Teaching, Research and Community Engagement Evidences for ECSA Registration

December 2024

Notes:

- This document aims to provide a peer-reviewed, non-exhaustive list of examples that can serve as possible evidence to support competency indicators for **engineering academics and researchers** applying for ECSA registration in a Council-approved category. These examples are intended as recommendations, not mandatory requirements.
- Non-engineering academics (mathematicians, scientists, etc.) who teach/ assess/ moderate modules in Engineering programmes, and who do not hold a first Engineering qualification, are not registerable and therefore not subject to the Identification of Engineering Work Regulations (IDoEW).
- **Engineering academics and researchers** applying for professional registration should present evidence that reflects their own work within the context of their engineering practice.
- The eleven outcomes defined in ECSA documentation are clearly outlined and grouped into five sets. ECSA does not limit applicants by sector or industry. Engineering academic work is deemed a sector of engineering practice, and relevant contextual evidence can be used for registration purposes.
- **Engineering academics and researchers** must demonstrate the ability to identify and analyse engineering-related problems and propose solutions that are practical and implementable, at the appropriate professional level for the category. This requirement applies to all eleven outcomes.
- ECSA will aim to include at least one, preferably two, registered professionals from academia on the interview panel for applicants from academic backgrounds.
- ECSA will re-train its assessors, moderators and reviewers to ensure they understand the nature of contextualized academic and research evidence as outlined in this document.

Introduction to Competence

- In general, competence is defined as the possession of the **necessary knowledge** and **training and experience** to perform the activities within the respective professional category to the standards expected in independent employment or practice.
- The knowledge component of competency consists of knowledge from the engineering education process and knowledge that is subsequently acquired during specialized engineering-related activities.
- The training and experience component is defined by a set of assessable outcomes, whereby competence must be demonstrated:
    1) within applicable engineering activities,
    2) by the integrated performance of outcomes, and
    3) at the level defined for each outcome.
- Thus, competence as defined for the purpose of this document is detailed in two categories:
    1) Knowledge component, and
    2) Training and experience component, which is deeply integrated with degree of responsibility (DoR).

Table 1: Degree of Responsibility

Progression of Degree of Responsibility (DoR)			
Level (of engagement)	**Nature of work**	**Responsibility**	**Level of support**
A. Being exposed	Undergoes induction, observes processes and work of competent practitioners	No responsibility, except to pay close attention	Mentor explains challenges and formulates/ shares solutions
B. Assisting	Performs specific processes under close supervision	Limited responsibility for certain work outputs	Supervisor/ Mentor coaches, offers continuous feed back
C. Participating	Performs specific processes as directed with limited supervision	Full responsibility for supervised work	Supervisor progressively reduces support, but monitors outputs
D. Contributing	Performs specific work with detailed approval of work outputs	Full responsibility for the quality of work	Must be able to articulate own reasoning and compare same with those of supervisor
E. Performing	Works in team without supervision, recommends outputs for work, responsible for outputs but not yet accountable	Level of responsibility for work outputs and quality is appropriate as required for the professional registration category	Must be able to solve appropriate level of problems for the category of registration, very limited guidance when needed

Reference: R-02-STA-PE/PT/PN

Degree of Responsibility (A – D in Table 1) in relation to the 11 Outcomes

Outcomes to be satisfied	Responsibility Level
Group A: Engineering Problem Solving	
Outcome 1: Define, investigate and analyse *complex/broadly-defined/well-defined* engineering problems.	E
Outcome 2: Design or develop solutions to *complex/broadly-defined/well-defined* engineering problems.	C & D
Outcome 3: Comprehend and apply advanced and local knowledge of the widely applied principles underpinning good practice that is specific to the jurisdiction in which the *Engineer* practices. Comprehend and apply the knowledge embodied in widely accepted and applied engineering procedures, processes, systems and methodologies that is specific to the jurisdiction in which the *Engineering Technologist* practices. Comprehend and apply knowledge that is embodied in established engineering practices that is specific to the jurisdiction in which the *Engineering Technician* practices.	E
Group B: Managing Engineering Activities	
Outcome 4: Manage part or all of one or more *complex/broadly-defined/well-defined* engineering activities.	D
Outcome 5: Communicate clearly using multiple mediums and collaborate inclusively with a broad range of stakeholders in the course of engineering activities.	C
Group C: Risk and Impact Mitigation	
Outcome 6: Recognise the reasonably foreseeable economic, social, cultural, and environmental effects of *complex/broadly-/well defined* engineering activities seeking to achieve sustainability.	B
Outcome 7: Meet all legal and regulatory requirements and protect the health and safety of persons during all *complex/broadly-defined/well-defined* engineering activities.	E
Group D: Act Ethically, Exercise Judgment and Take Responsibility	
Outcome 8: Conduct engineering activities ethically.	E
Outcome 9: Exercise sound judgement by evaluating the outcomes, impacts and alternatives in the course of *complex/broadly-defined/well-defined* engineering activities.	E
Outcome 10: Be responsible for making decisions on part or all of *complex/broadly-defined/well-defined* engineering activities.	E
Group E: Initial Professional Development	
Outcome 11: Undertake sufficient professional development activities to maintain, extend competence and enhance the ability to adapt to emerging technologies and the ever-changing nature of work.	D

