



SATURDAY
18 JULY
 11am - 12.30 pm UTC
 01pm - 02.30 pm CET

CONSULTATION WEBINAR

UNESCO IEA WFEO DRAFT REVIEW IEA GRADUATE ATTRIBUTE AND PROFESSIONAL COMPETENCY FRAMEWORK (GAPC)

MODERATOR:



Prof. GONG Ke
 President of WFEO

SPEAKERS:



Dr Marlene Kanga
 WFEO Past President



Dr Michael Milligan
 CEO, ABET USA



Dr Charlie Than
 President of Myanmar
 Engg. Council



Prof. Bulent Ozguler
 Chair, WFEO-IEA
 Working Group



Mr Kang Jincheng
 Strategic Specialist,
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DCT



Register here:
<https://bit.ly/38PC0IX>



PROPOSED CHANGES TO PROFESSIONAL COMPETENCIES (TABLE 5) OF THE FRAMEWORK

Presented by
Prof. Dr. Charlie Than
President of the Myanmar Engineering Council,
Vice-President of Federation of Engineering Institutions in Asia Pacific

Graduate Attributes

	WA Graduate (Professional)	SA Graduate (Technologist)	DA Graduate (Technician)
1. Engineering Knowledge			
2. Problem Analysis	Complex	Broadly defined	Well defined
3. Design/ development of solutions	Complex	Broadly defined	Well defined
4. Investigation	Complex	Broadly defined	Well defined
5. Modern Tool Usage	Complex	Broadly defined	Well defined
6. The Engineer and Society			
7. Environment and Sustainability			
8. Ethics			
9. Individual and Team work			
10. Communication	Complex	Broadly defined	Well defined
11. Project Management and Finance			
12. Life long learning			

