New Program Evaluator Training – Outcome Based Accreditation

9th Oct 2019, New Council Hall, 1st Floor, IEB HQ, Ramna, Dhaka, Bangladesh

09.30 – 10.45 (1 hr 15mn)
11.00 – 13.00 (2hr)
14.00 – 15.30 (1hr 30mn)
15.45 – 17.00 (1 hr 15mn)

Megat Johari Megat Mohd Noor

BEM Board Member & P.Eng.
MySET President & Fellow
MJIIT Professor (Retired)
Megat Johari MEGAT MOHD NOOR

Board Member, BEM
Chair, Engineering Accreditation Council (EAC), BEM
Council Member, Engineering Technology Accreditation Council (ETAC), BEM
Professional Engineer with Practicing Certificate, BEM
Founding Director, Engineering Accreditation Department, BEM
Associate Director (International), Engineering Accreditation Department (EAD), BEM
President & Fellow, Malaysian Society for Engineering & Technology (MySET)
Vice President, Federation of Engineering Institutions of Islamic Countries (FEIIC)
Former Vice-President & Fellow, Institution of Engineers Malaysia (IEM)
Former Director, Centre for Quality & Risk Management (QRiM), UTM
Former Professor & Founding Dean, Malaysia Japan International Institute of Technology (MJIIT), UTM
Former Head, Department of Civil Engineering, UPM
Former Head, Quality Unit, Faculty of Engineering, UPM
Member, Malaysia Research University Committee, MoHE

9 October 2019
Bangladesh Washington Accord Route (till 2020?)

- **Nominator**
  First visit: .....  
  Provisional Status: .....  
- **Previous Mentor**
- **Current Mentor**

- **1a Reviewer (.........)**
  Visit: 2019 ?
- **1b Reviewer (ADM)**
  Visit: 2019 ?

**Nominators**

**Mentors**
- Prof Wan (MAL)
- Prof Siti (MAL)
- Prof Lock (SIN)

**Reviewers**

Full Signatory in Jun 2020 at IEAM Cape Town, South Africa ?
Outlines

• Introduction
• OBE
• Evaluation
• Decorum
• Decision & Reporting
Challenges

• Paradigm Shift – Outcome & Quality
• Maintain Fundamentals while Encourage Inclusion of Latest Technology Advancement in the Curriculum
• Allow Academic Innovation and Creativity
• Avoid Side-tracked
• Variety of Modes
Issues

- Attainment
- Culminating
- Selective
- Comprehensive
- Complex problem
- Wide spread
- Limited
- Constructive alignment
- Adding up/Binary/Average/Minimum/Maximum
- Low Taxonomy
- Systems approach
- Software support
Engineers & Engineering Technology Domains

Research & Design

Supervision & Maintenance

Engineering Technologists

Education

Work

Strong in Mathematics, Engineering Sciences, Professional courses (Theoretical)

Appropriate Mathematics, Engineering Sciences, Professional courses (Practical)

Engineering Breadth & Depth of Curricula

Engineering Technology Breadth & Depth of Curricula

Engineers
Graduates of Civil, Electrical, Mechanical, Chemical Engineering Technology Programmes

Career Paths

PROVISION OF ENGINEERING SERVICES

Domain

Research & Design

Building, Operation & Maintenance

Domain

Graduates of Civil, Mechanical Electrical & Chemical Engineering Programmes

Graduates of Civil Electrical Mechanical, Chemical Engineering Technology Programmes
### PEO

**WHAT YOU WANT YOUR GRADUATES TO BE IN 3 - 5 YEARS**

<table>
<thead>
<tr>
<th>EXTRA-CURRICULAR</th>
<th>UNIVERSITY EXPERIENCE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>WA 1</strong> ENGINEERING KNOWLEDGE</td>
<td><strong>WA9</strong> IND &amp; TEAM</td>
</tr>
<tr>
<td><strong>WA 2</strong> PROBLEM ANALYSIS</td>
<td><strong>WA10</strong> COMMUNICATION</td>
</tr>
<tr>
<td><strong>WA3</strong> DESIGN</td>
<td><strong>WA11</strong> PROJ MGMT &amp; FINANCE</td>
</tr>
<tr>
<td><strong>WA5</strong> MODERN TOOLS</td>
<td><strong>WA12</strong> LIFE LONG</td>
</tr>
<tr>
<td><strong>WA6</strong> ENGR &amp; SOC</td>
<td><strong>WA4</strong> INVESTIGATION</td>
</tr>
<tr>
<td><strong>WA7</strong> ENV &amp; SUST</td>
<td><strong>WA8</strong> ETHICS</td>
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</tbody>
</table>

