



CANDIDATE GUIDE

***BE RESPONSIBLE FOR
MAKING DECISIONS***

OUTCOME 10

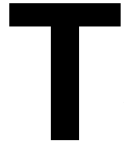


TABLE OF CONTENTS

PAGE NO.

CANDIDATE INFORMATION	4
COMPETENCY STANDARD REQUIREMENTS	5
KEYS TO ICONS	6
GENERAL GUIDELINES	7
CANDIDATE SUPPORT	9
SECTION 1: AN INTRODUCTION TO BEING RESPONSIBLE FOR MAKING DECISIONS RELATING TO ENGINEERING ACTIVITIES	10
1.1. An Introduction to Outcome 10	
1.2. What are Engineering Activities?	
1.3. Making Decisions	
1.4. Being Responsible	
INITIAL TEST	

SECTION 2: A PRACTICAL DECISION-MAKING AND RESPONSIBILITY 22

MODEL AS PER THE ASSESSMENT CRITERIA

2.1. Introduction

2.2. Steps in being responsible and making decisions

STEP 1: Demonstrate a professional approach at all times

STEP 2: Have due regard to technical, social, environmental and sustainable development considerations; seek advice from a responsible authority on any matter considered to be outside area of competence

STEP 3: Make decisions on and take responsibility for work output

ASSESSMENT TEST

SECTION 3: GENERIC GUIDELINES: LEARNING OUTCOMES AND 30

ASSESSMENT CRITERIA ARE THE GUIDING PRINCIPLES OF

PROFESSIONAL PRACTICE

APPENDICES 32

REFERENCES 38

RECORDING OF REPORTS 40

ASSESSMENT PROCESS 41

CANDIDATE INFORMATION

Details	Please Complete details
Name of candidate	
Name of supervisor	
Work Unit	
Name of mentor	
Date started	
Date of completion & Assessment	

COMPETENCY STANDARD REQUIREMENTS

(Direct extract from SAIMEchE's Standard of Professional Competency)

LEARNING OUTCOME 10

Be responsible for making decisions on part or all of complex engineering activities.

Assessment Criteria:

1. Demonstrates a professional approach at all times
2. Has due regard to technical social, environmental and sustainable development considerations; seeks advice from a responsible authority on any matter considered to be outside area of competence
3. Makes decisions on and takes responsibility for work output








Range Statement:

The candidate is expected to demonstrate adequately discharging responsibility for significant parts of a one or more complex engineering activity.

Note 1: While the Candidate may not have taken actual responsibility for the work due to statutory or other requirements for a professional to take such responsibility, the Candidate must show evidence of responsible recommendations and judgement.

K EYS TO ICONS

The following icons are used throughout the study guide to indicate specific functions:

	<p>DON'T FORGET/NOTE This icon indicates information of particular importance</p>
	<p>CANDIDATE GUIDE This refers to the learning material in this module which is aligned to the ECSA Standard</p>
	<p>EXERCISES Practical activities to do, either individually or in syndicate groups during the training process</p>
	<p>BOOKS AND WEBSITES Additional resource information for further reading and reference</p>
	<p>SELF TEST QUESTIONS Self-evaluation for candidates to test understanding of the learning material</p>
	<p>QUOTATIONS Quotations which offer interesting points of view and statements of wisdom and insight</p>
	<p>YOUR NOTE PAD Provided for candidate to document notes during presentation of training</p>

GENERAL GUIDELINES

PURPOSE

This module provides an introduction to the basic concepts that you will need to understand when taking responsibility for making decisions relating to engineering activities. Easy to follow steps based on the assessment criteria of the competency standard will equip you with the skills to:

1. Understand the meaning of “engineering activities”
2. Know the definitions and major concepts relating to making decisions
3. Understand the process of taking responsibility and making decisions related to these engineering activities
4. Follow the assessment criteria steps when working in a practical commercial environment



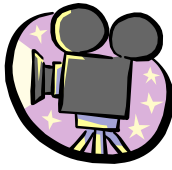
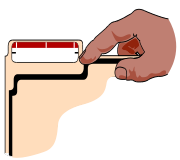
This module introduces you to these responsibilities and decision-making concepts and criteria. While it may be impossible and impractical to present in this module all the guidelines pertaining to engineering practice, certain issues of relevance will be highlighted and discussed. You, the candidate, are expected to expand your awareness of this process through workplace projects and further reading and learning.