<http://www.ieagrements.com/GradProfiles.cfm>

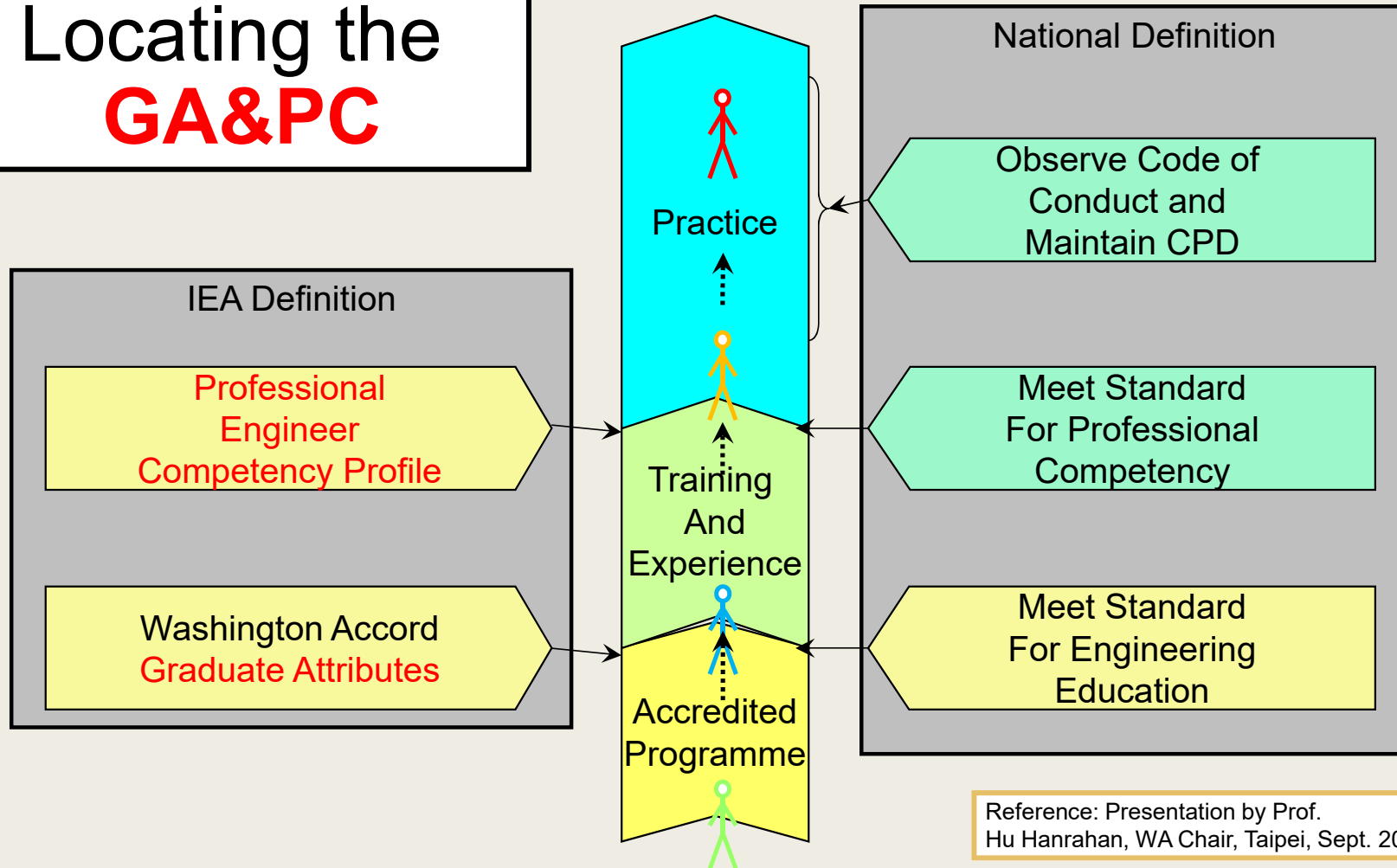
Professional Competency Profiles

Element	Professional Engineer	Engineering Technologist	Engineering Technician
1. Comprehend and apply universal knowledge	advanced	widely accepted applied	standardised
2. Comprehend and apply local knowledge	advanced	widely accepted applied	standardised
3. Problem analysis	complex	broadly-defined	well-defined
4. Design and development of solutions	complex	broadly- defined	well- defined
5. Evaluation	complex	broadly defined	well-defined
6. Protection of society	complex	broadly-defined	well-defined
7. Legal and regulatory	=	=	=
8. Ethics	=	=	=
9. Manage engineering activities	complex activities	broadly- defined	well- defined
10. Communication	=	=	=
11. Lifelong learning	=	=	=
12. Judgment	complex	broadly defined	well-defined
13. Responsibility for decisions	complex	broadly defined	well- defined

<http://www.ieagrements.com/GradProfiles.cfm>



Locating the **GA&PC**



Reference: Presentation by Prof. Hu Hanrahan, WA Chair, Taipei, Sept. 2011.

Table 5 Professional Competency Profiles

To meet the minimum standard of competence a person must demonstrate that he/she is able to practice competently in his/her practice area to the standard expected of a reasonable Professional Engineer/Engineering Technologist/Engineering Technician.

The extent to which the person is able to perform each of the following elements in his/her practice area must be taken into account in assessing whether or not he/she meets the overall standard.

Proposed changes

To meet the minimum standard of competence a person must demonstrate **the ability he/she is able** to practice competently **in his/her- their** practice area to the standard expected of a reasonable Professional Engineer/Engineering Technologist/Engineering Technician.

The extent to which the person is able to perform each of the following elements in **their his/her** practice area must be taken into account in assessing whether or not **he/she meets** the overall standard **is met**.

Reason for change:
Gender neutral language used.

GAPC Version-3.EC,TC,NC-1

Differentiating Characteristic	Professional Engineer	Engineering Technologist	Engineering Technician
Comprehend and apply universal knowledge: Breadth and depth of education and type of knowledge	EC1: Comprehend and apply advanced knowledge of the widely-applied principles underpinning good practice	TC1: Comprehend and apply the knowledge embodied in widely accepted and applied procedures, processes, systems or methodologies	NC1: Comprehend and apply knowledge embodied in standardised practices

No Changes proposed.

