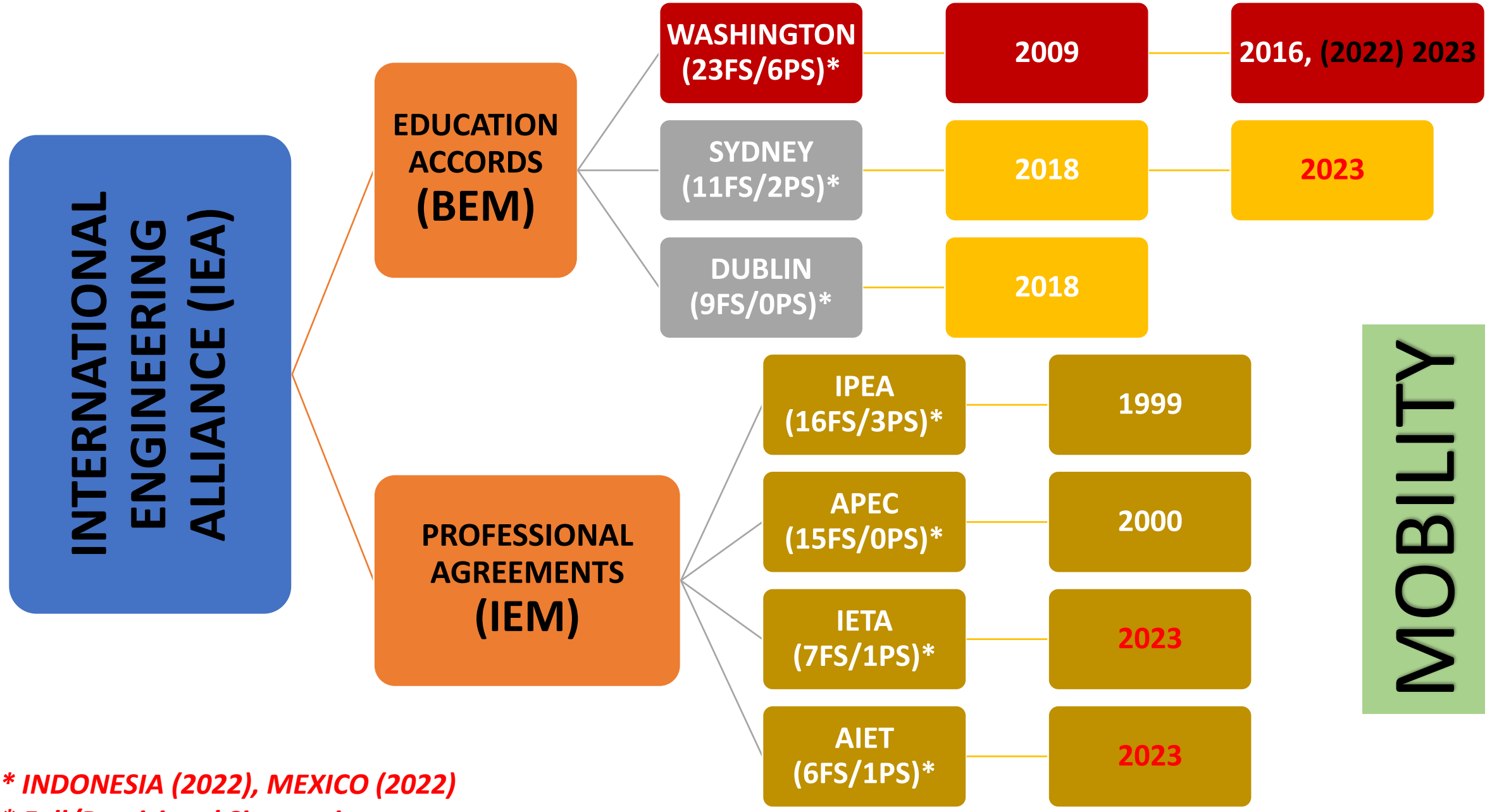
#accultrationofOBE

EAC SAR – 17SDGS : FULL ACCREDITATION AWARD

IR DR SITI HAWA HAMZAH
PhD, PEPC, FIEM, Hon. MAFEO ASEAN Engr,
Hon. Distinguished Fellow SEEM, APM, MRM, PSWM
IEM VICE PRESIDENT 2023/2025
FORMER DIRECTOR EAD-BEM
FORMER PROFESSOR OF CIVIL & STRUCTURES UiTM SHAH ALAM
FORMER EAC ASSOCIATE DIRECTOR
sitihawabthamzah@gmail.com

UNIMAS SELF ASSESSMENT REPORTS IN PREPARATION FOR EAC NEW CYCLE ACCREDITATION VISITS (17 & 18 MAY 2023)

INTERNATIONAL ENGINEERING ALLIANCE

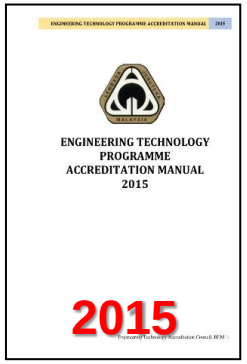


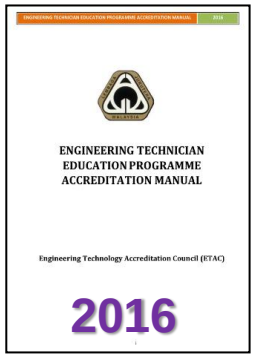
** INDONESIA (2022), MEXICO (2022)*

** Full/Provisional Signatories*

KNOW THE STANDARDS

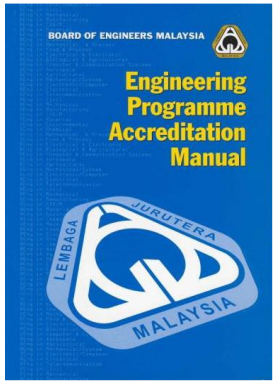
BEM-WA 2009



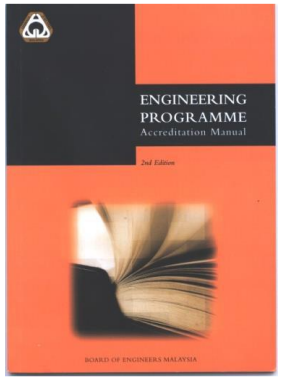


GAPC v4(2021)

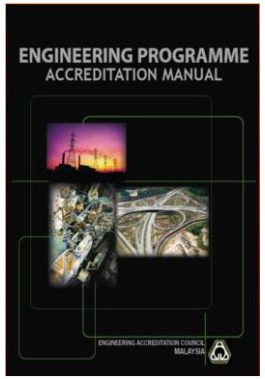
TO RELEASE ……..



