Relationship between General Education and Professional Accreditation Requirements

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Contents

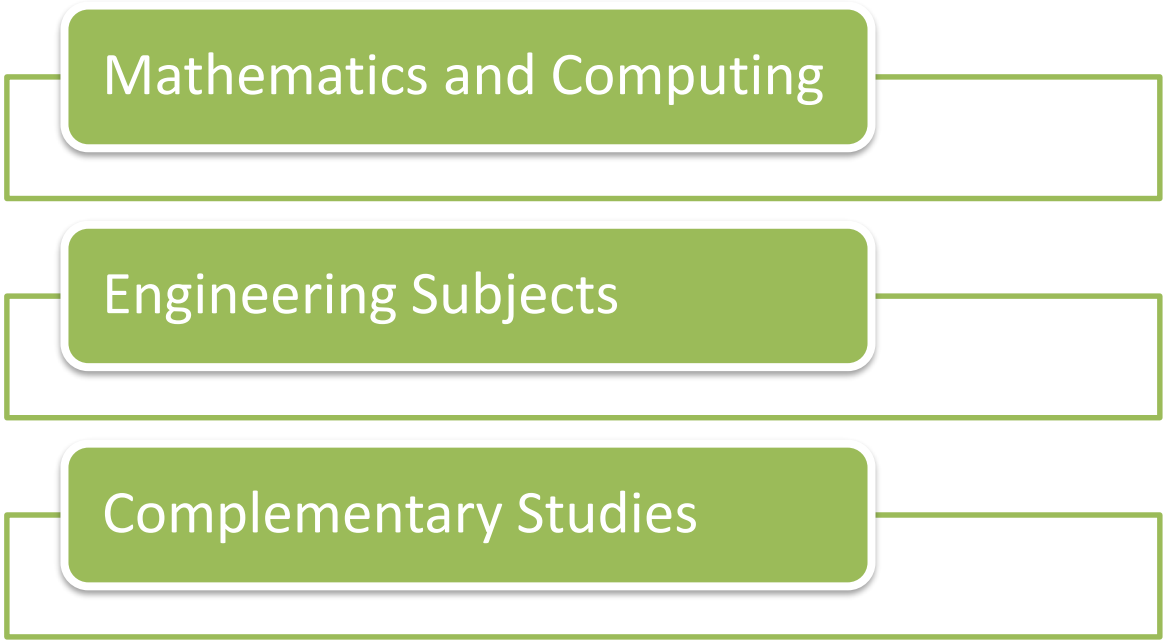
Background

- Speaker's background
- Hong Kong Institution of Engineers (HKIE)'s Accreditation Requirements for Engineering Higher Diploma and Equivalent Programmes
- Sydney Accord Requirements
  (Signatories of the Sydney Accord include representative bodies of Australia, Canada, Chinese Taipei, Hong Kong China, Ireland, Korea, New Zealand, South Africa, United Kingdom and United States)

HKIE Accreditation Requirements for Engineering Higher Diploma and Equivalent Programmes

- Professional Component Requirements
- Programme Outcomes

Professional Components



Engineering Subjects

(a) Engineering Design

The HKIE believes the importance of design is such that a separate topic on it should be established. However, it is accepted that the applied nature of this activity is relevant to almost every engineering endeavour and that its delivery could be within the engineering science courses in a programme. The establishment of it as a separate topic can be used to demonstrate that it is a creative, iterative and often open-ended process and to provide for discussion of general design techniques and philosophy, as well as the financial, quality, safety, ethical and environmental implications.

Engineering Subjects (cont'd)

(b) Health, Safety and the Environment

Appropriate exposure to health, safety and environmental considerations for workers and the general public should be integral and demonstrable components of programmes.

Complementary Studies

Studies which provide the students with an appreciation of wider issues to enable them to operate responsibly in society should be fully integrated within the programme. Such studies may include management, economics, law, finance, a foreign language, and so on. The following elements should be included in the curriculum.

Complementary Studies (cont'd)

(a) Communications

It is essential for graduates of engineering higher diploma and equivalent programmes to have good communication skills. Engineering higher diploma and equivalent programmes should contain instruction in the art and practice of communication by the spoken and written word, and where appropriate by drawing and sketching. It is desirable that oral presentations are included in the assessment. It is important that graduates of engineering higher diploma and equivalent programmes should have an appropriate level of proficiency in English and Chinese.

Complementary Studies (cont'd)

(b) Engineering Profession

It is considered that students should be introduced to the role of practising Associate Members of the HKIE, their social and ethical responsibilities towards the profession, colleagues, employers, clients and the public, and the impact of technology on society. Furthermore, they should be made aware of the role of the engineering institutions.

They should also be encouraged to become student members of the HKIE and to take part in its activities.