Candidates will have the opportunity to discuss and debate responsibility and decision-making issues during the workshop, and thereby understand and be better equipped to use these concepts and processes in the workplace.

LEARNING OUTCOME AND RANGE OF LEARNING

This programme uses the basic structure of SAIMEchE's Competency Standard and specifically the assessment criteria to take you through the process of learning, as an understanding of the assessment criteria and the range of understanding required is fundamental to professional competence.

CANDIDATE SUPPORT

Resources	<p>Candidate Guide</p> 	<p>The Candidate Guide is a manual covering the theory of the comprehension and development of advanced knowledge, and provides guidance on practical exercises to meet the requirements of the assessment criteria</p>
	<p>Candidate Portfolio of Evidence Guide</p>	<p>This is a separate document which provides guidelines for Candidates on how to compile their portfolio of evidence, and a template to structure their practical task evidence into a file format for assessment by the mentor/referee</p>
	<p>Books and websites</p> 	<p>Refer to references at the end of the Candidate Guide</p>
	<p>Videos</p> 	<p>Refers to any videos that are regarded as relevant to the subject</p>
	<p>Folder enclosures</p> 	<p>This includes all handouts, checklists, etc. SAIMEchE's Code of Conduct</p>

SECTION 1

***BE RESPONSIBLE FOR
MAKING DECISIONS***

LEARNING OUTCOMES:

- Define and describe what is meant by “engineering activities”
- Understand the concept of making decisions
- Be aware of the need to take responsibility

1.0. BE RESPONSIBLE FOR MAKING DECISIONS

1.1. An introduction to Outcome 10

1.1.1. Functional Outcomes

Outcome 10 is in effect the last of the “functional” Outcomes. Let me explain what I mean by discussing Outcome 11 for a moment. The basic statement for Outcome 11 is “Undertake professional development activities sufficient to maintain and extend his or her competencies.” This will be done by participating in activities such as workshops, seminars and other accepted activities that increase the competent engineer’s knowledge, help develop new skills and generally keep the engineer up-to-date in the specific chosen areas. How this is effectively done, will be indicated during the workshop on Outcome 11, but it is not a daily activity or practise being used by the engineer during the process of performing his or her work whereas all the other Outcomes refer to competencies that could be used at any time, on any given day, in the work life of a functioning and competent engineer.

Outcomes 1 to 10 should, and will, become second nature to the competent engineer as he/she performs his/her work activities; they are part of the competent engineer’s “toolbox” and the very essence of what defines a competent engineer. Outcome 11 ensures that the engineer maintains and enhances his/her knowledge, skills and keeps up-to-date.

1.1.2. Interrelatedness

It is appropriate at this point in the programme to acknowledge again the interrelatedness of all the Outcomes. This point was made in the Introductory Workshop but will be repeated again for emphasis. The Outcomes are not meant to be stand-alone units to be used in an isolated nature, but to be used as a interrelated and connected set of skills that inform and support each other in the process of being a competent engineer. They are not meant to be a set of

linear steps taken in the order presented, though they could be used in that way. They may be better described in a circular fashion, as indicated below, so that the possibility of constant cross-referencing and use is clearly seen. Each Outcome draws from the others and informs the rest in the dynamic interconnected process of performing the function of competent engineering. As we develop the content of this Outcome, it is important to relate as much as we can to all the other Outcomes and become conscious of the constant reference and connectedness of the Outcomes as a system, and not just a linear step-by-step unidirectional process. For this reason, we will be making reference continuously during the workshops to the other Outcomes and pointing out their interrelatedness so as to draw them all together into a functional interacting and connected system that will inform the competent engineer in an on-going manner.

