

1APEC ENGINEER REGISTER INDONESIA ASSESSMENT STATEMENT

PART A - PREAMBULE

The APEC Human Resources Development Working Group on Mutual Recognition of Professionals developed the initiative for the APEC Engineer to be registered by a Monitoring Committee of each member economy.

The Institution of Engineers, Indonesia (PII), has since the very beginning participated in this venture and has formed a Monitoring Committee to develop, maintain and monitor the registration of APEC Engineers in Indonesia

PART B – MONITORING COMMITTEE

The Indonesian APEC Engineer Monitoring Committee comprises of:

Position	Name	Current Position
Chair	Dr. Boediono	Coordinator, APEC HRD Working Group
Member	Dr. Satryo Sumantri	Director General for Higher Education, Ministry of National Education
Member	Dr. Yudo Swasono	Head of Manpower Planning and Development Agency, Ministry of Manpower
Member	Abdul Qoyum	President, Institution of Engineers, Indonesia (PII)
Member	Muhayat	President, National Association of Indonesian Consultants (INKINDO)
Representative to the APEC Engineer Co-ordinating Committee	Soufyan M. Noerbambang, MSME, IPM	Professional Engineer Assessor, PII
Secretary	Akhmad Bukhari Saleh	Head, Bureau of Certification for Professional Engineers, Institution of Engineers, Indonesia (PII)

Secretariat:

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PART C – ASSESSMENT MECHANISMS

An APEC Engineer is defined as a person who is recognized as a professional engineer within an APEC economy, and has satisfied an authorized body in that economy, operating in accordance with the criteria and procedures approved by an international Coordinating Committee, that the person has:

- ❑ completed an accredited or recognized engineering higher education;
- ❑ been assessed within their own economy as eligible for independent practice; and
- ❑ gained a minimum of seven years practical experience since graduation; and
- ❑ spent at least two years in responsible charge of significant engineering work; and
- ❑ maintained their continuing professional development at satisfactory level.

Admission into the Professional Engineer Register of PII is a pre-requisite for an Indonesian engineer seeking admission into the APEC Engineer Register.

Assessment Mechanism for PII Professional Engineer

The fundamental of mechanism for assessing applicant seeking admission into the Professional Engineer Register of PII is based on a Certification program established in the assistance and cooperation program between PII and IEAust started in 1994

1. Accreditation of Engineering Higher Education Program

The first step is to assure that the applicant has graduated from an accredited engineering higher education.

The accreditation of engineering higher education programs in Indonesia is done by National Accreditation Board (Badan Akreditasi Nasional – BAN), an independent body set up by the Ministry of National Education.

A summary of the accreditation process is outlined in the Attachment 2.

2. Assessment for Independent Practice

The assessment for entry into PII Professional Engineer Register is undertaken by a Panel of Assessors (Majelis Penilai – MP) especially established for each of the engineering colleges. The assessment of the competency in engineering practice covers the fundamental (compulsory) competencies and elective competencies, which applies to all engineering disciplines as it is generic in the nature.

The PII system has three levels of Professional Engineers:

IP the initial entry into the register, minimum 3 years experience,

IPM the next level requires a minimum of 5 years experience after IP, including 2 years of experience in responsible charge of significant engineering work.

IPU requires a minimum of another 5 years after IPM, plus highly regarded achievement in the public domain.

The applicant form may be submitted to PII's Bureau of Certification for Professional Engineers at any time. However, the review by the Panel of Assessor, and the interviews for those applying for IPM-level, is conducted every three months.

The assessment documentation is maintained in the office of the Bureau of Certification.

Certificates are conferred to those entered into the Register.

The certificates are subject to renewal after five years. The individual professional engineers will be audited for their CPD activities every year.

3. Particular APEC Engineer Assessment Items

Based on the APEC Engineer requirement of seven years experience after graduation from an accredited engineering program, PII's IPM-level professional engineers will have sufficient minimum experience to enter the APEC Engineer Register.

