attained graduate attributes required in engineering professional practice.

### **3.2 Accreditation Cycle**

Accreditation cycle is limited to 6 academic years starting from the COET approved academic year.

### **3.3 Program Curriculum Eligible to Accreditation**

Program curriculum eligible to TABEE accreditation is characterized as follow.

#### **3.3.1 Fulltime Curriculum**

Full time program curriculum at bachelor degree level equivalent to 4 academic years education that has been approved by the university board for 4 years educational program with credit requirement from 120 to 150 credits in semester system specified by Office of Higher Education Commission(OHEC) or other relevant agency on curriculum specification.

The program must have curriculum structure that provides teaching and learning and application of knowledge contents on basic sciences and mathematics, basic engineering, and specific engineering to solve and design on complex engineering problems, adequately for engineering professional practice according to accreditation criteria described in the document.

#### **3.3.2 New Curriculum**

Full time program curriculum at bachelor degree level equivalent to 4 academic years education that does not yet have program graduate and has been approved by the university board for 4 years educational program with credit requirement from 120 to 150 credits in semester system specified by Office of Higher Education Commission(OHEC) or other relevant agency on curriculum specification.

The program must have curriculum structure that provides teaching and learning and application of knowledge contents on basic sciences and mathematics, basic engineering, and specific engineering to solve and design on complex engineering problems, adequately for engineering professional practice according to accreditation criteria described in the document.

### **3.3.3 Multi-disciplinary curriculum**

In case that the full time engineering program curriculum is multi-disciplinary program or combined engineering fields curriculum, TABEE shall accredit for only a major field of engineering.

### **3.3.4 Curriculum with optional courses**

In case that the full time engineering curriculum provides optional courses or tracks for students to select for graduation, resulting different graduate attributes according to each option or track with different constituencies requirements. The educational institution applying for program accreditation shall provide document and evident support for every option or track. In case that the engineering program partially offers teaching and learning in some specific option of the curriculum, TABEE shall accredit only to the specific options that are presented in program self-evaluation report and support document provided by the educational program.

### **3.3.5 Curriculum with several campus sites**

In case that the full time engineering curriculum provides teaching and learning at different teaching campus sites, and/or different educational environments, and/or with different faculties and institutional support, TABEE should evaluate program outcomes specifically for each program in each faculty and in each campus site.

### **3.3.6 Curriculum under joint cooperation of educational institutions domestically and with international institutions**

TABEE has not yet established accreditation procedure for the program operating under cooperation of educational institutions that offers teaching and learning in different campus system and TABEE shall consider accepting accreditation and accreditation procedure for each specific case.

## **3.4 Application and Preparation Prior to Program Visit**

Educational institution applying for program accreditation should submit requisition letter for program accreditation together with 5 copies of program self-evaluation report and supporting documents to COET according to accreditation schedule described within this document or according to COET announcement on changing of the schedule. In case that the program self-evaluation report does not follow report template, insufficient quality, or lack of contents and support documents as they are described in this document, TABEE shall notify rejection of accreditation application to the educational institution and the educational institution should re-submit application for program accreditation with revised program self-evaluation report for the next academic year.

The educational institution should submit additional support documents requested by COET in time according to the schedule. In case of delay submission of document in due time, the program evaluator team may consider postponing or cancelling the program visit accordingly.

### **3.5 Program Evaluation**

Program evaluation shall be carried out by a team of program evaluator, appointed by COET under nomination of TABEE, to evaluate program outcomes and effectiveness of program quality management according to accreditation criteria prescribed within this document.

A program evaluator team shall consist of 3 evaluators selected from academia and professional practitioners relating to the specific engineering of the program. One designated program evaluator of the team shall be appointed to review program interim report for program monitoring during the accreditation cycle.

### **3.6 Consideration for Accreditation Result**

Program evaluator team and a designated TABEE subcommittee member for coordinating the program visit meet together for consideration of program accreditation result and accreditation reporting according to the report template. The accreditation report is then further reviewed by an intervenor workgroup for reduction of any courses that may lead to conflict of interest.

The program evaluator team leader shall present the reviewed accreditation report during the TABEE Decision Meeting. The meeting should consist of TABEE subcommittee member, other program evaluator team leaders, and the intervenor workgroup. (This Decision Meeting may be arranged by program discipline or by educational institution, whichever is appropriate.) The list of accreditation results which are approved during the decision meeting shall be consequently an agenda seeking for approval during the TABEE subcommittee meeting and later is sent to COET board meeting for acknowledgement.

The program evaluator team may consider program accreditation results as follows.

1. Full accreditation for accreditation cycle of 6 years.
2. Accreditation with requirements for a period not exceeding 3 years. Review report on program improvement is required for program monitoring.
3. Provisional accreditation (For the new program curriculum which does not have program graduate.). The provisional accredited program must submit program self-evaluation report after completing 2 classes of program graduation.)
4. Defer accreditation.
5. Decline accreditation or revoke accreditation.

Detailed description of accreditation result and conditions is tabulated in accreditation result table demonstrated in Chapter 11 Accreditation Result and Reporting.



### **3.7 Revision of Accredited Program Curriculum**

In case of minor revision of program curriculum and no change in program educational objectives and program graduate attributes, the educational institution should notify TABEE of such revision of program curriculum and remain program accreditation result until completion of accreditation cycle.

In case of revision of program educational objectives and changes in program outcomes or graduate attributes, the educational institution should re-apply for program accreditation within the starting year of that program curriculum.

