

Professional Competency Exam: Why, What and How?



Ir. Lai Sze Ching

Ir. Lai Sze Ching is currently a Council member and an EXCOMM member in IEM. He is the Vice-Chairman of Standing Committee of Examination and Qualification, Secretary of the Standing Committee of Professional Practice, Chairman of the sub-committee on Amendment of IEM Constitution and the Chairman for the sub-committee of Legislations Affecting Engineering Profession. Ir. Lai is also a committee member of the Amendment of Registration of Engineers Act under the Board of Engineers Malaysia.

Malaysia made its commitment to liberalise its services in 1995 in the Uruguay Round of the WTO and through the ASEAN Framework Agreement on Services (AFAS). In AFAS, ASEAN leaders gave their commitment to liberalise the services sector completely by 2015 in line with the formation of the ASEAN Economic Community (AEC). The AEC enables freer trade in goods and services as well as transfer of expertise within the ASEAN member states.

Malaysia made its commitment to liberalise its services in 1995 in the Uruguay Round of the WTO and through the ASEAN Framework Agreement on Services (AFAS). In AFAS, ASEAN leaders gave their commitment to liberalise the services sector completely by 2015 in line with the formation of the ASEAN Economic Community (AEC). The AEC enables freer trade in goods and services as well as transfer of expertise within the ASEAN member states.

Since the mid-1980s, a substantial amount of liberalisation has taken place in the area of international trade and services. Much of this is inspired by WTO and various regional agreements. However, Malaysia is regarded as being defensive in the GATS negotiations due to high level of protection of the services markets. Nonetheless, Malaysia's services offer involved a wide coverage of sectors and substantive bindings of current policies. Up to 2009, Malaysia had made commitments in 83 services activities, including both the financial and non-financial sectors under GATS. The services sectors that were offered for liberalisation comprised business services, professional services, telecommunication services, marine services, audiovisual and broadcasting services, construction services, financial services, health services, tourism services, computer services, travel services, rental and leasing services and entertainment services.

Malaysia has since acknowledged and viewed positively the benefits of the current global liberalisation of the service sector. Many Malaysian companies have benefited from the global liberalisation of the sector and have successfully ventured into the global market. For example, in the construction sector, Malaysia companies are actively involved in various projects in the Middle East, India, China and

ASEAN countries. Other international markets that Malaysian companies have penetrated include the oil and gas service sector, education, aviation, health and professional services.

In April 2009 the government liberalised another 27 services sub-sectors to strengthen its economy and to face the increasing challenges of globalisation. This was also in line with the government's objective to implement structural reforms in our economy. In this new economy model, the services sector will be developed intensively as the main engine of growth of the country.

Subsequently, in 2011, the government announced that another 17 service sub-sectors would be opened up and that 100% foreign equity participation would be permitted in those service sectors. These service sub-sectors included accounting and taxation services, legal services, architectural services and engineering services.

Architectural and engineering services were scheduled to be liberalised by 2015, pending amendments to the relevant Acts. Once these two sectors were liberalised, foreign equity participation up to 100% would be permitted. Thereafter local engineering and architectural firms would have to compete with international companies.

AMENDMENT OF REGISTRATION OF ENGINEERS ACT 1967 AND ITS REGULATIONS

The amendment to the Registration of Engineers Act 1967 (Act 138) (REA) was finally completed and passed by Parliament on 12 February 2015 and came into operation on 31 July 2015. The Registration of Engineers Regulations 1990 was also amended and came into operation on 31 July 2015.

THE PURPOSE OF THE AMENDMENT WAS TO ACHIEVE, AMONG OTHERS, THE FOLLOWING OBJECTIVES:

1. To liberalise engineering services by permitting foreign engineers to practise in the country.
2. To improve the competency of local engineers so that they would be competitive when the engineering service was liberalised.
3. In view of frequent construction failures of late, it is necessary to improve the competency of the engineers so that the public safety and interests would be safeguarded.

SUBMITTING OR QUALIFIED PERSONS

Prior to the amendment, professional engineers registered with the Board of Engineers Malaysia (BEM) are allowed to be the Submitting or Qualified Person as defined under the Street, Drainage and Building Act 1974 (Act 133). They are authorised to submit plans and design to the authorities for Road, Drainage and Building Works. With the P.E. registration, the professional engineer is able to set-up an engineering consultancy practice that's registered with BEM within a short period of time. But this practice has led to questions that many have asked, such as:

1. Are professional engineers competent and do they possess sufficient general engineering experience?
2. Do they understand the duty of care and due diligence to the public as well as to the client?
3. Do they possess necessary integrity and honesty while discharging their duty?

TWO-TIER SYSTEM OF PES

Against this background, the amendment introduced a two-tier system of Professional Engineers.

The First Tier comprises those who have passed the Professional Assessment Examination (PAE) or who are Corporate Members of Institution of Engineers Malaysia. The objective of the PAE is to test the candidate on "what he knows".

