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COMPETENCE STANDARDS FOR ENGINEERING TECHNOLOGIST

This Competency Model for Oral Interview of the Engineering Technologists Assessment is prepared using the reference of the UK Standard for Professional Engineering Competence (UK—SPEC), specifically on the Competence and Commitment Standard for Incorporated Engineers.

Engineering Technologist Members of IEM and Professional Engineering Technologists should demonstrate:

- The appropriate knowledge to solve problems with new technologies and develop new analytical techniques.
- Successful application of the knowledge to deliver innovative products and services and/or take technical responsibility for complex engineering system
- Accountability for project, finance and personal management and managing trade-offs between technical and socio-economic factors.
- Skill sets necessary to develop other technical staff.
- Effective interpersonal skills in communicating technical matters.
- Personal commitment to professional standards.

This IEM Engineering Technologists Competency Model consists of seventeen Competency Elements and Standards grouped under five Competency Categories. The Model demonstrates the underpinning knowledge and understanding of engineering fundamentals, application abilities, leadership and management skills, interpersonal skills, and personal commitment to the profession that must be demonstrated in order to practice professionally. The Competency Elements are used as the basis for assessing Applicants who apply to sit for the Technologists Assessment conducted by IEM. Applicants will be required to provide evidence of competence against each of the seventeen Competency Elements. The evidence is to be drawn from their work experience, specifically as they have encountered engineering problems or engaged in engineering activities.

A	Use a combination of general and specialist engineering knowledge and understanding to optimise the application of existing and emerging technology.
A1	Maintain and extend a sound practical approach to application of technology in an engineering environment.

The Engineering Technologist will have progressed from the formal educational base to having the breadth and depth of knowledge, understanding and technical skills necessary to exploit new and developing technologies from their own and allied fields. They should be able to identify their own personal limits, strive to extend their own technological capability and broaden and deepen their own knowledge base through new applications and techniques.

A2	Engage in the creative and innovative implementation/execution of engineering technology and continuous improvement systems.

The Engineering Technologist will have the ability to explore the market in terms of advancement in technology in order to improve the effectiveness of the product, systems and services. They will also use their ability to contribute and evaluate for continued improvement as well as to apply their knowledge and experience in solving problems.

A3	Apply engineering knowledge related to local practices, codes, standards, specifications, materials, products, environmental plans and other requirements; and where appropriate, apply engineering knowledge contributed by others including suppliers, consultants, contractors, manufacturers, technologists, researchers and independent experts.

The Engineering Technologist will have the ability to use local practices, codes, standards, specifications, materials, products, environmental plans and other requirements; and where appropriate, the engineering knowledge contributed by others including suppliers, consultants, contractors, manufacturers, technologists, researchers and independent experts as a basis for developing solutions appropriate to local context and requirements. Collectively, this is referred to as "local engineering knowledge".

B	Apply appropriate practical methods to the analysis and solution of engineering problems.
B1	Identify potential projects and opportunities.

Engineering Technologist Candidate should be able to identify and review new opportunities within their field, using creative problem solving methodology. They should have devised action plans, targets and schedules to bring projects to maturity.

B2	Contribute/Implement design solutions and evaluate their effectiveness.

Engineering Technologist Candidates should contribute/implement the design strategy through to final solution, devise and apply appropriate criteria for monitoring and evaluating progress and outcomes. They need to ensure that design performance, cost benefit and project milestones are met or devise appropriate measures for design modifications. They need to carry out project reviews, assessing the performance against the original specifications, using the results to improve the future processes and build into established procedures.

C	Provide technical and commercial management.
C1	Plan for effective project implementation.

The Engineering Technologist plans projects by identifying factors that affects the project implementation. This requires the ability to carry out risk identification, assessment and management as well as to prepare implementation plans and method statements. The Engineering Technologist is able to apply contractual arrangement with clients, sub-contractors, suppliers, etc) define and agree work objectives, estimate timescale and resource requirements, both human and material, identify plan deviations and take necessary corrective actions.

C2	Manage tasks for budget planning, budget management and people resources.

The Engineering Technologist will have the ability to operate proper management systems, work on a planned quality standard budget which should include legal and statutory requirements, manage work teams, evaluate performance and recommend improvement.

C3	Manage teams and develop staff to meet changing technical and managerial needs.

The Engineering Technologist will be able to agree on the objectives/work plans with the teams and individuals, identify team and individual needs and plan for development, manage, support and assess team as well as individual performance and provide feedback.

C4	Bring about continuous improvement.

The Engineering Technologist will be responsible to ensure application of management principals by team members and colleagues, manage operations for maintenance on quality standards and evaluate projects as well as make recommendations for improvement.

D	Demonstrate effective interpersonal skills.

The Engineering Technologist should be assessed in three areas: general communications at all levels: presenting and discussing proposals; and people skills. These skills are of increasing importance in modern engineering practice, and ideally a good Engineering Technologist should be highly competent in all aspects.

D1	Using oral and written in communication in English or Malay.

The Engineering Technologist will have written and oral skills enabling communications in English or Malay. The Engineering Technologist is able to contribute to, chair and record meetings and discussions, prepare reports/documents on technical matters as well as exchange information on technical matters.

D2	Present and discuss proposals.

It is important for the Engineering Technologist to present and deliver proposals/reports, discuss and provide feedback for improvement and contribute on the awareness of risk.

D3	Demonstrate personal and social skills.

The Engineering Technologist will be able to know and manage own emotions, be non-discriminatory, confident and flexible in dealing with new and changing interpersonal situations, has concern for others by creating a good working relationship and be able to resolve conflict.

E	Demonstrate a personal commitment to professional standards, recognizing obligations to society, the profession and the environment.

The Engineering Technologist must demonstrate an understanding of the need for codes of conduct and statutory requirements with regard to risks and is especially aware of, and complies with, requirements involving the safety of the community and protection of the environment.

E1	Comply with relevant codes of conduct.

The Engineering Technologist will be able to show how they comply with the rules of professional conduct and manage their work within all relevant legislation and regulatory frameworks, including social and employment legislation.

E2	Manage and apply safe systems of work.

The Engineering Technologist must be able to identity and take responsibility for their obligations for health, safety and welfare issues. They should be able to manage systems that satisfy health, safety and welfare requirements, develop and implement appropriate hazard identification and risk management systems as well as evaluate and improve the system.

E3	Undertake engineering activities in a way that contributes to sustainable development.

The Engineering Technologist should operate and act responsibly, taking account of the need to progress environmental, social and economic outcome simultaneously. They should provide product and services to maintain and enhance the quality of the environment and community and meet financial objectives, understand and encourage stakeholder involvement in sustainable development.

E4	Carry out continuing professional development necessary to maintain and enhance competence in own area of practice.

The Engineering Technologist will need to review their own development needs and plan how to meet personal and organisational objectives. They should maintain evidence of competence development and keep a current, up to date, CPD plan.

E5	Exercise responsibilities in an ethical manner.

The Engineering Technologist must be able to have a general knowledge on legal matters and should be able to communicate effectively with legal personnel on such issues.