### **3.8 Appeal Request**

In case of decline accreditation or revoke accreditation, the educational institution may wish to file appeal request for revision of accreditation result, Chapter 12 Appeals describes step procedure for appeal of accreditation result.

### **3.9 Publicizing of Accredited Program**

TABEE secretariat is responsible for updating registration of accredited engineering program and publicize list of accredited program on COET website at [www.coe.or.th](http://www.coe.or.th)

### **3.10 Confidentiality**

TABEE subcommittee, intervenor workgroup, and TABEE secretariat shall consider document and reports used for program evaluation and program accreditation as confidential matter and shall not disclose or publicize such documents without written permission from educational institution or from appropriate owner.

### **3.11 Accreditation Cost**

Educational institution is responsible for cost and expenditures of preparation of program self-evaluation report and support documents, accreditation requisition fee, and program visit fee according to announcement of COET upon reception of acceptance letter for application of program accreditation.

During preliminary document review, program visit, and accreditation reporting, COET shall bear all expenses and costs taken place upon program evaluators and TABEE coordinating staff and other team members.

### **3.12 Conflict of Interest**

TABEE subcommittee, workgroups, program evaluator teams, and accreditation secretariat and coordinating staff shall consider prevention all courses that may lead to conflict of interest among constituencies, occurring during accreditation activities.

## **4. Appointments and Functions of Subcommittee, Workgroup, Program Evaluator Team, and Coordinating Staff**

### **4.1 TABEE Subcommittee**

COET Board appoints TABEE subcommittee according to Rule on Accreditation of Engineering Education (2017).

#### **4.1.1 Functions and Responsibilities of TABEE Subcommittee**

- 1) To accredit engineering program domestically according to criteria and guides prescribed by the Council of Engineers Thailand.
- 2) To administrate and develop work systems for accreditation of engineering education to attain the international recognition of quality engineering education and engineering profession.
- 3) To propose amendment of rules and regulations relating to the accreditation of engineering education.
- 4) To prepare operational plan and budget for development of work system relating to the accreditation of engineering education.
- 5) To train human resources and program evaluators for the accreditation of engineering education.
- 6) To publicize, to coordinate and experiences transfer of international activities relating to accreditation of engineering education to educational institution, professional practitioner, and corresponding constituencies.
- 7) To prepare documents for recognition of accreditation system according to international accord on accreditation of engineering education.
- 8) To publicize list of engineering education program which are accredited by the Council of Engineers
- 9) To give recommendation for educational quality improvement to educational institution in accordance with graduate attributes for engineering profession.
- 10) To propose Board of the Council of Engineers Thailand the appointment of workgroup as it is necessary to assist the work of accreditation.
- 11) To operational report to the Board of the Council of Engineers Thailand.
- 12) To operate on other COET assigned functions.

### **4.2 Intervenor Workgroup**

TABEE subcommittee nominates Intervenor workgroup to COET board for appointment.

#### **4.2.1 Functions and Responsibilities of Intervenor Workgroup**

- 1) Initial reviews on program self-evaluation report and support documents for quality and contents conforming to self-evaluation report template and reports to TABEE subcommittee for consideration acceptance of the program accreditation application.

- 2) Reviews accreditation reports which are prepared by program evaluator teams for the conformity and prevention all courses that may lead to conflict of interest.
- 3) Attends Decision Meeting

### **4.3 Program Evaluator Team**

The 3-program evaluator Team, appointed by TABEE of The Council of Engineers Thailand, shall consist of a team chair and 2 program evaluators. The program evaluator team should consist of an academia, professional practitioner relating to the specific engineering of the program to be accredited.

The evaluator team shall be coordinated by TABEE secretariat for the related accreditation activities, appointment for program visit, and additional request for documents from educational institution.

During the program visit, with permission from the educational institution, there may be Observer(s) attaching to the evaluator team.

#### **4.3.1 Functions and Responsibilities of Program Evaluator Team**

**1. Preliminary Document Review.** During preliminary review of program self-evaluation report, the program evaluator team may acquire for some clarifications and request for additional documents from educational institution. In case that the educational institution is not able to provide the appropriate document as requested or delay submission of the requested document in due time, the evaluator team may consider postponing or cancelling the program visit.

**2. Program Visit.** Program evaluator team and TABEE coordinating staff make appointment for program visit according to notified accreditation schedule. Step procedures for program visit are listed as following.

- 1) Reviewing teaching and learning course portfolio relating to basic engineering and specific engineering subjects that are taught by the program teaching staff for the knowledge content, homework, assignment, term report that are given to students during classes, and the class evaluation.
- 2) Meeting with Dean, program chair, program executives about schedule and activities of the program visit and listening to presentation about overview of the educational institution and program administration. Evaluators may ask for clarifying issues on program self-evaluation report and program quality management in accordance with the prescribed TABEE program outcomes.

- 3) Evaluating class teaching and learning, laboratory equipment, laboratory facilities, library, information technology support system, and academic environment as prescribed in TABEE accreditation criteria.
- 4) Interviewing program chair, teaching staff, laboratory staff and supporting staff for evaluation of program quality management, program teaching and learning responding to program objectives, program outcomes, and program graduate attributes for professional practice which are prescribed in the curriculum.
- 5) Interviewing program students (from all classes) to ensure program outcomes and program graduate attributes for professional practices. The program evaluator team should specify the number and academic condition of students required for the interview.
- 6) Interviewing program graduates to ensure program graduate attributes for professional practices, the number and condition of which are to be specified by the program evaluator team.
- 7) Interviewing program alumni who currently practice engineering profession in the industry to ensure program graduate attributes required for professional practices, the number and condition of which are to be specified by the program evaluator team.