EC: Professional Engineer Competency Profile

TC: Engineering Technologist Competency Profile

NC: Engineering Technician Competency Profile

GAPC Version-3.EC,TC,NC-2

Differentiating characteristic	Professional Engineer	Engineering Technologist	Engineering Technician
Comprehend and apply local knowledge: Type of 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.	TC2: Comprehend and apply the knowledge embodied procedures, processes, systems or methodologies that is specific to the jurisdiction in which he/she practices	NC2: Comprehend and apply knowledge embodied in standardised practices specific to the jurisdiction in which he/she practices.

Proposed changes

Differentiating characteristic	Professional Engineer	Engineering Technologist	Engineering Technician
Comprehend and apply local knowledge: Type of local knowledge	EC2: Comprehend and apply advanced knowledge of the widely-applied principles underpinning good practice specific to the jurisdiction of in which he/she practice..	TC2: Comprehend and apply the knowledge embodied procedures, processes, systems or methodologies that is specific to the jurisdiction of in which he/she practices.	NC2: Comprehend and apply knowledge embodied in standardised practices specific to the jurisdiction in which he/she of practice..

Reason for change:
Gender neutral language used.

GAPC Version-3.EC,TC,NC-3

Differentiating Characteristic	Professional Engineer	Engineering Technologist	Engineering Technician
Problem analysis: Complexity of analysis	EC3: Define, investigate and analyse complex problems.	TC3: Identify, clarify, and analyse broadly-defined problems.	NC3: Identify, state and analyse well-defined problems.

Proposed changes

Differentiating Characteristic	Professional Engineer	Engineering Technologist	Engineering Technician
Problem analysis: Complexity of analysis	EC3: Define, investigate and analyse complex problems using data and information technologies	TC3: Identify, clarify, and analyse broadly-defined problems using the support of computing and information technologies	NC3: Identify, state and analyse well-defined problems using the support of computing and information technologies

**Reason for change:
The use of computing and IT tools has been added.**

GAPC Version-3.EC,TC,NC-4

Differentiating Characteristic	Professional Engineer	Engineering Technologist	Engineering Technician
Design and development of solutions: Nature of the problem and uniqueness of the solution	EC4: Design or develop solutions to complex problems	TC4: Design or develop solutions to broadly- defined problems	NC4: Design or develop solutions to well-defined problems

Proposed changes

Differentiating Characteristic	Professional Engineer	Engineering Technologist	Engineering Technician
Design and development of solutions: Nature of the problem and uniqueness of the solution	EC4: Design or develop inclusive solutions to complex problems with stakeholder consultation	TC4: Design or develop inclusive solutions to broadly- defined problems	NC4: Design or develop inclusive solutions to well- defined problems

Reason for change:
The importance of inclusive solutions and stakeholder consultation has been added.

GAPC Version-3.EC,NC,TC-5

Differentiating Characteristic	Professional Engineer	Engineering Technologist	Engineering Technician
Evaluation: Type of activity	EC5: Evaluate the outcomes and impacts of complex activities	TC4: Evaluate the outcomes and impacts of broadly defined activities	NC5: Evaluate the outcomes and impacts of well-defined activities

Proposed changes

Differentiating Characteristic	Professional Engineer	Engineering Technologist	Engineering Technician
Evaluation: Type of activity	EC5: Evaluate the outcomes and impacts of complex activities in the contexts of risk and social, environmental, economic and resource impacts	TC4: Evaluate the outcomes and impacts of broadly defined activities in the contexts of risk and social, environmental, economic and resource impacts	NC5: Evaluate the outcomes and impacts of well-defined activities

Reason for change:
The importance of evaluation and risk assessment in broad contexts has been added.

