Institution of Engineers Bangladesh
International Symposium on Quality Assurance in Engineering Education through Accreditation – II
26 -27 August 2020

Accord accreditation: Quality assurance and innovation in engineering education

Em Prof Elizabeth Taylor AO

Chair Washington Accord

Deputy Chair International Engineering Alliance

INTERNATIONAL ENGINEERING ALLIANCE

Accord accreditation: Quality assurance and innovation in engineering education

- International Engineering Alliance Accords
- Mutual recognition and accreditation
- Challenges for our times:
  - UN Sustainable Development Goals
  - Disruption: COVID19
- Sharing best practices

International Engineering Alliance

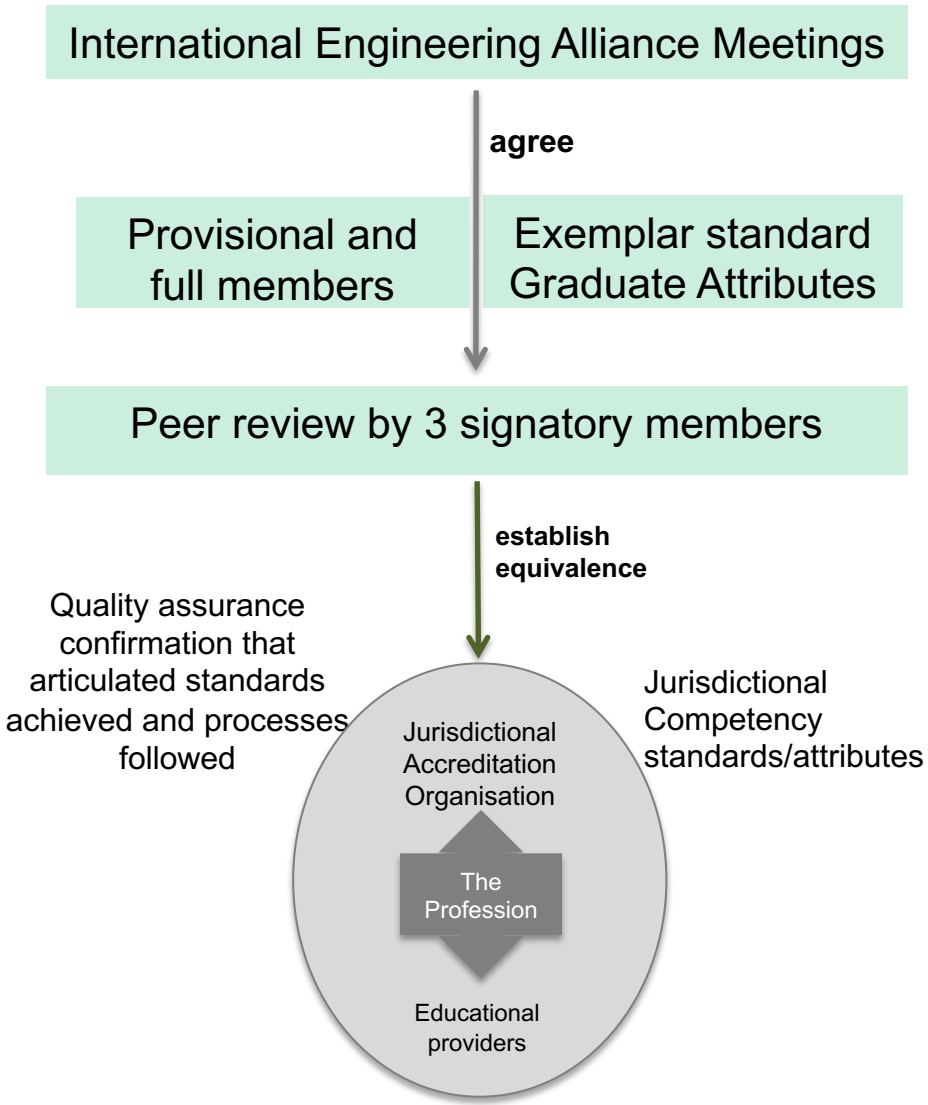
Facilitating engineering mobility and quality – creating networks, sharing ideas

MUTUAL RECOGNITION OF SUBSTANTIAL EQUIVALENCE

The Accords and Agreements validate jurisdictional accreditation and registration/chartered systems, embedding the diversity arising from cultural and jurisdictional imperatives.