4. Audit of APEC Engineers

The professional engineer who has been registered in the APEC Engineer - Indonesia Register will be audited every 5 years and will be required to re-apply. To re-apply in the same engineering discipline, the application documents must show that the engineers had:

- a. continued to work in the specified engineering discipline
- b. met the Continuing Professional Development (CPD) requirements

PART D – ENGINEERING DISCIPLINES

1. The engineering disciplines recognized for the purpose of the APEC Engineer Register initially are:
 - Civil, incl. Structure and Geo-technical
 - Electrical
 - Mechanical
 - Chemical
 - Industrial
 - Environmental
2. In addition to the above list, Indonesian nominates the following disciplines :
 - Geodetics (Geomatics)
 - Physics

PART E – REFERENCES

- Act No. 18 of the year 1999 on Construction Services
- Declaration on the Founding of the Institution for the Development of Construction Services.
- Statute and By Laws of the Institution of Engineers, Indonesia
- Indonesian Engineers Code of Ethics
- Professional Engineer Certification Program of the Institution of Engineers, Indonesia (Aims and Objectives, Requirements, Applications, Standards of Competencies, Application Forms, Assessor Panel and Assessment Schedule)

PART F – ATTACHMENTS

1. Summary on the Indonesian Professional Engineer Certification Program (Attachment 1)
2. Summary on the Accreditation of Higher (Engineering) Education by the National Accreditation Board (Attachment 2)
3. Summary on the Continuing Professional Development (CPD) Program, Institution Of Engineers, Indonesia (Attachment 3)
4. Competency Standards of Indonesian Professional Engineers (Attachment 4)
5. Application Form for Professional Engineer Certification Persatuan Insinyur Indonesia (Attachment 5)
6. Examples of Application Form for Professional Engineer Certification Persatuan Insinyur Indonesia (Attachment 6)

Summary on the Indonesian Professional Engineer Certification Program

Introduction

The purpose of this summary is to provide guidance and information on the Indonesian Professional Engineer Certification Program of the PII.

Requirement

Any candidate who applies for certification as professional engineer must:

1. has graduated from an accredited engineering higher education,
2. be a member of the Institution of Engineers, Indonesia (PII),
3. has obtained at least 5 years experience of structured engineering practice,
4. has met the PII Professional Engineer Competency Standards.

Application

Application can be made by filling in an application form as shown in Attachment 4.

The forms are supplemented with its completion guidelines and the PII Competency Standards. The application form consist of 6 (six) parts, which are as follows:

- I. Personal Data (General, formal education, membership of professional organizations, trainings undertaken in technical/ management fields, etc.)
- II. Statement on Engineering Ethics
- III. Professional / Engineering Practice Report
- IV. Engineering publication, communication and/or inventions/innovations
- V. Communications skill
- VI. Personal Statement

In the application form, there is a section which should be filled in by the applicant, including names and descriptions (on subjects, experiences, etc.) and competencies (in three digit code), and a section which should be filled in by the assessors panel. Score are given within the range of 1 to 4 and consisting of 'experience', 'role or function' and 'degree of sophistication' and their total score or 'activity' .

The application form, when submitted to the Bureau of Certification for Professional Engineer, should be supplemented with supporting documents like copies of diplomas, certificates, references, etc. and a registration fee.

Assessment

Assessments are done by a **Panel of Assessors** of each discipline (engineering colleges) participating in the program, which presently are: civil/structure, electrical, mechanical, chemical, geodetical, industrial, physics and environmental.

The assessor panel consists of committed senior and experienced professional engineers who are still in the forefront of their technical disciplines and whose integrities are beyond doubt.

The application form may be submitted at any time but the reviews done by the assessor panel and interviews for those applying for IPM-level is usually conducted quarterly, while the conferment of certificates will be held per semester.

The assessment references are the **Competency Standards** which are the benchmark for assessing the integrated balance of the applicant's capabilities and abilities in knowledge, skill, professionalism, decision making and ethical integrity. The Competency Standards is generic in the nature and applies to all engineering disciplines.

Competency Standards

Competency Standards are broken-down into **Units** of Competencies, which consists of compulsory and elective units. Each Unit consists of several **Elements** of Competencies. For each Element there is a list of **Performance Criteria** that indicates outcomes related to the elements.

