



**INSTITUTION OF ENGINEERS  
SINGAPORE**

**CHARTERED  
ENGINEERING  
TECHNOLOGIST AND  
TECHNICIAN  
ACCREDITATION  
BOARD**

**ACCREDITATION AND QUALITY  
ASSURANCE MANUAL**

The Institution of Engineers, Singapore  
Chartered Engineering Technologist and Technician Accreditation Board  
70 Bukit Tinggi Road  
Singapore 289758

Tel: (65)-6469 5000  
Fax: (65)-6467 1108

# TABLE OF CONTENTS

<b>PART I CHARTERED ENGINEERING TECHNOLOGIST AND TECHNICIAN ACCREDITATION BOARD.....</b>	<b>4</b>
1 INTRODUCTION.....	4
2 COMPOSITION OF CHARTERED ENGINEERING TECHNOLOGIST AND TECHNICIAN ACCREDITATION BOARD (CETTAB).....	4
<b>PART II ACCREDITATION AND QUALITY ASSURANCE POLICY.</b>	<b>6</b>
3 OBJECTIVES OF ACCREDITATION AND QUALITY ASSURANCE.....	6
4 ACCREDITATION POLICY.....	6
<b>PART III ACCREDITATION AND QUALITY ASSURANCE PROCEDURE .....</b>	<b>8</b>
5 ACCREDITATION AND QUALITY ASSURANCE PROCESS .....	8
6 ACCREDITATION VISIT.....	9
7 FOLLOW-UP ACTION AS A REQUIREMENT FOR ACCREDITATION .....	9
8 DISPUTE RESOLUTION .....	10
<b>PART IV ACCREDITATION AND QUALITY ASSURANCE CRITERIA .....</b>	<b>11</b>
9 GENERAL INFORMATION .....	11
10 ACCREDITATION CRITERIA .....	11
<b>PART V REPORT ON ACCREDITATION INFORMATION.....</b>	<b>13</b>
11 GENERAL INFORMATION .....	13

<b>PART VI REVIEW BY ACCREDITATION AND QUALITY ASSURANCE COMMITTEE.....</b>	<b>14</b>
12 TASKS FOR ACCREDITATION AND QUALITY ASSURANCE COMMITTEE	14
<b>PART VII INDEPENDENT ASSESSOR.....</b>	<b>15</b>
13 GENERAL INFORMATION .....	15
<b>APPENDIX A ASSESSMENT FORM .....</b>	<b>16</b>

# **PART I**

## **CHARTERED ENGINEERING TECHNOLOGIST AND TECHNICIAN ACCREDITATION BOARD**

### **1 INTRODUCTION**

- 1.1** The Chartered Engineering Technologist and Technician Accreditation Board (CETTAB) was set up by the Institution of Engineers Singapore (IES) to be the body for registration, accreditation and quality assurance for certification of Chartered Engineering Technologist and Technician. It is a non-governmental organisation and has the support of key stakeholders from the government agencies and organisations in the private sectors related to the engineering profession.
- 1.2** CETTAB works closely with stakeholders to ensure the assessment programmes are relevant to the industry sectors and have a robust assessment framework on the competencies in term of the knowledge and abilities in fulfilment of the Technical Skills & Competencies requirements in each of the engineering domain in the industry sectors.
- 1.3** The IES, through the CETTAB, is responsible for accrediting the assessment programmes that assess the IES Chartered Engineering Technologist and Technician. It recognizes individuals who are either IES Chartered Engineering Technologist or Technician to have fulfilled the Technical Skills & Competencies requirements for various industry sectors in Singapore.

### **2 COMPOSITION OF CHARTERED ENGINEERING TECHNOLOGIST AND TECHNICIAN ACCREDITATION BOARD (CETTAB)**

- 2.1** CETTAB, led by IES, is constituted as a multi-stakeholder organisation. The IES President shall be an ex-officio member of CETTAB. Other members of CETTAB shall be appointed by IES Council in consultation with the various stakeholders for a period of three years in accordance with the following composition as prescribed in the Constitution of The Institution of Engineers, Singapore:
- (i) Ten (10) to fifteen (15) Members from the relevant government agencies, non-government organizations, industry and business community.
  - (ii) Five (5) Members from IES
  - (iii) One (1) Member from Nanyang Polytechnic (NYP).
  - (iv) One (1) Member from Ngee Ann Polytechnic (NP).
  - (v) One (1) Member from Republic Polytechnic (RP).
  - (vi) One (1) Member from Temasek Polytechnic (TP).
  - (vii) One (1) Member from Singapore Polytechnic (SP).
  - (viii) One (1) Member from Institute of Technical Education (ITE).

