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CA03 FORM - COMPETENCE SELF REVIEW (FORM CA03)

Name of Applicant:

Membership Number :

GENERAL GUIDANCE NOTES

- Use this form if you are applying for an Assessment for Admission (AFA)/Registration for entry to IEPNG competence based register or IEPNG membership classes. If you are preparing a portfolio of evidence for Continued Registration Assessment (CRAs), Use this form if your practice area has changed materially or if your assessors have asked to provide more detailed evidence.

- In completing this form, please refer to the relevant competence standard (and performance indicators) you are being assessed against.

- The table at the rear of the form provides definitions of 'complex', 'broadly-defined' and 'well-defined' engineering problems and activities.

- Write your material in the first-person using 'I' or 'me' instead of 'we' or 'us' statements.

IMPORTANT, BEFORE FILLING OUT FORM PLEASE READ THESE NOTES

1. This form requires you to provide <u>two examples</u> for <u>each element</u> of the relevant competence standard that you believe shows you meet the requirements for each element of the standard <u>in your practice area</u>.

2. The examples you give should demonstrate a level of complexity consistent with the standard you are being assessed against. The factors contributing to the complexity of the engineering work are given in the definitions at the rear of this form. It will assist assessors if you state the factors you consider contribute to the complexity of the work in each example.

3. You may provide three (or more) examples if you wish – for example, you might have more than 2 cases of 'strong' evidence or you may wish to use more examples to demonstrate competence over a diverse range of activities within your practice area. if, say you are a 'generalist' civil engineer, you may to do this by providing geotechnical, waters and structural design examples.

4. When documenting your examples, be succinct and precise - large amounts of detail are not required. Typically a well-written example would only need half to a full page of text. Feel free to include photos or videos as attachments if this will help the assessors.

5. Refer to the performance indicators (these are the bulleted text listed in the competence standard, accessible via the links given above) of the relevant element for guidance on the nature of evidence that is expected. For your convenience, the performance indicators for the Professional Engineer are

listed for each element in this form. As a test we suggest you ask yourself 'Does the evidence I have provided match one or some of the performance indicators?'

6. You can use the same piece of work for one or more elements where different facets of the work can be used to demonstrate competence in different elements . If you do this, cross reference relevant information to save yourself time and avoid repetition – however, please ensure that assessors can find the relevant information easily . Your first reference to an example might describe the work in some detail – covering information such as the name of the job, significance of the project (such as size and cost), your role in the project and the key actions you took or responsibilities you had and factors contributing to the complexity of engineering work involved. You need only make reference to this element (or other documents) when using the same work as your example in subsequent elements – although you need to highlight the specific activity relevant to the element (e.g. analytical skills, management skills or risk management as appropriate).

7. Registration requires evidence of current competence in engineering . Engineers in engineering management roles (engineers managing engineering related projects or businesses) are still considered to be 'in engineering '. If your role is in engineering management you may interpret engineering problems as the the engineering management problems'. You should also make reference to your engineering management role in your practice area description.

8. Minimum of two (2) Work samples are 'good evidence ' for assessment and are now required for both AFAs and CRAs. The number of work samples you should submit will depend on the extent each work sample demonstrates competence across the standard . Ideally you would submit sufficient work samples to demonstrate competence across all 12 elements.

ELEMENT ONE – KNOWLEDGE		
PE	Comprehend and apply knowledge of the accepted principles underpinning widely applied good practice in professional engineering (Washington Accord degree level)	Provide annotations to your evidence portfolio / work sample document and paragraph number
ET	Comprehend and apply knowledge underpinning good practice as an engineering technology practitioner (Sydney Accord degree level)	
ETn	Comprehend and apply detailed knowledge underpinning good practice as an engineering technician (Dublin Accord qualification level)	
PERFORMANCE INDICATORS FOR PROFESSIONAL ENGINEER **Has a Washington Accord degree or recognised equivalent qualification or has demonstrated equivalent knowledge and is able to:**		
i. *Identify, comprehend and apply appropriate engineering knowledge*		
ii. Work from first principles to make reliable predictions of outcomes		
iii. Seek advice, where necessary, to supplement own knowledge and experience		
iv. *Read literature, comprehend, evaluate and apply new knowledge*		

ELEMENT TWO – LOCAL KNOWLEDGE		
PE	Comprehend and apply knowledge of the accepted principles underpinning good practice for professional engineering that is specific to the jurisdiction in which he/she practices (PNG)	Provide annotations to your evidence portfolio / work sample document and paragraph number
ET	Comprehend and apply knowledge underpinning good practice as an engineering technology practitioner that is specific to the jurisdiction in which he/she practices (PNG)	
ETn	Comprehend and apply detailed knowledge underpinning good practice as an engineering technician that is specific to the jurisdiction in which he/she practices (PNG)	
PERFORMANCE INDICATORS FOR PROFESSIONAL ENGINEER		
i. Demonstrates an awareness of legal requirements and regulatory issues within the jurisdiction which he/she practices. ii. Demonstrates an awareness of and applies appropriately the special engineering requirements operating within the jurisdictions in which he/she practices.		