1999



2003



2006
(Rev. 2007)

2012

BEM-SA DA 2018

STANDARDS

Harvesting OBE

#acculturationofOBE
1st May 2020

TO RELEASE ……..

Fully prescriptive with qualitative assessment

Direct monitoring of outcomes (cohort & individual)

OBE AWARENESS

OBE IMPLEMENTATION

OUTCOME EVIDENT

EAC 2020

2023

CHEM & EE

SAR JUN2023

EAC 2023

2024

CHEM & EE

VISIT JAN2024

CIVIL & MECH

SAR JUN2024

EAC 2023

2025

CIVIL & MECH

VISIT JAN2025

Adopt and Adapt/Gap Analysis

A **commendable SAR** towards a full accreditation shall be based on the following :

Good comprehension of the EAC Standard and its requirements;

Incorporation of data and information to **explicitly show the PO true attainment**;

Practicing **CQI** and application of **effective QMS**

Ease panels in reading and **capturing information** to prepare good report and make recommendations appropriately.

6 YEARS

EAC/ETAC STANDARD 2020 – CRITERIA (CHEM & EE)

1.OBE

- PEO
- V & M
- 2-3 state-ment
- Targets
- KPI
- >3 years

PO

- 12/11POs
- WK/SK/DK
- WP/SP/DP
- EA/TA/NA
- Map
- Trays
- Attain-ment
- CQI

2.ACADEMIC CURR

- 135/140/90 SLT
- 90/100/60 SLT
- **50/30 SLT Practice
- 4/2.5yr Curr
- Pre-Req
- OBE-TLA
- OEL
- IDP
- FYP
- IT
- Exposure
- CPC (EAC)

3.STUDENT

- Math
- Science
- 30% CT
- 50% CT
- Counsel-ling
- Load
- Motiva-tion
- Co-Curr
- OBE

4.ACADEMIC & SUPPORT STAFF

- GE/ET/ IOW
- 30% PE-CEng/**Ind
- Res/Pub/ Cons
- Industry
- Teaching Load
- Motivation
- Guest Lecturer
- OBE
- SS (1:2 labs)
- Develop-ment
- Assessment
- SSR

5.FACILITIES

- TLA rooms & facilities
- Lab equip, maintain & calibration
- IT - WiFi
- Library
- Recrea-tion
- SAFETY IN ALL FACILITIES

6.QMS

- Sustain
- Budget
- CR
- EE Report
- IAP MoM
- Admission system
- Modera-tion
- SAFETY CULTURE
- CQI

EAC/ETAC STANDARD 2023 – CRITERIA (CIVIL & MECH)

1.OBE

- PEO
- V & M
- 2-3 state-ment
- Targets
- KPI
- >3 years
- 17SDGs

PO

- 12/11 POs
- WK/SK/DK
- WP/SP/DP
- EA/TA/NA
- Map
- Trays
- Attain-ment
- CQI
- 17SDGs

2.ACADEMIC CURR

- 135/140/90 SLT
- 90/100/60 SLT
- **50/30 SLT Practice
- 4/2.5yr Curr
- Pre-Req
- OBE-TLA
- OEL
- IDP
- FYP
- IT
- Exposure
- CPC (EAC)
- 17 SDGs

3.STUDENT

- Math
- Science
- 30% CT
- 50% CT
- Counsel-ling
- Load
- Motiva-tion
- Co-Curr
- OBE

4.ACADEMIC & SUPPORT STAFF

- GE/ET/ IOW
- 30% PE-CEng/**Ind
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- Recrea-tion
- SAFETY IN ALL FACILITIES
- 17SDGs

6.QMS

- Sustain
- Budget
- CR
- EE Report
- IAP MoM
- Admission system
- Modera-tion
- SAFETY CULTURE
- CQI
- 17SDGs

THE FOCUS & APPROACH

Outcome-Based Education (OBE) Programme

Engineering Education **content and level (breadth & depth)** are maintained

Programme Continual Quality Improvement **(CQI)**

Systematic **(QMS)**

Concentrate more on assessments of outcomes

IHL Self-Assessment Report (SAR) must focus more on whether have they **achieved the 12 Programme Outcomes** and how do they assess them.

Evaluation Panel (EP) will **concentrate on reviewing the EVIDENCES FOR OUTCOME ACHIEVEMENTS** through more extensive documents reviews, longer interviews with staff, students and stakeholders.

8 QUALIFYING REQUIREMENTS

EAC Standard ~~2020~~ 2023 - WA	ETAC Standard ~~2020~~ 2023 - SA	ETAC Standard ~~2020~~ 2023 - DA
OBE Implementation	Minimum 140 SLT* credit unit. At least 100 SLT credit units shall be engineering or engineering technology courses, of which a minimum **50 SLT credit** units shall be allocated for practice-oriented components in the technical and specialist area.	Minimum 90 SLT* credit unit. At least 60 SLT credit units shall be engineering or engineering technology courses, of which a minimum **30 SLT credit** units shall be allocated for practice-oriented components in the technical and specialist area.
Minimum 135 SLT credits of which 90 credits must be engineering courses	Final year project (8-12 SLT credit units)	Final year project (4-6 SLT credit units)
IDP	Industrial training (minimum of 24 weeks)	Industrial training (minimum of 16 weeks)
FYP (min 6 credits)	Full-time Teaching staff (minimum of 8)	Full-time Teaching Staff (minimum of 6)
IT (min 8 weeks)	Staff: student ratio 1: 15 (1:20) or better	Staff: student ratio 1: 20 or better
Full-time Teaching Staff (minimum of 8 with at least 3 as PEng (30%) or equivalent)	External examiner's report (and availability of the process that requires a minimum of one report over **TWO** years)	External examiner report (and availability of the process that requires a minimum of one report over **THREE** (TWO) years)
Teaching Staff: Student ratio 1: 20 or better	Programme Educational Objectives	Programme Educational Objectives
External examiner's report (minimum of one report in **TWO** years)	Programme Outcomes	Programme Outcomes

APPENDIX D – SUMMARY CRITERIA

CRITERION 1&2 - OBE

CRITERION 3 – ACADEMIC CURRICULUM

CRITERION 4 – STUDENT

CRITERION 5 – ACADEMIC/ TEACHING & STAFF

CRITERION 6 – FACILITIES

CRITERION 7 – QUALITY MANAGEMENT SYSTEM

ACCREDITATION REPORT shall be presented using a **summary of SIX (6) criteria**.