**3. Exit Meeting.** During exit meeting, program evaluator team must wrap up program visit and inform to institutional executive, program chair and program executives as followings.

- 1) Steps towards accreditation reporting.
- 2) List of factual findings during the program visit. Detailed explanations or suggestions are not necessary provided.
- 3) Overview of preliminary opinion that the evaluator team may consider necessary.

**4. Accreditation Reporting.** Program evaluator team shall prepare accreditation report as followings.

- 1) Evaluator team meeting to conclude the program evaluation according to program evaluation checklist and complete the accreditation report using accreditation report template.
- 2) Program evaluator team leader (Evaluator team members may require.) carries out meeting with intervenor workgroup for report review and editing for prevention of courses that may lead to conflict of interest or appeals.
- 3) Program evaluator team leader (Evaluator team members may require.) shall present accreditation report and suggestions in the TABEE Decision Meeting.

#### **4.3.2 Program Evaluator Qualifications**

A program evaluator, who is appointed by COET, has following qualifications.

- 1) Complete at least a bachelor degree of engineering in related field of engineering program to be accredited, and
- 2) Pass TABEE program evaluator training course, and
- 3) Has a good attitude towards engineering education and outcomes based accreditation of engineering education, and
- 4) In case of academia, he/she should have experiences in teaching and research in an institutional education which emphasis on outcome based education, or
- 5) In case of professional practitioner, he/she should have experiences or participation in professional practice of related field of engineering program to be accredited, or
- 6) Be a member of professional society relating to the field of engineering program to be accredited.

#### **4.4 Program Evaluator Team Leader**

Program Evaluator Team Leader, who is appointed by COET, functions as following.

- 1) Coordinate with TABEE secretariat to set up meeting with other members of program evaluator team as prescribed in Section 4.3.1 Functions and Responsibilities of Program Evaluator Team.
- 2) Advise team members and coordinating with TABEE secretariat about rule and procedure of accreditation of engineering education as prescribed in this document.
- 3) Lead program evaluator meeting to complete accreditation report according to prescribed program evaluation checklist and accreditation report template.
- 4) Carry out meeting with intervenor workgroup to review accreditation report for the conformity and prevention all courses that may lead to conflict of interest.
- 5) Present accreditation report and suggestion in the TABEE Decision Meeting.

The program evaluator team leader must have professional experiences, or have/had been an executive of accredited program or used to be TABEE program evaluator or passed TABEE program evaluator training course. The team leader must be capable to advise on rule and procedure of accreditation engineering education.

#### **4.5 Designated TABEE Subcommittee Member for Coordinating Program Visit and Accreditation Report**

In case of an educational institution with multiple-program visits on the very same campus site, TABEE shall assign a designated subcommittee member for coordinating the program visit and accreditation reporting for that specific campus site.

The designated Subcommittee member shall coordinate among program evaluator teams for program visit and preparation of accreditation reports for the conformity of the accreditation reports.

#### **4.6 Coordinating Staff**

TABEE secretariat shall be assigned to coordinate among TABEE subcommittee, program evaluator teams, and educational institution on administrative work, appointment, documentation, and data archive to facilitate the program accreditation to attain transparency and the set forth accreditation schedule.

#### **5. Accreditation Procedure**

The accreditation of educational program is an evaluation process that the Thailand Accreditation Board of Engineering Education (TABEE), the Council of Engineers Thailand, provides to educational institution. This evaluation is for recognition of program outcomes and effective quality management of the program as they are described in program self-evaluation report, submitted together with requisition letter for accreditation of educational program within accreditation schedule of this document or within timeframe specified in an announcement for accreditation schedule.

Upon reception of requisition letter and program self-evaluation report, TABEE intervenor workgroup shall initially review the program self-evaluation report and support documents for quality and contents conforming to self-evaluation report template and reports to TABEE subcommittee for consideration acceptance of the program accreditation application.

TABEE thus nominates designated TABEE subcommittee members for coordinating program visit and accreditation report (in case of multiple-program visits), program evaluator teams and observers on program visit for COET appointment on evaluation of program outcomes and quality management of the program. The evaluation team, then, shall review program self-evaluation report and document support relating program quality management in accordance with accreditation criteria.

The program accreditation consists of 3 work processes;

- 1) Document review
- 2) Program visit
- 3) Accreditation reporting

The program evaluator team shall review the program self-evaluation report and supporting documents using program evaluation checklist provided by TABEE, then arranges the program visit to confirm program outcomes, additional clarifications, and inform program executives about factual findings in the exit meeting.

Program evaluator team later arranges team meeting for preparation of accreditation report according to report template, discusses with intervenor workgroup for report review, and presents the accreditation report with suggestion in TABEE Decision Meeting. The approved

accreditation result is submitted to TABEE approval and report to COET Board for later acknowledgement.

## **5.1 Document Review**

During the review, evaluator team may need some clarifications and request for additional explanation and supporting documents from educational institution. In case of requesting for additional clarifications and supporting documents, the educational program is not able to appropriately submit the requested documents in proper due time. The program evaluator team may consider postponing or cancelling the program visit.

