



JOINT BOARD OF MODERATORS

ANNEX F – PROFESSIONALISM

1. Importance of Professionalism

The Joint Board of Moderators (JBM) recognises that from the first day that students enrol on an accredited programme of study they have commenced on their career as a professional engineer. The Joint Board of Moderators hopes that with the right encouragement these students will progress to work in the industry and go on to achieve a professional qualification with one of the JBM member institutions.

2. Professionalism and the Teaching and Learning Process

2.1 To encourage this career progression, the JBM believes that if the area of 'Professionalism' can be embedded into engineering education, this will make degree programmes more attractive and ensure that graduates have the appropriate skills to work effectively in the industry. It therefore requires that degree programmes put forward for accreditation contain elements which provide a good understanding of a broad range of inter-related social, economic and environmental issues. An understanding of how core skills can be utilised to assist with these issues should back up these course elements. This will be best achieved by a teaching and learning process that:

- Provides an interdisciplinary perspective on the problems that engineers will tackle in practice.
- Develops an understanding of the interaction between engineering, the environment and society.
- Develops an ability to use engineering knowledge to help solve complex problems as outlined above.

2.2 Universities should encourage students to take up membership of a professional organisation, have an understanding of the rules of conduct and play an active role in membership through extracurricular activities such as CPD events, committee involvement, visits to the Headquarters Library, etc. The JBM will look for evidence in terms of demonstrable outcomes that these guidelines are being implemented.

2.3 The Report of the Teaching of engineering ethics working group states that: -

“where students are taught about ethics, they will:

- **Understand** the nature of professional responsibility;
- Be able to **identify** the ethical elements in decisions;
- Be able to **address** and **resolve** problems arising from questionable practice;

- *Develop critical thinking skills and professional **judgement**;*
- ***Understand** practical difficulties of bring about change;*
- ***Develop** a professional ethical identity to carry forward in their working life.”*

3. How the Professionalism theme can be demonstrated

The JBM believes that professionalism should be integrated into existing teaching and learning and ideally should be pervasive throughout the engineering education programme. The key aim should be to ensure that engineers have appropriate Attitudes, Skills and Knowledge including:

- **Attitudes/Awareness**
 - An over-arching approach to engineering problems in the context of environmental, economic and social issues, and other dimensions including ethics and environmental justice.
- **Skills**
 - Ability to work with complex/ill-defined problems;
 - Team work and communications skills;
 - Ability to evaluate the merits and demerits of options/feasibility assessment.
- **Knowledge – Broad and Deep**
 - Technical,
 - Environmental,
 - Social processes,
 - Legal.

4. Link to Guidelines for Design Learning (Annex B)

Section 4 asks Departments to take the following area into account when they are designing a degree programme – *“Learning to work as part of a team. In professional practice, much design work is carried out in teams, and therefore, while some design learning should be on an individual basis, group working should be included. Although this causes greater complexity in terms of grading the performance of individuals, it is important that the short term needs of individual assessment should not impede the development of appropriate team working skills for professional practice.”*

5. Link to Guidelines for Sustainability (Annex C)

There is a professional obligation for civil, structural and transportation engineers to act sustainably in everything they do. This is why the thread of sustainability must be integrated in any degree programme submitted to the JBM for accreditation.

6. Link to Guidelines for Health, Safety and Risk Management (Annex D)

This document states that ‘the engineering profession has lacked an emphasis on feedback and learning; it is imperative that we get our young engineers to understand the importance of learning from failure’. Also, ‘Engineers must be aware of safety legislation and appreciate that they will be judged by the repercussions of their acts and their omissions, because as professional engineers they will have a higher duty of care than members of the general public’.

7. Evidence that could be provided by Departments to visiting teams to show how this is being embedded in the degree programmes

- Staff who are professionally qualified through a membership organisation such as the ICE, IStrucE, IHT and IHIE;
- A list of lectures given to students by professional engineers;
- The Departments links with the local engineering community;
- Consultancy work undertaken by lecturers;
- A statement showing how the recommendations from the Leitch Report have been incorporated into programme planning and design;
- A list of site visits undertaken by the students;
- Confirmation that presentations concerned with engineering professionalism have been made by at least one of the JBM member professional institutions;
- Evidence from students work;
- A statement on Plagiarism;
- Ethical solutions to problems;
- Appropriate use of key skills;
- A statement on the impact of codes of conduct on the teaching of sustainability, health and safety, and ethics.