- 12 POs (8 WK)
- PO1-PO7 mapped to WP
- PO10 mapped to EA

EAC/ETAC STANDARD 2020

GAPC v4 (2021)

- **11 WAs (9 WK)**
- WA1-WA6 mapped to WP
- WA9 mapped to EA

- ADOPT & ADAPT GAPC v4 (2021)

EAC/ETAC STANDARD 2023/2024 **

****READY TO LAUNCH ~~1ST JAN~~ 2024**

Graduate Attribute Profiles

References included are to the Knowledge and Attitude Profile in

Differentiating Characteristic	Engineer Graduate
Engineering Knowledge: Breadth, depth and type of knowledge, both theoretical and practical	**WA1:** Apply knowledge of mathematics, natural science, computing and engineering fundamentals, and an engineering specialization as specified in WK1 to WK4 respectively to develop solutions to complex engineering problems
Problem Analysis Complexity of analysis	**WA2:** Identify, formulate, research literature and analyze *complex* engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences with holistic considerations for sustainable development* (WK1 to WK4)
Design/development of solutions: Breadth and uniqueness of engineering problems i.e., the extent to which problems are original and to which solutions have not previously been identified or codified	**WA3:** Design creative solutions for *complex* engineering problems and design systems, components or processes to meet identified needs with appropriate consideration for public health and safety, whole-life cost, net zero carbon as well as resource, cultur ocietal, and environmental c iderations as required (WK5)
Investigation: Breadth and depth of investigation and experimentation	**WA4:** Conduct investigations of *complex* engineering problems using research methods including research-based knowledge, design of experiments, analysis and interpretation of data, and synthesis of information to provide valid conclusions (WK8)
Tool Usage: Level of understanding of the appropriateness of technologies and tools	**WA5:** Create, select and apply, and recognize limitations of appropriate techniques, resources, and modern engineering and IT tools, including prediction and modelling, to *complex* engineering problems (WK2 and WK6)
The Engineer and the World: Level of knowledge and responsibility for sustainable development	**WA6:** When solving complex engineering problems, analyze a evaluate sustainable development impacts* to: society, the economy, sustainability, health and safety, legal frameworks, and the environment (WK1, WK5, and WK7)
Ethics: Understanding and level of practice	**WA7:** Apply ethical principles and commit to professional ethics and norms of engineering practice and adhere to relevant national and international laws. Demonstrate an understanding of the need for diversity and inclusion (WK9)
Individual and Collaborative Team work: Role in and diversity of team	**WA8:** Function effectively as an individual, and as a member or leader in diverse and inclusive teams and in multi-disciplinary, face-to-face, remote and distributed settings (WK9)
Communication: Level of communication according to type of activities performed	**WA9:** Communicate effectively and inclusively on *complex* engineering activities with the engineering community and with society at large, such as being able to comprehend and write effective reports and design documentation, make effective presentations, taking into account cultural, language, and learning differences.
Project Management and Finance: Level of management required for differing types of activity	**WA10:** Apply 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, and to manage projects and in multidisciplinary environments.
Lifelong learning: Duration and manner	**WA11:** Recognize the need for, and have the preparation and ability for i) independent and life-long learning ii) adaptability to new and emerging technologies and iii) critical thinking in the broadest context of technological change (WK8)

*Represented by the 17 UN Sustainable Development Goals (U

Range of Problem Identification and Solving

Attribute	*Complex Engineering Problems* have characteristic WP1 and some or all of WP2 to WP7:
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 and/or conflicting technical, non-technical issues (such as ethical, sustainability, legal, political, economic, societal) and consideration of future requirements
Depth of analysis required	**WP3:** Have no obvious solution and require abstract thinking, creativity and originality in analysis to formulate suitable models
Familiarity of issues	**WP4:** Involve infrequently encountered issues or novel problems
Extent of applicable codes	**WP5:** Address problems not encompassed by standards and codes of practice for professional engineering
Extent of stakeholder involvement and conflicting requirements	**WP6:** Involve collaboration across engineering disciplines, other fields, and/or diverse groups of stakeholders with widely varying needs
Interdependence	**WP 7:** Address high level problems with many components or sub-problems that may require a systems approach

Range of Engineering Activities

Attribute	Complex Activities
Preamble	**Complex activities** means *(engineering)* activities or projects that have some or all of the following characteristics:
Range of resources	**EA1:** Involve the use of diverse resources including people, data and information, natural, financial and physical resources and appropriate technologies including analytical and/or design software
Level of interactions	**EA2:** Require optimal resolution of interactions between wide-ranging and/or conflicting technical, non-technical, and engineering issues
Innovation	**EA3:** Involve creative use of engineering principles, innovative solutions for a conscious purpose, and research-based knowledge
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

PO2 - Problem Analysis (Complexity of analysis) - Identify, formulate, research literature and analyse complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences with holistic considerations for sustainable development* (WK1 to WK4) **17SDGs

PO3 - Design/Development of Solutions (Breadth and uniqueness of engineering problems i.e., the extent to which problems are original and to which solutions have not previously been identified or codified) - Design creative solutions for complex engineering problems and design systems, components or processes to meet identified needs with appropriate consideration for public health and safety, whole-life cost, net zero carbon as well as resource, cultural, societal, and environmental considerations as required (WK5)

PO6 - The Engineer and the World (Level of knowledge and responsibility for sustainable development) - When solving complex engineering problems, analyse and evaluate sustainable development impacts* to: society, the economy, sustainability, health and safety, legal frameworks, and the environment (WK1, WK5, and WK7) **17SDGs

PO PO2 PO3 PO6

WK WK5 WK7

WP WP2

EA

WP2 - Involve wide-ranging and/or conflicting technical, non-technical issues (such as ethical, sustainability, legal, political, economic, societal) and consideration of future requirements

WK5 - Knowledge, including efficient resource use, environmental impacts, whole-life cost, re-use of resources, net zero carbon, and similar concepts, that supports engineering design and operations in a practice area

WK7: Knowledge of the role of engineering in society and identified issues in engineering practice in the discipline, such as the professional responsibility of an engineer to public safety and sustainable development* (17SDGs)