In case that the educational institution has properly clarify and has submitted requested document, the evaluator team shall notify TABEE coordinating staff for later appointment for program visit.

Or else, in case that the above mentioned documents is not substantial to program evaluation, the evaluator team may request the educational institution to prepare and present to the evaluator team during the program visit.

In case that the evaluation team, after the document review, considers that the program outcomes and program management does not comply with the criteria set forth by TABEE and attains the program quality insufficiently below prescribed accreditation criteria. The evaluation team may consider decline accreditation or revoke accreditation without further making appointment for program visit.

## **5.2 Program Visit**

The program visit is a 2- day visit according to the prepared schedule and notifying letter for program visit, in case of program monitoring, program evaluator may consider only report review on progressive report or arrange 1-day program visit as it is appropriately needed. The evaluation team should perform as follows,

- 1) Reviewing teaching and learning course portfolio relating to basic engineering and specific engineering subjects that are taught by the program teaching staff for the knowledge content, homework, assignment, term report that are given to students during classes, and the class evaluation.
- 2) Meeting with Dean, program chair, program executives about schedule and activities of the program visit and listening to presentation about overview of the educational institution and program administration. Evaluators may ask for clarifying issues on program self-evaluation report and program quality management.
- 3) Evaluating class teaching and learning, laboratory equipment, laboratory facilities, library, information technology support system, and academic environment as prescribed in TABEE accreditation criteria.

- 4) Interviewing program chair, teaching staff, laboratory staff and supporting staff for evaluation of program quality management, program teaching and learning to attain program objectives, program outcomes, and program graduate attributes for professional practice.
- 5) Interviewing program students (from all classes) to ensure program outcomes and program graduate attributes for professional practices. The program evaluator team should specify the number and academic condition of students required for the interview.
- 6) Interviewing program graduates to ensure program graduate attributes for professional practices, the number and condition of which are to be specified by the program evaluator team.
- 7) Interviewing program alumni who currently practice engineering profession in the industry to ensure program graduate attributes required for professional practices, the number and condition of which are to be specified by the program evaluator team.
- 8) During exit meeting, program evaluator team must wrap up program visit and inform to institutional executive, program chair and program executives as followings.
  - 1) Steps towards accreditation reporting.
  - 2) List of factual findings during the program visit. Detailed explanations or suggestions are not necessary provided.
  - 3) Overview of preliminary opinion that the evaluator team may consider necessary.

In case of multiple-program visit on the same campus site, TABEE shall assign a designated subcommittee member to lead the program visit and meet with institutional executives for visiting schedule and activities. The appointment of multiple-program visit should not be more than 5 programs each time.

An exemplar of program visit here below is tentatively scheduled and is given to the educational program for visiting preparation as following;

Day 0 (Prior to program visit)

<b>Time</b>	<b>Activities</b>	<b>Venue</b>
18.00-21.00 hr.	Program evaluator teams and designated subcommittee member have dinner together; review visiting schedule and identify clarification issues needed during the program visit.	Hotel meeting room.

Day 1 (Program visit)

<b>Time</b>	<b>Activities</b>	<b>Venue</b>
9.00-9.45 hr.	Meeting with Dean, program chair, program executives about schedule and activities of the program visit and listening to presentation about overview of the educational institution	Faculty meeting room



	administration and development plan.	
9.45-10.15 hr.	Meeting with program chair, program executives for presentation on program administration and self-evaluation report.	Department meeting room
10.15-11.00 hr.	Review on issues needed for clarification relating to self-evaluation report.	Department meeting room
11.00-12.00 hr.	Evaluating class teaching and learning, laboratory equipment, laboratory facilities, library, information technology support system.	Faculty, Department
12.00-13.00 hr.	Lunch break.	Department
13.00-13.15 hr.	Drafting list of questions for institution and program.	Department
13.15-14.45 hr.	Review course portfolio and support documents.	Department
14.45-15.15 hr.	Interviewing alumni and constituencies from industries.	Department
15.15-15.45 hr.	Interviewing program graduates.	Department
15.15-17.00 hr.	Interviewing program students.	Department
17.00-18.00 hr.	Back to Hotel.	
18.00-21.00 hr.	Dinner and team meeting; exchanging/summary on factual findings, drafting exit meeting statement, other contingency of exit meeting.	Hotel meeting room

#### Day 2 (Program visit)

<b>Time</b>	<b>Activities</b>	<b>Venue</b>
9.00-10.00 hr.	Meeting with institutional executive, program chair, program executives.	To be arranged by Faculty
10.00-11.00 hr.	Interviewing program faculty staff, questioning on program, course outcomes improvement and curriculum review.	Department
11.00-11.40 hr.	Review, examine course portfolio and support documents relating to self-evaluation report.	Department
11.40-12.00 hr.	Interview program chair/program executives and finalize on clarification issues with program chair/program executives.	Department
12.00-13.00 hr.	Lunch break	Department
13.00-15.00 hr.	Visiting team meeting to conclude on exit meeting/statement and other contingencies.	Department
15.00-15.30 hr.	Exit meeting with institutional executives, program chair, program executives; designated TABEE subcommittee member or evaluator team leader(s) reads exit statement.	Department

In case of program monitoring or program re-evaluation, an exemplar of 1-day program visit here below is given to the educational program for visiting preparation as following;

<b>Time</b>	<b>Activities</b>
9.00-9.30 hr.	Meeting with program chair/program executives about visiting objectives/mission, schedule, and activities.
9.30-10.00 hr.	Listening to presentation on program progressive report and improvements. Question/answer session.
10.12.00 hr.	Program evaluator(s) or reviewer examine course portfolio and documents, and/or Visiting laboratory equipment, laboratory facilities, library, information technology support system, or other educational facilities, that is required for improvement.
12.00-13.00 hr.	Lunch break.
13.00-14.00 hr.	Visiting team meeting to conclude on exit meeting statement and other contingencies.
14.00-14.30 hr.	Exit meeting with program chair, program executives; visiting team leader reads exit statement.