ELEMENT THREE – ANALYSE PROBLEMS		
PE	Define, investigate and analyse ***complex engineering problems*** in accordance with good practice for professional engineering	Provide annotations to your evidence portfolio / work sample document and paragraph number
ET	Identify, clarify and analyse ***broadly – defined engineering problems*** in accordance with good engineering practice.	
ETn	Identify, state and anlyse well-defined engineering problems in accordance with good practice for engineering	
PERFORMANCE INDICATORS FOR PROFESSIONAL ENGINEER		
i. Identifies and defines the scope of the problem		
ii. Investigates and analyses relevant information using quantitative and qualitative technique		
iii. Tests analysis for correctness of results		
iv. Conducts any necessary research and reaches substantiated conclusions		

ELEMENT FOUR – DESIGN OR DEVELOP SOLUTIONS		
PE	Design or develop solution to ***complex engineering problems*** in accordance with good pr actice for professional engineering	Provide annotations to your evidence portfolio / work sample document and paragraph number
ET	Design or develop solutions to ***broadly-defined engineering problems*** by applying accepted procedures and methodologies	
ETn	Design or develop solutions to ***well-defined engineering problems*** by applying accepted procedures and methodologies	
PERFORMANCE INDICATORS FOR PROFESSIONAL ENGINEER		
i. Identifies needs, requirements, constraints and performance criteria		
ii. Develops concepts and recommendations that were tested against engineering principles		
iii. Consults with stakeholders		
iv. Evaluates options and selects solution that best matched needs, requirements and criteria		
v. Plans and implements effective, efficient and practical systems or solutions		
vi. Evaluates outcome		

ELEMENT FIVE – DECISION MAKING		
PE	Be responsible for making decisions on part or all of one or more ***complex engineering activities***	Provide annotations to your evidence portfolio / work sample document and paragraph number
ET	Be responsible for making decisions on part or all of ***broadly-defined engineering activities***	
ETn	Be responsible for making decisions on part or all of one or more ***well-defined engineering activities***	
PERFORMANCE INDICATORS FOR PROFESSIONAL ENGINEER		
i. Takes accountability for his/her outputs and for those for whom he/she is responsible		
ii. Accepts responsibility for his/her engineering activities		

ELEMENT SIX – MANAGEMENT		
PE	Manage part or all of one or more ***complex engineering activities*** in accordance with good engineering management practice	Provide annotations to your evidence portfolio / work sample document and paragraph number
ET	Manage part or all of one or more ***broadly-defined engineering activities*** in accordance with good engineering engineering management practice	
ETn	Manage part or all of one or more ***well-defined engineering activities*** in in accordance with good engineering management practice	
PERFORMANCE INDICATORS FOR PROFESSIONAL ENGINEER		
i.	Plans, schedules and organises projects to deliver specified outcomes	
ii.	Applies appropriate quality assurance techniques	
iii.	Manages resources, including personnel, finance and physical resources	
iv.	Manages conflicting demands and expectations	

ELEMENT SEVEN – RISK MANAGEMENT		
PE	Identify, assess and manage engineering risk (in the context of ***complex engineering problems***	Provide annotations to your evidence portfolio / work sample document and paragraph number
ET	Identify risks and apply risk management techniques to ***broadly-defined engineering problems***	
ETn	Identify risk and apply risk management techniques to ***well-defined engineering problems***	
PERFORMANCE INDICATORS FOR PROFESSIONAL ENGINEER		
i. Identifies risks *ii. Develops risk management policies, procedures and protocols to manage safety and hazards* iii. *Manages risks through 'elimination, minimisation and avoidance techniques*		

ELEMENT EIGHT – ETHICAL CONDUCT		
PE ET and ETn	Conduct engineering activities to an ethical standard at least equivalent to the relevant code of ethical conduct	Provide annotations to your evidence portfolio / work sample document and paragraph number
PERFORMANCE INDICATORS FOR PROFESSIONAL ENGINEER		
i. Demonstrates understanding of IEPNG and/or CPEng Codes of Ethics		
ii. Behaves in accordance with the relevant code of ethics even in difficult circumstances (includes demonstrating an awareness of limits of capability; acting with integrity and honesty and demonstrating self management)		

ELEMENT NINE – RECOGNISE FORESEEABLE EFFECTS		
PE	Recognise the reasonably foreseeable social, cultural and environmental effects of ***professional engineering activities*** generally	Provide annotations to your evidence portfolio / work sample document and paragraph number
ET	Recognise the reasonably foreseeable social, cultural and environmental effects of ***broadly-defined engineering activities*** generally	
ETn	Recognise the reasonably foreseeable social, cultural and environmental effects of ***well-defined engineering activities*** generally	
PERFORMANCE INDICATORS FOR PROFESSIONAL ENGINEER		
i. Considers and, where needed, takes into account health and safety compliance issues and mpact(s) on those affected by engineering activities		
ii. Considers and takes into account possible social, cultural and environmental impacts and		
iii. Recognises impact and long-term effects of engineering activities on the environment		
iv. Recognises foreseeable effects and where practicable seeks to reduce adverse effects		