Level
A. Being Exposed
B. Assisting
C. Participating
D. Contributing
E. Performing

Reference: R-05-CIV-PE/PT/PN

Levels of Development

Progression of Competency Level	
a) Appreciation	Candidates must indicate that they have a general appreciation of the subject matter.
b) Knowledge	Candidates must indicate that they have sufficient knowledge of the subject matter.
c) Experience	Candidates must indicate that they have, independently or under supervision, performed the processes under consideration. Experience of the relevant techniques and functions must be gained.
d) Capability	Candidates must indicate that they have the capability, independently or (at most) with limited guidance, of performing the process and making the decisions required and that they have the capability of leading or supervising others in the process.

Reference: R-04-T&M-GUIDE-PC

Examples of Engineering Academic and Research-related Evidence

GROUP A – Engineering Problem Solving

Outcome One (1) – Examples of evidence against this outcome (DoR – E: Performing)

Engineers Define, investigate and analyse **complex** engineering problems.	**Engineering Technologists** Define, investigate and analyse **broadly defined** engineering problems.	**Engineering Technicians** Define, investigate and analyse **well-defined** engineering problems.
NQF level 8 or 9 Projects originally set/formulated /defined by the applicant, clearly indicating analysis into a complex engineering problem.	NQF level 7, 8 or 9 Projects originally set/formulated/defined by the applicant, clearly indicating analysis/ investigation into a broadly defined engineering problem.	NQF level 6 – 9 Projects originally set/ formulated/defined by the applicant, clearly indicating analysis into a well-defined engineering problem.
Own postgraduate research with clear complex engineering problems that have been well defined, investigated and analysed through the research process.	Own postgraduate research with a clear broadly defined engineering problems that have been well articulated and defined and analysed through the research process.	Own research with a clear well-defined engineering problems that have been well articulated and defined and analysed through the research process.
Evidence of the outcomes of contracted research or research contracts where the applicant is the lead researcher, and the problem defined, investigated and analysed is of a complex nature.	Evidence of the outcomes of contracted research or research contracts where the applicant is the lead researcher, and the problem defined and investigated is of a broadly defined or complex nature.	Evidence of the outcomes of involvement and/or participation as a member of a research team in contract research or research contracts, and the problem defined and investigated is of a well-defined or broadly defined nature.
External engineering consulting projects where the applicant has evidence of defining, investigating and analysing problems that are complex in its nature.	External engineering consulting projects where the applicant has evidence of defining and investigating/ analysing problems that are broadly defined in its nature.	External engineering consulting projects, individually managed or as part of a team, where the applicant has evidence of co-defining and co-designing problems that are broadly defined in its nature.
Evidence of the applicant having taken the lead in complex problem identification, investigation and analysis that arose within the faculty/school, and that the applicant ensured	Evidence of the applicant having been instrumental in broadly defined problem identification, formulation and investigation into solutions, that arose within the faculty/school,	Evidence of the applicant having been part of a team in well-defined problem identification, formulation and investigation into solutions, that arose within the faculty/ school, and

the enhancement/improvement of a) the engineering programme curriculum, b) engineering student support towards student success, c) engineering student assessment practices, d) integration and collaboration with communities, other engineering industries and stakeholders, to address social, environmental and other complex societal challenges.	and to which the applicant contributed significantly to ensure the enhancement/ improvement/development of a) the engineering programme curriculum, b) engineering student support towards student success, c) engineering student assessment practices, d) integration and collaboration with communities, other engineering industries and stakeholders, to address social, environmental and other broadly defined societal challenges.	contributed to ensure the enhancement/ improvement/ development of a) the engineering programme curriculum, b) engineering student support towards student success, c) engineering student assessment practices, d) integration and collaboration with communities, other engineering industries and stakeholders, to address social, environmental and other well-defined societal challenges.

