**THE INSTITUTION OF ENGINEERS PAPUA NEW GUINEA INC.**

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***COMPETENCE SELF REVIEW (FORM CA03)***

**Name of**

**Applicant:** Click here to enter text.

**GENERAL GUIDANCE NOTES**

**Membership**

**number :**Click here to enter text.

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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 two examples for each element of the relevant

competence standard that you believe shows you meet the requirements for each

element of the standard in your practice area.

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?’

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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 ‘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.

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| **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 (  document and  page number)  Click here to enter text.  Click here to enter text.  Click here to enter text.  Click here to enter text. |
| **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:** | |
| 1. *Identify, comprehend and apply appropriate engineering knowledge*   Click here to enter text.   1. *Work from first principles to make reliable predictions of outcomes*   Click here to enter text.   1. *Seek advice, where necessary, to supplement own knowledge and experience*   Click here to enter text.   1. *Read literature, comprehend, evaluate and apply new knowledge*   Click here to enter text. | |

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| **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  (document  and page  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** | | Click here to enter text.  Click here to enter text. |
| i) Demonstrates an awareness of legal requirements and regulatory issues within the jurisdictions in which  he/she practices  Click here to enter text.  ii) Demonstrates an awareness of and applies appropriately the special engineering requirements  operating within the jurisdictions in which he/she practices.  Click here to enter text. | |

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| **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  (document  and page  number) |
| **ET** | Identify, clarify and analyse***broadly-defined engineering problems*** in accordance with good engineering practice |
| **ETn** | Identify, state and analyse***well-defined engineering problems*** in accordance with good practice for engineering |
| **PERFORMANCE INDICATORS FOR PROFESSIONAL ENGINEER** | | Click here to enter text.  Click here to enter text.  Click here to enter text. |
| i,)       Identifies and defines the scope of the problem  Click here to enter text.  ii)        Investigates and analyses relevant information using quantitative and qualitative techniques  Click here to enter text.  iii)      Tests analysis for correctness of results  Click here to enter text.  iv)           Conducts any necessary research and reaches substantiated conclusions  Click here to enter text. | |

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| **ELEMENT FOUR – DESIGN OR DEVELOP SOLUTIONS** | | |
| **PE** | Design or develop solution to***complex engineering problems*** in accordance with good practice for professional  engineering | Provide  annotations to  your evidence  portfolio  (document  and page  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** | | Click here to enter text.  **Click here to enter text.**  Click here to enter text.  Click here to enter text.  Click here to enter text.  Click here to enter text. |
| 1. Identifies needs, requirements, constraints and performance criteria   Click here to enter text.   1. Develops concepts and recommendations that were tested against engineering principles   Click here to enter text.   1. Consults with stakeholders   Click here to enter text.   1. Evaluates options and selects solution that best matched needs, requirements and criteria   Click here to enter text.   1. Plans and implements effective, efficient and practical systems or solutions   Click here to enter text.   1. Evaluates outcome   Click here to enter text. | |

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| **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  (document  and page  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** | | Click here to enter text.  Click here to enter text. |
| 1. Takes accountability for his/her outputs and for those for whom he/she is responsible   Click here to enter text.   1. Accepts responsibility for his/her engineering activities   Click here to enter text. | |

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| **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  (document  and page  number) |
| **ET** | Manage part or all of one or more***broadly-defined engineering activities*** in accordance with good  engineering management practice |
| **ETn** | Manage part or all of one or more***well-defined engineering activities*** in accordance with good  engineering management practice |
| **PERFORMANCE INDICATORS FOR PROFESSIONAL ENGINEER** | | Click here to enter text.  Click here to enter text.  Click here to enter text.  Click here to enter text. |
| 1. Plans, schedules and organises projects to deliver specified outcomes   Click here to enter text.   1. Applies appropriate quality assurance techniques   Click here to enter text.   1. Manages resources, including personnel, finance and physical resources   Click here to enter text.   1. Manages conflicting demands and expectations   Click here to enter text. | |

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| **ELEMENT SEVEN – RISK MANAGEMENT** | | |
| **PE** | Identify, assess and manage engineering risk (in the context of***complex engineering problems*** | Provide  annotations to  your evidence  portfolio  (document  and page  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** | | Click here to enter text.  Click here to enter text.  Click here to enter text. |
| 1. *Identifies risks*   Click here to enter text.   1. *Develops risk management policies, procedures and protocols to manage safety and hazards*   Click here to enter text.   1. *Manages risks through ‘elimination, minimisation and avoidance techniques*   Click here to enter text. | |

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| **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  (document  and page  number) |
| **PERFORMANCE INDICATORS FOR PROFESSIONAL ENGINEER** | | Click here to enter text.  Click here to enter text. |
| 1. Demonstrates understanding of IEPNG and/or CPEng codes of ethics   Click here to enter text.   1. 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)  Click here to enter text. | |

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| **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  (document  and page  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** | | Click here to enter text.  Click here to enter text.  Click here to enter text.  Click here to enter text. |
| 1. Considers and, where needed, takes into account health and safety compliance issues and   mpact(s) on those affected by engineering activities  Click here to enter text.   1. Considers and takes into account possible social, cultural and environmental impacts and   Click here to enter text.   1. Recognises impact and long-term effects of engineering activities on the environment   Click here to enter text.   1. Recognises foreseeable effects and where practicable seeks to reduce adverse effects   Click here to enter text. | |

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| **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  (document  and page  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** | | Click here to enter text.  Click here to enter text.  Click here to enter text.  Click here to enter text.  Click here to enter text. |
| 1. *Uses oral and written communication to meet the needs and expectations of his/her audience*   Click here to enter text.   1. *Communicates using a range of media suitable to the audience and context*   Click here to enter text.   1. *Treats people with respect*   Click here to enter text.   1. *Develops empathy and uses active listening skills when communicating with others*   Click here to enter text.  Operates effectively as a team member  Click here to enter text. | |

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| **ELEMENT ELEVEN – MAINTAIN CURRENCY** | | |
| **PE, ET**  **and**  **ETn** | Maintain the currency of his or her engineering knowledge and skills | Page  reference of  relevant work  history, CPD or  work sample  evidence. |
| **PERFORMANCE INDICATORS FOR PROFESSIONAL ENGINEER** | | Click here to enter text.  Click here to enter text.  Click here to enter text.  Click here to enter text. |
| 1. Demonstrates a commitment to extending and developing knowledge and skills   Click here to enter text.   1. *Participates in education, training, mentoring or other programmes contributing to his/her*   *professional development*  Click here to enter text.   1. *Adapts and updates knowledge base in the course of professional practice*   Click here to enter text.   1. *Demonstrates collaborative involvement with professional engineers (Engineers for CPEng*   *assessments)*  Click here to enter text. | |

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| **ELEMENT TWELVE – JUDGEMENT** | | |
| **PE** | Exercise sound**professional** engineering judgement | Provide  annotations to  your evidence  portfolio  (document  and page  number) |
| **ET**  **and**  **ETn** | Exercise sound engineering judgement |
| **PERFORMANCE INDICATORS FOR PROFESSIONAL ENGINEER** | | Click here to enter text.  Click here to enter text.  Click here to enter text. |
| 1. Demonstrates the ability to identify alternative options   Click here to enter text.   1. Demonstrates the ability to choose between options and justify decisions   Click here to enter text.   1. Peers recognise his/her ability to exercise sound professional engineering judgement   Click here to enter text. | |

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| **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, for 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  infrequently 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 |

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