Accords:
Establishing a global engineering education standard that drives sustainability

E Taylor: data as at Aug 2020



Note: Simplified diagram indicative only

Principles underpinning the Accords

The Accords are a living compact made by each signatory that they will approach deliberations with confidence:

- ✧ we can gain insight from our different cultural, socio-political and legal environments.
- ✧ we can find common ground and build a strong network from our collective understanding.
- ✧ we can negotiate, learn and transform in good faith as we create the terms of our engagement.

The challenge for the Accords is to

- ✧ consciously choose the power of mutual recognition and the embedded diversity in our organisational DNA.
- ✧ ensure that quality assurance tools are chosen carefully to enhance, rather than undermine, this DNA diversity.

It is hard work

It requires continuous maintenance and nurturing and close interaction.

It can be easy to slip into actions derived from unintended, subtle claims about ‘our way’ superiority.

To misunderstand across our language nuances in our haste to make things happen.

To deploy ‘short-cut’ metrics, pro-formas, standards and other tools that draw us away from the uncertainty and energy of continuous relationship building and close interaction.

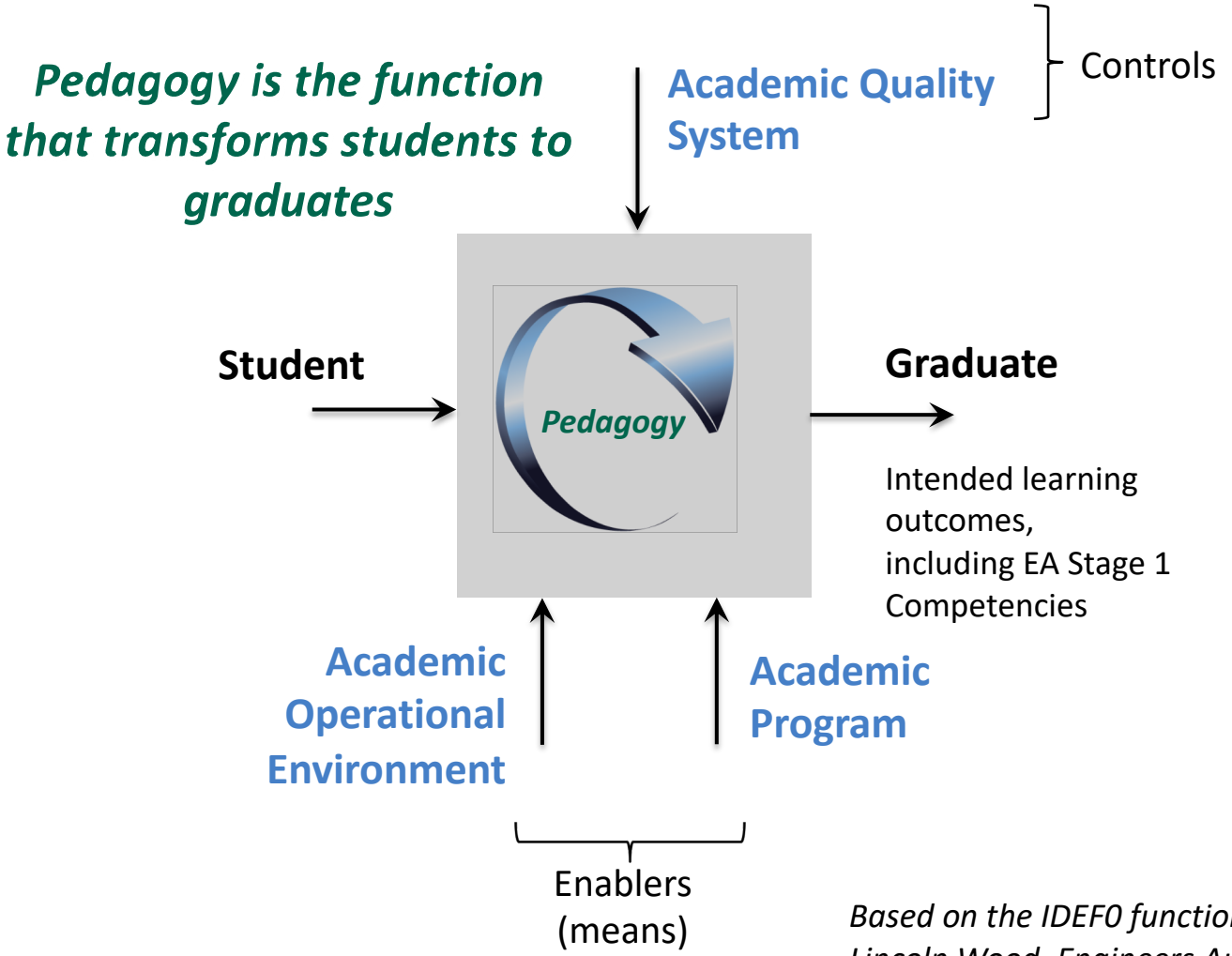
There are a number of reasons why mutual recognition of substantial equivalence, although a hard route, adds significant value to accreditation and enhances international practice.