During any given working day the competent professional engineer may come across a situation in which he will have to use any of the professional competencies that he has acquired. He may use one of them, or any number of them, in various combinations. This dynamic interaction is what is known as taking a competent professional approach, as all factors that may impact on any given situation are taken into account.

At this point, it is also useful to remind you that documenting whatever you have done during this dynamic process on an on-going and regular basis will be of great assistance in producing your Portfolio of Evidence (PoE) which serves as the demonstration of your professional competence once it is signed off by your Supervisor and Mentor. Any email, spreadsheet, report or note related to the project at hand that indicates that you have made a calculation, used your judgement and taken responsibility for making a decision, will be invaluable evidence of your competency, once included in your PoE.

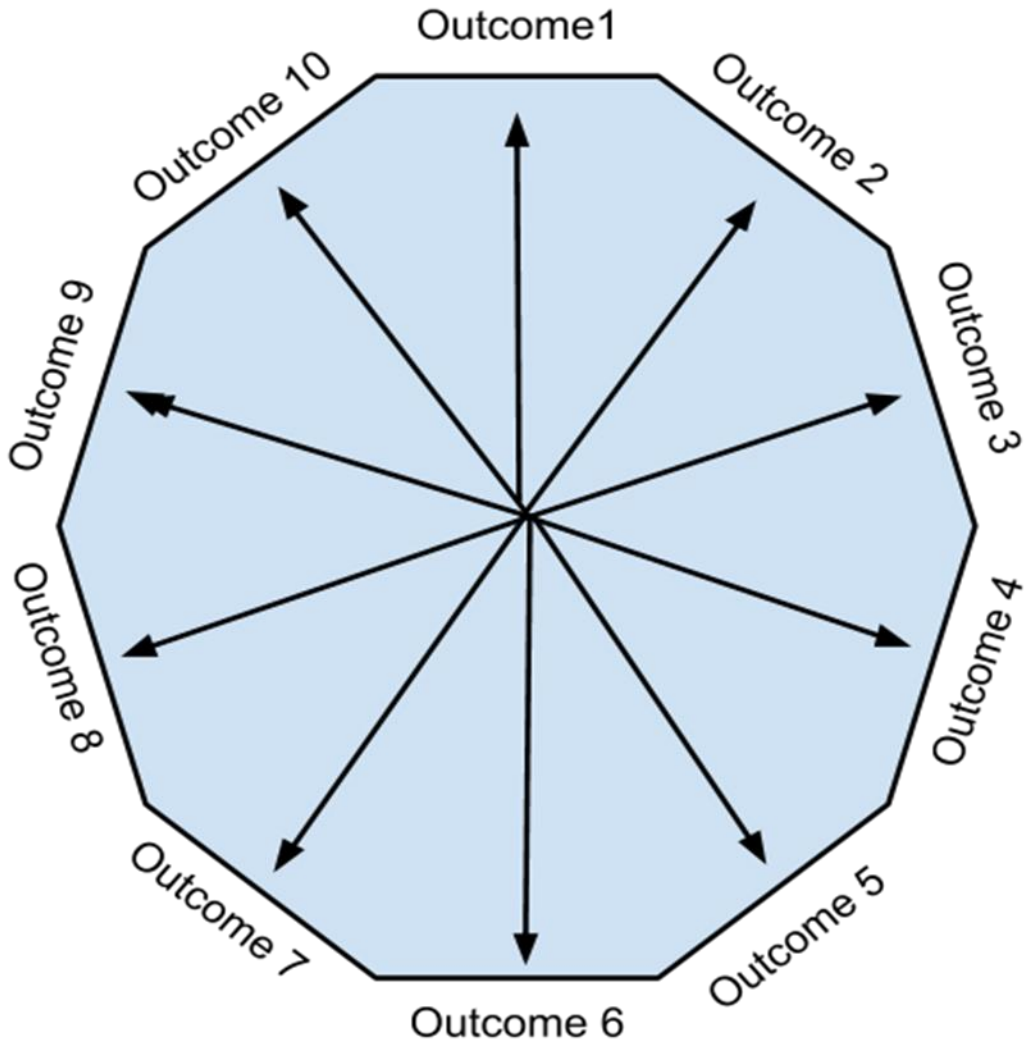


Diagram illustrating the dynamic relationship of all the Outcomes

1.2. What are Engineering Activities?

Once again we will briefly remind you of what has already been stated in Outcome 4 and 5.

