



# QUALITY **M**ANAGEMENT **S**YSTEMS – UTEM Workshop 24-25 Apr 2019

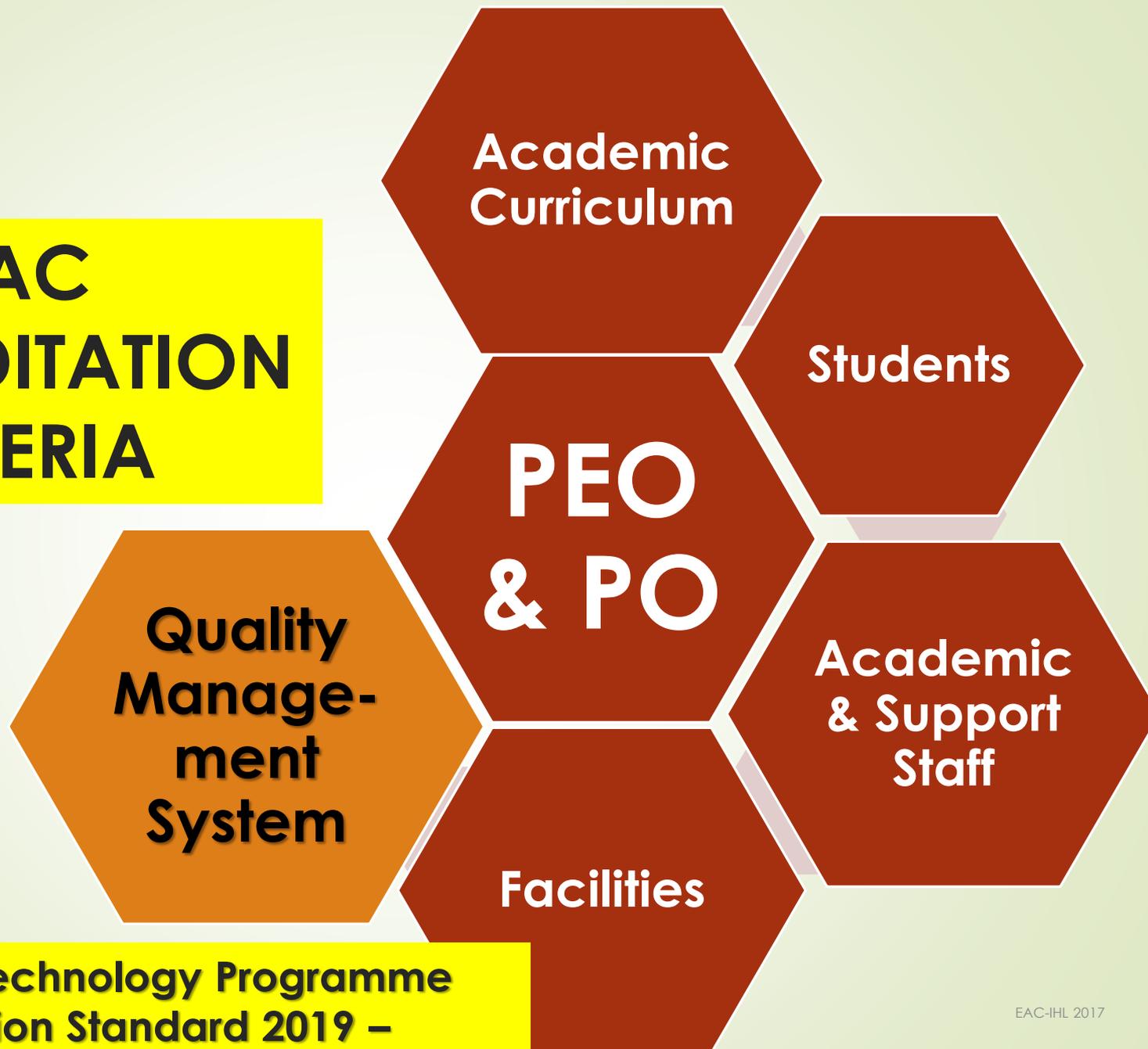
**Law Chung Lim**

PhD, P. Eng, MIEM, C.Eng., C.Sci., FIChemE, FHEA  
ASSOCIATE DIRECTOR (CHEMICAL ENGINEERING) EAU

[Chung-lim.law@nottingham.edu.my](mailto:Chung-lim.law@nottingham.edu.my)



