Four overall criteria for quality teaching - an international accreditation perspective

Anton Basson
Vice-dean: Teaching and Quality Assurance
Faculty of Engineering
Stellenbosch University

25 April 2015
Overview

- What is good/excellent teaching?
- Background: ECSA and Washington Accord
- Programme composition
- Programme and module outcomes
  - Graduate attributes
- Effective learning process
- Sustainability
- Conclusion
What is good/excellent teaching?
What is good/excellent teaching?
What is result of poor teaching

Fig. 1.2 Shoe factory after the boiler explosion of March 20, 1905 which led to the adoption of many state boiler codes and the ASME Boiler and Pressure Vessel Code. (Courtesy of Hartford Steam Boiler Inspection & Insurance Company)
What is good teaching?

- **Facilitates effective, active learning**
  - learning that leads to high student success rates and achieving outcomes (of modules and programmes) at a high standard
- and, at same time,
- requires an affordable level of resources
  - such as staff time, student time and physical infrastructure,
  - also taking requirements of research and community interaction into account

Recommendations of Task Team for Promotion and Recognition of Teaching, April 2014, Stellenbosch Univ
What is excellent teaching?

- Includes all elements of good teaching
- Influence beyond classroom, a role model
- Draws on and contributes to research on T&L
  - Deep reflection on theories that underpin T&L
- Makes demonstrated contribution to effective learning in a local, national and/or international context
  - Provides meaningful access to knowledge
  - Awareness of diversity of students and world

Recommendations of Task Team for Promotion and Recognition of Teaching, April 2014, Stellenbosch Univ
ECSA and Washington Accord

- **Engineering Council of SA**
  - Accredits BEng and BScEng programmes
    - 5-year cycle
    - University must show that each graduate meets all requirements, and is likely to maintain that for next 5 years
    - Checking quality assurance processes, with only samples of checking quality itself
  - Registers professional engineers

- **Washington Accord**
  - Signatories: SA, USA, Canada, Ireland, UK, Australia, Hong Kong, Japan, Korea, New Zealand, Russia, Malaysia, Singapore, Turkey, ...
  - Mutual recognition of accreditation of educational programmes
  - Observers regularly attend accreditation visits
Overall ECSA accreditation criteria

- Credits, Knowledge Profile and Coherent Design
- Assessment of Exit-level Outcomes
- Quality of Teaching and Learning
- Resourcing and Sustainability of Programme
Credits, Knowledge Profile and Coherent Design

- **Programme level**
  - Meets educational requirements for identified role
  - Total credits
  - Knowledge profile
    - Engineering: mathematics, basic science, engineering science, design, complementary
  - Coherent, appropriate core
  - Specialist study as required
  - Explicit rules of combination and progression
  - Explicit horizontal and vertical articulation options
Credits, Knowledge Profile and Coherent Design

**Module level**

- **Credits**
  - Aim for correct workload on students

- **Knowledge profile, Coherent, appropriate core, Specialist study as required, Explicit rules of combination and progression**
  - What preceding knowledge/skills is expected
  - What knowledge/skills developed for following modules

- **Explicit horizontal and vertical articulation options**
  - Prior learning assumed
  - Diversity of students' backgrounds
  - Further applications can be diverse too
Exit-level Outcomes
Exit-level Outcomes

**ECSA E-02-PE**

- Level Descriptor: Complex engineering problems
- ELO1: Problem solving
- ELO2: Application of scientific and engineering knowledge
- ELO3: Engineering design
- ELO4: Investigations, experiments and data analysis
- ELO5: Engineering methods, skills and tools, including IT
- ELO6: Professional and technical communication
- ELO7: Sustainability and impact of engineering activity
- ELO8: Individual, team and multidisciplinary working
- ELO9: Independent learning ability
- ELO10: Engineering professionalism
- ELO11: Engineering management
Exit-level Outcomes

- **Stellenbosch Univ Graduate Attributes**
  - An enquiring mind
    - Lifelong learner
    - Critical and creative thinker
    - Exercises responsibility for learning and using knowledge
  - An engaged citizen
    - Leader and collaborator
    - Social entrepreneur
    - Effective in a diverse environment
  - A dynamic professional
    - Problem solver
    - Uses sustainable and effective technology
    - Innovative
  - A well-rounded individual
    - Exposed to cultural, intellectual and sporting life
    - Takes responsibility for own development
    - Takes informed and considered decisions
Exit-level Outcomes

- **Botho University**
  - Centre of excellence, innovation and leadership in higher learning
  - A driver for positive social and economic change
  - Produce well-rounded, employable graduates for global market
  - Graduate ... who can contribute to nation building and community development
Exit-level Outcomes