**WHAT YOU WANT YOUR GRADUATES TO BE IN 3 - 5 YEARS**

**EXTRA-CURRICULAR**

- **WA 1** ENGINEERING KNOWLEDGE
- **WA 2** PROBLEM ANALYSIS

**UNIVERSITY EXPERIENCE**

- **WA3** DESIGN
- **WA5** MODERN TOOLS
- **WA6** ENGR & SOC
- **WA7** ENV & SUST
- **WA8** ETHICS
- **WA4** INVESTIGATION
- **WA9** IND & TEAM
- **WA10** COMMUNICATION
- **WA11** PROJ MGMT & FINANCE
- **WA12** LIFE LONG
Curricula Models

Distribution of Knowledge, Skills & Attitude elements throughout the 4 years

Yr. 4
Yr. 3
Yr. 2
Yr. 1

A: K 70%  S&A 30%
B: K 70%  S&A 30%
C: K 70%
D: K 70%  S&A 30%
### New Bloom’s Taxonomy

<table>
<thead>
<tr>
<th>Remembering: can the student recall or remember the information?</th>
<th>define, duplicate, list, memorize, recall, repeat, reproduce state</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Understanding</strong>: can the student explain ideas or concepts?</td>
<td>classify, describe, discuss, explain, identify, locate, recognize, report, select, translate, paraphrase</td>
</tr>
<tr>
<td><strong>Applying</strong>: can the student use the information in a new way?</td>
<td>choose, demonstrate, dramatize, employ, illustrate, interpret, operate, schedule, sketch, solve, use, write.</td>
</tr>
<tr>
<td><strong>Analyzing</strong>: can the student distinguish between the different parts?</td>
<td>appraise, compare, contrast, criticize, differentiate, discriminate, distinguish, examine, experiment, question, test.</td>
</tr>
<tr>
<td><strong>Evaluating</strong>: can the student justify a stand or decision?</td>
<td>appraise, argue, defend, judge, select, support, value, evaluate</td>
</tr>
<tr>
<td><strong>Creating</strong>: can the student create new product or point of view?</td>
<td>assemble, construct, create, design, develop, formulate, write.</td>
</tr>
</tbody>
</table>
Psychomotor Domain
(doing, skills)

Perception

**Definition:**
Senses cues that guide motor activity.

**Sample Verbs:**
- detect
- hear
- listen
- observe
- perceive
- recognize
- see
- sense
- smell
- taste
- view
- watch

Set

**Definition:**
Imitates and practices skills, often in discrete steps.

**Sample Verbs:**
- achieve a posture
- assume a body stance
- establish a body position
- place hands, arms, etc.
- position the body
- sit
- stand
- station

Guided Response

**Definition:**
Performs acts with increasing efficiency, confidence, and proficiency.

**Sample Verbs:**
- copy
- duplicate
- imitate
- manipulate with guidance
- operate under supervision
- practice
- repeat
- try

Mechanism

**Definition:**
Performs acts automatically.

**Sample Verbs:**
- act habitually
- advance with assurance
- control
- direct
- excel
- guide
- maintain efficiency
- manage
- master
- organize
- perfect
- perform automatically
- proceed

Complete Overt Response

**Definition:**
Adapts skill sets to meet a problem situation.

**Sample Verbs:**
- adapts
- reorganizes
- alters
- revises
- changes

Adaption

**Definition:**
Creates new patterns for specific situations.

**Sample Verbs:**
- designs
- originates
- combines
- composes
- constructs

Organization

**lower order**

**Intermediate**

**Higher order**
Affective Domain

(feeling, attitudes)

- **Receiving**
  - **Definition:** Selectively attends to stimuli.
  - **Sample Verbs:**
    - accept
    - acknowledge
    - be aware
    - listen
    - notice
    - pay attention
    - tolerate

- **Responding**
  - **Definition:** Attaches value or worth to something.
  - **Sample Verbs:**
    - adopt
    - assume responsibility
    - behave according to
    - choose
    - commit
    - desire
    - exhibit loyalty
    - express
    - initiate
    - prefer
    - seek
    - show concern
    - show continual desire to
    - use resources to

- **Valuing**
  - **Definition:** Conceptualizes the value and resolves conflict between it and other values.
  - **Sample Verbs:**
    - adapt
    - adjust
    - arrange
    - balance
    - classify
    - conceptualize
    - formulate
    - group
    - organize
    - rank
    - theorize