### **5.3 Accreditation Reporting**

Program evaluator teams meet together with designated TABEE subcommittee member for coordinating program visit and accreditation report to conclude factual findings, weakness, concern, observation, and suggestion for improvement and prepare accreditation report according to prescribed report template.

Program evaluator team chairs and designated TABEE subcommittee member accreditation report meet together with intervenor workgroup to review accreditation report for the conformity and prevention all courses that may lead to conflict of interest and appeal issues.

The program evaluator team leader shall present the reviewed accreditation report during the TABEE Decision Meeting. The list of accreditation results which are approved during the decision meeting is consequently presented for approval during the TABEE subcommittee meeting and COET board meeting.

The program evaluator team may consider program accreditation result as follows.

- 1) Full accreditation for accreditation cycle of 6 years.
- 2) Accreditation with requirements for a period not exceeding 3 years. Review report on program improvement is required for program monitoring.
- 3) Provisional accreditation (For the new program curriculum which does not have program graduate.) The provisional accredited program must submit program self-evaluation report after completing 2 classes of program graduation.)
- 4) Defer accreditation.
- 5) Decline accreditation or revoke accreditation.

Detail description of accreditation result and conditions are written in format of accreditation result in Chapter 11 Accreditation Result and Reporting.

## **6. Accreditation Criteria for Academic Year 2019-2024**

These accreditation criteria are based on evaluation of program outcomes requires that an educational program acquiring for accreditation of engineering education to submit supporting evidence, document and report, to TABEE for consideration recognition of quality education management and attainment of quality educational component in accordance with TABEE criteria. The accreditation criteria shall be described as following;

### **6.1 Criterion 1 Students**

Quality and professional competence of program graduates are essential components of program outcomes evaluation. An educational program seeking for accreditation is required to have process for assessment of student learning outcomes with adequate student advisory on activities towards his/her profession career development. The program must have formative and summative assessments and program monitoring throughout the education period to ensure that they have attained both quality and attributes set forth in the curriculum objectives.

An educational program seeking for accreditation must have program control procedures and admission statement for selecting student enrollment or admission of student to the program, the transfer of educational credits from other institutes to the program, and work procedures for program teaching and learning to ensure that the students are able to graduate from the program with the quality and attributes as prescribed by the program.

### **6.2 Criterion 2 Program Educational Objectives**

An educational program seeking for accreditation of engineering education must have a program statement describing the program objectives, of which indicates that graduate of the program should attain expected program outcomes for engineering professional practice in the program discipline.

An educational program seeking for accreditation of engineering program must have the following components;

- 1) **Curriculum objectives** that have been published and distributed. The curriculum objectives and contents must be corresponding to institutional mission and complying with TABEE criteria.
- 2) **Process to establish the curriculum objectives** which are corresponding to result of assessment and periodical review of the curriculum. The curriculum objectives set forth by the program should serve societal demand for engineering profession career development from all constituents beneficiary of program outcomes.

- 3) **Curriculum, program teaching and learning, and program management** that serve to achieve the set forth curriculum objectives and the program outcomes.
- 4) **Program outcomes assessment and evaluation process** that have been used for reviewing and improvement of curriculum for program students to benefit from quality education.

### **6.3 Criterion 3 Program Outcomes**

This program outcome used as accreditation criteria is a statement indicating that the program graduates are expected to attain knowledge, professional skills and behavioral attributes as they are required in engineering field of professional practice.

The educational program must submit evidence to TABEE; showing linkage between curriculum objectives and program outcomes.

Program outcomes as they are indicated by attributes of program graduates are as following;

#### **1. Knowledge of Mathematics, Science and Engineering**

Ability to apply knowledge of mathematics, natural science, engineering fundamentals and a specific engineering to conceptualize the engineering models, definitions, and/or to respectively apply methodologies, processes, and/or engineering systems in the work place.

#### **2. Engineering Problems Analysis**

Ability to identify, formulate, research literature review, solve, and analyze complex engineering problems reaching substantiated conclusions using principles of mathematics, natural sciences and engineering sciences.

#### **3. Design and Development Solutions for Complex Engineering**

Ability to design and find 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, environmental considerations, and/or professional code of practices.

#### **4. Investigation**

Ability to conduct investigations, diagnosis, and evaluation 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**

Ability to create, select and apply appropriate techniques, resources, and modern engineering and IT tools, including prediction and modelling, to complex engineering problems, with an understanding of the limitations.

## **6. Individual and Team Work**

Function effectively as an individual, and as a member or leader in diverse teams and in multi-disciplinary settings.

## **7. Communication**

Communicate effectively 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.

## **8. Society, Environment, Sustainability, and Engineering Profession**

Understand and responsible for engineering professional practice to societal and environmental contexts and evaluate the sustainability and impact of professional engineering work in the solution of complex engineering problems in societal and environmental contexts.