(ix) Up to two (2) Members from any other IHLs

**2.2** The IES Council will appoint the CETTAB Chair from among the appointed members, and the CETTAB Chair shall hold office for the duration of his appointment as CETTAB member.

**2.3** The terms of reference of CETTAB are:

- (i) to formulate and implement the Chartered Engineering Technologist and Technician certification system;
- (ii) to formulate guidelines and procedures for accreditation;
- (iii) to set up Accreditation and Quality Assurance Committees (AQAC) in various industries to accredit assessment programmes;
- (iv) to review evaluation reports and recommendations by the AQAC and approve the accreditation of Chartered Engineering Technologists and Technicians, and assessment programmes;
- (v) to respond to the Council of IES on complaints and appeals regarding the accreditation decisions or processes;

# **PART II**

## **ACCREDITATION AND QUALITY ASSURANCE POLICY**

### **3 OBJECTIVES OF ACCREDITATION AND QUALITY ASSURANCE**

**3.1** The objectives of accreditation and quality assurance by CETTAB are to:

- (i) ensure that accredited assessment programmes satisfy the requirements of the Institution of Engineers Singapore and able to assess the Competency Standards at the level of knowledge and abilities listed on the CETTAB Assessment Statements for Engineering Technologist and Engineering Technician.;
- (ii) provide quality assurance and feedback to the assessment programmes for them to make improvement on assessment programmes to meet the standards for IES accreditation; and

### **4 ACCREDITATION POLICY**

**4.1** The following general policies will be the guiding principles for the accreditation and quality assurance:

- (i) Assessment programme to assess a certain set of Technical Skills & Competencies (TSCs) under a specific track in an industry sector to be a Chartered Engineering Technologist or Technician is accredited.
- (ii) Accreditation of assessment programme will normally be granted for a specific term of up to a maximum of five years. If there is uncertainty as to the status, nature or future of the assessment programme, or some weaknesses that call for a review exist, accreditation may be granted for a shorter term of less than five years.
- (iii) A comprehensive assessment will be carried out at regular intervals of not exceeding five years. If there are significant changes to the assessment programmes or a substantial problem is brought to notice, an interim review focussing on the problems may be conducted. In the event that any aspect of the assessment programme is found to be sufficiently unsatisfactory, the CETTAB reserves the rights to revoke the accreditation.

- (iv) Assessment programme will be evaluated in accordance with the accreditation criteria given in Part IV. Accreditation is based on satisfying the minimum standards.
- (v) All correspondence between the assessment centre and CETTAB are to be classified as confidential and may not be released to any unauthorised persons except with written permission from the assessment centre and CETTAB.
- (vi) An on-site visit may be required as part of the process leading to an accreditation decision. AQAC will carry out the evaluation of the assessment programme. AQAC may include observers, subject to agreement by both CETTAB and the assessment centre.
- (vii) The final decision made by CETTAB will be communicated to the assessment centre together with feedback and comments. In the event that assessment programme is not accredited, reasons for the decision will be given. If accreditation is denied, the assessment centre may appeal against the decision or request an immediate re-evaluation within thirty (30) days of the denial.
- (viii) An administrative fee shall be charged for the accreditation of the assessment programme.

# PART III

## ACCREDITATION AND QUALITY ASSURANCE PROCEDURE

### 5 ACCREDITATION AND QUALITY ASSURANCE PROCESS

**5.1** The accreditation and quality assurance process, whether for a first accreditation or re-accreditation, involves a comprehensive assessment which comprises the following:

- (i) a review of the information submitted in the application form;
- (ii) an on-site accreditation visit may be conducted by the AQAC appointed by CETTAB; and
- (iii) preparation of the accreditation report on findings and recommendations by the AQAC.

