Report on the compatibility between:

The Subject benchmark statement for Engineering (QAA, 2000)
and

The Engineering Graduate Output Standard (EPC, 2000)

by a QAA/EPC Joint Working Group, Feb. 2002

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References

(1) SARTOR 3 (Engineering Council, 1997)

(2) Frameworks for higher education qualifications, with descriptors (QAA, 2001)

(3) Quality assurance in H.E.- Proposals for consultation (HEFCE, 2001)

Compatibility Working Group

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QAA Subject benchmark statement for Engineering

6 categories:

- Mathematics
- Science
- Information technology
- Design
- Business context
- Engineering practice

4 aspects of each category:

- Knowledge and understanding
- Intellectual abilities
- Practical skills
- General transferable skills

One or more attributes for each aspect; total, 43

EPC Engineering Graduate Output Standard

Ability to:

- transform existing systems into conceptual models
- transform conceptual models into determinable models
- use determinable models to obtain system specifications…..
- select optimum specifications and create physical models
- apply the results from physical models to create real target systems
- critically review real target systems and personal performance

Exemplar discipline-specific benchmarks provided, at several levels (BSc, BEng hons, etc.)

Criteria for mappings

E→Q ‘a graduate with ability En will possess attribute Qm’, or:

‘possession of ability En implies some or all of attribute Qm’

Q→E ‘a graduate will need attribute Qm in order to have ability En’, or

‘possession of attribute Qm would contribute to or fully demonstrate the ability En’

Mapping: reciprocity, R

R = Σ(yes both ways) / {Σ(yes both ways) + Σ(yes one way)}

Mathematics	Very high - well defined subject
Science, Inf. Tech.	High - meanings insensitive to context
Engineering practice	High
Business context	Intermediate
Design	Low - QAA treats as an entity; - EPC specifies abilities within the design process

Key skills - QAA: integral part of outcomes

- EPC: the key ability statement

Conclusions

The two sets of Statements:

- are developed from different perspectives
- say very similar things in different formats
- are complementary in their aims, when read within their contexts
- can both provide course designers with reference points for development of academic programmes
- expect similar attributes for Maths, Science, and Inf. Tech.
- have differences that are apparent, not real, arising from:
  - methods of presentation (Eng. practice and Business context)
  - different approaches (Design)
- do not contradict each other **- are compatible**

Next steps - until review of QAA benchmarks, after 2003

- Procedure for next cycle of external review is developed and comes into use
- Departments gain experience in the use of external reference points (QAA, EPC, SARTOR 3) in seeking assurance for their programmes and designing new ones
- Principal stakeholders determine which provides greater opportunity and flexibility:
  - formal coordination of the reference points, or
  - retention of their different but compatible perspectives