Learning and Teaching Academic Standards Project
Engineering and ICT

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Context – TEQSA

- New Higher Education Quality and Regulatory Framework
- To regulate the sector against **agreed standards** for higher education.
- Government committed to active involvement of disciplines in defining standards.

Learning & Teaching Academic Standards Project

To define **threshold learning outcomes** for selected disciplines or programs as defined in the Australian Qualifications Framework (AQF).

http://www.altc.edu.au/standards

Gaps identified in workshops

- The ability to solve open-ended problems is quite often missing from graduates' abilities. Thinking around roadblocks, …rarely one answer …

- Lack of appreciation in environment and sustainability; risk application in engineering/ICT

- Focus on basic principles – more emphasis on computer skills and applications

- Ability to communicate in a formal genre or in emails and reports to non-technical people; public speaking skills

- Personal traits, eg humility, drive, confidence

5 major outcomes

1. Needs, Context + Systems
   - Understand the problem

2. Problem solving and Design

3. Abstraction and Modelling

4. Coordination and communication

5. Self management
   - and reflective practice

Needs, Context and Systems

Graduates must be able to:

- Identify, interpret and analyse *stakeholder needs*,
- *establish priorities* and the *goals, constraints and uncertainties* of the system (social, cultural, environmental, business etc.),
- using *systems thinking*,
- while recognising *ethical implications* of professional practice.

Problem solving and Design

Graduates must be able to:

- Apply *problem solving, design and decision making methodologies* to develop components, systems and/or processes to meet specified requirements,

- including *creative approaches* to synthesise alternative solutions, concepts and procedures,

- while demonstrating *information skills*

- and *research methods*.

Abstraction and Modelling

Graduates must be able to:

- Apply *abstraction, mathematics and discipline fundamentals* to analysis, design and operation,

- using appropriate *computer software*, laboratory *equipment* and other *devices*,

- ensuring model *applicability, accuracy and limitations*.

Coordination and Communication

Graduates must be able to:

- *Communicate and coordinate* proficiently by listening, speaking, reading and writing English for professional practice,

- working as an *effective member* or *leader* of diverse teams,

- using basic tools and practices of formal *project management*.

Self management

Graduates must be able to:

- *Manage own time and processes* effectively by prioritising competing demands to achieve personal and team goals,

- with *regular review of personal performance* as a primary means of managing continuing professional development (lifelong learning).

5 major outcomes

1. Needs, Context + Systems
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Accounting

- Exercise judgement to solve routine accounting problems in a range of contexts including ... (Judgement)

- Integrate theoretical and technical knowledge of accounting and other relevant areas (Knowledge)

- Apply accounting knowledge and technical skills to routine accounting problems (Skills)

- Justify and communicate accounting advice and ideas in routine collaborative contexts (Communication and Teamwork)

- Take responsibility and be accountable for their own learning and work in a range of routine contexts (Self-Management)

Health, Medical and Veterinary Science

- Assess individual and population health status, and formulate and implement management plans
- Promote and optimise the health and welfare of patients/clients and populations
- Retrieve, critically evaluate, and apply evidence in the performance of health care activities
- Deliver safe and effective health care in collaboration with other health care professionals
- Reflect on current skills, knowledge and attitudes, and plan ongoing professional development activities.

For each outcome …

- **Where** is this outcome taught in my program?
- How do the outcomes at each **year/level** of the program **build** the final outcome?
- **How will we assess** the outcomes?
- What **evidence** will we show the accreditation agency?

Typical evidence (Engineering)

Outcome	Evidence
Needs, Context + Systems	Final year design and/or research report (*)
Problem solving and Design	Final year design and/or research report (*)
Abstraction and Modelling	Academic transcript
Coordination and communication	Final year presentations Team skills assessment (*)
Self management	E-portfolio (*)

Where to from here?

- Develop *communities of practice* around the TLOs
  - Develop *'best practice' teaching and learning resources*
  - Promulgate best practice teaching, learning and assessment materials
  - Resources Exchange (prototype)
    - https://sites.google.com/site/eereexchange/

- Develop *rubrics* that document the required attainment

- *Design* effective curricula

- *Research* how all of these steps can be integrated to deliver a higher quality educational system
  - Opportunities for future grant applications.

Summary

- Our role has been to facilitate the discipline communities in defining and refining the **threshold learning outcomes**

- Identified suitable **evidence** of the outcomes (explored what is acceptable and not acceptable)

- Encouraged the sector to work together through **shared resources and assessment tools**

Thank you

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