**5.2** Generally, the steps involved in the accreditation process are as follows:

- (i) The assessment centre will make an application to CETTAB for accreditation of its assessment programme. When the application for accreditation is accepted by CETTAB, the assessment centre will prepare and submit the application form, at least twelve (12) weeks before the desired accreditation date. If an assessment centre of a particular Technical & Skills Competencies (TSCs) assessment programme is already accredited and a re-evaluation is necessary, the application for re-accreditation is to be submitted at least 5 months before expiry of the accreditation;
- (ii) AQAC will form an Evaluation Team, comprises of AQAC members, to assess the submitted information;
- (iii) CETTAB will adopt the following guidelines in determining the composition of the AQAC:
  - a) an academic (or formerly an academic) member;
  - b) a member from the relevant industry to be selected from key stakeholders;
  - c) a member who is familiar with CETTAB's accreditation system, and who may not necessarily be from the same branch of engineering as the assessment programme to be accredited; and
  - d) a secretary will be appointed to assist AQAC in carrying out its work, mainly to deal with logistics and administrative matters.
- (iv) Evaluation Team may request for additional information, where necessary, after evaluating the submitted information;



- (v) If the information provided is sufficient and an on-site visit is requested by Evaluation Team, Secretary of the AQAC will liaise with the assessment centre to work out a schedule for the on-site visit;
- (vi) If observers are to be included in the on-site visit, the Secretary of AQAC will seek prior written consent from the assessment centre;
- (vii) Evaluation Team will prepare and submit the completed Assessment Form (Appendix A) and accreditation report to AQAC for endorsement before submitting to CETTAB within 8 weeks for approval upon receiving the application form;
- (viii) The accreditation report will be sent to the assessment centre for correction of facts prior to issuing it in its final form. The assessment centre could also respond by presenting its plans for future changes or improvements. The AQAC will also forward the information provided by the assessment centre together with its final report;
- (ix) Based on the accreditation report endorsed by the AQAC, CETTAB will make a decision on accreditation. The assessment centre will be informed of the decision by CETTAB;
- (x) An appeal against the decision of CETTAB will have to be submitted in writing within 30 days (see paragraph 8 for details on dispute resolution).

## **6 ACCREDITATION VISIT**

**6.1** The on-site visit allows the AQAC to verify and seek clarification on information submitted in the application form. Factors to be assessed during the on-site visit include, among other things, are the following:

- (i) Assessors
- (ii) Facilities
- (iii) Financial Health
- (iv) Governance and Continuous Quality Improvement

## **7 FOLLOW-UP ACTION AS A REQUIREMENT FOR ACCREDITATION**

**7.1** If there are requirements which need to be met before accreditation can be granted, CETTAB will require the assessment centre to submit a report on follow-up actions within a specified period. The specified period will vary depending on the nature of the requirement. CETTAB may also require a follow-up visit to review the actions taken by the assessment centre.

## **8 DISPUTE RESOLUTION**

- 8.1** Assessment centre may appeal against a decision by CETTAB not to grant an accreditation, or submit a complaint on any matter relating to its application for accreditation. An appeal may include a request for re-consideration or a revisit.
- 8.2** An appeal involving requests for re-consideration or an immediate revisit must be made in writing to the Honorary Secretary, Council of IES within 30 days after receiving notification of CETTAB's decision. The grounds of appeal shall be clearly stated in the appeal.
- 8.3** The Council of IES will appoint an Appeals Committee comprising not less than 3 members who have had experience of accreditation. The Appeals Committee will request CETTAB to consider the request based on the grounds of appeal submitted by the assessment centre and to submit its findings and recommendations within 30 days.
- 8.4** The Council of IES will consider the findings of the Appeals Committee and arrive at a final decision within 90 days after receipt of the appeal. If the Council of IES decides to reject the appeal, it will provide the assessment centre with reasons for the decision.
- 8.5** If a revisit is necessary, the Council of IES, in consultation with CETTAB, will appoint a Re-evaluation Team to carry out the on-site visit.

# PART IV

## ACCREDITATION AND QUALITY ASSURANCE CRITERIA

### 9 GENERAL INFORMATION

9.1 The evaluation process is based on 4 broad criteria developed by CETTAB as follows:

- (i) Assessors
- (ii) Facilities
- (iii) Financial Health
- (iv) Governance and Continuous Quality Improvement

9.2 The criteria are formulated in terms of parameters, including quantitative measurements that are designed for maximally objective assessment of each criterion. The assessment programme to be accredited or re-accredited shall satisfy all the criteria during the full term of accreditation. The assessment centre shall periodically review the strengths and weaknesses of the assessment programme and seek to improve its standards and quality continually, and to address any shortcoming.