11 PO/WA with WP-WK (17SDGs)

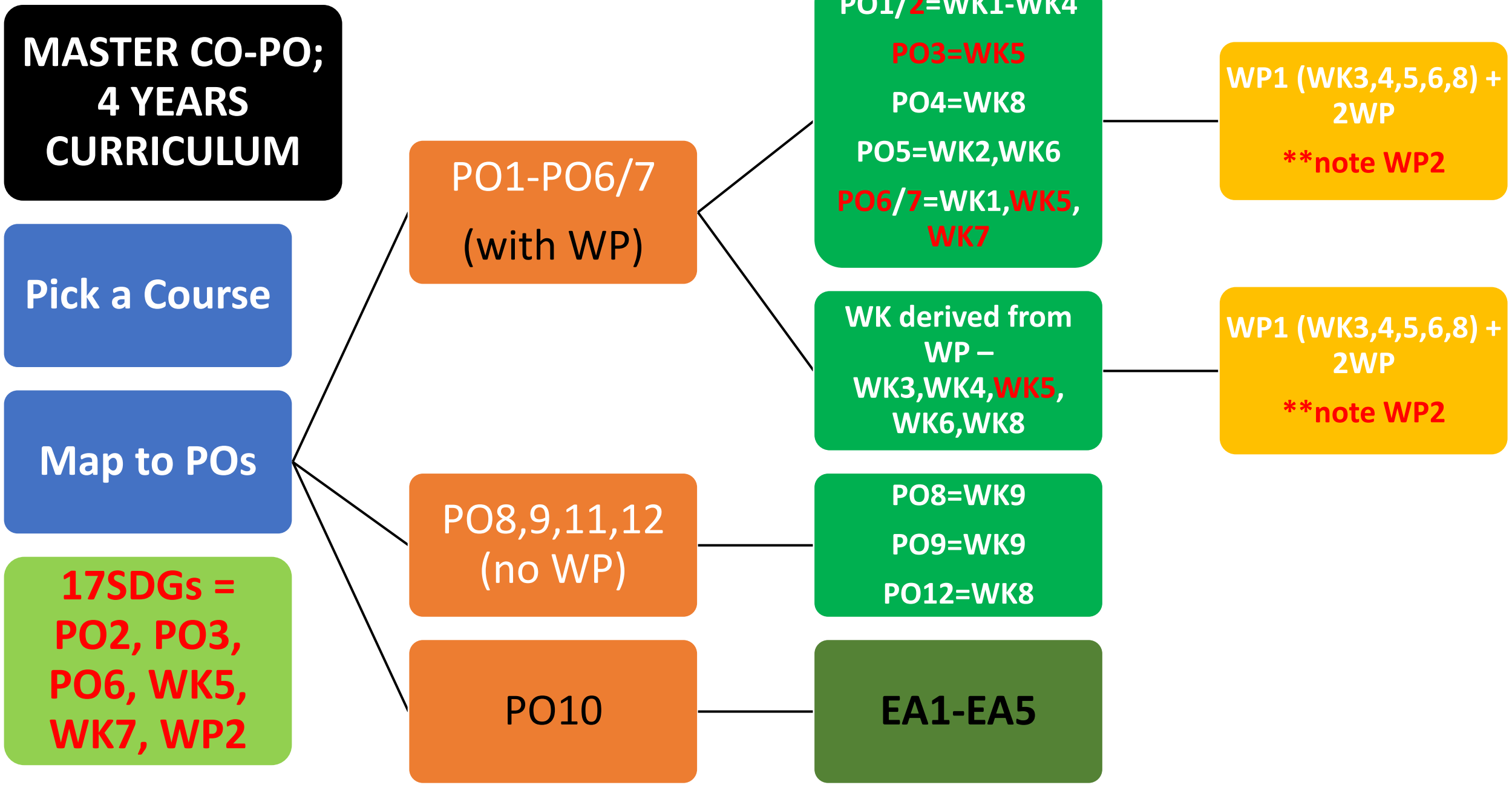
GRADUATE ATTRIBUTES (Acronym)	GRADUATE ATTRIBUTES (Keywords)	WP/EA	WA-WK's
PO1 /WA1	Engineering Knowledge	WP	WK1-WK4
PO2 /WA2	Problem Analysis	WP	WK1-WK4
PO3 /WA3	Design/Development of Solutions	WP	WK5
PO4 /WA4	Investigation	WP	WK8
PO5 /WA5	Tool Usage	WP	WK2, WK6
PO6 /WA6	The Engineer and The World**	WP	WK1, WK5, WK7
PO7 /WA7	Ethics		~~WK7~~ WK9
PO8 /WA8	Individual and Collaborative Team work		WK9
PO9 /WA9	Communication	EA	
PO10 /WA10	Project Management and Finance		
PO11 /WA11	Life Long Learning		WK8

(Siti Hawa Hamzah, 2022)

PICK YOUR COURSE

11 PO'S	SHH/2022	COMPLEX PROBLEM SOLVING (WP)											COMPLEX ACTIVITIES (EA)				
		WP1					WP2	WP3	WP4	WP5	WP6	WP7	EA1	EA2	EA3	EA4	EA5
		DEPTH OF KNOWLEDGE					RANGE OF CONFLICTING REQUIREMENT	DEPTH OF ANALYSIS REQUIRED	FAMILIARITY OF ISSUES	EXTENSIVE APPLICABLE CODES	EXTEND OF STAKEHOLDERS INVOLVEMENT & CONFLICTING REQUIREMENT	INTERDEPENDENCE	RANGE OF RESOURCES	LEVEL OF INTERACTIONS	INNOVATION	CONSEQUENCES TO SOCIETY & ENVIRONMENT	FAMILIARITY OF ISSUES
	WK	WK3	WK4	WK5	WK6	WK8											
PO1	WK1 WK2	X	X														
PO2	WK1 WK2	X	X														
PO3				X													
PO4						X											
PO5	WK2				X												
PO6	WK1 WK7			X													
PO7	~~WK7~~ WK9																
PO8	WK9																
PO9													X	X	X	X	X
PO10																	
PO11						X											

(Siti Hawa Hamzah, 2022)



#acculturationofOBE

PROGRAMME OUTCOMES TRAYS/FOLIOS/FILES

11(12) PO Trays

ACCUMULATING - ALL COURSES

DOMINATING - SELECTED CORE COURSES, 2-3/YEAR OR BETWEEN 10-15 COURSES

CULMINATING - CULMINATING COURSES – FYP, IDP, IT & 2-3 CORE COURSES IN THE FINAL YEAR (OR THIRD YEAR)

PO1

How many courses contributed to PO1?

Which assessment tools contributed to PO1?

Level of difficulty

Problems Solving

**OEL

Engr Activities

FYP/IDP*/DP**/IT

9WK/SK/DK
7WP/SP/DP
5EA/TA/NA

17SDGs

Explicit
Implicit
Direct
Indirect

C
P
A

%C/P

%C/P/A

TRUE ATTAINMENT

PO11

IEA GAPC v4 (2021)	Washington Accord (B.Eng)	Sydney Accord (B.Eng. Tech)	Dublin Accord (Dip Eng/Eng.Tech)
Knowledge Profile	WK - 9	SK - 9	DK - 9
Engineering Problem Solving	Complex WP - 7	Broadly defined SP - 7	Well defined DP - 7
Engineering Activities	Complex EA- 5	Broadly defined TA - 5	Well defined NA - 5
Graduate Attributes (Programme Outcomes)	WA -11	SA -11	DA -11

PO/WA with WP (17SDGs)

EAC PO 2020	WA GAPC v4 (2021)
• **PO1 - Engineering Knowledge** Apply mathematics, natural science, engineering fundamentals and engineering specialization to the solution of **complex engineering problems** **(WK1, WK2, WK3, WK4)**	• **WA1 - Engineering Knowledge**: Breadth, depth and type of knowledge, both theoretical and practical Apply knowledge of mathematics, natural science, computing and engineering fundamentals and an engineering specialization as specified in **WK1 to WK4** respectively to develop solutions to **complex engineering problems**.

