Washington Accord
Where do we go from here

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Jordan Engineers Association

- **How do we build mutual understanding among nations about the quality of engineers who enter the globally connected workplace?**
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- George Peterson,
- Washington Accord Secretariat, 2001–2007

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Overview

- The Washington Accord is a self-governing, autonomous agreement between national organizations (signatories) that provide external accreditation to engineering educational programs that **qualify their graduates for entry into professional engineering practice**

Overview

- Signatories agree to grant graduates of each other's accredited programs the **same recognition, rights and privileges** as they grant to graduates of their own accredited programs.

Overview

- the Accord facilitates mobility of graduates between signatory jurisdictions and deeper understanding and recognition of their engineering education and accreditation systems

Overview

- There are currently 15 signatories to the Washington Accord that together deliver over 7,000 programs producing graduates that are significantly similar in competencies.

Education and Training in the Formation of a **Practicing Engineer**

- Meet standard of engineering education: Graduate Attributes
- Meet standard for professional competency
- Observe code of conduct
- Maintain competence

Brief History

- 1989: Washington Accord signed by six organizations
- 1990 onwards: Development of formal peer review processes
- 1997–2002: New accords and agreements
- 2001 onwards: Development of graduate attribute exemplars

Brief History

- 2007: IEA (International Engineering Alliance) Secretariat established
- 2008 onwards: Development of rules for trans-national accreditation and Accord recognition
- 2012: Washington Accord signatories reach 15
- 2013 onwards: Relationship with ENAEE (European Networks for Accreditation of Engineering Education)

Signatories

- 1989 Australia
- Canada
- Ireland
- New Zealand
- United Kingdom
- United States
- 1995 Hong Kong China
- 1999 South Africa
- 2005 Japan
- 2006 Singapore
- 2007 Korea
- Chinese Taipei
- 2009 Malaysia
- 2011 Turkey
- 2012 Russia

Provisional Status

- Bangladesh
- China
- India
- Pakistan
- Philippines
- Sri Lanka

Attribute

- The Washington Accord Graduate Attribute Profile has **12 elements**, supported by a **Knowledge Profile**, WK1-WK8, and a definition of the Level of **Problem Solving**, WP1-WP7, both given below:

Graduate Attributes

- Engineering knowledge
- Problem analysis
- Design/development of solutions
- Investigation
- Modern tool usage
- The engineer and society

- Environment and sustainability
- Ethics
- Individual and teamwork
- Communication
- Project management and finance
- Life-long learning

The Washington Accord Knowledge Profile has eight elements:

Attributes: Complex Engineering Problem and activities

- Depth of knowledge required
- Range of conflicting requirements
- Depth of analysis
- Familiarity of issues
- Extent of applicable codes
- Extent of stakeholder involvement and needs
- Interdependence

- Range of resources
- Level of interactions
- Innovation
- Consequences to society and the environment
- Familiarity