## **9. Ethics**

Apply ethical principles and commit to professional ethics and responsibilities and norms of engineering practice.

## **10. Project Management and Finance**

Demonstrate knowledge and understanding of the principles of economic, and engineering management under consideration of risk and uncertainties.

## **11. Lifelong Learning**

Recognize the need for, and have the preparation and ability to engage in independent and life-long learning.

### **6.4 Criterion 4 Continuous Improvement**

The program must regularly use appropriate, documented processes for monitoring, assessing and evaluating program outcomes that students and graduates of the program are attained.

The results of these evaluations must be systematically utilized as input for the continuous improvement of the program.

### **6.5 Criterion 5 Curriculum**

The curriculum must appropriately specify areas of knowledge contents to serve program educational objectives and required program outcomes for each field of professional practice.

The program curriculum structure must include following areas of knowledge contents.

- 1) College level mathematics and basics sciences (including experimental experiences) appropriately to the program discipline, with combined educational work load of not less than 30 credits in semester system or equivalent to educational load of one academic year.
- 2) Basic engineering and specific engineering topics(including experimental experiences) appropriately to the program discipline to provide a bridge between mathematics and basic sciences, and basic engineering for student to appropriately use in engineering design and solving of complex engineering problems according to engineering work requirements, with combined educational work load of not less than 45 credits in semester system or equivalent to educational load of one and a half academic years.
- 3) General education that complements the technical contents of the curriculum and is consistent with program educational objectives and institutional objectives, with combined educational work load of not less than 30 credits in semester system or equivalent to educational load of one academic year.

The program curriculum must provide engineering practice and engineering projects that allow students to have engineering design experiences and solving complex engineering in the final year of education which allow students to use the knowledge and skills acquired in earlier course work and incorporating appropriate engineering standards and multiple realistic constraints.

### **6.6 Criterion 6 Faculty**

Educational institute must provide adequate number of faculty. The faculty must have the educational qualification with professional competence relevance to the program discipline. The faculty must also provide adequate student advisory relating to students' professional career development and other activities related with professional society and industry.

The program teaching staff must demonstrate, both academic and professional competence, regarding student advisory and student career development including teaching and student evaluation for the continuous quality improvement of teaching to achieve learning outcomes as prescribed in curriculum objectives.

### **6.7 Criterion 7 Facilities**

The educational program must provide continuously support to the program with adequate facilities, including classrooms, laboratories, library, and other supporting infrastructure to accommodate academic environment, academic development, professional activities of student, as well as quality education. The program must continuously stimulate student learning opportunities by provision of modern tools and equipment, information technology and communication network for student and academic staff to serve requirements for academic development and extra-curriculum activities in accordance with curriculum educational objectives.

## 6.8 Criterion 8 Institutional Support

Institutional support and program leadership must be adequate to ensure the quality and continuity of the program. Institutional financial support provided to the program must be adequate to meet program needs. Resources available to the program must be sufficient to promote, retain, and provide for the continued professional development of a qualified faculty. Resources must be sufficient to acquire, maintain, and operate infrastructures, facilities and equipment appropriate for the program, so that program outcomes can be attained. In addition, the educational institution must provide adequate supporting staff and educational services for program teaching and learning and program management.

## 7. Schedule

TABEE set up a schedule for program accreditation as shown in table below.

No.	Activities	Schedule
1	Educational institution submits requisition for accreditation application with 5 copies of program self-evaluation.	1 <sup>st</sup> week of August
2	Intervenor workgroup reviews self-evaluation reports and notifies TABEE to issue acceptance letter for accreditation.	1 <sup>st</sup> week of September
3	Educational institution makes payment to TABEE for accreditation requisition.	4 <sup>th</sup> week of September
4	COET appoints program evaluator teams, designated subcommittee members for coordinating program visits.	October
5	Program evaluator teams, designated subcommittee members for coordinating program visits review self-evaluation reports; consider issues needed for clarification and request for additional documents from the program.	November - December
6	TABEE notifies program to submit explanation on issues for clarification and supporting documents	4 <sup>th</sup> week of December
7	Program evaluator teams, designated subcommittee members for coordinating program visits review explanation on clarification issues and additional support documents from the program.	January
8	TABEE notifies appointment schedules for program visit and requests for payment on program visit fee.	4 <sup>th</sup> week of January
9	Educational institution makes payment for program visit fee.	1 <sup>st</sup> week of February
10	Program visit.	February- March
11	Program submits requested additional explanation relating to program visit prior to accreditation reporting.	1 <sup>st</sup> week of May
12	Program evaluator team submit accreditation report to intervenor workgroup for report review.	1 <sup>st</sup> week of June

13	Decision meeting	June
14	Notify program for accreditation result, or else rebuttal.	June
15	TABEE approve on accreditation result and suggestion for improvement.	July
16	COET acknowledge TABEE approve on accreditation result	August
17	COET notify educational institution for the accreditation result and suggestion for improvement.	August



## **8. Program Curriculum Eligible to Accreditation**

Program curriculum eligible to TABEE accreditation is characterized in Section 3.3 as followings.

- 1) fulltime curriculum
- 2) new curriculum
- 3) multi-disciplinary curriculum
- 4) curriculum with optional courses
- 5) curriculum with several campus sites
- 6) curriculum under joint cooperation of educational institutions domestically and with international institutions

The full time curriculum, or equivalent to a curriculum at bachelor degree level that is approved by the educational institutional board, must be or equivalent to 4 years educational program with total credits for graduation between 120-150 credits in semester system according to curriculum specification announced by Office of Higher Education Commission, or other governing office that regulates university education.