GAPC Version-3.EC,TC,NC-6

Differentiating Characteristic	Professional Engineer	Engineering Technologist	Engineering Technician
Protection of society: Types of activity and responsibility to consider public.	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	TC6: Recognise the reasonably foreseeable social, cultural and environmental effects of broadly-defined activities generally, and have regard to the need for sustainability; take responsibility in all these activities to avoid putting the public at risk	NC6: Recognise the reasonably foreseeable social, cultural and environmental effects of well-defined activities generally, and have regard to the need for sustainability; use engineering technical expertise to prevent dangers to the public

Proposed changes

Differentiating Characteristic	Professional Engineer	Engineering Technologist	Engineering Technician
Protection of society: Types of activity and responsibility to consider advancement of the UN Sustainable Development Goals public	EC6: Recognise the reasonably foreseeable social, cultural and environmental effects of complex activities generally, and have regard to the need for sustainable outcomes that leave no one behind per the UN Sustainable Development Goals; global quality of life for humans and the environment. ity; recognise that the protection of society is the highest priority	TC6: Recognise the reasonably foreseeable social, cultural and environmental effects of broadly-defined activities generally, and have regard to the need for sustainable outcomes that leave no one behind per the UN Sustainable Development Goals; global quality of life for humans and the environment. sustainability; take responsibility in all these activities to avoid putting the public at risk.	NC6: Recognise the reasonably foreseeable social, cultural and environmental effects of well-defined activities generally, and have regard to the need for sustainable outcomes that leave no one behind per the UN Sustainable Development Goals; global quality of life for humans and the environment. sustainability; use engineering technical expertise to prevent dangers to the public.

Reason for change:
The importance of consideration of the advancement of the UN Sustainable Development Goals where relevant has been added

GAPC Version-3,EC,TC,NC-7

Differentiating Characteristic	Professional Engineer	Engineering Technologist	Engineering Technician
Legal and regulatory: No differentiation in this characteristic	EC7: Meet all legal and regulatory requirements and protect public health and safety in the course of his or her activities	TC7: Meet all legal and regulatory requirements and protect public health and safety in the course of his or her activities	NC7: Meet all legal and regulatory requirements and protect public health and safety in the course of his or her activities

Proposed changes

Differentiating Characteristic	Professional Engineer	Engineering Technologist	Engineering Technician
Legal, environment, cultural and regulatory: No differentiation in this characteristic	EC7: Meet all legal and regulatory Requirements, protect public health and safety, environment and cultural heritage in the course of all his or her Activities	TC7: Meet all legal and regulatory requirements and protect public health and safety environment and cultural heritage in the course of all his or her activities	NC7: Meet all legal and regulatory requirements and protect public health and safety environment and cultural heritage in the course of all his or her activities

Reason for change:

The importance of compliance with relevant laws and regulations including to protect the environment and cultural heritage and gender neutral language has been added.

GAPC Version-3.EC,TC,NC-8

Differentiating Characteristic	Professional Engineer	Engineering Technologist	Engineering Technician
Ethics: No differentiation in this characteristic	EC8: Conduct his or her activities ethically	TC8: Conduct his or her activities ethically	NC8: Conduct his or her activities ethically

Proposed changes

Differentiating Characteristic	Professional Engineer	Engineering Technologist	Engineering Technician
Ethics, Diversity, and Inclusion: No differentiation in this characteristic	EC8: Conduct his or her all activities ethically and inclusively, respecting cultural, ethnic, religious and all other differences	TC8: Conduct his or her all activities ethically, Respect in diverse teams and understand the need for inclusion	NC8: Conduct his or her all activities ethically, in diverse teams Respect diversity and understand the need for inclusion

Reason for change:
 The ethics of equal opportunity for all through working effectively in diverse and inclusive teams and gender neutral language has been added.