### 10 ACCREDITATION CRITERIA

#### 10.1 Criterion 1 –Assessors

At least two assessors must be in the CETTAB pool of independent assessors (refer to Part VII for more details).

#### 10.2 Criterion 2 – Facilities

Classrooms, laboratories and other facilities must be adequately equipped, furnished and properly maintained to provide the necessary means as well as an conducive environment to for the fulfilment of assessment objectives.

#### 10.3 Criterion 3 –Financial Health

The assessment centre must possess the financial resources necessary to fulfil its mission. The assessment centre’s budgetary planning process must also provide for the acquisition, repair, maintenance and replacement of physical facilities and equipment

#### **10.4 Criterion 4 – Governance and Continuous Quality Improvement**

The governance structure of the assessment centre must clearly assign authority and responsibility for the formulation and implementation of policies that enable the assessment centre to fulfil its assessment programme.

The assessment centre should have well defined process for continuous quality improvement. Continuous improvement is assured if a proficient closed-loop system is in place. The shortcomings and non-conformance identified during the last accreditation visit must be addressed. The assessment centre should also provide details of the internal quality assessment procedure.

# PART V

## ACCREDITATION INFORMATION

### 11 GENERAL INFORMATION

- 11.1** The assessment centre's application form requires the centre to provide Accreditation and Quality Assurance Information that is critical to the conduct of a thorough evaluation of the assessment programme submitted for accreditation to CETTAB. It is therefore important that the required information in the application form can address the extent to which the assessment centre meets CETTAB's Accreditation and Quality Assurance Criteria.
- 11.2** The application form should be completed and submitted at least twelve (12) weeks before the desired accreditation date. One (1) set of the application form in hardcopy and one set in softcopy should be submitted and forwarded to:

Secretary,  
Chartered Engineering Technologist and Technician Accreditation Board  
The Institution of Engineers, Singapore  
70 Bukit Tinggi Road  
Singapore 289758

# **PART VI**

## **REVIEW BY ACCREDITATION AND QUALITY ASSURANCE COMMITTEE**

### **12 TASKS FOR ACCREDITATION AND QUALITY ASSURANCE COMMITTEE**

- 12.1** After members of the Accreditation and Quality Assurance Committee (AQAC) have been appointed, CETTAB will notify the assessment centre of the composition of the AQAC. CETTAB will advise the assessment centre to contact the Secretary of the AQAC to make arrangements for the on-site visit if requested by the AQAC, as well as to provide the name and contact number of a person with whom the Secretary could liaise for further information and clarifications, if necessary.
- 12.2** Members of the AQAC should note that all correspondences between assessment centre and CETTAB and all reports made in the evaluation process, as well as information as to whether an assessment programme from the assessment centre is being considered for accreditation, are to be classified as confidential and should not be released to any unauthorised persons except with written permission from both assessment centre and CETTAB.
- 12.3** In order to maintain impartiality and transparency in the accreditation exercise, members of the AQAC would not participate in any discussion or decision making process that might involve a conflict of interest.
- 12.4** The AQAC members will carry out a comprehensive review of the documentation provided on the Report on Accreditation and Quality Assurance Information. If additional information or clarifications on the information furnished by the assessment centre are required, members will channel their requests to the Secretary of the AQAC, who will liaise with the contact person of the assessment centre to obtain the information needed.
- 12.5** A draft report of the AQAC is expected to be prepared and forwarded to CETTAB within 8 weeks upon receiving the application form.

