Maintaining Educational Standards in the Face of Innovation via a National Accreditation Authority.

Philip Lloyd
Energy Institute
Cape Peninsula University of Technology

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An Outline

- The problem

- Background to South Africa establishing a quality system

- The part played by the Engineering Council of South Africa [ECSA]

- The accreditation process

- Have we solved the problem?

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Part 1

THE PROBLEM

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What is the problem with innovation in education?

- Engineering educators everywhere have a task to ensure that curricula evolve to reflect the demands of the marketplace.

- How do educators get to know what the market needs?

- How can they be certain the changes are beneficial?

- An attempt to illustrate a possible solution from South African experience

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Part 2

BACKGROUND TO QUALITY IN SOUTH AFRICA

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Background

- Quality in education started with a worker's movement in the 1970's

- An initiative, the National Education Policy, drew a wide range of support

- A framework stressing the need for a non-racial unitary system of education and training led to legislation by the new Government

- The SA Qualifications Authority SAQA was established in 1995

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Background II

- At first SAQA tried to regulate everything
- A review in 2001 brought all stakeholders together
- This led to three Quality Councils in 2007:
  - Higher Education Council
  - Trade-and-Occupations Council
  - General & Further Education Council
- The first of these has delegated some functions to the Engineering Council of SA, ECSA

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Background III

- The overall education framework is broken down into ten levels

- Passage from one level to the next requires acquiring sufficient credits

- The definition of credits is standardised and closely monitored

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Background IV

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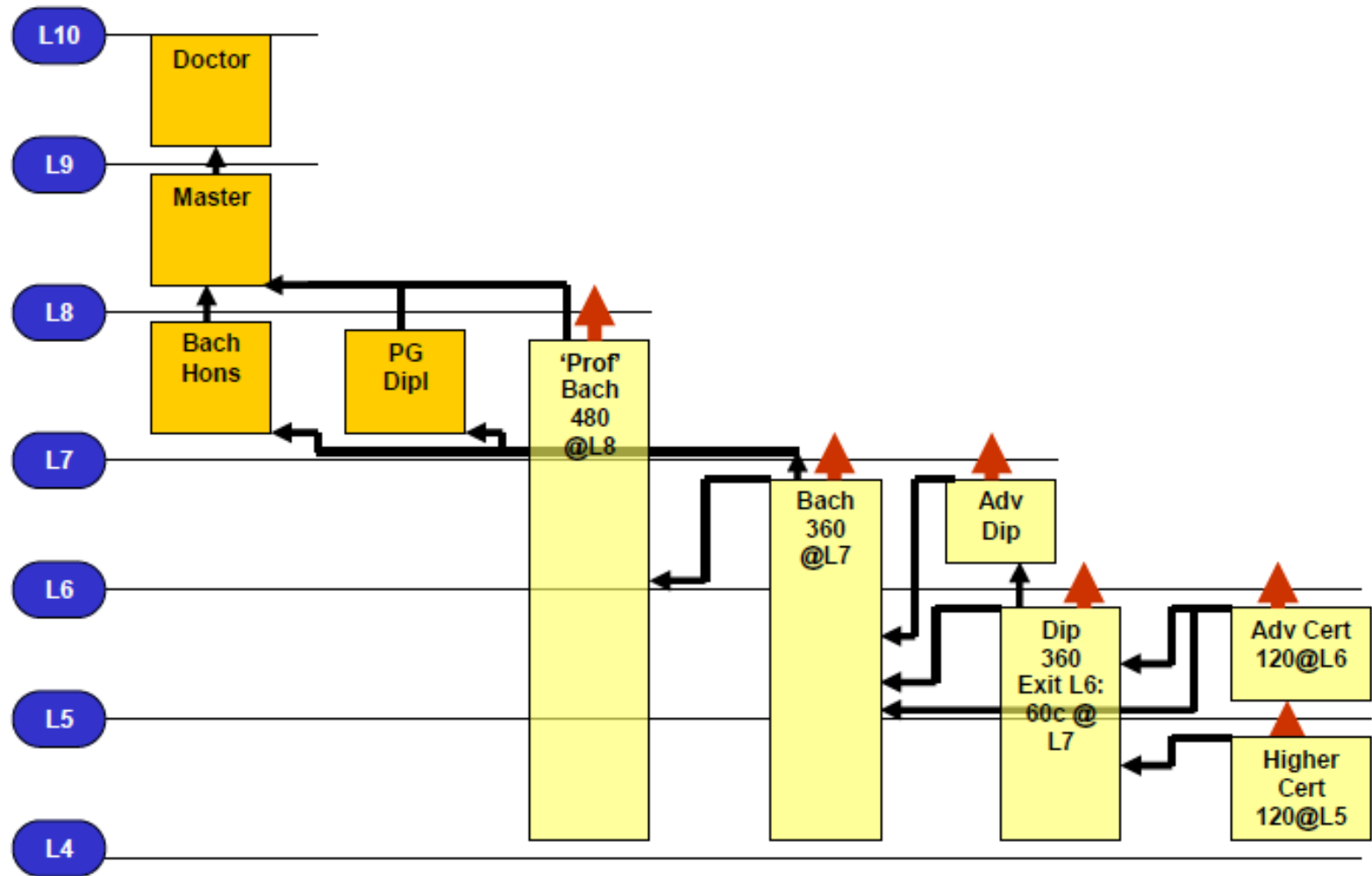
Part 3