Outcome Two (2) – Examples of evidence (DoR – C&D: Participating and Contributing)

Engineers Design or develop solutions to **complex** engineering problems.	**Engineering Technologists** Design or develop solutions to **broadly defined** engineering problems.	**Engineering Technicians** Design or develop solutions to **well-defined** engineering problems.
Evidence of own postgraduate research outputs with a clear complex engineering problem that involves the design or development of solutions through the research process, e.g. doctoral thesis; master's dissertation; published peer-reviewed journal articles; conference papers presenting novel research or practical applications of engineering principles towards problem solving, etc).	Evidence of own postgraduate research outputs with a clear broadly defined engineering problem that has been designed and solved through the research process, e.g. BEngTech (Hons) research paper; PhD/Doctoral thesis; master's dissertation; published peer-reviewed journal articles; conference papers presenting novel research or practical applications of engineering principles towards problem solving, etc).	Evidence of own research outputs with a clear well-defined engineering problem that has been designed and solved through the research process, e.g. BEngTech (Hons) research paper; PhD/Doctoral thesis; master's dissertation; published peer-reviewed journal articles; conference papers presenting novel research or practical applications of engineering principles towards problem solving, etc).
Patents and Prototypes • Filing patents for original inventions or processes. • Demonstrating working prototypes or models that embody their solutions.	Patents and Prototypes • Filing patents for original inventions or processes. • Demonstrating working prototypes or models that embody their solutions. .	Patents and Prototypes • Filing patents for original inventions or processes. • Demonstrating working prototypes or models that embody their solutions.

Contract research, or research contracts where a design or the development of solutions to a complex engineering problem is presented over the full engineering design process life cycle.	Contract research, or research contracts where a design or the development of solutions to a broadly defined engineering problem is presented over the full engineering design process life cycle.	Involvement and/or participation as a member of the team in contract research or research contracts.
Evidence of own complex designs, algorithms, or tools developed for and shared via open-source platforms, accompanied by user guides or impact metrics.	Evidence of own broadly defined designs, algorithms, or tools developed for and shared via open-source platforms, accompanied by user guides or impact metrics.	Evidence of own well defined designs, algorithms, or tools developed for and shared via open-source platforms, accompanied by user guides or impact metrics.
External engineering consulting design work.	External engineering consulting work.	External engineering consulting work.
Design of laboratory equipment/research rigs for own research or laboratory work for students (undergraduate or postgraduate).	Design of laboratory equipment/research rigs for own research or laboratory work for students (undergraduate or postgraduate).	Design of laboratory equipment/research rigs for own research or laboratory work for students (undergraduate or postgraduate).
The design, execution, and processing of a data gathering process in research and the interpretation thereof.	The design, execution, and processing of a data gathering process in research and the interpretation thereof.	The design, execution, and processing of a data gathering process in research and the interpretation thereof.

Outcome Three (3) – Examples of evidence against this outcome (DoR – E: Performing)

Engineers Comprehend and apply advanced and local knowledge of the widely applied principles underpinning good practice that is specific to the jurisdiction in which the **Engineer** practices.	**Engineering Technologists** Comprehend and apply the knowledge embodied in widely accepted and applied engineering procedures, processes, systems and methodologies that is specific to the jurisdiction in which the **Engineering Technologist** practices.	**Engineering Technicians** Comprehend and apply knowledge that is embodied in established engineering practices that is specific to the jurisdiction in which the **Engineering Technician** practices.
Examples of original assessments (examination question papers, projects assignments and test questions including solutions/ memoranda) set by the applicant, indicating clear comprehension and application of appropriate knowledge for complex engineering problems at NQF levels 8 or 9.	Examples of original assessments (examination question papers, projects, assignments and test questions including solutions/ memoranda) set by the applicant, indicating clear comprehension and application of appropriate knowledge for broadly defined	Examples of original assessments (examination question papers, assignments and test questions including solutions) set by the applicant, indicating clear comprehension and application of appropriate knowledge well-defined engineering problems at NQF levels 6 - 9.