1.2.1. Activity

The dictionary definition is “exertion of energy, the state or quality of being active”. This has a wonderful engineering flavour as engineering is about energy, about getting something done or made. So here we are dealing with work, an activity requiring energy and therefore direction and focus.

But we are not just talking about any activity; we are talking about engineering activities.

1.2.2. What are engineering activities?

Let us go back to Outcome 2 for the definition we used of engineering and then develop that towards engineering activities.

The American Engineers' Council for Professional Development has defined "engineering" as: “The creative application of scientific principles to design or develop structures, machines, apparatus, or manufacturing processes, or works utilizing them singly or in combination; or to construct or operate the same with full cognizance of their design; or to forecast their behaviour under specific operating conditions; all as respects an intended function, economics of operation or safety to life and property”.

So what activities can we identify that relate to the above definition? Here we turn once again to the Competency Standard, as all the activities identified in the Standard are the primary engineering activities of a competent professional. These are:

1. Define, investigate and analyse
2. Design or develop solutions
3. Comprehend and apply advanced knowledge
4. Manage
5. Communicate clearly
6. Recognise social, cultural and environmental effects
7. Meet all legal and regulatory requirements
8. Act ethically
9. Exercise sound judgement
10. Be responsible for making decisions (the subject of this workshop)
11. Undertake professional development activities

The above activities will form the framework within which many sub-activities can be placed and it is to these that we will refer when speaking of engineering activities. Activities include, but are not limited to: design, planning, investigation and problem resolution; improvement of materials, components, systems or processes; manufacturing or construction, maintenance and project management; research and development. Further activities include computer-aided design, modelling for theoretical development, machine-shop fabrication. In relation to this specific Outcome, activities will include taking responsibility and making decisions.

1.3. Making Decisions

1.3.1. Decision

The Oxford Concise Dictionary (New Edition) definition is: “Settlement, conclusion, formal judgement, resolution or in more colloquial language, “making up one’s mind””. A related word is “decide”, which further confirms the need to make a judgement (Outcome 9) or come to a resolution. If one decides, one settles a question or a dispute or some issue. You choose between options, make a judgement and settle in favour of one path over another. And so a decisive battle would be a battle that is conclusive and brings a dispute to an end.

1.3.2. Decision-making and problem-solving

The first step in many decision-making models is to “define the problem”. This links us immediately to Outcome 1 which states: “define, investigate and analyse engineering problems”. Once the problem has been defined, the decision-making process can begin. Below is a model taken from “Organizational Behaviour”, which is a very effective, rational decision-making model consisting of 6 steps:

1. Define the problem
2. Identify the decision criteria
3. Allocate weights to the criteria
4. Develop the alternatives
5. Evaluate the alternatives
6. Select the best alternative

It can be seen that these steps are closely related to the process indicated in Outcome 2. Once again we see that the Outcomes are interconnected and support each other.

1.3.3. Rational decision making

The above model has been called a rational model. This model is based on reason and developed to avoid irrational or emotional decisions being taken. Engineering is based on logical reasoned arguments and the use of observable factors and criteria to inform the process and come to a situation where a decision can be taken based on this information.

This is the ideal. In the real world, this is not always possible due to time, financial and other constraints. Let us look at some of the factors that influence the process and their impact.

1.3.3.1. Intuition:



For our purpose, we define intuitive decision-making as an unconscious process created out of distilled experience. It doesn't necessarily operate independently of rational analysis; rather, the two complement each other.