# ETAC ACCREDITATION CRITERIA

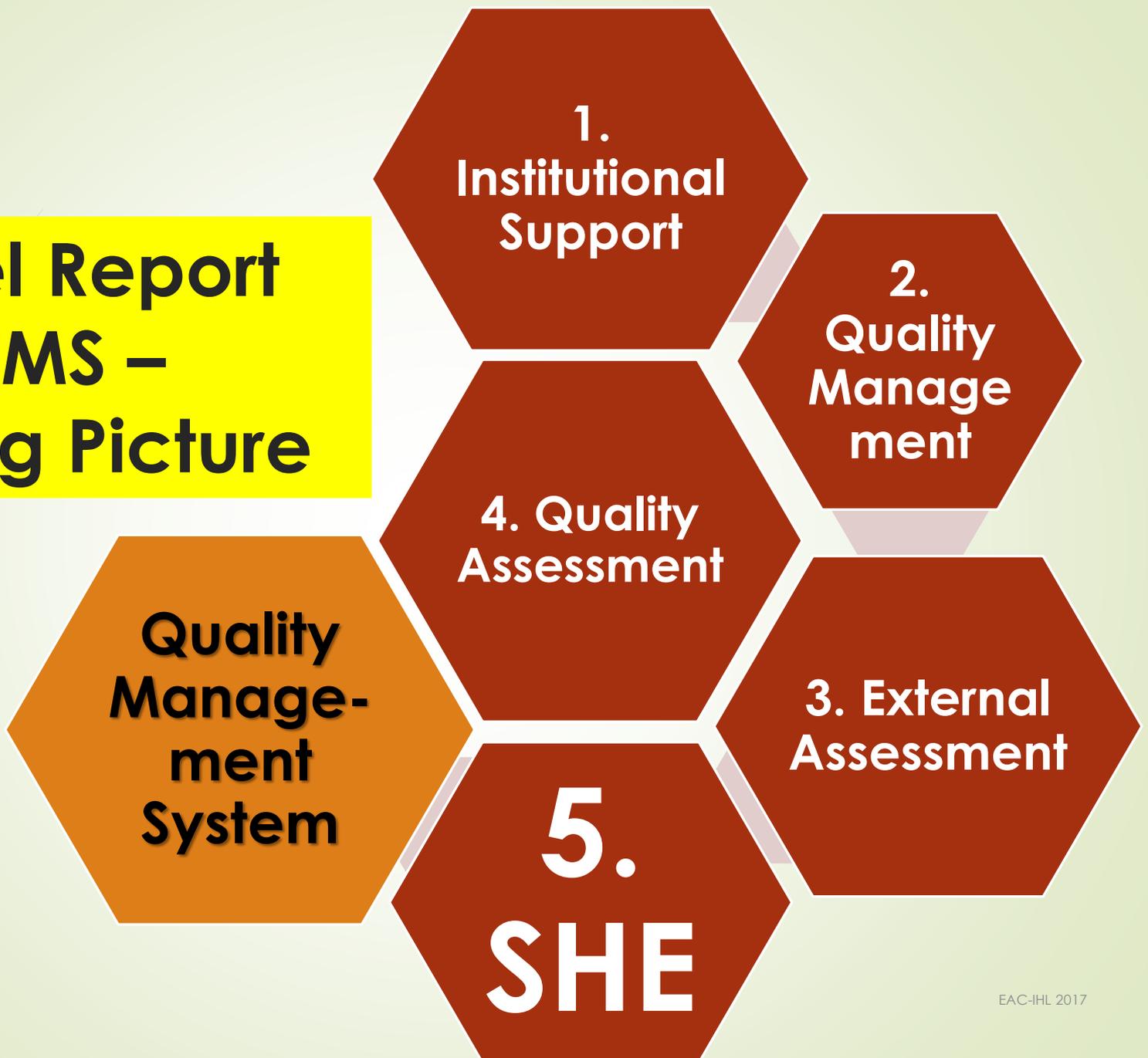


**Engineering Technology Programme  
Accreditation Standard 2019 –**

**SECTION 8.7 – QMS (pg18), sec 9.2.8, App G-15**



# Panel Report QMS – The Big Picture





# QMS Panel report

## Institutional Support, Operating Environment, and Financial Resources

- quality and continuity of the programme
- attract and retain well-qualified teaching and support staff
- acquire, maintain, and operate facilities and equipment

## Programme Quality Management and Planning

System for programme planning, curriculum development, and regular review of curriculum and content

## External Assessment's Report and Advisory System

- external examiners report used for quality improvement
- advisory panel from industries and other relevant stakeholders

## Quality Assurance

- student admission and teaching and learning
- assessment and evaluation of examinations, projects, industrial training, moderation of examination papers



# SELF ASSESSMENT REPORT

5

**QMS TO ACHIEVE PEO/PO -  
SUSTAINABILITY**



**PROGRAMME PLANNING &  
DEVELOPMENT, EE, IAP, CQI**



**Quality Management  
System**



**Responses to External  
Examiner**

EAC-IHL 2017



# QMS SAR

**QMS TO ACHIEVE  
PEO/PO - SUSTAINABILITY**

**PROGRAMME PLANNING  
& DEVELOPMENT, EE, IAP,  
CQI**

- Organisational structure
  - Institutional support
  - Operating environment
  - Financial resources
  - Constructive leadership,
  - Policies and Mechanisms
  - 1. Staff recruitment, retainment, rewarding
  - 2. Attainment of PEOs and POs
- 
- Programme planning
  - Curriculum development
  - Curriculum and content review
  - Responding to feedback and inputs from stakeholders (IAP, partner industry, students and alumni)
  - Tracking outcomes of performance through
  - Assessment
  - Responding to External Examiners comments
  - Reviewing of
  - PEOs, POs
  - CQI



# QMS SAR

**Responses to  
External Examiner**

- Summarise responses

**Quality  
Management System**

- to provide QA & Benchmarking

**Additional Info**



# Policies, internal processes & practices relating to 5 criteria

Staff development: further education, industrial exposure & R&D