IEA

Role of the International Engineering Alliance

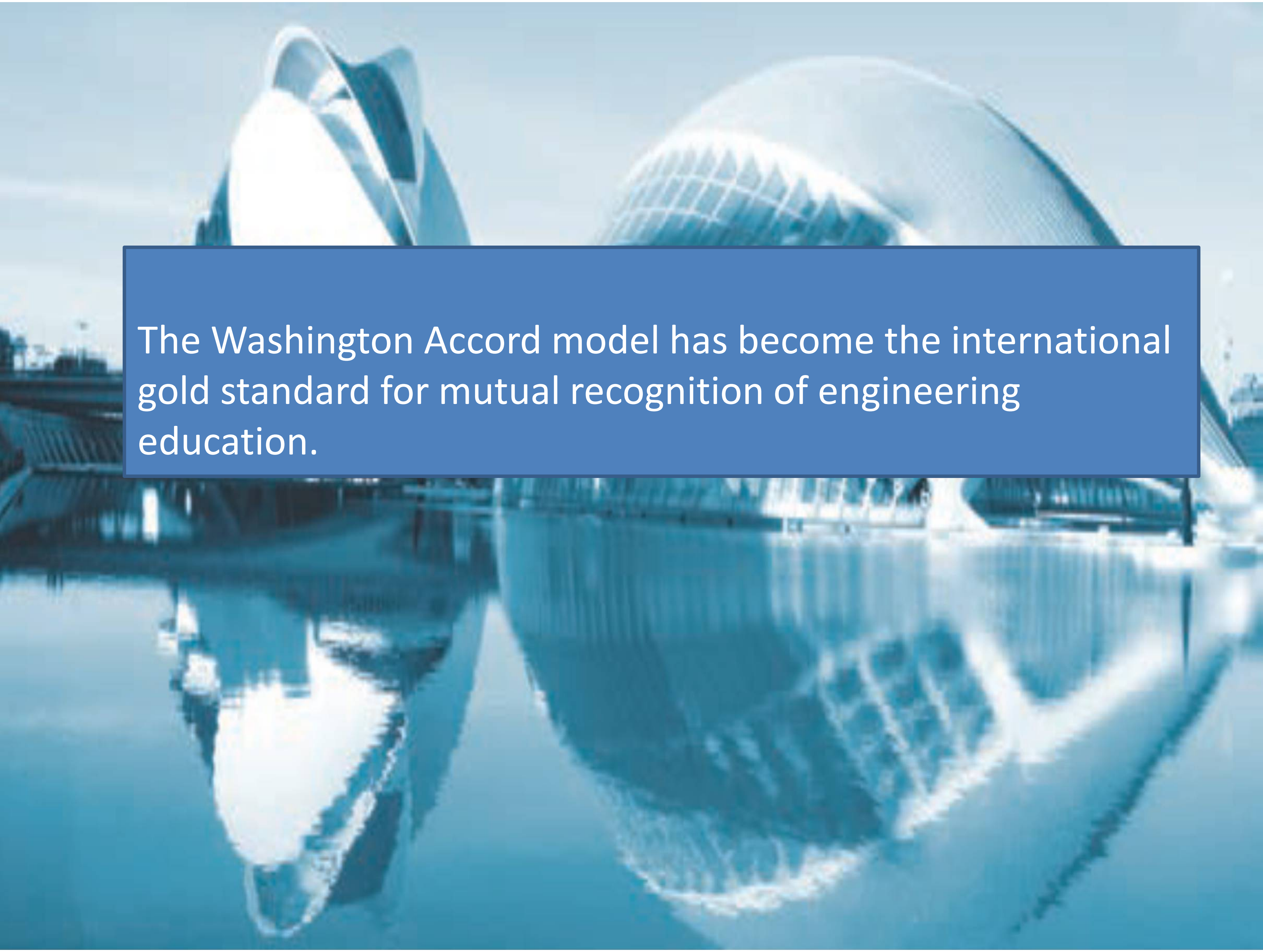
- The International Engineering Alliance (IEA) is an umbrella organization for seven multi-lateral agreements which establish and enforce amongst their members inter-nationally-benchmarked standards for engineering education and what is termed “entry level” competence to practice engineering..

The IEA’s core activities:

- Consistent improvement of standards and mobility
- Defining standards of education and professional competence
- Assessment of education accreditation and evaluation of competence
- Participation in activities that are driven from the engineering profession.

IEA

- Washington Accord (WA): Engineering related
- Sydney Accord (SA): Engineering Technologist related
- Dublin Accord (DA): Engineering Technician related
- International Professional Engineers Agreement (IPEA)
- Asia-Pacific Economic Co-operation agreement (APEC)
- International Engineering Technologist Agreement (IETA)
- Agreement for International Engineering Technicians (AIET)



The Washington Accord model has become the international gold standard for mutual recognition of engineering education.

www.ieagreement.org

Thank you

Engineering Knowledge (WA1)

Apply knowledge of mathematics, natural science, engineering fundamentals and an engineering specialization as specified in WK1 to WK4 respectively to the solution of complex engineering problems.