PO/WA with WP (17SDGs)

EAC PO 2020	WA GAPC v4 (2021)
• **PO2 - Problem Analysis** Identify, formulate, research literature & analyse **complex engineering problems** using first principles of mathematics, natural sciences and engineering sciences **(WK1, WK2, WK3, WK4)**	• **WA2 - Problem Analysis**: Complexity of analysis Identify, formulate, research literature and analyse **complex engineering problems** reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences **with holistic considerations for sustainable development* (WK1 to WK4)** ****17SDGs**

PO/WA with WP (17SDGs)

EAC PO 2020

- **PO3 – Design/Development of Solutions**

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

WA GAPC v4 (2021)

- **WA3 - Design/Development of Solutions**: Breadth and uniqueness of engineering problems i.e., the extent to which problems are original and to which solutions have not previously been identified or codified

Design creative solutions for **complex engineering problems** and design systems, components or processes to meet identified needs with appropriate consideration for public health and safety, whole-life cost, net zero carbon as well as resource, cultural, societal, and environmental considerations as required **(WK5)**

PO/WA with WP (17SDGs)

EAC PO 2020	WA GAPC v4 (2021)
• **PO4 -Investigation** Conduct investigations of **complex problems** using research-based knowledge and research methods **(WK8)**	• **WA4 - Investigation**: Breadth and depth of investigation and experimentation Conduct investigations of **complex engineering problems** and systems using research methods including research-based knowledge, design of experiments, analysis and interpretation of data, and synthesis of information to provide valid conclusions.**(WK8)**

PO/WA with WP (17SDGs)

EAC PO 2020	WA GAPC v4 (2021)
• **PO5 - Modern Tool Usage** Create, select and apply modern engineering and IT tools including prediction and modelling to **complex engineering problems (WK6)**	• **WA5 - Tool Usage**: Level of understanding of the appropriateness of technologies and tools Create, select, apply, and recognise limitations of appropriate techniques, resources, and modern engineering and IT tools, including prediction and modelling, to **complex engineering problems** (**WK2** and **WK6)**

PO/WA with WP (17SDGs)

EAC PO 2020

- **PO6 - The Engineer and Society**

Apply reasoning 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)**

WA GAPC v4 (2021)

- **WA6 - The Engineer and the World:** Level of knowledge and responsibility for sustainable development

When solving **complex engineering problems**, analyse and evaluate **sustainable development impacts*** to: society, the economy, sustainability, health and safety, legal frameworks, and the environment **(WK1, WK5,** and WK7) ****17SDGs**

PO/WA with WP (17SDGs)

EAC PO 2020	WA GAPC v4 (2021)
• **PO7 -Environment and Sustainability** Understand and evaluate the sustainability and impact of professional engineering work in the solution of **complex engineering problems.(WK7)**	• NIL

PO/WA with EA

EAC PO 2020	WA GAPC v4 (2021)
• **PO10 - Communication** Communicate effectively on **complex engineering activities** with the engineering community and with society able to comprehend, write, present, give and receive instructions	• **WA9 - Communication**: Level of communication according to type of activities performed Communicate effectively and inclusively on **complex engineering activities** with the engineering community and with society at large, such as being able to comprehend, write effective reports and design documentation, and make effective presentations; taking into account cultural, language and learning differences.

PO/WA

EAC PO 2020	WA GAPC v4 (2021)
• PO8 - Ethics Apply ethical principles and commit to professional ethics and responsibilities and norms of engineering practice. **(WK7)**	• WA7 - Ethics: Understanding and level of practice Apply ethical principles and commit to professional ethics, and norms of engineering practice; and adhere to relevant national and international laws. Demonstrate an understanding of the need for diversity and inclusion. **(WK9)**
• PO9 - Individual and Team work Function effectively as an individual, member or leader in diverse teams and in multi-disciplinary settings	• WA8 - Individual and Collaborative Team work: Role in and diversity of team Function effectively as an individual, and as a member or leader in diverse and inclusive teams and in multidisciplinary, face-to-face, remote and distributed settings. **(WK9).**

PO/WA

EAC PO 2020	WA GAPC v4 (2021)
• PO11 - Project Management and Finance Demonstrate knowledge and understanding of engineering management principles and economic decision-making, apply to own work, as a member and leader in a team, manage projects and in multidisciplinary environments	• WA10 - Project Management and Finance: Level of management required for differing types of activity Apply 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 and to manage projects in multidisciplinary environments.
• PO12 - Lifelong learning Recognize the need, prepare and engage in independent and life-long learning in broadest context of technological change	• WA11 - Lifelong learning: Duration and manner Recognise the need for, and have the preparation and ability for i) independent and life-long learning ii) adaptability to new and emerging technologies and iii) critical thinking in the broadest context of technological change. **(WK8)**

(Siti Hawa Hamzah, UNIMAS, 2023)

COMPLEX PROBLEM SOLVING (WP)

EVIDENCES

		SHH/2023	WP1					WP2	WP3	WP4	WP5	WP6	WP7	TYPES OF TLA				
			DEPTH OF KNOWLEDGE					RANGE OF CONFLICTING REQUIREMENT	DEPTH OF ANALYSIS REQUIRED	FAMILIARITY OF ISSUES	EXTENSIVE APPLICABLE CODES	EXTEND OF STAKEHOLDERS INVOLVEMENT & CONFLICTING REQUIREMENT	INTERDEPENDENCE	TEST	ASSIGNMENT	CASE STUDY	PBL	EXAM
		WK	WK3	WK4	WK5	WK6	WK8											
PO1		WK1 WK2	X	X														
	CO1	SUB A	**X**					**X**	**X**					**X**				
	CO2	SUB B	**X**					**X**	**X**						**X**			
	CO1	SUB C		**X**					**X**	**X**								**X**
	CO3	SUB K		**X**				**X**		**X**							**X**	

Give all samples of TLA evidences

(Siti Hawa Hamzah, UNIMAS, 2023)

COMPLEX PROBLEM SOLVING (WP)