	engineering problems at NQF levels 7, 8 or 9 qualification.	
Awards and recognition: Evidence of the completed work that enabled the receiving of professional accolades/ industry awards for engineering achievements or innovations within their academic and research context, or through excellence in consulting work.	Awards and recognition: Evidence of the completed work that enabled the receiving of professional accolades or awards for engineering achievements or innovations within their academic and research context, or through excellence in consulting work.	Awards and recognition: Evidence of the completed work that enabled the receiving of professional accolades or awards for engineering achievements or innovations within their academic and research context, or through excellence in consulting work.
Independently designed and implemented curricula, teaching and learning and/or supervision activities and assessment practices for engineering discipline-specific modules/ programmes from NQF level 8 – 10 that demonstrate the comprehension and application of suitable knowledge.	Independently designed and implemented curricula, teaching and learning and/or supervision activities and assessment practices for discipline-specific modules/ programmes from NQF level 7 – 10 that demonstrate the comprehension and application of suitable knowledge.	Independently designed and implemented curricula, teaching and learning and/or supervision activities and assessment practices for discipline-specific modules/ programmes from NQF level 6 – 10 that demonstrate the comprehension and application of suitable knowledge.
Research (including research for own postgraduate degree – NQF level 9 - 10)	Conducting research (including research for own honours/PGDip or postgraduate degree).	Conducting research (including research for own higher degree).
Review and examination of research work for journals.	Review and examination of research work for journals.	Review and examination of laboratory-related work.
Review, moderation, and examination of research work for postgraduate students (Doctorate and Masters).	Review, moderation, and examination of research work for postgraduate students (PGDip/Honours and higher).	Review, moderation, and examination of work for undergraduate modules (NQF level 7 - 10).
External specialist engineering consulting work.	External specialist engineering consulting work.	Participate as a member and part of a team doing external specialist engineering consulting work.

GROUP B – Managing Engineering Activities

Outcome Four (4) – Examples of evidence (DoR – D: Contributing)

Engineers	Engineering Technologists	Engineering Technicians

Manage part or all of one or more **complex** of engineering activities.	Manage part or all of one or more **broadly-defined** of engineering activities.	Manage part or all of one or more **well-defined** of engineering activities.
Managing the capstone projects of the final year at NQF 8 within a discipline	Managing the final year capstone projects at NQF 7 within a discipline.	Managing the final year projects at NQF 6 within a discipline.
Management of a Department/School/Faculty.	Management of a Department/School/Faculty.	Management of a Department/School/Faculty.
Management of a Research or Engagement Unit/Centre/Institution.	Management of a Research or Engagement Unit/Centre/Institution.	Management of a Research or Engagement Unit/Centre/Institution.
Management of research, innovation, or engagement grants/projects/teams, where colleagues and/or, students are managed, against time, budget, or deliverables.	Management of research, innovation, or engagement grants/projects/teams, where colleagues and/or, students are managed, against time, budget, or deliverables.	Management of research; innovation, or engagement grants/projects/teams.
Management of or management role in committees including higher degrees, ethics, health and safety, equipment grants etc.	Management of or management role in committees including higher degrees, ethics, health and safety, equipment grants etc.	Management of or management role in committees including higher degrees, ethics, health and safety, equipment grants etc.
Management of a qualification/programme in the role of curriculum lead or programme manager.	Management of a qualification/programme in the role of curriculum lead or programme manager.	Management of a qualification/programme in the role of curriculum lead or programme manager.
Management of ECSA accreditation processes and preparedness.	Management of ECSA accreditation processes and preparedness.	Management of ECSA accreditation processes and preparedness.
Project management of special faculty projects related to engineering activity for example: curriculum renewal, ECSA professional registration, roll out of standard changes, student success, IT integration.	Project management of special faculty projects related to engineering activity for example: curriculum renewal, ECSA professional registration, roll out of standard changes, student success, IT integration.	Project management of special faculty projects related to engineering activity for example: curriculum renewal, ECSA professional registration, roll out of standard changes, student success, IT integration.
Management of larger complex modules for example: laboratory practice, laboratory projects, capstone projects in industry, work-integrated learning.	Management of larger broadly-defined modules for example: laboratory practice, laboratory projects, capstone projects in industry, work-integrated learning.	Management of larger well-defined modules for example: laboratory practice, laboratory projects, capstone projects in industry, work-integrated learning.
Management of collaborative/partnership agreements and projects.	Management of collaborative/partnership agreements and projects.	Management of collaborative/partnership agreements and projects.
Management of laboratories/facilities for research, projects.	Management of laboratories/facilities for research, projects.	Management of laboratories/facilities for research, projects.
Management of Workplace-based learning; Industry vacation work for the faculty.	Management of Workplace-based learning; Industry vacation work for a department.	Management of Workplace-based learning; Industry vacation work for a department.