# QMS SAR

**QMS TO ACHIEVE PEO/PO - SUSTAINABILITY**

**PROGRAMME PLANNING & DEVELOPMENT, EE, IAP, CQI**

Evidence of the on-going participation of IAP in discussions & forums, professional practice exposure, and collaborative projects

Participation of Teaching staff, support staff and students In CQI

- Organisational structure
  - Institutional support
  - Operating environment
  - Financial resources
  - Constructive leadership, Policies and Mechanisms
1. Staff recruitment, retainment, rewarding
  2. Attainment of PEOs and POs

- Programme planning
- Curriculum development
- Curriculum and content review
- Responding to feedback and inputs from stakeholders (IAP, partner industry, students and alumni)
- Tracking outcomes of performance through
- Assessment
- Responding to External Examiners comments
- Reviewing of
- PEOs, POs
- CQI



# QMS Panel report

## Institutional Support, Operating Environment, and Financial Resources

- a. quality and continuity of the programme
- b. attract and retain well-qualified teaching and support staff ✓
- c. acquire, maintain, and operate facilities and equipment

## Programme Quality Management and Planning

System for programme planning, curriculum development, and regular review of curriculum and content ✓

## External Assessment's Report and Advisory System

- a. external examiners report used for quality improvement ✓
- b. advisory panel from industries and other relevant stakeholders ✓

## Quality Assurance

- a. student admission and teaching and learning
- b. assessment and evaluation of examinations, projects, industrial training, moderation of examination papers ✓

# 8.7.1 Institutional Support, Operating Environment, and Financial Resources

10

**a**

## Institutional Support

- Constructive leadership, adequate policies and mechanisms for (i). attracting, appointing, retaining and rewarding **well-qualified staff**; (ii) providing for their ongoing **CPD** professional development; (iii) providing and updating **infrastructure and support services**
- Appointment of **highly qualified** and experienced senior staff in **sufficient numbers**