EVIDENCES

		SHH/2023	WP1					WP2	WP3	WP4	WP5	WP6	WP7	TYPES OF TLA				
			DEPTH OF KNOWLEDGE					RANGE OF CONFLICTING REQUIREMENT	DEPTH OF ANALYSIS REQUIRED	FAMILIARITY OF ISSUES	EXTENSIVE APPLICABLE CODES	EXTEND OF STAKEHOLDERS INVOLVEMENT & CONFLICTING REQUIREMENT	INTERDEPENDENCE	TEST	ASSIGNMENT	CASE STUDY	PBL	EXAM
		WK	WK3	WK4	WK5	WK6	WK8											
	PO2	WK1 WK2	X	X										Give all samples of TLA evidences				
EVIDENCES	**CO1**	SUB A		X					X	X					X			
	CO2	SUB B			X			X			X						X	
	CO1	SUB C				X		X				X				X		
	CO3	SUB K		X		X						X	X				X	

EAC 2020

2023

CHEM & EE
SAR JUN2023

EAC 2023

2024

CHEM & EE
VISIT JAN2024

CIVIL & MECH
SAR JUN2024

EAC 2023

2025

CIVIL & MECH
VISIT JAN2025

01.01.2024 EAC to launch

EAC 2023

2024

VISIT **JAN2024** – SUFFICENT BY SHOWING **17SDGS** GAP ANALYSIS IN OEL-IT-FYP-IDP, EVALUATE THE ATTAINMENT IF POSSIBLE

EAC 2023

2025

VISIT **JAN2025** – EVIDENCES OF **17SDGS** SIGHTED IN TLA FOR JUN-DEC2024 SEMESTER IN OEL-IT-FYP-IDP-EIS-etc, EVALUATE THE ATTAINMENT AND PROPOSE CQI

WA-SA-DA review 2023

ACCULTURATION (2020-2030)

17SDGs Targets 2030

GAPC v4 2021
Roadmap by 2024

THE OBE PLANTING CYCLE

- **PLANTING (AWARENESS) (1999-2005)**
- **WA 2003-2009**
- **FEEDING (IMPLEMENTATION) (2006-2015)**
- **WA review 2016**
- **WATERING (OUTCOME EVIDENT) (2016-2017)**
- **SA-DA 2017-2018**
- **HARVESTING (2018-2019)**

LEMBAGA JURUTERA MALAYSIA

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ACCREDITATION VISIT POV

ACCREDITATION REPORT – APPENDIX D

ACCREDITATION REPORT shall be presented using a **summary of SIX (6) criteria**.

CRITERION 1 & 2	CRITERION 3	CRITERION 4	CRITERION 5	CRITERION 6	CRITERION 7
OBE (PEO + PO)	ACADEMIC CURRICULUM	STUDENT	ACADEMIC & SUPPORT STAFF	FACILITIES	QMS

GENERAL CLASSIFICATION

- Strength – "Wow" factor
- Weakness – Deficiency or non-compliance
- Concern
- Opportunity for Improvement

ACCREDITATION VISIT POV : CRITERION 1 – PEO

MAJOR	MINOR
ACCREDITATION VISIT POV	• PEOs linked to M & V of IHL • Published • Performance Target • CQI • Stakeholder involvement

ACCREDITATION VISIT POV: CRITERION 2 – PO

MAJOR	MINOR

- PO address WK/SK/DK-WP/SP/DP-EA/TA/NA
- PO trays – attainment with evidences
- PO attainment evaluation (Process is one aspect, Students' actual attainment is another aspect)
- Evidences of CQI cycles
- Stakeholder involvement

ACCREDITATION VISIT POV: CRITERION 3 – ACADEMIC CURRICULUM

MAJOR

MINOR

- Credits
- Underpinning courses, depth and breadth
- Taxonomy and WP/SP/DP-EA/TA/NA
- Delivery and Assessment
- OEL (WA)
- CPC (WA)
- IDP/DP
- FYP
- LI
- Professional Practice

ACCREDITATION VISIT POV: CRITERION 4 – STUDENT

MAJOR	MINOR
	• Entry requirements – Good principal passes (WA)/Remedial programmes • Credits transfer/exemption (30%/50%) • Qualified counselor – Academic Advisor • Workload • Enthusiasm & Motivation • Co-Curricular activities • Evidences of PO attainment

ACCREDITATION VISIT POV: CRITERION 5 – ACADEMIC-SUPPORT STAFF

MAJOR

MINOR

- FT requirement, PhD/Masters
- 30% PE (WA), 30% with industry experience (SA/DA), all eligible registered with BEM
- Research/Publication/Consultancy
- Industrial involvement
- Teaching load
- Motivation and Enthusiasm
- Industry lecturers
- OBE implementation in TLA
- Lab Staff (1:2 ideally)
- Admin Staff
- Training & Development, Career progression
- Staff Assessment
- Sustainability of SSR (1:20)

ACCREDITATION VISIT POV: CRITERION 6 – FACILITIES

MAJOR

- Safety issues and violations
- Fire/Lift certificates

MINOR

- Lecture rooms & AV – Adequacy, maintenance and safety, Online learning
- Lab/Workshop & Equipment – Adequacy, maintenance & calibration and safety
- Computer/IT – Adequacy & authentic, maintenance and safety
- Library/Resource Centre – Quantity, spaces, discussion rooms, operation hours, maintenance and safety
- Recreation /Health/Café – Availability, maintenance and safety.
- SHE provisions

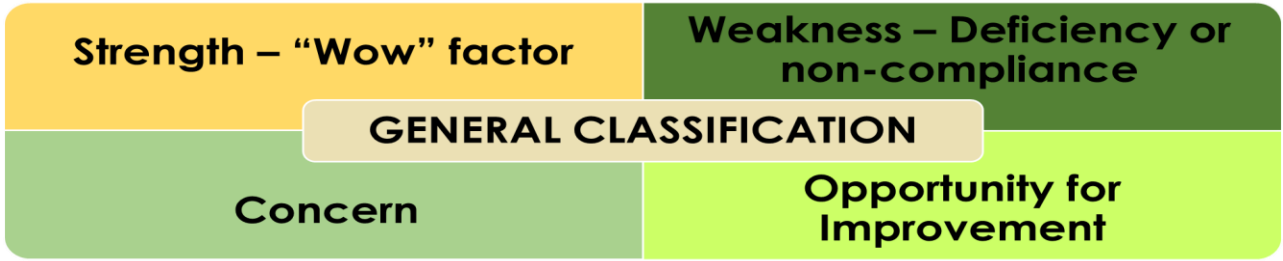
ACCREDITATION VISIT POV: CRITERION 7 – QMS

MAJOR

MINOR

- Quality and continuity/sustainability of the programme
- Attract and retain well-qualified teaching and support staff
- Acquire, maintain, and operate facilities and equipment
- System for CR
- EE
- IAP
- System for student admission and teaching and learning
- System of assessment and evaluation, including moderation
- System for SHE
- CQI