GROUP B – Managing Engineering Activities

Outcome Five (5) – Examples of evidence (DoR – C: Participating)

Engineers Communicate clearly using multiple mediums and collaborate inclusively with a broad range of stakeholders in the course of engineering activities.	**Engineering Technologists** Communicate clearly using multiple mediums and collaborate inclusively with a broad range of stakeholders in the course of engineering activities.	**Engineering Technicians** Communicate clearly using multiple mediums and collaborate inclusively with a broad range of stakeholders in the course of engineering activities.
Presenting orally and in writing to students in lectures and other online or in-person activities to support learning and engage students. This requires the framing of technical/engineering-related content to a specific audience.	Presenting orally and in writing to students in lectures and other online or in-person activities to support learning and engage students. This requires the framing of technical/engineering-related content to a specific audience.	Presenting orally and in writing to students in lectures and other online or in-person activities to support learning and engage students. This requires the framing of technical/engineering-related content to a specific audience.
Writing and publishing rated journal articles; books; book chapters; or conference papers.	Writing and publishing rated journals articles; books; book chapters; or conference papers individually or as part of a research team.	Writing and publishing journals; books; book chapters; or conference papers individually or as part of a research team.
Writing or academic contributions to reputable print media (newspapers; magazines; etc.).	Writing or academic contributions to reputable print media (newspapers; magazines; etc.).	Writing or academic contributions to reputable print media (newspapers; magazines; etc.).
Media interviews on academic engineering challenges, research, innovation, and solutions (broadcast; radio; etc.).	Media interviews on academic engineering challenges, research, innovation, and solutions (broadcast; radio; etc.).	Media interviews on academic engineering challenges, research, innovation, and solutions (broadcast; radio; etc.).
Presenter of Academic Public or Memorial lectures.	Presenter of Academic Public or Memorial lectures.	Presenter of Academic Public or Memorial lectures (Where applicable).
Keynote or Invited Speaker at conference.	Keynote or Invited Speaker at conference.	Keynote or Invited Speaker at events.
Academic Professorial Inaugural lecture.	Academic Professorial Inaugural lecture.	Any lectures presented other than at academic institution.
Writing reports for the institution related to work done – suitable for a broad range of stakeholders. Also, orally presenting this work.	Writing reports for the institution related to work done – suitable for a broad range of stakeholders. Also, orally presenting this work.	Writing reports for the institution related to work done – suitable for a broad range of stakeholders. Also, orally presenting this work.

Writing up research or other technical work that has been completed e.g. Higher degree dissertations or engineering consulting reports.	Writing up research or other technical work that has been completed e.g. Higher degree dissertations or engineering consulting reports.	Writing up research or other technical work that has been completed e.g. Higher degree dissertations or engineering consulting reports.
Chairing of committees at department/school/faculty/institutional levels.	Chairing of committees at department/school/faculty/institutional levels	Chairing of committees at department/school/faculty/institutional levels
Chairing/moderating panel sessions and discussions at engineering related workshops/seminars/ conferences.	Chairing/moderating panel sessions and discussions at engineering related workshops/seminars/ conferences.	Chairing/moderating panel sessions and discussions at engineering related workshops/seminars/ conferences.
Mentoring early-career and emerging scholars.	Mentoring early-career and emerging scholars.	Mentoring early-career and emerging scholars.
Examination Reports.	Examination Reports.	Examination Reports.
Research Grants and Funding: successfully securing competitive research funding for projects that result in the design or development of solutions to specific complex engineering challenges.	Research Grants and Funding: successfully securing competitive research funding for projects that result in the design or development of solutions to specific broadly defined engineering challenges.	Research Grants and Funding: successfully securing competitive research funding for projects that result in the design or development of solutions to specific well-defined engineering challenges.