The engineering program curriculum must have curriculum structure that includes areas of knowledge contents and application of; college level basic sciences and mathematics, basic engineering and specific engineering topics for engineering design and solving of complex engineering problems sufficiently for engineering professional practice. The program curriculum must provide engineering practice and engineering projects that allow students to have engineering design experiences and solving complex engineering in the fourth year of education which allow students to use the knowledge and skills acquired in earlier course work and incorporating appropriate engineering standards under constraints of the professional practice.

The outcomes based program curriculum must emphasis on program outcomes according to prescribed TABEE criteria and must have full time students studying in all program classes with at least 2 classes of program graduates.

## **9. Application, Documentation, and Preparation Prior to Program Visit**

An educational institution applying for program accreditation should submit requisition letter for program accreditation together with 5 copies of program self-evaluation report and supporting documents to COET according to accreditation schedule described within this document or according to COET announcement on changing of the schedule.

In case that the program self-evaluation report does not follow report template, insufficient quality or lack of required contents and support documents as they are described in this document, TABEE shall notify rejection of accreditation application to the educational institution and the educational institution should re-submit application for program accreditation with revised program self-evaluation report for the next academic year.

The educational institution should submit additional support documents requested by COET in time according to the schedule. In case of delay submission of document in due time, the program evaluator team may consider postponing or cancelling the program visit accordingly.

The educational program should carry out readiness review prior to self-evaluation reporting and program visit as following;

- 1) Review the TABEE prescribed accreditation requirements and criteria for the accreditation cycle year as they are specified in “Rule and Procedure for Accreditation of Engineering Education” and establishes essential educational quality work processes for achievement of curriculum objectives and program outcomes.
- 2) Review and examine effectiveness of quality processes which lead to continuous quality improvement.
- 3) Documentation and data collecting; program management plans, minute of meetings, operational guidelines, work reports, assessment and survey reports relating to program outcomes, and including student survey, alumni survey, and stakeholder survey reports. The document and filings must be prepared for document review and program evaluation.
- 4) Prepare 5 copies of self-evaluation report and data disc together with support documents for the program accreditation and submits to TABEE according to accreditation schedule.
- 5) During the program visit, the educational program must comprehensively prepare all program course files (course portfolio) containing; course syllabus, course teaching plan, knowledge content, teaching note, references, home works, problems, assignments, study reports, course evaluation, examples of examination paper, and examples graded examination answer sheets. The document must be ready for program evaluator team to cross-check various program course learning outcomes and the program outcomes.
- 6) During program supporting laboratory visit, the educational program must provide, for evaluator cross-checking the evident and document support to demonstrate the usage and maintenance of laboratory equipment containing; name of responsible staff, laboratory equipment work schedule, laboratory and equipment instruction manual, safety manual, list of experiment and instruction, experiment problems, example of experiment.
- 7) Program must provide written explanation to all questions from evaluator.

The program evaluation team shall evaluate program outcomes and effectiveness program quality management according to the program evaluation checklist based on; program self-evaluation report, support documents and referenced program quality evaluation reports, program reference documents, reports and program data recordings.

## **10. Accreditation Administration**

TABEE secretariat office is responsible as administrative work of program accreditation. The office shall coordinate among program evaluator teams and the educational programs for appointment, meeting, document filing, and report forms to ensure transparency and achievement of program accreditation according to accreditation schedule.

## 11. Accreditation Result and Reporting

Each program evaluator team shall meet with related designated subcommittee for program visit and reporting according to Section 5.3 Accreditation Reporting

The program accreditation results are listed as follows.

- 1) Full accreditation for accreditation cycle of 6 years.
- 2) Accreditation with requirements for a period not exceeding 3 years. Review report on program improvement is required for program monitoring.
- 3) Provisional accreditation (For the new program curriculum which does not have program graduate.) The provisional accredited program must submit program self-evaluation report after completing 2 classes of program graduation.)
- 4) Defer accreditation.
- 5) Decline accreditation or revoke accreditation.

Detailed description of accreditation result and conditions is tabulated in accreditation result table as followings.

<b>Accreditation Result Table</b>	
<b>Accreditation Status</b>	Full accreditation
<b>Period</b>	6 years
<b>Requirements</b>	None
<b>Findings</b>	All accreditation criteria met, may have suggestions
<b>Program Reporting Obligations</b>	Interim report(after 3 years) on improvement and significant development
<b>TABEE Follow-Up Review</b>	TABEE subcommittee review interim report.
<b>Expected Outcome Of Follow-Up Review</b>	No change to accreditation status, unless there are the major program changes in program objectives and program outcomes.