- **Internalizing**
  - **Definition:** Integrates the value into a value system that controls behavior.
  - **Sample Verbs:**
    - act upon
    - advocate
    - defend
    - exemplify
    - influence
    - justify behavior
    - maintain
    - serve
    - support

**Higher order**  
**Intermediate**  
**lower order**
Course Outcome (CO) contributing to Programme Outcome (PO)

Ability to function in a multidisciplinary team

- Assign **multidisciplinary design** projects in engineering courses.
- Implement design projects with **multidisciplinary teams**

Exercise:
Identify a course and discuss how it can be implemented
Course Outcome (CO) contributing to Programme Outcome (PO)

Broad education necessary to understand the impact of engineering solutions in a global, environment and societal context + knowledge of contemporary issues

- Include structured **controversies** in engineering course

- Conduct class exercise or homework **problems that involve global/societal issues**

Exercise:
Identify a course and discuss how it can be implemented
Course Outcome (CO) contributing to Programme Outcome (PO)

Life Long Learning

- Teach students about **learning styles** and help them identify the strength and weakness of their styles and give them strategies to improve
- Use **active learning** methods to accustom them to relying on themselves
- Give assignments that requires **library and www searches**
- Anything done to fulfil criteria on: (a) understanding ethical and professional responsibility and (b) understanding societal and global context of engineering solutions, will automatically satisfy this criteria
Learning outcomes by adding a condition and standard

**Poor**
- Students should be able to design research.

**Better**
- Students should be able to independently design and carry out experimental and correlational research.

**Best**
- Students should be able to independently design and carry out experimental and correlational research that yields valid results.

Knowledge Profile

4 YEARS

WK1
natural sciences

WK2
mathematics, numerical analysis, statistics, computer and information science

WK3
engineering fundamentals

WK4
engineering specialist knowledge

WK5
engineering design

WK6
engineering practice

WK7
engineering in society

WK8
research literature
Engineering Knowledge

(WA1) Apply knowledge of mathematics, natural science, engineering fundamentals and an engineering specialisation to the solution of complex engineering problems; (WK1 to WK4)

WA = Programme Learning Outcome
WK = Knowledge Profile = Curriculum
**Problem Analysis - Complexity of analysis**

(WA2) Identify, formulate, research literature and analyse **complex** engineering problems reaching substantiated conclusions using **first principles** of mathematics, natural sciences and engineering sciences (WK1 – 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 previously been identified or codified (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)
**PROGRAMME LEARNING OUTCOME**

<table>
<thead>
<tr>
<th>Investigation - Breadth &amp; Depth of Investigation &amp; Experimentation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>(WA4)</strong> Conduct investigation of complex problems using research based knowledge <em>(WK8)</em> and research methods including design of experiments, analysis and interpretation of data, and synthesis of information to provide valid conclusions</td>
</tr>
</tbody>
</table>
Modern Tool Usage - Level of understanding of the appropriateness of the tool

(WA5) Create, select and apply appropriate techniques, resources, and modern engineering and IT tools, including prediction and modelling, to complex engineering problems, with an understanding of the limitations. (WK6)
The Engineer and Society - Level of knowledge and responsibility

(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 - Type of solutions

**WA7** Understand and evaluate the sustainability and impact of professional engineering work in the solutions of complex engineering problems in societal and environmental contexts (demonstrate knowledge of and need for sustainable development) **WK7**
Ethics - Understanding and level of practice

(WA8) Apply ethical principles and commit to professional ethics and responsibilities and norms of engineering practice. (WK7)
PROGRAMME LEARNING OUTCOME

Individual and Team Work – Role in and diversity of team

(WA9) Function effectively as an individual, and as a member or leader in diverse teams and in multi-disciplinary settings
**PROGRAMME LEARNING OUTCOME**

<table>
<thead>
<tr>
<th>Communication – Level of communication according to type of activities performed</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>(WA10)</strong> Communicate effectively on <strong>complex</strong> engineering activities with the engineering community and with society at large, such as being able to <strong>comprehend and write</strong> effective reports and design documentation, make <strong>effective presentations</strong>, and give and receive <strong>clear instructions</strong></td>
</tr>
</tbody>
</table>
## PROGRAMME LEARNING OUTCOME

| Project Management and Finance – Level of management required for differing types of activity |
| (WA11) Demonstrate knowledge and understanding of engineering and 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 multidisciplinary environments |
### PROGRAMME LEARNING OUTCOME