GROUP C – Impact of Engineering Activities

Outcome Six (6) – Examples of evidence (DoR – B: Assisting)

Engineers Recognise the reasonably foreseeable economic, social, cultural, and environmental effects of **complex** engineering activities seeking to achieve sustainability.	**Engineering Technologists** Recognise the reasonably foreseeable economic, social, cultural, and environmental effects of **broadly-defined** engineering activities seeking to achieve sustainability.	**Engineering Technicians** Recognise the reasonably foreseeable economic, social, cultural, and environmental effects of **well-defined** engineering activities seeking to achieve sustainability.
Research, engineering consulting or community engagement activities that have social, cultural or environmental considerations.	Research, engineering consulting or community engagement activities that have social, cultural or environmental considerations.	Research, engineering consulting or community engagement activities that have social, cultural or environmental considerations.
The essence of the academic project has social and cultural impact. This includes curriculum design, student success, and	The essence of the academic project has social and cultural impact. This includes curriculum design, student success, and	The essence of the academic project has social and cultural impact. This includes curriculum design, student success, and

alignment of teaching and learning activities with societal challenges. Any examples from this could be drawn on.	alignment of teaching and learning activities with societal challenges. Any examples from this could be drawn on.	alignment of teaching and learning activities with societal challenges. Any examples from this could be drawn on.
Student project and module design can also require lecturers to consider the social, cultural and environmental effects of engineering activity and to develop these skills in students.	Student project and module design can also require lecturers to consider the social, cultural and environmental effects of engineering activity and to develop these skills in students.	Student project and module design can also require lecturers to consider the social, cultural and environmental effects of engineering activity and to develop these skills in students.
Own postgraduate studies that have social, cultural, and environmental impact.	Own postgraduate studies that have social, cultural, and environmental impact.	Own undergraduate studies that have social, cultural, and environmental impact.
Design, develop, and presenting of short learning programmes; workshops; seminars focussed on social, cultural, and environmental impact.	Design, develop, and present of short learning programmes; workshops; seminars focussed on social, cultural, and environmental impact.	Individually or as part of a team, design, develop, and present short learning programmes; workshops; seminars focussed on social, cultural, and environmental impact.
Published reputable research (Journal or conference) where the impact in terms of social, cultural and environmental effects is a clear part, e.g., if research includes interviews and data collection from human subjects. This type of research requires significant ethics clearance, and this process should meet the social and cultural portion of the artifacts.	Published reputable research (Journal or conference) where the impact in terms of social, cultural and environmental effects is a clear part, e.g., if research includes interviews and data collection from human subjects. This type of research requires significant ethics clearance, and this process should meet the social and cultural portion of the artifacts.	Documented work where the impact in terms of social, cultural and environmental effects is a clear part, e.g., if that work includes interviews and data collection from human subjects. This type of work requires significant ethics clearance, and this process should meet the social and cultural portion of the artifacts.

GROUP C – Risk and Impact Mitigation

Outcome Seven (7) – Examples of evidence against this outcome (DoR – E: Performing)

Engineers Meet all legal and regulatory requirements and protect the health and safety of persons during all **complex** engineering activities.	**Engineering Technologists** Meet all legal and regulatory requirements and protect the health and safety of persons during all **broadly defined** engineering activities.	**Engineering Technicians** Meet all legal and regulatory requirements and protect the health and safety of persons during all **well-defined** engineering activities.
Health and safety requirements and considerations around research work/student work in laboratories, workplace learning and visits to industry.	Health and safety requirements and considerations around research work/student work in laboratories, workplace learning and visits to industry.	Health and safety requirements and considerations around research work/student work in laboratories, workplace learning and visits to industry.
Engagement in OH&S Act compliance activities including health and safety rep, risk assessments, fire-fighter, first aider, monthly health and safety meetings. This could apply to laboratory activities or even office or off-site activities.	Engagement in OH&S Act compliance activities including health and safety rep, risk assessments, fire-fighter, first aider, monthly health and safety meetings. This could apply to laboratory activities or even office or off-site activities.	Engagement in OH&S Act compliance activities including health and safety rep, risk assessments, fire-fighter, first aider, monthly health and safety meetings. This could apply to laboratory activities or even office or off-site activities.
Considerations of legal and regulatory requirements related to specialised research or design activities.	Considerations of legal and regulatory requirements related to specialised research or design activities.	Considerations of legal and regulatory requirements related to specialised research or design activities.
Other regulatory requirements applicable in the context including ECSA, CHE, POPIA, ISO etc.	Other regulatory requirements applicable in the context including ECSA, CHE, POPIA, ISO etc.	Other regulatory requirements applicable in the context including ECSA, CHE, POPIA, ISO etc.
Understanding of and participation in contractual frameworks within the context of an academic environment (i.e., not the typical contracts used in industry, but with an appreciation of how issues such as agreed scope and conflict resolution are treated).	Understanding of and participation in contractual frameworks within the context of an academic environment (i.e., not the typical contracts used in industry, but with an appreciation of how issues such as agreed scope and conflict resolution are treated).	Understanding of and participation in contractual frameworks within the context of an academic environment (i.e. not the typical contracts used in industry, but with an appreciation of how issues such as agreed scope and conflict resolution are treated).