Performance indicator: **Sufficient**; Support from external bodies should be encouraged



# 8.7.1 Institutional Support, Operating Environment, and Financial Resources

11

**b**

## Staff Development

- Further education, industrial exposure, & R&D
- Support staff development: training, further study
- IHL shall provide sound **policies, adequate funding and infrastructure**

Performance indicator: **Sufficient**; Support from external bodies should be encouraged



# 8.7.1 Institutional Support, Operating Environment, and Financial Resources

12

c

## Financial Resources

- Adequate to assure the overall quality and continuity of the engineering technology programme.
- Must have sufficient financial resources to acquire, maintain, and operate facilities and equipment appropriate for the engineering technology programme

Performance indicator: **Sufficient**; Support from external bodies should be encouraged



# References

13

a

quality and continuity of the programme

- **Funding** allocated to the programme on yearly basis for curriculum development, etc.
- **Funding** available for student activities
- **Support from external bodies** which may be in the form of monetary, awards, sponsorships, attachment opportunities for staff & students, etc.



# References

14

**b**

attract and retain well-qualified teaching and support staff

## ➤ Attracting

- Policy appealing to the academic staff / support staff such as consultancy policy, reward policy, medical policy, etc.
- policy on appointment & promotion of academic staff, admin staff and general staff

- Retention Strategies include competitive remuneration, compensation and benefits scheme, continual professional & academic growth, promote work life balance, clearly-defined KRAs & KPIs, promote good collegial relationship, conducive work environment, fees discount for children of staff members, etc.
- **Policies** on Staff Professional Development such as:
  - Sponsorship to attend Training & Conference
  - Research/ Sabbatical leave, Industrial Attachment
  - Monetary incentive for attaining Peng status such as monthly allowance, one-off payment, etc.
  - Reimbursement of annual professional membership fees
  - Allows and encourages staff members to engage in professional activities in learned societies or regulatory bodies
  - Sponsors specialised trainings on T&L for academic staff members and skill- based training for support staff
  - Sponsors national and international conferences for its academic staff
  - Provision of appropriate tools & technology (if any)
- **Reward**
  - Policy on Staff Service Excellence Award, Teaching Excellence Award
  - Policy on Performance Linked Rewards based on Performance Appraisal

# References

15

**c**

acquire, maintain, and operate facilities and equipment

- **new infrastructural development** since the last accreditation visit or any future plan for new infrastructure
- **maintenance and calibration budget** allocated for equipment
- Updates, upgrades and maintenance of existing infrastructures such as:
  - Building Infrastructures – class rooms, auditorium, toilets, canteen
  - Transport Infrastructure – bus services, parking facilities
  - Communication Infrastructure – Wi-Fi, Broadband
  - Economic Infrastructure – banking facilities, post office,
  - Social Infrastructure – health care, counselling, welfare system
  - Cultural, Sports & Recreational Infrastructure – faith centres, sports facilities, museums, libraries, function halls



## 8.7.2 Programme Quality Management & Planning

- Processes for programme planning, curriculum development, and regular curriculum and content review must involve all Teaching staff. Eg. **reviewing PEOs, POs, tracking performance assessment processes, reviewing comments from External Examiners, reviewing feedback and inputs from stakeholders** (students, alumni)
- Process of **CQI** shall be implemented with full **accountability**

Performance indicator: audit the QC system; **Proper and sufficient** policies/rules/regulations/ procedures; ISO9000 should be encouraged; Other QA (i) external examiners, (ii) board of studies, (iii) benchmarking shall also be evaluated and (iv) evaluate the effectiveness



## 8.7.3 External Assessment's Report & Advisory System

- An external examiner (EE) for each programme to **independently** review the overall academic standard
- EE is a person of **high academic standing** in the relevant engineering discipline and preferably with substantial industry experience.
- to carry out the **overall assessment** of the programme (i. staff, ii. courses, iii. laboratory work)
- At least **twice during the 6-year** accreditation cycle,
- Preferably once during the initial period of the accreditation cycle and another before the next accreditation visit.