GAPC Version-3.EC,TC,NC-9

Differentiating Characteristic	Professional Engineer	Engineering Technologist	Engineering Technician
Manage engineering activities: Types of activity	EC9: Manage part or all of one or more complex activities	TC9: Manage part or all of one or more broadly-defined activities	NC9: Manage part or all of one or more well-defined activities

Reason for change:
No proposed changes

GAPC Version-3.EC,TC,NC-10

Differentiating Characteristic	Professional Engineer	Engineering Technologist	Engineering Technician
Communication: No differentiation in this characteristic	EC10: Communicate clearly with others in the course of his or her activities	TC10: Communicate clearly with others in the course of his or her activities	NC10: Communicate clearly with others in the course of his or her activities

Proposed changes

Differentiating Characteristic	Professional Engineer	Engineering Technologist	Engineering Technician
Communication and Collaboration: Requirement for inclusive communications, No differentiation in this characteristic	EC10: Communicate and collaborate using multiple mediums clearly and inclusively with a broad range of stakeholders in the course of his or her all activities	TC10: Communicate and collaborate using multiple mediums clearly and inclusively with a broad range of stakeholders with others in the course of his or her all activities	NC10: Communicate and collaborate using multiple mediums clearly and inclusively with a broad range of stakeholders with others in the course of his or her all activities

Reason for change:

The importance of inclusive communications and gender neutral language has been added.

GAPC Version-3.EC,NC,TC-11

Differentiating Characteristic	Professional Engineer	Engineering Technologist	Engineering Technician
Lifelong learning: Preparation for and depth of continuing learning.	EC11: Undertake CPD activities sufficient to maintain and extend his or her competence	TC11: Undertake CPD activities sufficient to maintain and extend his or her competence	NC11: Undertake CPD activities sufficient to maintain and extend his or her competence

Proposed changes

Differentiating Characteristic	Professional Engineer	Engineering Technologist	Engineering Technician
Continuing Professional Development (CPD) Lifelong learning: Preparation for and depth of continuing learning.	EC11: Undertake CPD activities sufficient to maintain and extend technical competencies and enhance their ability to adapt to emerging technologies and the ever changing nature of work. sufficient to maintain and extend his or her competencies	TC11: Undertake CPD activities to adapt to emerging technologies and the ever changing nature of work sufficient to maintain and extend his or her competence	NC11: Undertake CPD activities to adapt to emerging technologies sufficient to maintain and extend his or her competence

Reason for change:
The importance of lifelong learning in a world of rapidly changing technologies and gender neutral language has been added.

GAPC Version-3.EC,NC,TC-12

Differentiating Characteristic	Professional Engineer	Engineering Technologist	Engineering Technician
Judgement: Level of developed knowledge, and ability and judgement in relation to type of activity	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	TC12: Choose appropriate technologies to deal with broadly defined problems. Exercise sound judgement in the course of his or her broadly-defined activities	NC12: Choose and apply appropriate technical expertise. Exercise sound judgement in the course of his or her well-defined activities

Proposed changes

Differentiating Characteristic	Professional Engineer	Engineering Technologist	Engineering Technician
Judgement: Level of developed knowledge, and ability and judgement in relation to type of activity	EC11: Recognize complexity and assess alternatives in light of competing social, economic, environmental, cultural and other requirements and considering incomplete knowledge. Exercise sound judgement in the course of all his or her complex activities	TC12: Choose appropriate technologies to deal with broadly defined problems considering social, economic, environmental, cultural as needed. Exercise sound judgement in the course of his or her broadly-defined activities	NC12: Choose and apply appropriate technical expertise. Exercise sound judgement in the course of his or her well-defined activities

Reason for change:

The need to exercise judgement and application of knowledge and ability in broad context and gender neutral language has been added.

GAPC Version-3.EC,TC,NC-13

Differentiating Characteristic	Professional Engineer	Engineering Technologist	Engineering Technician
Responsibility for decisions: Type of activity for which responsibility is taken	EC12: Be responsible for making decisions on part or all of complex activities	TC13: Be responsible for making decisions on part or all of one or more broadly defined activities	NC13: Be responsible for making decisions on part or all of all of one or more well- defined activities

Reason for change:
No proposed changes

Thank For Your Attention

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18th July 2020