GROUP D – Act ethically, exercise judgment and take responsibility

Outcome Eight (8) – Examples of evidence against this outcome (DoR – E: Performing)

Engineers Conduct engineering activities ethically	**Engineering Technologists** Conduct engineering activities ethically	**Engineering Technicians** Conduct engineering activities ethically
Demonstrate ethical requirements and acts related to ethical research practices.	Demonstrate ethical requirements and acts related to ethical research practices.	Demonstrate ethical requirements and acts related to ethical research practices.
Ethical decision making related to student marks, plagiarism, protection of personal information etc.	Ethical decision making related to student marks, plagiarism, protection of personal information etc.	Ethical decision making related to student marks, plagiarism, protection of personal information etc.
Ethical considerations in applying and managing research funding, tendering for work, engagement with communities.	Ethical considerations in applying and managing research funding, tendering for work, engagement with communities.	Ethical considerations in applying and managing research funding, tendering for work, engagement with communities.
General evidence indicating working within bounds of competence.	General evidence indicating working within bounds of competence.	General evidence indicating working within bounds of competence.
Conduct ethics reviews of projects; proposals; research.	Conduct ethics reviews of projects; proposals; research.	Conduct ethics reviews of projects; proposals; research.
Published research (Journal or conference) where the research includes interviews and data collection from human subjects. This type of research requires significant ethics clearance, and this ethics clearance process should be considered.	Published research (Journal or conference) where the research includes interviews and data collection from human subjects. This type of research requires significant ethics clearance, and this ethics clearance process should be considered (Where applicable).	Written work where the writing includes interviews and data collection from human subjects (Where applicable).
The Conflict-of-Interest process – actively engaging to avoid conflicts of interest in your environment.	The Conflict-of-Interest process – actively engaging to avoid conflicts of interest in your environment.	The Conflict-of-Interest process – actively engaging to avoid conflicts of interest in your environment.
Contributing fair, not-biased, constructive criticism in the process of peer review of research work.	Contributing fair, not-biased, constructive criticism in the process of peer review of research work.	Contributing fair, not-biased, constructive criticism in the process of peer review of work.

GROUP D – Act ethically, exercise judgment and take responsibility

Outcome Nine (9) – Examples of evidence against this outcome (DoR – E: Performing)

Engineers Exercise sound judgment by evaluating the outcomes, impacts and alternatives in the course of **complex** engineering activities.	**Engineering Technologists** Exercise sound judgment by evaluating the outcomes, impacts and alternatives in the course of **broadly-defined** engineering activities.	**Engineering Technicians** Exercise sound judgment by evaluating the outcomes, impacts and alternatives in the course of **well-defined** engineering activities.
Master's and PhD submissions, contributing fair, not-biased, constructive criticism in the process of peer review of research work.	NQF level 8-10 submissions, contributing fair, not-biased, constructive criticism in the process of peer review of research work.	NQF level 8-10 submissions, contributing fair, not-biased, constructive criticism in the process of peer review of research work.
Research, design or engineering consulting work.	Research, design or engineering consulting work.	Engineering consulting work.
Examination of undergraduate work/postgraduate research and review of journal articles.	Examination of undergraduate work/postgraduate research and review of journal articles.	Examination and review of laboratory-related work.
Management/committee roles e.g., undergraduate programme manager/higher degrees, judgement in difficult student cases, plagiarism, appeals, funding request reviews.	Management/committee roles e.g., undergraduate programme manager/higher degrees, judgement in difficult student cases, plagiarism, appeals, funding request reviews.	Management/committee roles e.g., laboratory leader.
Supervision of postgraduate students.	Supervision of postgraduate students.	Managing students who are conducting laboratory work.
Participating in department/school/faculty /institutional ethics committee involving opportunities to demonstrate competence.	Participating in department/school/faculty /institutional ethics committee involving opportunities to demonstrate competence.	Participating in department/school/faculty /institutional ethics committee involving opportunities to demonstrate competence.
The appointment process for new colleagues	The appointment process for new colleagues.	The appointment process for new colleagues in the laboratory environment.
Student Disciplinary cases.	Student Disciplinary cases.	Student Disciplinary cases.