Robbins, 2001

It is critical to take note of the word “experience” in this quotation. It is only possible to make decisions intuitively when you have gained sufficient experience, which can inform you when decisions have to be made quickly and on the run. Having “a gut feeling” about something is not to be ignored, but needs to be based on a solid foundation of related experience.

1.3.3.2. Assumptions:

It is of great importance to always be aware of what assumptions are being made during the process of problem definition, solution development and final selection. The underlying assumptions may not always be true in a real situation and this can impact on the wisdom of the final decision.

1.3.3.3. Perceptions:



What one perceives can be substantially different from objective reality.

Robbins, 2001

This means that great care must be taken when making decisions. It is also true to say that the “objective reality” that one person perceives, may be significantly different from that which another person perceives. Information needs to be carefully checked so as to reduce the impact of perception to a minimum.

1.3.3.4. Emotional Intelligence:

There is a common misperception that engineers are always totally rational in their thinking patterns and in the way they make decisions. This is the ideal, but unfortunately not the reality. Many practices, methods and systems have been put in place to work towards this ideal, but what is more important is that we need to be constantly aware that we are often driven in our decision-making process by perceptions, emotions and politics. We have dealt with perceptions above and will deal with politics next, but let us now have a look at the role of emotions and the concept of emotional intelligence. We are emotional beings and have feelings, which we express in different ways. Just go to a rugby match at Loftus in Pretoria when the Blue Bulls are playing the Sharks and you will become very aware of strong human emotions in the stands!

Emotional intelligence is related to the ability to be in touch with what you are feeling and to be able to respond in a controlled and directed way so that the emotion will not impact negatively on the quality of the decision you make. External events take place outside of our control in most instances and the way we react to these events determines our level of emotional intelligence and the level to which we will allow those events to impact on our decision-making. The key words here are “awareness”, “conscious responses” and “action”.

1.3.3.5. Politics:

Politics is a very real and inescapable part of life in any community. All workplace organisations are communities of varying sizes and are therefore subject to political manipulation to one extent or another. A Competent Engineer will find himself in a position where he will be required to make a decision under the influence of some political position, and will have to use his judgment to determine the impact this may have on the solution. He will once again have to be aware of the impact from a legal, social, environmental and ethical perspective. He needs to specifically be aware of the obligations he has to protect the health

and safety of the public within the wider national community. And he needs to be aware of ethical considerations in terms of the Engineer's Code of Conduct.

1.3.3.6. Ethics:

This topic has been fully covered under Outcome 8: "Conduct his or her engineering activities ethically", but is included here as a reminder that the process of working with the Competency Standard is a holistic circular one and that at any time in the activity of an engineer, any one of the Outcomes may need to be considered when making a decision. The ethical aspects will be continually in the background shining a spotlight on the proceedings so as to keep all activities and decisions clear and within the boundaries of the Engineer's Code of Conduct.

1.4. Being Responsible

The main focus of Outcome 10 has been on making decisions and making them within the context of all the other Outcomes as they apply to the working environment of a Competent Engineer.

Let us look at the dictionary definition of "responsibility":

1. Liable to be required to give account, as of one's actions or of the discharge of a duty or trust
2. Involving personal accountability or ability to act without guidance or superior authority
3. Required to render account; answerable

<http://www.thefreedictionary.com/responsible>

Being responsible therefore means, if we combine some of the words above, that a competent professional engineer will be required to give account of his actions when acting without

guidance from a higher authority. To use a colloquial expression attributed to one of the American Presidents: “the buck stops here”. In the final analysis the responsibility and accountability rests on your shoulders.

Engineers have a significant responsibility to ensure that the development of the built environment takes account of many regulatory and non-regulatory issues affecting the public at large (developed in Outcome 7).

This places a significant degree of responsibility on the Engineer with the accompanying challenges of having to evaluate and mitigate risk, and the need to take steps to overcome negative effects that might follow from the solutions that are developed.