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HKIE Required Programme Outcomes

(a) an ability to select and apply the knowledge, techniques, skills, and modern tools of their disciplines to broadly-defined* engineering technology activities

(b) an ability to select and apply a knowledge of mathematics, science, engineering, and technology to engineering technology problems that require the application of principles and applied procedures or methodologies

(c) an ability to conduct standard tests and measurements; to conduct, analyse, and interpret experiments; and to apply experimental results to improve processes

(Broadly-defined activities are those that involve a variety of resources, that involve the use of new processes, materials, or techniques in innovative ways, and that require a knowledge of standard operating procedures.)*

HKIE Required Programme Outcomes (cont'd)

(d) an ability to design systems, components, or processes for broadly-defined* engineering technology problems appropriate to programme educational objectives

(e) an ability to function effectively in a project, as a member or leader on a technical team, in multi-disciplinary environment

(f) an ability to identify, analyse, and solve broadly-defined* engineering technology problems

(g) an ability to communicate effectively to engineers and others regarding broadly-defined* engineering technology activities

(Broadly-defined activities are those that involve a variety of resources, that involve the use of new processes, materials, or techniques in innovative ways, and that require a knowledge of standard operating procedures.)*

HKIE Required Programme Outcomes (cont'd)

(h) an understanding of the need for and an ability to engage in self-directed continuing professional development

(i) an understanding of and a commitment to address professional and ethical responsibilities including a respect for diversity

(j) a knowledge of the impact of engineering technology solutions in a societal and global context with particular reference to the environment and sustainable development

(k) a commitment to quality, timeliness, and continuous improvement

Sydney Accord Requirements

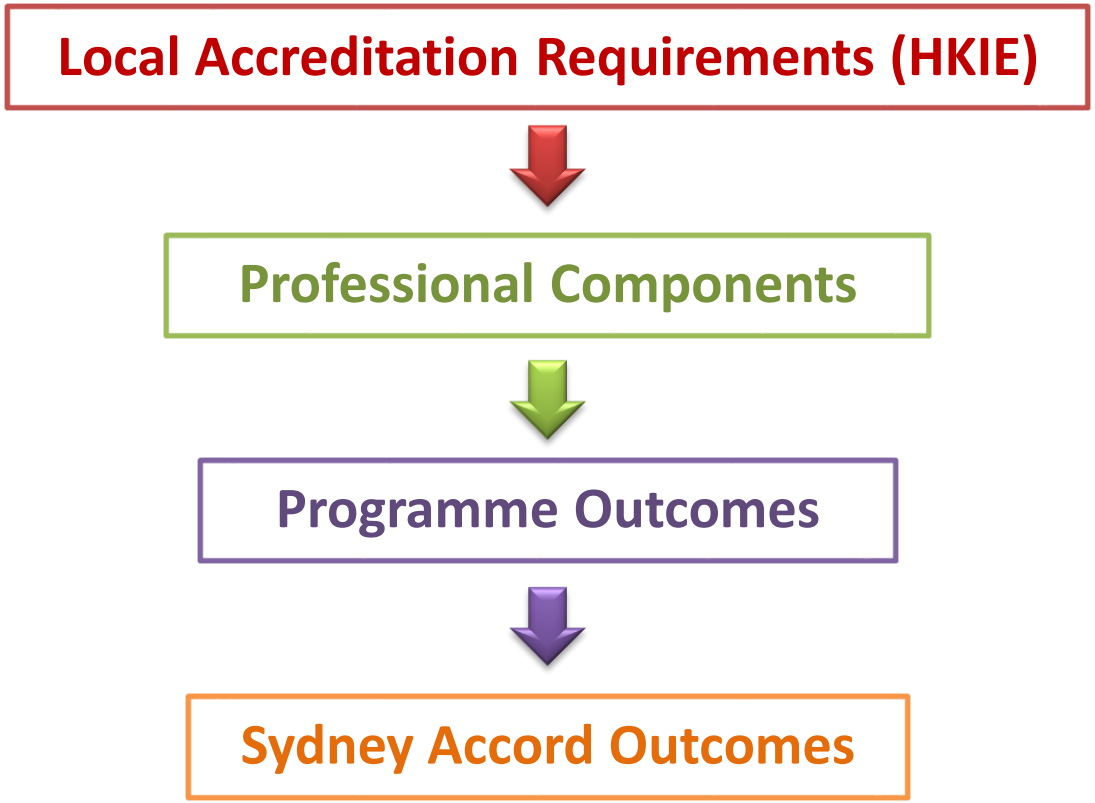
Graduate Attribute Profiles

Differentiating Characteristic	for Sydney Accord Graduate
Design/development of solutions: Breadth and uniqueness of engineering problems i.e. the extent to which problems are original and to which solutions have previously been identified or codified	**SA3**: Design solutions for broadly-defined engineering technology problems and contribute to the design of systems, components or processes to meet specified needs with appropriate consideration for public health and safety, cultural, societal, and environmental considerations. (SK5)
The Engineer and Society: Level of knowledge and responsibility	**SA6**: Demonstrate understanding of the societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to engineering technology practice and solutions to broadly defined engineering problems. (SK7)
Environment and Sustainability: Type of solutions	**SA7**: Understand and evaluate the sustainability and impact of engineering technology work in the solution of broadly defined engineering problems in societal and environmental contexts. (SK7)
Ethics: Understanding and level of practice	**SA8**: Understand and commit to professional ethics and responsibilities and norms of engineering technology practice. (SK7)

Graduate Attribute Profiles (cont'd)

Differentiating Characteristic	for Sydney Accord Graduate
Communication: Level of communication according to type of activities performed	**SA10**: Communicate effectively on *broadly-defined* engineering activities with the engineering community and with society at large, by being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
Project Management and Finance: Level of management required for differing types of activity	**SA11**: Demonstrate knowledge and understanding of engineering management principles and apply these to one's own work, as a member or leader in a team and to manage projects in multidisciplinary environments.
Lifelong Learning: Preparation for and depth of continuing learning	**SA12**: Recognize the need for, and have the ability to engage in independent and life-long learning in specialist technologies.

Conclusion


Local Accreditation Requirements (HKIE)
Professional Components
Programme Outcomes
Sydney Accord Outcomes