What does the EUR-ACE® Bachelor and Master label stay for?

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ASIIN Accreditation Commission for Degree Programmes

EUR-ACE® label: increasing demand

Programmes accredited by ASIIN (June 2013)
EUR-ACE® label has been asked by....

TU9: leading German Institutes of Technology  
June 2013

EUR-ACE® label per HEI in Germany  
June 2013
To summarize
- HEIs are asking increasingly for a EUR-ACE® label
- Leading Institutes of Technology (in Germany) have done so more than the bulk of universities

Everything okay?
- Peers and accreditation bodies sometimes have difficulties, to decide whether a degree programme is really an engineering programme or not → FEANI, Professional Card?
- The EUR-ACE® label seems to be not subject-specific enough to become recognized e.g. in the USA (NCEI, Feb. 2013)
- The message of the EUR-ACE® label seems to be not as obvious as it should be

Outline:
- Introduction
- EUR-ACE® Label - ENAEE definitions
- Engineering Degree Programmes?
- EUR-ACE® Framework Standards
- Crucial learning outcome: Engineering Design
- Proposals for EUR-ACE® Claims
- Conclusions
EUR-ACE® label - ENAEE definitions

ENAEE-Webpage:
- EUR-ACE® is the European quality label for engineering degree programmes at First Cycle (Bachelor) and Second Cycle (Master) level
- The EUR-ACE® system encompasses all engineering disciplines and profiles, is internationally recognized and facilitates both academic and professional mobility

My questions:
- Is that description sufficient?
- What is an engineering degree programme?

Engineering Degree Programmes (?)

- Without any doubt:
  - Civil Engineering
  - Electrical Engineering / Information Technology
  - Mechanical / Process Engineering
  - Interdisciplinary programmes: e.g. Mechatronics
- From case to case:
  - Chemical Engineering – sometimes Applied Chemistry
  - Industrial / Management Engineering – sometimes Economics
- With some doubts:
  - Agronomy ?
  - Computer Engineering – mostly: Informatics
  - Geodesy / Surveying ?
Six Engineering Programme Outcomes:
- Knowledge and Understanding
- Engineering Analysis
- Engineering Design
- Investigations
- Engineering Practice
- Transferable Skills

Again my questions:
- Are those outcomes precise enough?
- Can they be helpful as standards?
- What is needed to compete successfully with other engineering accreditation bodies, e.g. in the USA?

To become more precise and subject-specific ENAEE should sharpen the crucial learning outcome Engineering Design:
- Holistic outcome
- Systemic outcome
- Makes use of all knowledge and competencies in the fundamentals, e.g. mathematics, natural sciences, mechanics, thermodynamics, material sciences, design basics, subject-related engineering topics ….

- HEIs should be asked to show with subject-specific examples, how they will achieve competences in Engineering Design
- If impossible to define examples for a discipline, a degree programme can not be looked at as an engineering programme
Civil Engineering:
- Design of buildings, bridges, tunnels, hydrotechnics etc.

Electrical Engineering / Information Technology:
- Design of analogue and digital electric and electronic circuits, devices and products etc.

Mechanical Engineering:
- Design of machinery, equipment etc.

Process Engineering:
- Design of (physical, chemical, biological) production processes, design of process flow diagrams (PFD), design of key apparatus and equipment (e.g. reactors, columns ...) etc.

Others: ???

To increase Visibility
- Professional recognition of EUR-ACE® accredited programmes
- To compete successfully with other accreditation bodies especially in the Anglo-American world
- ENAEE should formulate concise claims for both labels
EUR-ACE® Claims: proposals

- The EUR-ACE® - Bachelor label confirms, that a degree programme offers a broad and sound education in subject-specific competencies as Knowledge and Understanding, Engineering Analysis, Engineering Design, Investigations, Engineering Practice, and Transferable Skills suitable as entry into an engineering profession.
- The EUR-ACE® - Master label confirms, that a degree programme offers a deepening and broadening education in subject-specific competencies as Knowledge and Understanding, Engineering Analysis, Engineering Design, Investigations, Engineering Practice and Transferable Skills suitable to fulfil advanced engineering tasks.

Conclusions

- There are two additional challenges for ENAEE
  - To sharpen the EUR-ACE® criteria, e.g. by explicitly asking for subject-specific examples for the crucial learning outcome Engineering Design
  - To formulate concise claims for the EUR-ACE® labels

Thanks a lot for your attention