GROUP DISCUSSION

Answer question 1 and then select another from the list below:

1. What factors do you take into account when deciding which movie you will go to see?
2. Discuss the words “responsible” and “accountable”. Is there any difference between them?
3. Who is responsible for the success of the Springbok rugby team? Who is ultimately accountable?
4. What is the Project Leader for “Build a new power station” responsible for?
5. Discuss “assumptions”, “perceptions” and “emotional intelligence”.
6. Discuss “imagination”, “intuition” and “rationality”.

SECTION 2

A PRACTICAL RESPONSIBILITY AND DECISION-MAKING MODEL

LEARNING OUTCOMES:

- Understand the practical steps to be taken when making decisions
- Be competent in using the steps to make decisions and take responsibility
- Be prepared to apply this process in the workplace on a regular and routine basis

2.0. A PRACTICAL RESPONSIBILITY AND DECISION-MAKING MODEL

2.1. Introduction

This section will take you through the steps of the assessment criteria which form the basis of a practical model which can be effectively used on an on-going basis when taking responsibility and making decisions.

2.2 Steps in taking responsibility and making decisions

Step 1: Demonstrate a professional approach at all times

The first step in a professional approach is ensuring that you have the competencies required. Being competent in this context means “having the attributes necessary to perform the activities within the profession or occupation to the standard expected in independent practise” (IEA definition). The attributes necessary are clearly indicated and defined in this programme as those listed in the SAIMEchE Standard of Professional Competency. They are defined as the 11 Outcomes within this Standard. The Professional Development Programme (PDP) is designed to develop these competencies while a candidate is operating within a work environment from which all projects will be selected and assessed by the Supervisors and the Mentors. An ability to perform these activities to the standard required by the assessment criteria will enable you to demonstrate a professional approach.

This is expected to be apparent at all times during the course of all work-related activities. The application of these competencies at all times needs to become a practice that is part of a competent professional engineer’s “way of life”. It needs to become intuitive and instinctive to the extent that it becomes “second nature”.

Professional behaviour for lawyers:

<http://www.paed.uscourts.gov/documents/procedures/shapolj.pdf>

Read this together with the “Engineer’s Code of Conduct” and see if you find any links.

Read the following from New Zealand Professional Engineers for another view of being a professional:

http://www.ipenz.org.nz/IPENZ/Registration/What_is_an_Professional_Engineer.cfm

Step 2: Have due regard to technical social, environmental and sustainable development considerations; Seek advice from a responsible authority on any matter considered to be outside area of competence

A competent professional engineer has due regard, i.e. is aware of or takes notices of technical, social, environmental and sustainable development considerations. These items are extensively covered in Outcome 6 but in order to once again illustrate the interlinking nature of the Outcomes we will briefly look at these aspects within the context of being responsible for making decisions.

Technical: Being an engineer is rightly considered a technical profession and it is mistakenly viewed as all that an engineer does. Most of his initial training is directed at technical competence and usually has a discipline-specific focus, such as Mechanical Engineering. This can take on an even more specialized focus as it is directed at a specific field such as Aeronautical Engineering, and even more specialized areas such as Aircraft Engines. Within these specialized areas the engineer must display the required technical competencies and the professional engineer will use all his professional competencies to utilize the best technical solution for a given

identified problem to ensure that all social, environmental and sustainable development aspects are taken into consideration. A refined and elegant technical solution may not be sufficient of itself to be considered a satisfactory solution to the problem.

Social: Human beings are social animals and modern civilization is a particular manifestation of this phenomenon, together with all the interrelating impacts of social needs and technology. The invention of the nuclear power plant may be a wonderful solution to the problem of energy needs, but it has not been without some serious negative impacts on society. The building of magnificent dams to supply water for the population has solved one problem but displaced many people from their homes and ancestral lands. Technical solutions have had social impacts. Competent professional engineers will take these impacts into consideration when being responsible for making decisions that have social impacts.