STRENGTH

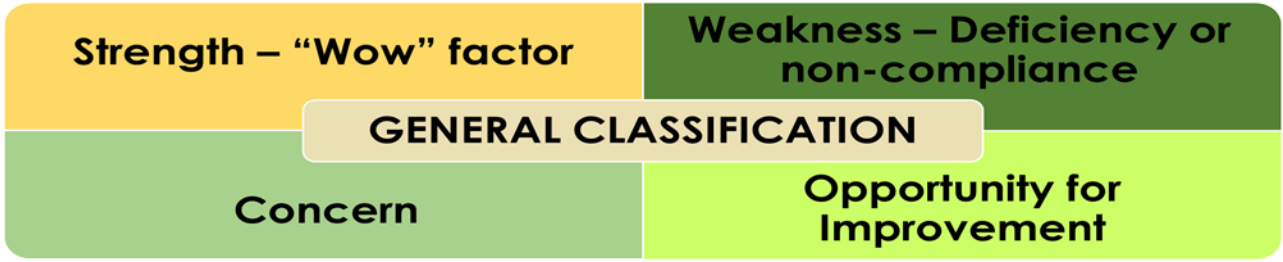


STRENGTH can be defined as anything with a '**wow factor**' of '**very outstanding nature**' far beyond just satisfying the minimum requirements.

WHAT MAY CONSTITUTE STRENGTH?

- **Exceeds** the minimum standard set by Manuals.
- Involved **stakeholders**, both internal and external, **extensively**
- Programme **challenges students** to achieve greater heights than just satisfying the minimum standard
  - **Blend** of **delivery methods**
  - Attain competency in the **open-ended** project based and problem oriented courses
- **Majority** of the staff has **Industrial** experience/ qualification and the number available indicates a **low staff-student ratio** (that enables greater contact with students)

WEAKNESS

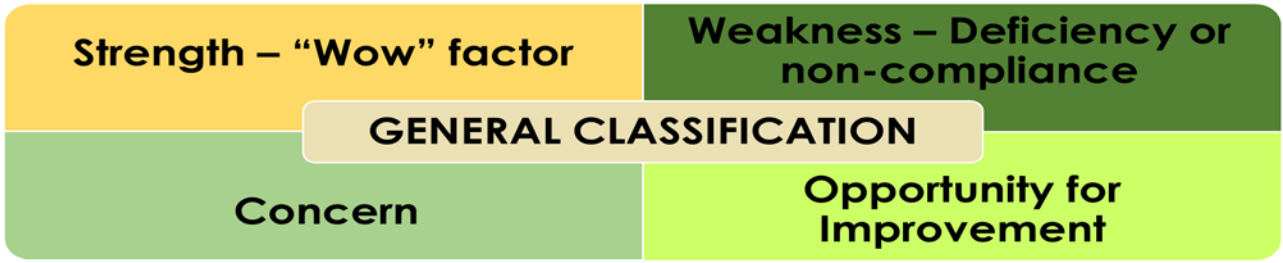


WEAKNESS can be defined as transgression of any Accreditation Criteria to the point of **TOTAL COLLAPSE**.

WHAT MAY CONSTITUTE WEAKNESS?

- ANY of the eight (8) Qualifying Requirements **NOT** fulfilled.
- Below the 'minimum' expectation of criteria.
- Programme has no breadth and depth of an engineering education.
- OBE is not implemented.
- **Repeated** Major Concerns may lead to Weaknesses.

CONCERN



CONCERN can be defined as any shortfall, shortcoming or transgression, but **not amounting to** 'total collapse', of any of the accreditation criteria.

WHAT MAY CONSTITUTE CONCERN?

- Usually a "concern" is that the programme has **not fail** the criteria set under the ETAC Standards, but if left unchecked may lead to **failure at a later date.**
- Where there are **lapses** in observing the criteria of the ETAC Standard, it would appropriately be classified under "concern".

MAJOR

- Serious lapses or non-compliances of the Standard.
- Usually relate to Criteria 2, 3 & 7

MINOR

- Under achievement of the Standard requirements.
- Mostly relate to Criteria 1, 4, 5 & 6

OPPORTUNITY FOR IMPROVEMENT

- The "**Good to have**" items.
- Items an institution could consider **despite already having the necessary strength** or having already satisfied the minimum requirements of the EAC/ETAC Standard.
- Institutions would **not be penalised** for not taking the necessary action to address the issue.

ACCREDITATION DECISION

Accredit

- **6 years/**
- **6 years with interim/**
- **3 years**

Decline accreditation

- In such a case, a further application will normally not be considered within the next one year.

Defer accreditation

- IHL will need to comply in a given time frame before another visit is done

ACCREDITATION shall be accorded to a **specific programme, location and mode**.

Six years (6) accreditation

- Programme that has **satisfied the minimum** requirement of the ETAC Standards.
- There is **no shortcoming** found except for the continual quality improvement issues.
- **Implementation of OBE approach is effective where academic staffs are aware and fully implementing it at the course level, together with CQI.**
- **Overall evaluation and CQI of the programme are visible.**

Six years (6) accreditation and interim report to be submitted by 3rd year

- Programme that has **satisfied** the minimum requirement of the Standard **except for a few "CONCERN" found.**
- These concerns are **isolated and minor** in nature.
- Implementation of **OBE approach is significant** (widespread) with **varied** awareness among academic staffs and varied implementation at the course level, including CQI.
- Overall **evaluation and CQI** of the programme and courses are **visible.**

Three years (3) accreditation

- Programme that has satisfied the minimum requirement of the Manual **except** for the list of "CONCERN" found.
- These concerns are mostly related and **some are major** in nature.
- Implementation of **OBE** approach is already in place with varied awareness among academic staffs and **varied implementation at the course level.**
- **Overall CQI** at programme and courses are **not visible.**

Decline Accreditation or Zero (0) Year

- Anytime "**WEAKNESS**" is invoked, it refers to non compliance with the minimum standard specified by the Manual, and as such accreditation cannot be accorded
- Programme **not meeting** the qualifying requirements
- Curriculum **does not provide** the breadth and depth of engineering
- OBE approach is **not implemented** at all.
- Evaluators must be fully **convinced** that the programme/institution is **not in control** of the situation and the **outcomes are not evident**, before recommending decline accreditation.
- There is a need to pursue on the problem issue with **further investigation** and obtain further evidence before making the decision.

Deferred Accreditation

- **To allow the institution to do the necessary corrective action due to non-compliance**.
- The institution may also **withdraw** the application for accreditation as a face saving option when accreditation decision is deferred. The record of evaluation would then **be expunged**.
- The institution may **reapply** for accreditation when deemed ready.
- **Further evaluation** would be **required** to ascertain compliance.