• **Module-level**
  - Know which ELOs are assessed or which ELOs are being developed in module
    - Lecturers, assessors, students
  - Ensure assessments aligned with ELOs
  - SU Eng: passing ELO is prerequisite to passing module
  - ECSA: ELO assessments must be externally moderated
Quality of Teaching and Learning

• Teaching right things is as important as teaching it well

• (maybe even more important than?)


http://upload.wikimedia.org/wikipedia/commons/3/3e/Quality_Street_1.jpg
Quality of Teaching and Learning

• **ECSA E-03-P**
  - Content, learning objectives, expected outcomes and method of assessment for each module defined and **documented and are available** to staff and students
    - Which ELOs assessed
    - Method of assessing ELOs
    - Level of achievement required of students
    - Consequence for student of not satisfying ELO
  - Programme is effectively co-ordinated

• **SU Eng**
  - Module framework for each module
  - Module framework signed off by programme coordinator
    - Assessments, ELOs and knowledge areas checked
  - Module framework provided to all students
  - Module framework provided to external moderator
Quality of Teaching and Learning

- **ECSA E-03-P**
  - Teaching and learning strategy and methodology is designed to achieve outcomes of programme with students who meet stated admission criteria
  - Suitable learning opportunities are provided to facilitate acquisition of knowledge and skills
  - Learning process encourages independent learning attitudes and abilities
    - Appropriate mix and balance between different teaching and learning
    - Encourage active participation of students in teaching and learning process
Quality of Teaching and Learning

**ECSA E-03-P**

- Learning progress of students is appropriately monitored and where necessary, academic development support is provided.
- Assessment practices and procedures provide feedback to students at regular intervals.
- An internal process including moderation ensures that all forms of summative assessment of student performance within programme are effective, fair, rigorous and address stated learning objectives and outcomes.
- ELO assessment is subject to external moderation.
Quality of Teaching and Learning

- **ECSA E-03-P**
  - T&L process monitored by an effective quality assurance process that supports *continuous improvement*
  - Student *retention* and *throughput* rates are monitored and corrective measures taken as needed
    - Overall and for distinct groups
Resourcing and Sustainability

http://commons.wikimedia.org/wiki/File:Sustainable_development.svg
Resourcing and Sustainability

- **ECSA E-03-P**
  - Selection of students ≈ programme’s academic requirements
  - Number of students admitted ≈ capacity to offer good quality education
    - Linked to institution’s equity and diversity plans.
    - Number of academic and support staff is sufficient for programme.
  - Staff members
    - Competent leadership, planning and management of assessment
    - *Suitably qualified*, have sufficient relevant experience and teaching and assessment competence.
    - Strategy for recruitment, development and retention of academic staff
    - Range of specialities and abilities to teach at specialist and fundamental level
    - *Research profiles* relevant to programme; appropriate research development opportunities
Resourcing and Sustainability

• **ECSA E-03-P**
  - Budgetary allocations for programme are adequate and are effectively utilised
    - Staffing budgets and resulting packages
    - Laboratory equipment
    - Computing and networking
    - Operating expenses
    - Library facilities
  - Office, teaching and laboratory accommodation and equipment are adequate
Resourcing and Sustainability

• ECSA E-03-P
  • Studies on effectiveness of programme in meeting its objectives are undertaken at regular intervals
  • Academic development programmes
    • Designed to match student state of preparation and progression toward main programme
    • Staff responsible adequately qualified, experienced and skilled
    • Funding for programme is adequate
    • Realistic criteria are applied for acceptance of students into programme
    • Is quality assured
Conclusions
What is good teaching?

- Facilitates effective, active **learning**
  - learning that leads to high student success rates and achieving outcomes (of modules and programmes) at a high standard;

- and, at same time,

- requires an affordable level of **resources**
  - such as staff time, student time and physical infrastructure,
  - also taking requirements of research and community interaction into account

Recommendations of Task Team for Promotion and Recognition of Teaching, April 2014, Stellenbosch Univ
Personal view

• **Critical success factors**
  • "Never deny students their right to fail"
  • Module framework
    • Student, assessors, lectures
    • Knowledge areas, credits, outcomes
  • NB: assessments
    • Students start their approach to a module with assessments
  • Research for disciplinary expertise
    • Research teaches the teacher
  • Performance management
    • Reward good teaching, i.e. teaching that results in good learning
  • Discourage "good teaching" that leads to bad learning
    • Too much help can be bad
    • Not enough self-development
    • Excessive resources
Acknowledgements

• **Tom Atonga and Botho University**
  • For the invitation and the opportunity

• **ECSA**
  • For the exposure and sources

• **Stellenbosch University**
  • For the environment and challenges