Environmental: Having taken the social aspect into consideration, the environmental matters extend one's responsibility into the areas of air, water, land, fauna and flora. Technical solutions may have an impact on any one of these areas and this impact has to be evaluated, if the solutions are to be applied in a competent, professional way. The subject of climate change is one that raises all these questions and has serious implications for the kind of technical solutions that will be considered responsible in the future. The building of the new airport near La Mercy, north of Durban in KwaZulu-Natal, had a major impact on the "barn swallows" and this factor had to be taken into account during this project. The mining activities on the Coast of KwaZulu-Natal, which will require the use of heavy mechanical equipment that is likely to have an impact on the sensitive coastal environment, will require many competent professional engineers to carefully consider the impact of the decisions they take and future generations will hold them responsible.

Sustainable Development: Sustainable development has been defined in many ways, but the most frequently quoted definition is from Our Common Future, also known as the Brundtland Report:

"Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs. It contains within it two key concepts:

- the concept of needs, in particular the essential needs of the world's poor, to which overriding priority should be given; and
- the idea of limitations imposed by the state of technology and social organization on the environment's ability to meet present and future needs."

<http://www.iisd.org/sd/>

This definition requires that limitations imposed by technology be kept in the spotlight while the competent professional engineer provides solutions to problems in such a way that the future generations are not impacted upon and current generations continue to live in a responsible and concerned way.

As was seen in Outcome 8, one of the requirements of the Engineer's Code of Conduct is that a competent professional will not do anything that exceeds the range of his competency. In this instance he will seek out the advice of a responsible authority. A responsible authority in this case will be someone who has the competence required to make the required input because of their knowledge and experience related to the matter at hand. The wise engineer will know that this will ensure that all the factors above will be taken into account and the decision that he finally makes, because he is responsible, will have been made from a basis of sound knowledge and experience, even though it may not all have been his own. Having to rely on someone else's knowledge and experience is of no consequence when the issues of sound solutions and public health and safety are concerned.



GROUP ACTIVITY

Select one of the topics below:

- 1. Refer to the Engineer’s Code of Conduct and identify as many “professional attributes” as you can. Are these timeless attributes or related to a specific time or culture?
- 2. Discuss the importance, or otherwise, of viewing the Competency Standard as a holistic system that becomes part of daily practice.

Step 3: Make decisions on and take responsibility for work output

This step is related to work being done. At some stage all problem evaluation and proposed solutions will result in the output of some work in order to provide a concrete expression of the abstract ideas. In order for the work to be done, the competent professional will need to take responsibility for ensuring that the necessary tasks are performed. Decisions will have to be taken regarding who does what and when. The competencies identified in Outcome 4: “Manage part or all of one or more engineering activities”, will be used to plan, organise and lead individuals and teams so as to achieve the goals and targets set. Performance management will have to be done and deadlines met. Quality standards will have to be adhered to so as to achieve client satisfaction. The competent professional who has been given the responsibility will be held accountable for the work done in achieving a working solution to a problem, while taking into account all the competencies identified in the SAIMEchE Competency Standard. Responsibility means “the buck stops here” and “you carry the can”. No one else, just you!



ASSESSMENT TEST

Complete the Assessment Test in Appendix 1 (30 minutes are allocated for this).



SMALL GROUP ACTIVITY

Split into two groups and refer to the discipline-specific case study in Appendix 2.



CLASS DISCUSSION

Discuss Case Studies (Appendix 2) and Programme administration.

SECTION 3

***GENERIC GUIDING
PRINCIPLES***

GENERIC GUIDING PRINCIPLES

1. Competency Standard

The SAIMechE Competency Standard is the fundamental document underpinning the journey to Professional Competence. It is the foundation document informing all aspects of the training programme that relates the requirements of competency to the working environment of the developing engineer. It is the standard of practice against which all activities of a competent and professional engineer are measured.

2. Outcomes

The eleven outcomes are the fundamental building blocks on the path to competency. A demonstration of understanding of these outcomes as they relate to the day-to-day working environment will indicate that a level of competency has been reached which will enable the candidate to function at a professional level within the commercial and business environment.