Problem Analysis (WA2)

Identify, formulate, research literature and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences (WK1 to WK4).

Design/development of solutions (WA3)

Design solutions for complex engineering problems and design systems, components or processes that meet specified needs with appropriate consideration for public health, and safety, cultural, societal and environmental considerations (WK5).

Investigation (WA4)

Conduct investigations of complex problems using research-based knowledge (WK8) and research methods including design of experiments, analysis and interpretation of data, and synthesis of information to provide valid conclusions.

Modern Tools Usage (WA5)

Create, select and apply appropriate techniques, resources and modern engineering and IT tools, including prediction and modeling, to complex engineering problems, with an understanding of the limitations (WK6).

The Engineer and Society (WA6)

- Apply reasoning informed by contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to professional engineering practice and solutions to complex engineering problems (WK7).

Environment and Sustainability ([WA7](WA7))

Understand and evaluate the sustainability and impact of professional engineering work in the solution of complex engineering problems in societal and environmental contexts (WK7).

Ethics (WA8)

Apply ethical principles and commit to professional ethics and responsibilities and norms of engineering practice (WK7).

Individual and teamwork (WA9)

Function effectively as an individual, and as a member or leader in diverse teams and in multi-disciplinary settings.

Communication (WA10)

Communicate effectively on complex engineering activities with the engineering community and society at large, such as being able to comprehend and write effective reports and design documentation, make effective presentations and give and receive clear instructions.

Project management and finance (WA11)

Demonstrate knowledge and understanding of engineering management principles and economic decision-making and apply these to one's own work as a member and leader in a team, to manage projects and in multi-disciplinary environments.

Life-long learning (WA12)

Recognize the need for, and have the preparation and ability to engage in, independent and life-long learning in the broadest context of technological change.

WK1

A systematic, theory-based understanding of the natural sciences applicable to the discipline.

WK2

Conceptually-based mathematics, numerical analysis, statistics and formal aspects of computer and information science to support analysis and modeling applicable to the discipline.

WK3

A systematic, theory-based formulation of engineering fundamentals required in the engineering discipline.

WK4

Engineering specialist knowledge that provides theoretical frameworks and bodies of knowledge for the accepted practice areas in the engineering discipline; much is at the forefront of the discipline.

WK5

Knowledge that supports engineering design in a practice area.

WK6

Knowledge of engineering practice (technology) in the practice areas in the engineering discipline.

WK7

Comprehension of the role of engineering in society and identified issues in engineering practice in the discipline: ethics and the professional responsibility of an engineer to public safety; and the impacts of engineering activity – economic, social, cultural, environmental and sustainability.

WK8

- Engagement with selected knowledge in the research literature of the discipline.

Depth of knowledge required (WP1)

Cannot be resolved without in-depth engineering knowledge at the level of one or more of WK3, WK4, WK5, WK6 or WK8 which allows a fundamentals-based, first principles analytical approach.

Range of conflicting requirements (WP2)

Involve wide ranging or conflicting technical, engineering and other issues.

Depth of analysis required (WP3)

Have no obvious solution and require abstract thinking and originality in analysis to formulate suitable models.

Familiarity of issues (WP4)

Involve infrequently encountered issues.

Extent of applicable codes (WP5)

Outside problems encompassed by standards and codes of practice for professional engineering.

Extent of stakeholder involvement and needs (WP6)

Involve diverse groups of stakeholders with widely varying needs.

Interdependence (WP7)

High level problems including many component parts or sub-problems.

Range of resources (EA1)

Involve the use of diverse resources (and for this purpose resources include people, money, equipment, materials, information and technologies).

Level of interactions (EA2)

Require resolution of significant problems arising from interactions between wide-ranging or conflicting technical, engineering or other issues.

Innovation (EA3)

Involve creative use of engineering principles and research-based knowledge in novel ways.

Consequences to society and the environment (EA4)

Have significant consequences in a range of contexts, characterized by difficulty of prediction and mitigation.

Familiarity (EA5)

Can extend beyond previous experiences by applying principles-based approaches.