<table>
<thead>
<tr>
<th>Life-long Learning – Preparation for and depth of continuing learning</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>(WA12)</strong> Recognise the need for, and have the preparation and ability to <strong>engage in independent</strong> and <strong>life-long learning</strong> in the <strong>broadest context of technological change</strong></td>
</tr>
<tr>
<td>WA1</td>
</tr>
<tr>
<td>--------</td>
</tr>
<tr>
<td>WA2</td>
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<tr>
<td>WA3</td>
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<td>WA4</td>
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<td>WA5</td>
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<td>WA10</td>
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<td>WA11</td>
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<td>WA12</td>
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<tr>
<td>Week</td>
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<td>WK1</td>
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<td>WK2</td>
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<tr>
<td>WK6</td>
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<tr>
<td>WK7</td>
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<tr>
<td>WK8</td>
</tr>
</tbody>
</table>

**Wa1** Engineering Knowledge

**Wa2** Problem Analysis

**Wa3** Design

**Wa4** Investigation

**Wa5** Modern Tools

**Wa6** Engr & Soc

**Wa7** Env & Sust

**Wa8** Ethics

**Wa9** Ind & Team

**Wa10** Communication

**Wa11** Proj Mgmt & Finance

**Wa12** Life Long
Complex Problem

Need to think broadly and systematically and **see the big picture**

- Difficult Decision
- Uncertain Strategy
- Confusing Idea
- Contentious Product
- Intractable Change
### Complex Problems (*Need High Taxonomy Level*)

Complex Engineering Problems have characteristic WP1 and some or all of WP2 to WP7, EP1 and EP2, that can be resolved with in-depth forefront knowledge.

<table>
<thead>
<tr>
<th>WP1</th>
<th>Depth of Knowledge required</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Resolved with <strong>forefront in-depth</strong> engineering knowledge (WK3, WK4, WK5, WK6 or WK8) which allows a fundamentals-based, first principles analytical approach</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>WP2</th>
<th>Range of conflicting requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Involve <strong>wide-ranging or conflicting</strong> technical, engineering and other issues</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>WP3</th>
<th>Depth of analysis required</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Have <strong>no obvious solution</strong> and require abstract thinking, originality in analysis to formulate suitable models</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>WP4</th>
<th>Familiarity of issues</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Involve <strong>infrequently encountered</strong> issues</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>WP5</th>
<th>Extent of applicable codes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Beyond codes of practice</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>WP6</th>
<th>Extent of stakeholder involvement and level of conflicting requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Involve <strong>diverse groups of stakeholders</strong> with widely varying needs</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>WP7</th>
<th>Interdependence</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Are <strong>high level problems</strong> including <strong>many component</strong> parts or sub-problems</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>EP1</th>
<th>Consequences</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Have <strong>significant consequences</strong> in a range of contexts</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>EP2</th>
<th>Judgement</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Require judgement in <strong>decision</strong> making</td>
</tr>
</tbody>
</table>
## Complex Engineering Activities (*Project based*)

<table>
<thead>
<tr>
<th>Preamble</th>
<th>Complex activities means (engineering) activities or projects that have <strong>some or all</strong> of the following characteristics listed below</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range of resources</td>
<td><strong>Diverse resources</strong> (people, money, equipment, materials, information and technologies).</td>
</tr>
<tr>
<td>Level of interaction</td>
<td>Require resolution of significant problems arising from interactions between <strong>wide ranging</strong> or <strong>conflicting</strong> technical, engineering or other issues.</td>
</tr>
<tr>
<td>Innovation</td>
<td>Involve creative use of engineering principles and <strong>research-based</strong> knowledge in <strong>novel</strong> ways.</td>
</tr>
<tr>
<td>Consequences to society and the environment</td>
<td>Have <strong>significant consequences</strong> in a <strong>range of contexts</strong>, characterised by <strong>difficulty</strong> of prediction and mitigation.</td>
</tr>
<tr>
<td>Familiarity</td>
<td>Can extend <strong>beyond previous</strong> experiences by applying <strong>principles-based</strong> approaches.</td>
</tr>
</tbody>
</table>
WA – WK – WP Relationships

**WA1 – Engineering Knowledge**
(Science, Mathematics & Engineering)
(WK1, WK2, WK3, WK4)

**to solve**

**Complex Engineering Problems**

**WP1 – Depth of Knowledge**
required:
Resolved with *forefront in-depth*
engineering knowledge
(WK3, WK4, WK5, WK6 or WK8)
which allows a fundamentals-based,
first principles analytical approach