The Second Tier, newly introduced under the amendment, comprises First Tier professional engineers who have passed the Professional Competency Examination (PCE). This is a new examination system to test the competency of professional engineers and the objective is to "test a candidate on what he does not know and which he ought to know".

Under the amended REA, professional engineers who have passed the PCE will be eligible to apply for a practicing certificate. He shall then be entitled to register with BEM as a Professional Engineer With Practising Certificate.

So professional engineers who wish to set-up an Engineering Consultancy Practice (ECP) under Section 7A or 7B of the REA and to offer professional engineering services, must pass the PCE and be registered with BEM as a Professional Engineer With A Valid "Licence" (or "Practising Certificate"). In addition, for submission of plans to local authorities and relevant statutory authorities, professional engineers must possess valid practising certificates issued by BEM.

RATIONALE OF TWO-TIER SYSTEM

Of professional engineers registered with BEM, 85% are registered under Civil, Mechanical and Electrical discipline. As at mid-2014, only a small fraction (approx. 2,000 to 3,000) of these are "practising" or wish to be the "Submitting Person". The rest are employed in the fields of contracting, maintenance, sales, government service, and academia or as employees of engineering consultants.

Therefore BEM will issue a "licence" to PEs who wish to become "Submitting Person" under the building laws and who are technically competent and expected to practise professionalism in their work.

In short the rationale for setting up a new tier of professional engineers is to set and maintain high standards of engineering practice and to regulate and enforce acceptable standards of professional conduct.

AIMS OF PCE

The Professional Competency Examination will test candidates within the limits of "professional engineering services" as defined by the REA, which will be within the engineering disciplines of civil & structural, mechanical and electrical engineering. It will test a candidate's knowledge, experience and application of the following:

1. Regulations and rules of engineering practice in Malaysia
2. Statutory laws, design codes, regulations and
3. Standards of professionalism and ethical behaviour.

FORMAT OF PCE

The Professional Competency Examination shall be conducted in two parts:

Part A is a common paper to be taken by all candidates, irrespective of which discipline they are registered under with the BEM. This paper will be non-technical in nature but will test the candidate's knowledge of:

- Laws governing the engineering profession
- The responsibility of an engineer as professional towards the general public and
- Standard of professionalism and ethical behaviour.

Part B consists of technical paper that shall be taken by candidates registered in the respective engineering disciplines. This paper will test the candidate's competency in his respective field.

A candidate must pass both Part A and B. If a candidate passes only one part, he or she will be allowed to sit the failed paper at a later date. The passed result for Part A or B is valid for 3 years and there is no limit to the number of attempts to re-sit the failed paper as long as it is within the 3-year period. After this time, a candidate will have to re-sit both papers again.

PART A OF PCE

Part A tests the candidate's knowledge of laws governing the profession, the responsibility of the professional engineer towards the general public and standards of professionalism and ethical behaviour.

There are 2 papers in Part A and candidates must pass both papers in one sitting. Paper 1 will have 40 objective questions and the time limit is 1.5 hours. Paper 2 comprises 5 essay type questions, of which a candidate is required to answer 3, within 1.5 hours.

The syllabi for Part A are:

- a) Laws and regulations governing the engineering profession in Malaysia
- b) An engineer's responsibility to society and the public
- c) Professionalism on a conceptual basis, ethical conduct and professional practice
- d) Overview of laws having relevance
- e) Basic knowledge of Contract Laws being practised locally, with respect to the construction industry
- f) In-depth knowledge of the functions of a consulting engineer during the various stages of project implementation in accordance with BEM Model Form of Agreement
- g) Management of engineering consultancy practices in Malaysia.

The passing mark for both papers is 50%. The weightage of the topics is as below:

- i. Construction law – 25%
- ii. Registration of Engineering Act 1967 (Act 138) and Registration of Engineers Regulation 1990 – 35%
- iii. Local laws relevant to the engineering practice – 30%
- iv. Management of engineering consultancy practice – 10%
- v. The overall weightage of law issues is 90%.

PART B OF PCE

For Part B, candidates will sit for the paper in their discipline of practice. The objective is to test a candidate's competency in his field.

There are 2 papers in Part B and candidates must pass both papers in one sitting. Paper 1 comprises 40 objective questions and the time limit is 1.5 hours. Paper 2 comprises 5 essay type questions, of which a candidate is required to answer 3. The time limit is 2 hours for Civil & Structure Engineering and 1.5 hours for Mechanical and Electrical Engineering.

The passing mark for both papers is also 50%. The weightage of the topics is as below:

Civil & Structure

- Geotechnical – 20%
- Civil Infrastructure – 30%
- Structure – 40%
- Uniform Building Bylaw etc – 10%

Mechanical

- Air-conditioning and ventilation – 40%
- Fire protection – 30%
- Hydraulics – 20%
- Other mechanical systems – 10%

Electrical

- Regulatory practice – 20%
- The electricity distribution system – 30%
- System protection – 25%
- Building systems – 25%

The topics covered under Part B are very wide ranging and a candidate is expected to understand and be familiar with all relevant technical knowledge pertaining to general engineering practices such as building services, infrastructure work etc. ■