ACCREDITATION DECISION RUBRICS
NEW PROGRAMME + NEW CYCLE

	6 years	6 years + interim report within 3 years		3 years			Deferred or Declined
Major concerns	x	x	1	x	1	2 – 3 Major	≥ 4 major concerns or any weak-ness.
Minor concerns	x	≤ 3	1-2	≥ 4	≥ 3		

**As a guide for Panel to recommend – final decision is still with Council

ACCREDITATION DECISION RUBRICS CONTINUING ACCREDITATION

Balance of years	Balance of years minus 1 year	Balance of years minus 2 years
ALL concerns CLOSED	≤ 2 concerns not CLOSED	> 2 concerns not CLOSED

**As a guide for Panel to recommend – final decision is still with Council

ACCREDITATION DECISION RUBRICS
INTERIM

INTERIM LIFTED	**INTERIM NOT LIFTED – PROGRAMME'S ACCREDITATION REVOKED. (next accreditation is a NEW CYCLE)**
ALL concerns CLOSED	**ANY concerns not CLOSED**

**As a guide for Panel to recommend – final decision is still with Council

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EVALUATOR'S PICK

Guidelines for Evaluators (EAC Standard 2020)

1. WP
2. PEO/PO
3. Development and attainment of POs
4. Outcome spec drives a top down educational design process
5. Academic curriculum reflects a professional engineering programme
6. LOs and assessment measures within courses systematically track delivery of PO
7. Math and Science are at appropriate level
8. Content of courses are at appropriate level
9. Course materials are at appropriate level
10. Courses are built on previous course works. The sequence of courses is appropriate
11. T&L process includes appropriate assessment
12. Industrial training and project are at sufficient level
13. Students ' standing in terms of admission standard, academic performance, industrial internship
14. Academic staff and support staff in all aspects stipulated in the standard
15. Facilities are appropriate
16. QMS adequate
17. External assessment appropriate
18. Networking with relevant industries available and sufficient
19. Closing the loop at programme and course level

(Siti Hawa Hamzah, ETAC Writing, 2023)

Interviewees to be selected after receiving RFI feedbacks

- All **FYP, LI and IDP, OBE** coordinator/facilitator, Head of Programme
- **ACADEMIC STAFF** - include 40:40:20 (prof:assoc:lecturers), **SUPPORT STAFF** - include 30:70 (admin:technicians), OSHA officer, counselor, quality manager
- **STUDENTS** - 30:30:20:20 (year 4:3:2:1)
  - **Year 4 - focus on outcomes, IDP, FYP, LI, online T&L methods**
  - **Year 3 - focus on enhancement of outcomes, OEL, LI, visits & professional practice, online T&L methods**
  - **Year 2 - focus on fundamentals & applied, online T&L methods**
  - **Year 1 - focus on entry, why engineering, why UTM, T&L methods**

FEB 2023	2020	2021	2022	2023	2024
Y1				F2F	
Y2			ONLINE/F2F	F2F	
Y3		ONLINE	ONLINE/F2F	F2F	
Y4	ONLINE	ONLINE	ONLINE/F2F	F2F	

- **STAKEHOLDERS**
  - Employers - experience with programme's graduates, level of outcomes attainment
  - IAP - meetings, contributions, involvement with programme
  - Alumni - attainment of PEO, demonstrated the PO
  - Parents – attainment of PEO, triangulation

(Siti Hawa Hamzah, ETAC Writing, 2023)

Sample questions to STAFF

- **ACADEMIC STAFF - include 40:40:20 (prof:assoc:lecturers),**
  - PE qualification/Industrial attachment - to probe career development at the IHL
  - Consultancy collaboration – to probe level of expertise and involvement of students thorugh DP/IDP
  - Research grants/Sabbatical leave – to probe research development and involvement of students through OEL/FYP
  - Mentor-mentee – career development
- **SUPPORT STAFF - include 30:70 (admin:technicians),**
  - Opportunities for training & development – to probe career development
  - Scope of work & responsibilities - to probe work load and motivation level
- **OSHA officer, counselor, quality manager**
  - Scope of work & responsibilities – to probe work load and motivation level
  - Competency qualifications – to probe competent level

(Siti Hawa Hamzah, ETAC Writing, 2023)

Sample questions to STUDENTS 30:30:20:20 (year 4:3:2:1)

- **Year 4 - focus on outcomes, IDP, FYP, LI, online T&L methods**
  - What is your IDP title and scope – to probe attainment on WK-WP-EA, prototype (OEL), teamwork experience, sustainability
  - What is your FYP title and scope, simulation/expt - to probe attainment on WK-WP-EA, OEL, availability of software and equipment, individual research experience, research aligned with programme's discipline
  - Where do you attend your LI, share the professional practice experiences learnt - to probe attainment on WK-WP-EA, training aligned with programme's discipline
- **Year 3 - focus on enhancement of outcomes, OEL, LI, visits & professional practice, online T&L methods**
  - How many site visits, industry technical talk – to probe on industry involvement
  - How much involvement with extra curricular activities – to probe attainment of EA
- **Year 2 - focus on fundamentals & applied, online T&L methods**
  - How many tests/assignments/case studies per course – to probe on TLA/delivery
  - Which course is the most difficult to grasp and why – to probe on TLA/delivery
  - What are their lab/OEL experiences - to probe on TLA/delivery, lab & equipment
- **Year 1 - focus on entry, why engineering, why this IHL, T&L methods**
  - What is your impression on the programme and IHL – to probe the students readiness level in engineering, verify IHL brand and strategies
  - What is your entry qualification (matriculation/STPM/A-level/Diploma/others) – to ascertain admission compliance, credit transfer/exemption

Sample questions to STAKEHOLDER

- **EMPLOYERS - experience with programme's graduates, level of outcomes attainment**
  - How many graduates employed - to triangulate marketability/employability of the programme
  - How do they perform - to triangulate level of PO attainment
- **IAP - meetings, contributions, involvement with programme**
  - Has the programme take action on your recommendations/evaluation findings - to triangulate CQI
  - TOR & responsibilities - to triangulate stakeholder involvement with the programme
- **ALUMNI - attainment of PEO, demonstrated the PO**
  - Current employment status & company – to triangulate PO and PEO attainments
  - Scope of work & responsibilities – to triangulate PO and PEO attainments
  - Professional/Competency qualifications – to triangulate competent level, PO and PEO attainments
- **PARENTS – attainment of PEO, triangulation**
  - Current employment status & company - to triangulate PO and PEO attainments
  - Learning experiences shared by student/graduate – to triangulate IHL support, facilities & QMS

Thank you for participating