Sociological, anthropological and ecosystem studies suggest that diversity in our systems drives innovation and capacity to meet complexity, disruption and change.

Whenever a system is captured by one culture, by one world view, or one intellectual tradition and iterates to one metric (standard) of success, its capacity for intellectual flexibility and agility is significantly reduced.

http://www.blog.thefortuneinstitute.com/wp-content/uploads/2010/07/tree_life.jpg

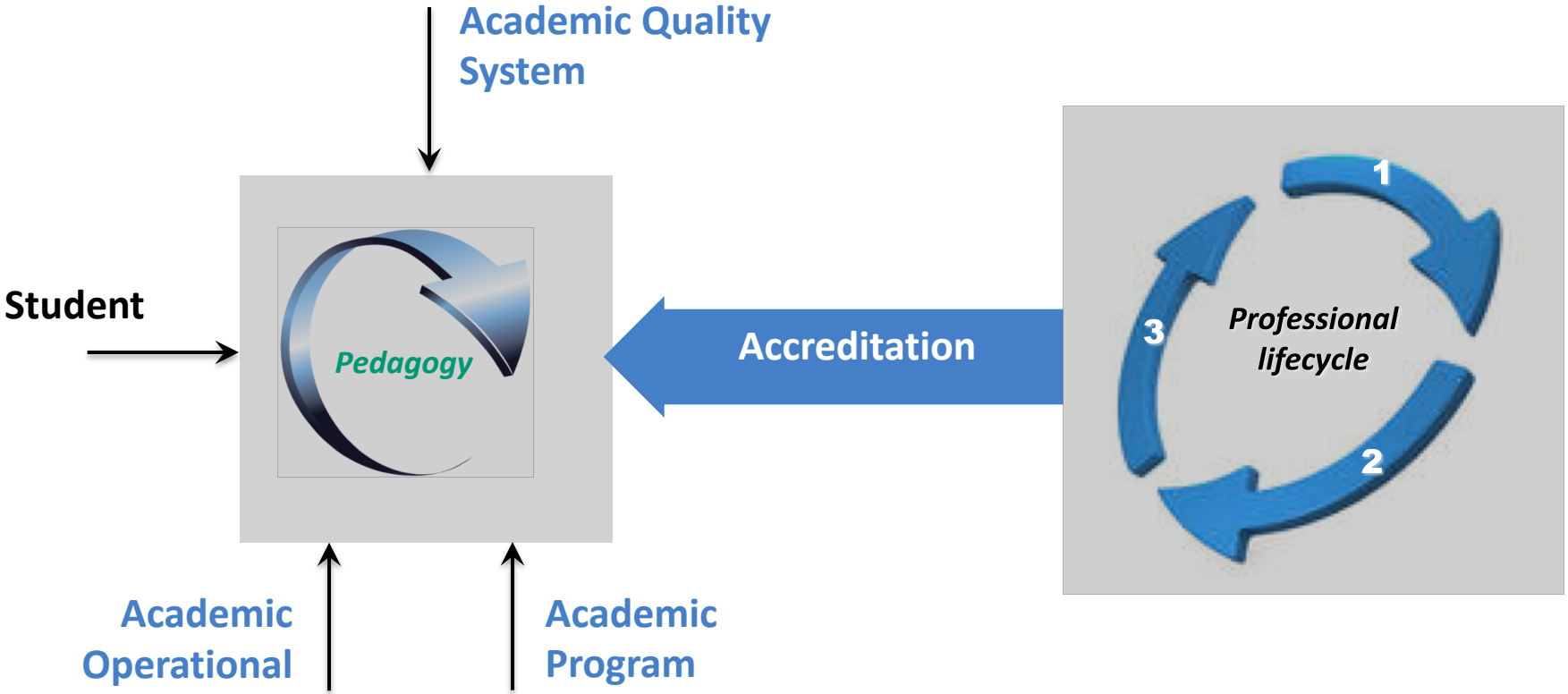
Focus of the Accords



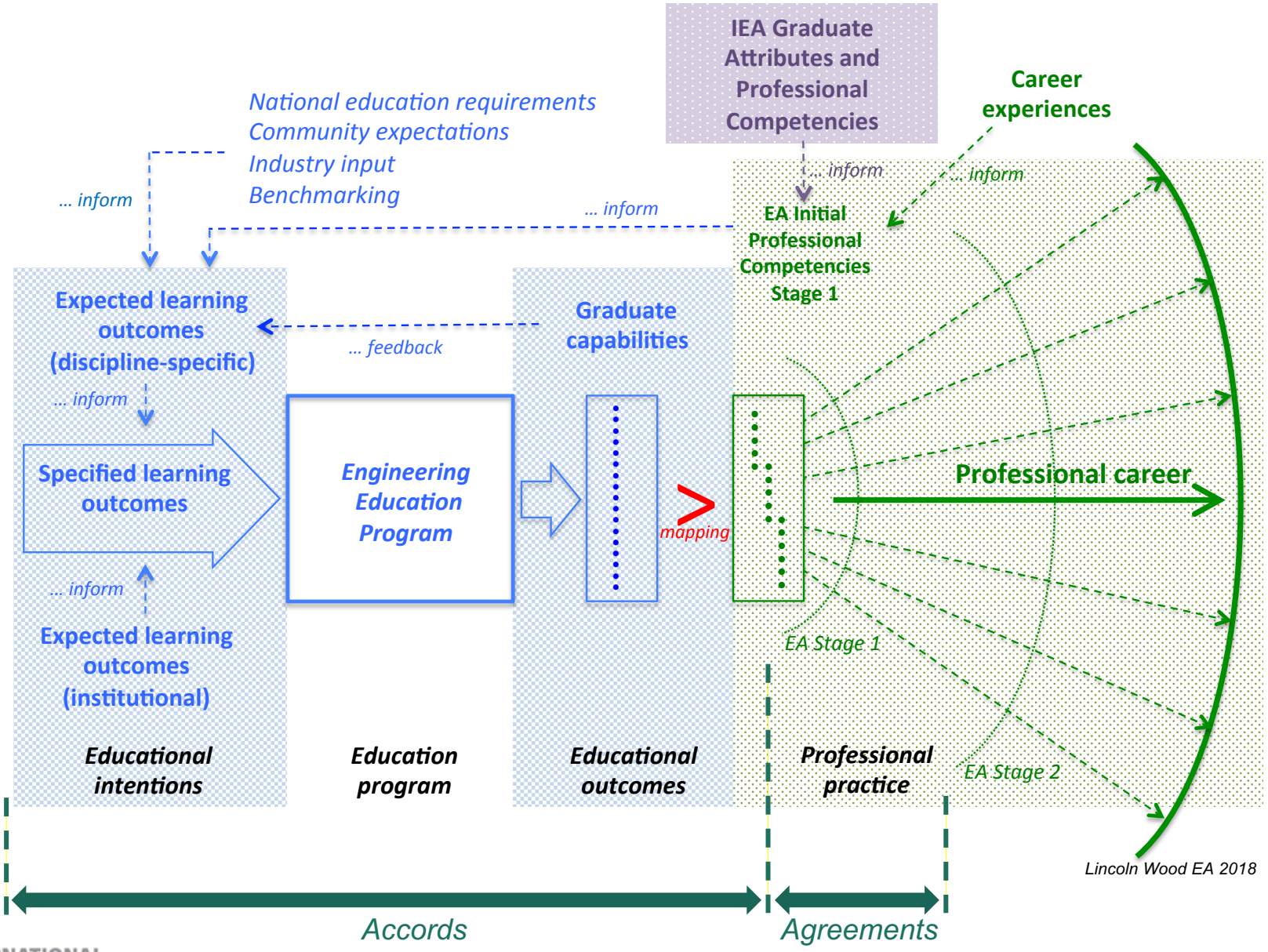
Based on the IDEF0 function model
Lincoln Wood, Engineers Australia