# PART VII

## INDEPENDENT ASSESSOR

### 13 GENERAL INFORMATION

- 13.1** CETTAB will appoint an Assessment & Quality Assurance Committee (AQAC) to form an assessment panel that comprises of an independent assessor, to review and assess applications for registration as Chartered Engineering Technician and Technologist.
- 13.2** The criteria to be an independent assessor for Chartered Engineering Technician are as follows:
- (i) A Chartered Engineering Technician, Chartered Technologist or Chartered Engineer;
  - (ii) At least 10 years of relevant working experience in the relevant engineering domain; and
  - (iii) Pass the interview by CETTAB.
- 13.3** The criteria to be an independent assessor for Chartered Engineering Technologist are as follows:
- (i) A Chartered Technologist or Chartered Engineer;
  - (ii) At least 10 years of relevant working experience in the relevant engineering domain; and
  - (iii) Pass the interview by CETTAB.
- 13.4** The roles and responsibilities of the independent assessors are in the following areas:
- (i) To develop test questions for the knowledge assessment;
  - (ii) To conduct and invigilate knowledge and abilities assessments; and
  - (iii) To attend training courses on assessment by CETTAB once every 3 years.

# APPENDIX A

## ASSESSMENT FORM

### A1 GENERAL INFORMATION

#### A1.1 INSTITUTION

Name of Assessment Centre:	
Name of Assessment Programme:	
Address of Assessment Centre:	
Name of Assessment Centre Representative:	
Contact of Assessment Centre Representative:	
Assessment Centre for:	<input type="checkbox"/> Land Transport Automotive (Bus) <input type="checkbox"/> Land Transport Railway <input type="checkbox"/> Built Environment <input type="checkbox"/> Aerospace <input type="checkbox"/> Water & Environment <input type="checkbox"/> Manufacturing <input type="checkbox"/> Manufacturing <input type="checkbox"/> Renewable Energy (Solar)

#### A1.2 ASSESSMENT PROGRAMME FOR ACCREDITATION

Title of assessment programme:	
Current accreditation is valid up to year: (if applicable)	

#### A1.3 ACCREDITATION CRITERIA

Criterion 1: Assessors				
No	Criteria	Yes	No	Comments, observations or conditions
1	<ul style="list-style-type: none"> <li>• Has the list of Independent Assessors been submitted?</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>	
	<ul style="list-style-type: none"> <li>• Does the submitted list of Independent Assessors consist of at least 2 of the Independent Assessors for the Assessment Programme from the Assessment Centre?</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>	



<b>Criterion 2: Facilities</b>				
<b>No</b>	<b>Criteria</b>	<b>Yes</b>	<b>No</b>	<b>Comments, observations or conditions</b>
2	<ul style="list-style-type: none"> <li>Is the equipment at the classrooms, laboratories and other teaching facilities adequately furnished and maintained for the conduct of the Assessment Programme?</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>	
	<ul style="list-style-type: none"> <li>Is the learning environment conducive for the fulfilment of the assessment objectives in the assessment programme?</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>	

<b>Criterion 3: Financial Health</b>				
<b>No</b>	<b>Criteria</b>	<b>Yes</b>	<b>No</b>	<b>Comments, observations or conditions</b>
3	<ul style="list-style-type: none"> <li>Does the assessment centre possess the necessary financial resources to fulfil its mission?</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>	
	<ul style="list-style-type: none"> <li>Does the assessment centre has a budgetary planning process in place to provide the acquisition, repair, maintenance and replacement of physical facilities and equipment?</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>	

<b>Criterion 4: Governance and Continuous Quality Improvement</b>				
<b>No</b>	<b>Criteria</b>	<b>Yes</b>	<b>No</b>	<b>Comments, observations or conditions</b>
4	<ul style="list-style-type: none"> <li>Does the assessment centre have a governance structure that clearly assigns authority and responsibility for the formulation and implementation of policies that enable the assessment centre to fulfil its assessment programme?</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>	
	<ul style="list-style-type: none"> <li>Does the assessment centre have a well-defined process for management to regularly conduct review of its processes and systems to continuously improve the quality of the assessment programme?</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>	

	<ul style="list-style-type: none"> <li>Have the details of the internal quality assessment procedure been provided for the assessment programme?</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>	
--	---	--------------------------	--------------------------	--

**A2. RECOMMENDATION BY EVALUATION TEAM**

The Assessment Programme is recommended to be given:

No	Type of accreditation	Duration	Comments, observations or conditions
1	Full accreditation <input type="checkbox"/>	5 years	
2	Not to be accredited <input type="checkbox"/>	-	

Prepared and submitted by Evaluation Team:

	Name	Signature	Date
<b>Chairman:</b>			
<b>Evaluation Panel Members:</b>			
<b>Secretary:</b>			