Performance indicator: Twice in 6 years. Examine EE report and check whether recommendations have been responded and addressed

EAC-IHL 2017



# <sup>18</sup>Appendix E EE format

- PEOs, POs
- Curriculum in relation to: (i) objectives and outcomes: (ii) course structure and sequence of content; (iii) practice-oriented components; (iv) teaching-learning methods and delivery modes
- Teaching and support staff quality (qualifications, industry exposure, loading in teaching and supervision)
- SSR
- Student workload



# <sup>19</sup>Appendix E EE format

- Examination setting & vetting, QA, confidentiality & security
- Examination papers and marking schemes
- Marked answer scripts, distribution of marks
- Coursework, laboratory work, assignments, design projects, final year projects.
- Major facilities
- Examination procedures and regulations
- Management commitment towards the programme



## 8.7.3 External Assessment's Report & Advisory System

- Industry advisory system (**practicing engineers or engineering technologists, employers**) - planning and CQI.
- To provide inputs and recommendation on **an ongoing basis** through participation in discussion and forums.
- The EE report and feedback from industry advisors shall be **used for CQI**.

Performance indicator: IAP background, recommendations and CQI



# References

21

**a**

external examiners report used for quality improvement

- ▶ Proof of the closing of the loop such as minutes of meeting, etc must be evident.



# References

22

b

advisory panel from industries and other relevant stakeholders

- IAP 3 to 5 members.
- Official appointment with specific TOR, period of appointment
- IAP meeting shall be conducted at least once a year and properly documented.
- Evidences of the involvement of the IAP in the CQI initiatives of the programme
- Evidences of closing the loop on the recommendations made by the IAP in terms of enhancing the quality of the programme.



# Quality Assurance

- QMS must be in place to assure the **achievement of POs**
- Shall maintain its QMS, based on an established (i) quality assurance standard (eg ISO 9001); (ii) other QA systems; (iii) **benchmarking**.
- QA processes:
  - (a) Student admission
  - (b) Teaching and learning
  - (c) Assessment and evaluation which include:
    1. **examination regulations** and criteria for pass/fail
    2. **preparation and moderation** processes
    3. **level of assessment**
    4. **assessment processes** including FYP/LI

Performance indicator: working system for (i) Admission and T&L; (ii) examination preparation; (iii) moderation; (iv) assessment of examination, project, industrial training etc.; (v)



# References

24

a

student admission and teaching and learning

- MS ISO 9001:2015:
  - **Student admission** for local students and international students
  - **T&L activities** including assessment and grading
- If no QMS in place, provide established policies / regulations / processes
- Evidence: **policies, ISO documents, previous ISO audits outcome, minutes of meetings**, etc.



# References

25

b

assessment and evaluation of examinations, projects, industrial training, moderation of examination papers

- Rules / regulations / processes:
  - Assessment & evaluation of **examination, course work, projects, LI regulation, grading, exam paper preparation and moderation, FYP, LI, IDP**, etc.
- **Rubrics** available to help with the assessment
- Rubrics are meaningful and relevant
- Is the **scope of assessment** wide enough to cover the **achievement of the respective POs**.
- Sevidence: policies, ISO documents, previous ISO audits outcome, minutes of meetings, etc



# SHE

- System for managing and implementation of SHE
- Safety culture - a major factor affecting accreditation decision
- Staff and students and comply with any or all applicable rules or regulations pertaining to SHE





# Thank you

- Engineering Technology Programme Accreditation Standard 2019
- Engineering Technician Education Programme Accreditation Standard 2019
- IEA Graduate Attributes and Professional Competency Profiles, Version 3: 21 June 2013

## POINTS FOR CLARIFICATIONS

- [chung-lim.law@nottingham.edu.my](mailto:chung-lim.law@nottingham.edu.my)
- [sitihawabthamzah@gmail.com](mailto:sitihawabthamzah@gmail.com)
- [hasril@hotmail.com](mailto:hasril@hotmail.com)