ECSA

ECSA

- A statutory body established in terms of the Engineering Professions Act, 2000

- Its aim is to ensure that South African society is confident that the engineering profession is able to carry out the functions necessary for the socio-economic growth in the country

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ECSA II

- It achieves its objectives by, primarily:
  - Setting and monitoring of standards to International norms;
  - Certifying and ensuring the competence of individuals through registration;
  - Ensuring quality of engineering education through accreditation;
  - Regulating professional conduct

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ECSA III

- It registers applicants for registration as either Candidates or Professionals.

- Registration as a Candidate requires holding a qualification from:
  - An accredited programme,
  - A programme recognised in terms of an international accord
  - A programme recognised by ECSA as meeting its standard, or
  - An individual assessment by ECSA in terms of extensive experience

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ECSA IV

- The majority of applicants have qualified via accredited programmes
- ECSA therefore has an accreditation function
- It accredits programmes, not Faculties, Departments or Schools
- The two primary aims are to determine:
  - whether graduates meet the requirements for Candidates
  - whether the programme meets the educational requirements for registration

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ECSA V

- Accreditation has five criteria:
  - Credits, Knowledge Profile and Coherent Design
  - Outcomes at the Exit Level
  - Quality of Teaching and Learning
  - Resourcing and Sustainability of the Programme
  - Rectification of any prior deficiencies or concerns

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ECSA VI

Knowledge area	Minimum Credits
Mathematical Sciences	56
Natural Sciences	56
Engineering Sciences	180
Design and Synthesis	72
Complementary studies	56
Subtotal	420
Discretionary	**≥140**
Total	≥560

ECSA VII

- The discretionary component is 25% of the total for B Eng

- Technologist and Technician qualifications have less total credits, but proportionately more discretionary material

  – More practical skills development is needed in these qualifications

- In each case, the large discretionary allowance confers great flexibility

Part 4

THE ACCREDITATION PROCESS

Accreditation

- The formal recognition by ECSA that an education programme meets the accreditation criteria

- Accreditation requires a site visit
  - Of at least two days
  - By a team of at least six people, chosen to be reasonably representative of employers of engineers with a minority of academics

Accreditation II

- The team:
  - Peruses extensive documentation
  - Interviews staff and students from the programme
  - Checks details of the reports
  - Tours the facilities
  - Holds discussions with service departments such as Mathematics
  - Concludes with a report

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Accreditation III

- The report may:
  - Recommend accreditation
  - Make commendations or constructive criticisms on slightly negative factors
  - Note a "Matter for Concern" which must be addressed before the next visit
  - Identify a Deficiency, which must be rectified and compliance verified before accreditation
- Accreditation is usually for 5 years

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Part 5

IS IT A SUCCESS?

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A Success?

- The accreditation system has proved both flexible and robust
  - For instance, one School has managed to fit six programmes between electrical and mechanical engineering
- It has maintained quality of output
  - In spite of great variability of standards at intake; the South African school system has few gems among much dross
  - Students are prepared to be competitive worldwide

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A Success?

Yes!

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By: Natalie Greve
25th June 2013

TEXT SIZE

About 43% of South African engineers believe that engineering qualifications currently on offer by tertiary institutions are inadequate, a recent survey by financial services company PPS revealed on Monday.

These results echoed a recent report on the engineering capacity requirements in sub-Saharan Africa by the UK Royal Academy of Engineering, which attributed notable levels of unemployment among engineering graduates to a lack of necessary skills and experience following graduation.

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