GROUP D – Act ethically, exercise judgment and take responsibility

Outcome Ten (10) – Examples of evidence against this outcome (DoR – E: Performing)

Engineers Be responsible for making decisions on part or all of **complex** engineering activities	**Engineering Technologists** Be responsible for making decisions on part or all of **broadly defined** engineering activities	**Engineering Technicians** Be responsible for making decisions on part or all of **well-defined** engineering activities
Research, design or engineering consulting work.	Research, design or engineering consulting work.	Design or engineering consulting work.
Examination of undergraduate work/postgraduate research and review of journal articles.	Examination of undergraduate work/postgraduate research and review of journal articles.	Examination and review of laboratory-related work.
Management/committee roles e.g., undergraduate programme manager/higher degrees, judgement in difficult student cases, plagiarism, appeals, funding request reviews.	Management/committee roles e.g., undergraduate programme manager/higher degrees, judgement in difficult student cases, plagiarism, appeals, funding request reviews.	Management/committee roles e.g., laboratory leader.
Supervision of postgraduate students	Supervision of postgraduate students	Managing undergraduate students conducting laboratory work.
Member of department/school/faculty/institutional disciplinary hearings.	Member of department/school/faculty/institutional disciplinary hearings.	Member of department/school/faculty/institutional disciplinary hearings.
Research projects where several proposals or outcomes need to be weighed and recommended.	Research projects where several proposals or outcomes need to be weighed and recommended.	Work projects where several proposals or outcomes need to be weighed and recommended.

GROUP E – Initial Professional Development

Outcome Eleven (11) – Examples of evidence (DoR – D: Contributing)

Engineers Undertake sufficient professional development activities to maintain, extend competence and enhance the ability to emerging technologies and the ever-changing nature of work.	**Engineering Technologists** Undertake sufficient professional development activities to maintain, extend competence and enhance the ability to emerging technologies and the ever-changing nature of work.	**Engineering Technicians** Undertake sufficient professional development activities to maintain, extend competence and enhance the ability to emerging technologies and the ever-changing nature of work.
Attendance of webinars or online or in-person training that extends competence in relation to technical discipline or the application thereof which would include professional teaching development.	Attendance of webinars or online or in-person training that extends competence in relation to technical discipline or the application thereof which would include professional teaching development.	Attendance of webinars or online or in-person training that extends competence in relation to technical discipline or the application thereof which would include professional teaching development.
Writing of conference or journal papers and presenting these at conferences (as applicable)	Writing of conference or journal papers and presenting these at conferences (as applicable)	Writing of conference or journal papers and presenting these at conferences (as applicable)
Member of Voluntary association	Member of Voluntary association	Member of Voluntary association
Supporting the broader community through external examination of students at other institutions	Supporting the broader community through external examination of students at other institutions	Supporting the broader community through external examination of students at other institutions
Formal mentoring of students	Formal mentoring of students	Formal mentoring of students
Extensive reading of literature or attendance at conferences aimed to broaden knowledge and competence. This could be in relation to research studies or preparation of module/teaching materials and activities to support student learning.	Extensive reading of literature or attendance at conferences aimed to broaden knowledge and competence. This could be in relation to research studies or preparation of module/teaching materials and activities to support student learning.	Extensive reading of literature or attendance at conferences aimed to broaden knowledge and competence. This could be in relation to research studies or preparation of module/teaching materials and activities to support student learning.
Faculty Promotion guidelines also specify a route for development of competence.	Faculty Promotion guidelines also specify a route for development of competence.	Faculty Promotion guidelines also specify a route for development of competence.