Quality Assurance:

Accreditation links professional practice to the education function



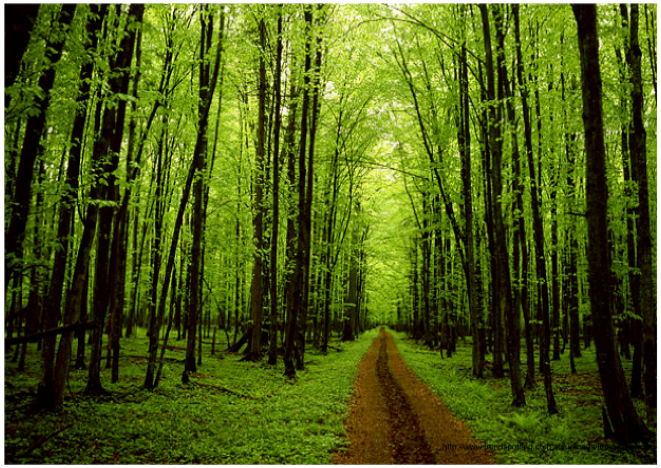
Accreditation seeks to verify that the pedagogy function provides graduates with initial competencies suitable for entry to professional practice


IEA Graduate Attributes and Professional Competencies
Career experiences
National education requirements
Community expectations
Industry input
Benchmarking
... inform
... inform
... inform
... inform
EA Initial Professional Competencies Stage 1
Expected learning outcomes (discipline-specific)
... feedback
Graduate capabilities
... inform
Specified learning outcomes
Engineering Education Program
mapping
Professional career
... inform
Expected learning outcomes (institutional)
EA Stage 1
Educational intentions
Education program
Educational outcomes
Professional practice
EA Stage 2
Lincoln Wood EA 2018
Accords
Agreements

Drivers underpinning accreditation

The terms *quality assurance* and *risk management* are often used in association with outcomes-based accreditation:

- Quality assurance enables an organisation (or education program in the accreditation context) to achieve its purpose.
- Risk management evaluates the effect of uncertainty on the likely attainment of those objectives.

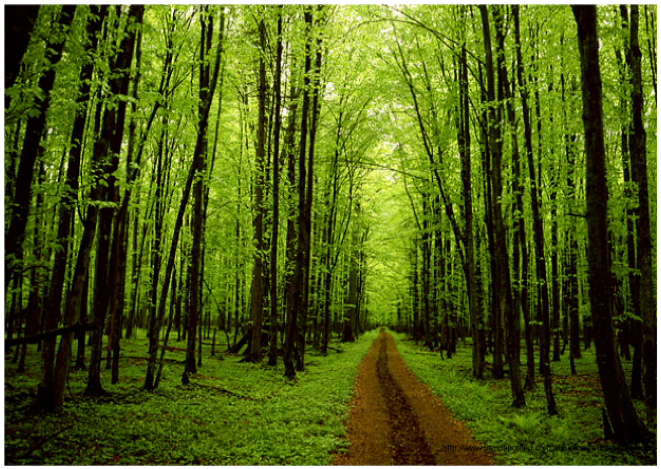


- Outcomes-based accreditation allows innovation and change by minimising the degree of prescription of how the specified program outcomes are to be attained.

- Genuine innovation may introduce significant risk profiles, especially in the short term.
- A simple application of the outcomes-based approach may not be adequate to manage the extremities of risky practices.
- Accreditation policies and procedures need to outline risk management approaches.
- Effective risk management is essential to innovation and change management.

Courtesy of Lincoln Wood 2020

Quality



Innovation

SUSTAINABLE DEVELOPMENT GOALS

The Sustainable Development Goals are the blueprint to achieve a better and more sustainable future for all.

They address the global challenges we face:

poverty,
inequality,
climate,
environmental degradation,
prosperity, and
peace and justice.

and engineering has a large role to play

2015 IEA/ENAEE publication: “Best practice in Accreditation”

Federation of Engineering Institutions in Asia and the Pacific (FEIAP) has developed an accreditation development pathway that facilitates IEA Accord signatory status.