3. Assessment Criteria

The assessment criteria are the requirements against which the candidate is evaluated in order to determine understanding and competency. These are objective criteria which will ensure capability and transparency and set a standard that ensures a proficient level of competency and professionalism as required by industry and in the interests of public health and safety.

4. Range Statements

The range statements set the boundaries of the requirements of each outcome and determine the limits of competency as required for professional practice.

APPENDICES

APPENDIX 1

ASSESSMENTS/TESTS

INITIAL TEST (SECTION 1)

1. Explain the meaning of “The Competency Standard is a holistic system”.

2. What is a Portfolio of Evidence?

3. What are "Engineering activities"?

4. Describe how you go about making a decision.

5. What do you understand by "rational decision-making"?

6. Discuss the role of assumptions and perceptions in decision-making.

7. What factors would indicate that you have been responsible for making a decision?

ASSESSMENT TEST (SECTION 2)

1. List the 3 steps of a practical responsibility and decision-making model.

2. Is the above a stand-alone process or does it relate to other items? Elaborate your answer.

3. Describe in your own words what you understand by “professional competence”.

4. What two people play a vital role in the assessment process of a PDP Candidate?

5. What role do competent professionals play in ensuring sustainable development?

6. "The Environment can take care of itself". What is your response to this statement?

7. When must a competent professional seek advice from another person? What type of person must this be?

8. Describe how you would ensure that the work output related to one of your projects is managed.

9. What do you think "being responsible" means?

APPENDIX 2: CASE STUDIES

R EFERENCES



Websites:

A look at some decision-making information:

<http://lifehacker.com/four-tricks-to-help-you-make-any-difficult-decision-987762341>

<http://www.engineeringdecisionmaking.com/>

<http://tech-clarity.com/product-decisions/2691>

<http://www.hfes.org/publications/ProductDetail.aspx?ProductID=64>

Being responsible:

<http://www.thefreedictionary.com/responsible>

<http://www.talkbiz.com/digest/emt11.html>

<http://journalism.uoregon.edu/~tbivins/stratcomweb/readings/Resonsibility-Accountability.pdf>

Professional behaviour:

<http://www.paed.uscourts.gov/documents/procedures/shapolj.pdf>

Sustainable Development:

<http://www.iisd.org/sd/>



Books:

The 8th Habit, **Stephen R. Covey** (2004), Simon & Schuster

Living with the Planet, **Catherine von Ruhland** (2008), Lion

RECORDING OF REPORTS



Formats for recording the portfolio of evidence

During the course of the candidate phase training, the Candidate will accumulate a portfolio of evidence comprising the reports supporting the various exercises covered in these guidelines for each Outcome.

Note that the PDP Administration will provide a web site document system that will allow the candidate to store all the PDP documents created as a back-up facility, and will enable the candidate to allow access by the Mentor for any reviews that are required.

ASSSESSMENT PROCESS

Guide to the Candidate

You will be assessed against Outcome 10.

In order to determine your level of competence you will be tested by:

- Tests done during the workshop and evaluated by fellow candidates and your mentor
- Written assignments (practical tasks given to demonstrate understanding of this Outcome through application in a work setting)
- Knowledge assessment and presentation (i.e. 10 minutes oral presentation using Power Point). Please Note: Oral presentations may need to be taped for moderation and re-assessment procedures.

You will need to prepare yourself in the following ways:

- Familiarise yourself with the contents of this guideline
- Familiarise yourself with the reporting formats required
- Familiarise yourself with the references listed
- Do the written assignments as required by this workshop
- For oral presentations of reports, a ten minute presentation is required to summarise the exercise performed



Note:

A detailed briefing on the exact requirements was given to you by the Mentor/Assessor at the Introductory Workshop in order for you to prepare for the assessment process.

The evidence you will be judged on includes:

- Your proven competence in all areas questioned in the presentation (Competent or Not Yet Competent)
- The practical tasks compiled in your Portfolio of Evidence

Good luck, and remember, the mentor/assessor is there to help you.