Compulsory Units

These four Compulsory Units as mentioned below must all be addressed:

- Engineer's Code of Ethics and Professional Conduct
- Engineering Practice Skills
- Engineering Planning and Design
- Engineering Practice Management and Communication Skill

Elective Units

At least two should be selected from the group of seven below:

- Education and Training
- Research, Development and Product Commercialization
- Engineering Consultancy and/or Construction/Installation
- Production/Manufacturing
- Material and Components
- Business Management and Technical Sales
- Development and Asset Management

Summary on the Accreditation of Engineering Higher Education by the National Accreditation Agency

Function and Tasks

The Indonesian National Accreditation Board (BAN) has the function to assess periodically the quality and efficiency of all higher learning / educational institutions, which covers the curriculum, the quality and number of educators, the learning environment of the students, the performance of the learning process, the educational supporting facilities, the academic administration, finance, employment and office management.

In performing the above-mentioned functions, the BAN has the tasks of formulating:

- ❑ The accreditation criteria
- ❑ The assessment policies and criteria
- ❑ The implementing organization

And performing:

- ❑ The assessment on the quality and efficiency of the institution of higher education by periodical assessments, as the basis for the recommendation given on the study program accreditation and the corrective and improvement steps/measures to be taken.

And aiding/supporting:

- ❑ The institutions of higher education in doing their self assessment

Scope and Objectives

The institutions of higher education which will be assessed by the BAN are institutions performing academic and/or profession education.

- ❑ Institutions accredited are: Academies, Polytechnics, Precolleges and Colleges, Institutes and Universities.
For each of these institutions, different method of assessment will be implemented.

❑ Study Program

Institutions of higher education in Indonesia are categorized into two groups, as they offer two different path of education: academic and profession.

The study program is the guideline in performing academic/profession education based on the curriculum of each institution. The curriculum should be based on the national curriculum, which is aimed to enable the students to master knowledge, skill and attitude according to the study program.

❑ **Accreditation**

Accreditation is the recognition given to an educational institution as maintaining standards that qualify the graduates for admission to higher or more specialized institutions or for professional practice.

In the process of accreditation, the authority to accredit belong to the government, while the accredited parties are all public, ministerial, and private learning institutions. The accreditation covers institutional accreditation as well as their study programs.

❑ **Elements to be assessed**

The assessment of quality and efficiency covers among others the following elements:

- Curriculum and syllabus
- Quality and number of educators
- Learning environment of the student
- Academic performance
- Educational facilities
- Administrative management
- Human resources development
- Financial resources and management
- Utility availability

❑ **Assessment Criteria**

For the institution among others:

- Administrative and legal adherence
- Properness of academic performance
- Market demand relevance of educational programs
- Learning-teaching condition
- Managerial performance

For the study program:

- Administrative and legal adherence
- Conformance of program with rules and regulations
- Market demand relevance of the particular program
- Educational facilities
- Efficiency of the program implementation
- Program productivity
- Quality of graduates

Summary on the Continuing Professional Development (CPD) Program Institution of Engineers, Indonesia (PII)

Introduction

The Indonesian Professional Engineers Certification program has been ongoing for the last 3 years. The Continuing Professional Development (CPD) program, in supporting this Certification program, intends to provide means for Indonesian Professional Engineers to prove their continuing effort in maintaining their professional competency. Assessment of CPD implementation is planned to be executed through each engineer's own assessment of their activities, based on the Institution of Engineers, Indonesia (PII) Professional Engineer standards and formats.

The personal assessments are to be checked and evaluated by Assessors from each of PII Colleges. Use of the College Assessors ensures depth of understanding for the assessment evaluation. Whenever necessary, inter-Colleges assessment could also be implemented.

The CPD program criteria, assessment formats, assessment evaluation and audit method are formulated by the Accreditation and Certification Committee of the PII and presently is at the stage of finalisation.

