

Guidance for the Accreditation of Engineering Management MSc and other qualifications having a similar title

The Engineering Council is aware of qualifications which address management areas that are associated with Engineering at postgraduate level. These include qualifications with titles of MSc Engineering Management or similar. It is possible to develop such qualifications for a wide range of potential students who may originate from engineering or non-engineering backgrounds. The broad and multidisciplinary nature of the subject area presents specific challenges for HEIs providing degrees at MSc level and for PEIs offering accreditation.

This guidance note sets out recommendations for HEIs designing or operating degrees in MSc Engineering Management (or similar titles) that are intended for engineering accreditation.

- **Entry Qualifications**

The Engineering Council does not specify entry qualifications for programmes. However, for individuals to hold accredited qualifications for CEng they would first need to complete a Bachelors (Hons) degree accredited for CEng with further learning required. This does not preclude universities from admitting students without accredited Bachelors (Hons) degrees to accredited MScs as those students would require individual assessment for professional registration as a matter of course.

It is recognised that AHEP places demands on students that require them to meet certain FHEQ (or equivalent) levels on graduation in certain specific areas. As a consequence, students entering from a business route (for example) into an MSc Engineering programme may be placed at a significant disadvantage unless they have previously studied mathematics, natural science or engineering. For this reason, it is recommended that only students who have previously studied mathematics, natural science or engineering at a suitable level are admitted, unless there is a substantial proportion of the programme devoted to developing key engineering skills.

Experience in professional engineering practice may also prepare individuals for study.

- **Ability to Solve Complex Problems**

AHEP4 states that,

Graduates from a Masters degree other than the Integrated Masters must achieve the prescribed learning outcomes and will possess a coherent body of knowledge including mathematics, natural science and engineering principles, and a proven ability to apply that knowledge to analyse and solve complex problems.

All accredited programmes, including Engineering Management, will need to evidence assessments that test the ability of graduates to address complex problems. Complex problems are specified in AHEP4 as follows:

Complex problems have no obvious solution and may involve wide-ranging or conflicting technical issues and/or user needs that can be addressed through creativity and resourceful application of engineering science and skills.

For this reason, programme design must ensure that students are exposed to suitable opportunities to demonstrate (through summative assessment) their ability to solve complex problems in an engineering context. A major project with an engineering theme is a common inclusion in programmes suitable for accreditation. It follows that business and management topics are only suitable for major project work where they apply engineering principles or engineering science and skills to the problem at hand.

- **Necessity to Meet all AHEP Learning Outcomes**

Engineering Management graduates on accredited programmes will need to meet all Learning Outcomes at the appropriate FHEQ (or equivalent) level. This includes Learning Outcomes M1-M3, all of which refer to aspects of complex problems - applying engineering knowledge, formulating solutions and applying computational and analytical techniques - and M5 relating to creating original solutions and taking into account the various engineering needs. It is essential that teaching, learning and assessment addresses the needs of the diverse cohort of students likely to be encountered on an Engineering Management

programme. To be suitable for accreditation, the curriculum should provide substantial opportunities to develop Science and Mathematics and Engineering Analysis skills alongside the management topics taught.

It is understood that AHEP4 may restrict accreditation of some programmes in the Engineering Management area, however other professional bodies such as the Association for Project Management may be better aligned and may better meet the needs of students.