World Federation of Engineering Organisations (WFEO), in partnership with IEA, established a project in June 2018 to address the needs of its members in the developing world, based on IEA standards.

As with all things in life, IEA accreditation **cannot remain static**.

Constant care is required to maintain quality while ensuring that benchmark standards and systems are capable of meeting present and future challenges:

- coverage of emerging technologies
- coverage of emerging engineering disciplines
- aligning engineering with the UN Sustainable Development Goals
- coverage of diversity and inclusion and ethics to reflect current and emerging thinking
- expectations regarding the intellectual agility, creativity and innovation required of engineering decision making and professional judgement to meet constantly evolving community needs.

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IEA/WFEO Working Group: Graduate Attributes and Professional Competencies Review

Prof Dr A. Bülent Özgüler (MUDEK) (Chair)

Technologies?

Diversity?

Inclusion?

Ethics?

Disciplines?

Characteristic	**Professional Engineer**
Comprehend and apply universal knowledge:	**EC1:** Comprehend and apply advanced knowledge of the widely-applied principles underpinning good practice
Comprehend and apply local knowledge:	**EC2:** Comprehend and apply advanced knowledge of the widely-applied principles underpinning good practice specific to the jurisdiction in which he/she practices.
Problem analysis:	**EC3:** Define, investigate and analyse complex problems
Design and development of solutions:	**EC4:** Design or develop solutions to complex problems
Evaluation:	**EC5:** Evaluate the outcomes and impacts of complex activities
Protection of society:	**EC6:** Recognise the reasonably foreseeable social, cultural and environmental effects of complex activities generally, and have regard to the need for sustainability; recognise that the protection of society is the highest priority
Legal and regulatory:	**EC7:** Meet all legal and regulatory requirements and protect public health and safety in the course of his or her activities
Ethics:	**EC8:** Conduct his or her activities ethically
Manage engineering activities:	**EC9:** Manage part or all of one or more complex activities
Communication:	**EC10:** Communicate clearly with others in the course of his or her activities
Lifelong learning:	**EC11:** Undertake CPD activities sufficient to maintain and extend his or her competence
Judgement:	**EC11:** Recognize complexity and assess alternatives in light of competing requirements and incomplete knowledge. Exercise sound judgement in the course of his or her complex activities
Responsibility for decisions:	**EC12:** Be responsible for making decisions on part or all of complex activities

intellectual agility, creativity and innovation?

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Disruptor

Disruptor - Response

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Disruptor - Response

Welcome to the IEA **Accreditation in a Virtual World** Basecamp site set up 30 April 2020

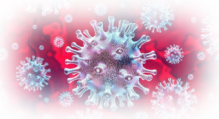
Saturday 13 June 2020

Washington Accord Workshop – Sharing Best Practices and Policies for Online Teaching Learning and Assessment System and Virtual/Remote Accreditation Process

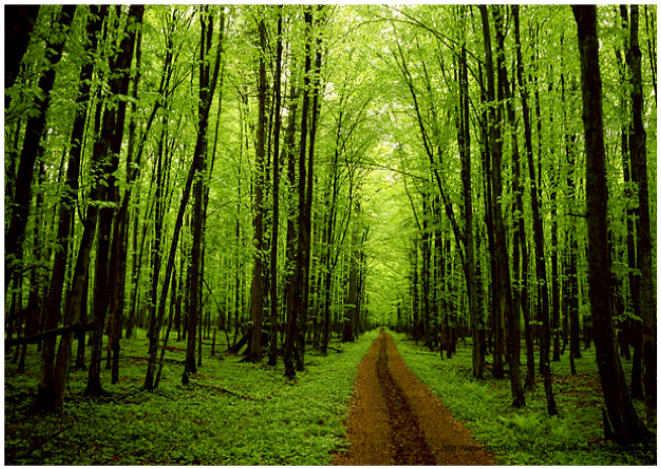
Organized by

The Institution of Engineers Singapore, IES and Pakistan Engineering Council, PEC.

Working together to create a shared and better future



Quality



Innovation

International Engineering Alliance Accords
Mutual recognition of Engineering Education

Establishing a global engineering education standard **that drives sustainability**

Facilitating engineering mobility – **creating networks, sharing ideas**

Building engineering capacity **for sustainable development**

Working together to create a shared and better future

17 PARTNERSHIPS FOR THE GOALS

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