Basis of Assessment

Indonesian Professional Engineer has to re-verify their competence after each 5 years of their certification. Therefore they have to prove that during the period they have develop their competence by:

1. Gaining new technical knowledge (P)
2. Taking new roles in their job experience (Q) and
3. Completion of more complex tasks (R)

The competency development basically reflects the developments on the three values in which they have passed their Professional Engineer qualification. Those experiences will enable them to be:

- More productive
- Able to implement new technologies, and
- Able to cope changes in their career direction

The above mentioned competency development may be achieved through:

1. Non routine work experience
2. Education program either formal or informal.
 - Formal education is for the participation in technical symposiums, workshops, seminars, discussion groups, which is facilitated by institutions or experts acknowledged by their respective Colleges
 - Informal education is basically a self learning activity which relates to non routine technical activity by the subject.

3. Involvement in technical symposiums, workshops, seminars, discussion groups, work groups, as resource person, speaker, lecturer, facilitator or as its organising committee for events which is conducted by institutions or experts acknowledged by the Institute of Engineers Indonesia or their respective Discipline or Cross Disciplinary College

The policy of Colleges involvement stems from the fact that each group are considered to have the most knowledgeable group of resource persons in its field. The CPD program activity in each College is conducted by its Panel of Assessors.

Assessment basic criteria.

Based on the type of competency development involved, assessment criteria are set up for each of the education activity types mentioned above

1. **Assessment of non routine work experience**
Non routine work experience during the rolling five year period will be evaluated through 4 (four) Compulsory Competency units and 7 (seven) Elective Competency units as defined in the PII Professional Engineer Competency Standard.
2. **Assessment for formal education activity**
Achievement of technical higher degree or technical postgraduate diploma is considered as a special case of formal education and therefore will cover the CPD requirement for the rolling five year period.
Short courses, training courses and on the job training which evaluate its participants through test and conducted by institutions or experts acknowledged by the Institute of Engineers Indonesia or their respective Discipline or Cross Disciplinary College is considered as formal education. Its assessment therefore will be based on its technical level and class room (or its equivalent) hours consumed for the activity.
3. **Assessment for informal education activity**
Professional development capabilities may be achieved by informal education such as self learning activities. Self learning activity claimed should show reasonable hours consumed demonstrated by level of text books and/or expert resource person involved. Text book and/or resource person should be acknowledged by its related Discipline or cross Disciplinary College. However, self learning is considered effective only if it can be proven that it has lead to a new work assignment which relate to the subject.
Seminar, short courses, training which does not involved testing of participant understanding are also considered as informal training, which therefore, like the self study activity, will have half the value of formal education on the same level and duration.
Self learning credit will increase to equivalent formal education value, if it is combined with a related formal education activities.
4. **Assessment for conducting CPD education activity**
CPD accredited education activity is valued by the its content/subject technical level and duration of the activity, and whether it is considered as Formal or Informal Education. Activities in conducting CPD accredited education activity may be in preparing, presenting the education material or in the functions in implementing the activity.

Preparation, presentation activity will have a weighting factor of 2 (two) to the CPD program value.

Resource person, facilitator and various functions to implement the education activity will have maximum a weighting factor of 0.5 of the CPD program value.

PII will accredit CPD worthy activities organized by PII itself or by any third party. This accreditation is done beforehand, so that each engineer could put the PII given credit into consideration when they decided to be involved in the particular activity.

CPD program organisation

Within the PII organisation, policies and procedures are set up by its Committee and continuing routine activities are undertaken by its Bureau of Certification.

For the CPD program the organisation has appointed its Accreditation and Certification Committee to undertake the following responsibilities:

1. Set up CPD criteria in synchronisation with the Professional Engineer Assessment Procedure including its periodic re-assessment procedure.
2. Designate credits for CPD worthy activities organized by PII or other parties
3. Coordinate Colleges Panel of Assessors for CPD classification activities conducted in the program
4. Encourage the participation of institutions and experts inside and outside the Institute of Engineers Indonesia in conducting CPD program.
5. Implement and conduct audit program to ensure proper implementation and documentation by all related parties involved in the CPD program.

CPD criteria, procedure and audit program is scheduled to be completed within this year.