ELEMENT TEN – COMMUNICATION		
PE	Communicate clearly with other engineers and others that he or she is likely to deal with in the course of his or her **professional engineering activities**	Provide annotations to your evidence portfolio / work sample document and paragraph number
ET	Communicate clearly with others in the course of ***broadly defined engineering activities***	
ETn	Communicate clearly with others in the course of his/her ***well defined engineering activities***	
PERFORMANCE INDICATORS FOR PROFESSIONAL ENGINEER		
i.	*Uses oral and written communication to meet the needs and expectations of his/her audience*	
ii.	*Communicates using a range of media suitable to the audience and context*	
iii.	*Treats people with respect*	
iv.	*Develops empathy and uses active listening skills when communicating with others*	
v.	Operates effectively as a team member	

ELEMENT ELEVEN – MAINTAIN CURRENCY		
PE ET and ETn	Maintain the currency of his or her engineering knowledge and skills	Provide annotations to your evidence portfolio / work sample document and paragraph number
PERFORMANCE INDICATORS FOR PROFESSIONAL ENGINEER		
i.	Demonstrates a commitment to extending and developing knowledge and skills	
ii.	*Participates in education, training, mentoring or other programmes contributing to his/her professional development*	
iii.	*Adapts and updates knowledge base in the course of professional practice*	
iv.	*Demonstrates collaborative involvement with professional engineers (Engineers for CPEng assessments)*	

ELEMENT TWELVE – JUDGEMENT		
PE	Exercise sound **professional** engineering judgement	Provide annotations to your evidence portfolio / work sample document and paragraph number
ET and ETn	Exercise sound engineering judgement	
PERFORMANCE INDICATORS FOR PROFESSIONAL ENGINEER		
i. Demonstrates the ability to identify alternative options		
ii. Demonstrates the ability to choose between options and justify decisions		
iii. Peers recognise his/her ability to exercise sound professional engineering judgement		

DEFINITIONS:

Professional Engineer **CPEng, IntPE, MIEPNG** **(PE)**	**Engineering Technologist** **ETPract, IntET, TIEPNG** **(ET)**	**Engineering Technician** **CertETn, Companion** **(ETn)**
Complex engineering activities or projects have some or all of the following characteristics: ▪ Involve the use of diverse resources (and, or this purpose, **resources** includes people, money, equipment, materials and technologies); ▪ Require resolution of critical problems arising from interactions between wide-ranging technical, engineering and other issues; ▪ Have significant consequences in a range of contexts; ▪ Involve the use of new materials, techniques, or processes or the use of existing materials, techniques, or ▪ processes in innovative ways	**Broadly defined engineering activities** or projects have some or all of the following characteristics: ▪ Involve a variety of resources (and for this purpose resources includes people, money, equipment, materials, information and technologies) ▪ Require resolution of occasional ▪ interactions between limited technical,engineering and other issues, of which few are conflicting ▪ Involve the use of new materials, ▪ techniques, or processes in innovative ways ▪ Have consequences that are most ▪ important locally, but may extend more widely ▪ Require a knowledge of normal operating procedures and processes	**Well-defined engineering activities** or projects have some or all of the following characteristics: ▪ Involve a limited range of resources (and for this purpose resources includes people, money, equipment, materials, information and technologies) ▪ Require resolution of interactions between limited technical and engineering issues with little or no impact of wider issues ▪ Involve the use of existing materials techniques, or processes in new ways ▪ Have consequences that are locally important and not far-reaching ▪ Require a knowledge of practical ▪ procedures and practices for widely applied operations and processes
Complex engineering problems have some or all of the following characteristics: ▪ Involve wide-ranging or conflicting ▪ technical, engineering, and other issues ▪ Have no obvious solution and require originality in analysis; ▪ Involve frequently encountered issues • Are outside problems encompassed by standards and codes of practice for professional engineering ▪ Involve diverse groups of ▪ stakeholders with widely varying needs ▪ Have significant consequences in a range of contexts ▪ Cannot be resolved without in-depth engineering knowledge	**Broadly defined engineering problems** have some or all of the following characteristics: ▪ Involve a variety of factors which may ▪ Impose conflicting constraints; ▪ Can be solved by application of well-proven analysis techniques; ▪ Requires knowledge of principles and ▪ Applied procedures or methodologies; ▪ Belong to families of familiar problems which are solved in well-accepted ways ▪ May be partially outside those ▪ encompassed by standards or codes of practice ▪ Involve several groups of stakeholders with differing and occasionally conflicting needs ▪ Have consequences which are important locally but may extend more widely ▪ Are parts of, or systems within complex engineering problems	**Well-defined engineering problems** have some or all of the following characteristics: ▪ Involve several issues, but with few of these exerting conflicting constraints, ▪ Can be solved in standardised ways ▪ Can be resolved using limited theoretical knowledge but normally ▪ Requires extensive practical knowledge ▪ Are frequently encountered and thus ▪ Familiar to most practitioners in the practice area ▪ Are encompassed by standards and/or ▪ Documented codes of practice ▪ Involve a limited range of stakeholders with differing needs ▪ Have consequences which are locally important and not far-reaching ▪ Are discrete components of engineering systems