<b>Accreditation Result Table</b>	
<b>Accreditation Status</b>	Accreditation with requirements
<b>Period</b>	Not more than 3 years (1-3 years depending on time requirement for improvement to be addressed.)
<b>Requirements</b>	1. Evaluator team or 1 selected evaluator reviews self-review report and supporting documents showing requirements have been met. 2. Report review may include, 1) Program visit and/or,

	<p>2) Follow-up review report for demonstration that requirements have been met and /or,</p> <p>3) Program executive meeting for demonstration of program improvement on the requirements.</p>
<b>Findings</b>	One or more accreditation criteria are not met, need suggest on improvement.
<b>Program Reporting Obligations</b>	Self-review report and supporting documents showing requirements have been met.
<b>TABEE Follow-Up Review</b>	Program evaluator team reviews follow-up report according to requirements and report to TABEE subcommittee for revise of accreditation result.
<b>Expected Outcome Of Follow-Up Review</b>	<p>1. Upon completing requirements, TABEE may revise accreditation status to be 6 years from previous full program evaluation.</p> <p>2. If requirements not met, TABEE may consider either defer accreditation, decline accreditation or revoke accreditation.</p>

<b>Accreditation Result Table</b>	
<b>Accreditation Status</b>	Provisional accreditation
<b>Period</b>	Not more than 3 years
<b>Requirements</b>	N/A
<b>Findings</b>	<p>1. New curriculum offered not less than 3 years and do not have program graduates</p> <p>2. Development of the program outcomes is undertaken and it is likely that program can satisfy accreditation requirements by the time student graduates.</p> <p>3. Evaluator team may have suggestions for improvement.</p>
<b>Program Reporting Obligations</b>	N/A
<b>TABEE Follow-Up Review</b>	N/A
<b>Expected Outcome Of Follow-Up Review</b>	Program prepares self-evaluation report and apply for accreditation upon completing 2 graduation classes

<b>Accreditation Result Table</b>	
<b>Accreditation Status</b>	Defer accreditation
<b>Period</b>	1 year
<b>Requirements</b>	N/A
<b>Findings</b>	<p>1. One or more accreditation criteria are not met (deficiency), requires suggest on improvement</p> <p>2. Do not have assessment of program outcomes, do not have or cannot confirm program outcomes (graduate attributes) on course portfolio</p>
<b>Program Reporting</b>	Revise self-evaluation report and supporting documents and

<b>Obligations</b>	improve on weaknesses.
<b>TABEE Follow-Up Review</b>	Same program evaluator team carries out follow up review and re-program visit.
<b>Expected Outcome Of Follow-Up Review</b>	TABEE may consider either decline accreditation or revoke accreditation or award accreditation.

<b>Accreditation Result Table</b>	
<b>Accreditation Status</b>	Decline accreditation or revoke accreditation
<b>Period</b>	Requires at least 2 years for improvement. Need re-application for accreditation and submission of self-evaluation report
<b>Requirements</b>	N/A
<b>Findings</b>	<ol style="list-style-type: none"> <li>1. Do not have assessment of program outcomes, do not have or cannot confirm program outcomes (graduate attributes) on course portfolio.</li> <li>2. Program outcomes do not match accreditation criteria.</li> <li>3. Cannot improve on program deficiency after defer accreditation.</li> </ol>
<b>Program Reporting Obligations</b>	N/A
<b>TABEE Follow-Up Review</b>	N/A
<b>Expected Outcome Of Follow-Up Review</b>	N/A

## 12. Appeal

An educational program that is considered declined or revoked accreditation, may appeal for the reconsideration of accreditation result by filing an appeal request with factual document to TABEE within 30 days from the stamped receiving date of accreditation result letter.

TABEE as a subcommittee shall review the appeal request by considering the additional factual documents submitted by the educational program within 60 days from the stamped date of receiving appeal request. The decision on the appealed accreditation result is considered final.

## 13. Publicity of Accredited Program

The TABEE secretariat office is responsible for registration TABEE accredited program. The list of accredited engineering programs shall be published on the Council of Engineers Thailand website at [www.coe.or.th](http://www.coe.or.th)

## 14. Assistance to Educational Institution

An educational institution seeking for the Council of Engineers Thailand for assistance or advisory on development of new program curriculum or improvement of program curriculum

prior to application for program accreditation, may request TABEE suggestion for professional advisor who has experiences in program accreditation to participate in program advisory panel. The nominated professional advisor by TABEE may review, comment or report to the program indicating program quality management and readiness of the program for accreditation.

The educational institution is expectedly shall be responsible for all costs associated with advisory reports and arrangements relating to the activity of nominated advisor from the Council of Engineers Thailand.

The TABEE nominated advisor on advisory panel may not be an evaluator, or serve on TABEE subcommittee member, or workgroup relating to program accreditation.

The advisory report and guidance made by nominated advisor shall not be taken as assurance or reference for that program during the TABEE program accreditation.

TABEE does not recommend that TABEE nominated advisor be appointed as a member of industrial advisory board that may influence the program management and consequentially may lead to conflict of interest. However, TABEE may otherwise nominate professional practitioner from related industry or from related professional society that may be benefit to the program management.

## 15. List of Accreditation Documents

No.	Document	Used by
1	Rule And Procedure For Accreditation Of Engineering Education	educational institution, COET, TABEE subcommittee, workgroup, program evaluator team
2	Template for Self-Evaluation Report	Educational institution
3	Program Evaluation Checklist	Program evaluator team
4	Request Form for Program Clarification and Additional Document	Program evaluator team for preliminary document review
5	Appointment Form for Program Visit	Program evaluator team for program visit
6	Template for Accreditation Report	Program evaluator team for accreditation reporting

## **16. Attachment**

1. Definition and Terms
2. Template for Program Self-Evaluation Report
3. Checklist for Program Evaluation
4. Template for Accreditation Report
5. Description of Knowledge Contents for Basic Engineering and Specific Engineering
6. Council of Engineers Rule for Accreditation of Engineering Education 2017