**WK1 - natural sciences (WA1) (know what)**

**WK2 - mathematics, numerical analysis,
statistics, computer and information science (WA1)**

**WK3 - engineering fundamentals (WA1)**

**WK4 - engineering specialist knowledge (WA1)**

**WK5 - engineering design (know how)**
**WA3 - Design**

**WK6 - engineering practice (know how)**
**WA5 - Modern Tools**

**WK8 - research literature (know why)**
**WA4 - Investigation**
to solve
Complex Engineering Problems

WP1 – Depth of Knowledge required:
Resolved with **forefront in-depth** engineering knowledge (WK3, WK4, WK5, WK6 or WK8) which allows a fundamentals-based, first principles analytical approach

<table>
<thead>
<tr>
<th>WP</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>WP2</td>
<td>Range of conflicting requirements</td>
</tr>
<tr>
<td>WP3</td>
<td>Depth of analysis required</td>
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<tr>
<td>WP4</td>
<td>Familiarity of issues</td>
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<tr>
<td>WP5</td>
<td>Extent of applicable codes</td>
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<tr>
<td>WP6</td>
<td>Extent of stakeholder involvement and level of conflicting requirements</td>
</tr>
<tr>
<td>WP7</td>
<td>Interdependence</td>
</tr>
<tr>
<td>EP1</td>
<td>Consequences</td>
</tr>
<tr>
<td>EP2</td>
<td>Judgement</td>
</tr>
</tbody>
</table>

WK2 - mathematics, numerical analysis, statistics, computer and information science (WA1)

WK1 - natural sciences (WA1)

WK3 - engineering fundamentals (WA1)

WK4 - engineering specialist knowledge (WA1)

WK5 - engineering design
     WA3 - Design

WK6 - engineering practice
     WA5 - Modern Tools

WK8 - research literature
     WA4 - Investigation

Some or all: WP2 – WP7, EP1 & EP2
to solve Complex Engineering Problems

### WP1 – Depth of Knowledge required:
Resolved with **forefront in-depth** engineering knowledge (WK3, WK4, WK5, WK6 or WK8) which allows a fundamentals-based, first principles analytical approach.

<table>
<thead>
<tr>
<th>WP2</th>
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<td>EP2</td>
<td>Judgement</td>
</tr>
</tbody>
</table>

WK2 - mathematics, numerical analysis, statistics, computer and information science (WA1)

WK3 - engineering fundamentals (WA1)

WK4 - engineering specialist knowledge (WA1)

WK5 - engineering design

WK6 - engineering practice

WK7 - engineering in society

WK8 - research literature

WA3 - Design

WA5 - Modern Tools

WA6 - engineer & society

WA7 - environment & sustainability

WA8 - ethics

Breadth
**Design Course**

**WP1 – Depth of Knowledge required:**
Resolved with **forefront in-depth** engineering knowledge (WK3, WK4, WK5, WK6 or WK8) which allows a fundamentals-based, first principles analytical approach.

<table>
<thead>
<tr>
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<th>Range of conflicting requirements</th>
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</thead>
<tbody>
<tr>
<td>WP3</td>
<td>Depth of analysis required (WA2)</td>
</tr>
<tr>
<td>WP4</td>
<td>Familiarity of issues</td>
</tr>
<tr>
<td>WP5</td>
<td>Extent of applicable codes</td>
</tr>
<tr>
<td>WP6</td>
<td>Extent of stakeholder involvement and level of conflicting requirements WK7 (WA6, WA7, WA8)</td>
</tr>
<tr>
<td>WP7</td>
<td>Interdependence</td>
</tr>
<tr>
<td>EP1</td>
<td>Consequences</td>
</tr>
<tr>
<td>EP2</td>
<td>Judgement</td>
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</tbody>
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**WK1 - natural sciences (WA1)**

**WK2 - mathematics, numerical analysis, statistics, computer and information science (WA1)**

**WK3 - engineering fundamentals (WA1)**

**WK4 - engineering specialist knowledge (WA1)**

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**WK6 - engineering practice**

**WA5 - Modern Tools**

**WK7 - engineering in society**

**WA6 - engineer & society**

**WA7 - environment & sustainability**

**WA8 - ethics**

**WK8 - research literature**

**WA4 - Investigation**

**WA2 - Problem Analysis**

**WA9 - Individual and Team Work**

**WA10 - Communication**

**WA11 - Project Management and Finance**

**WA12 - Life-long Learning**
<table>
<thead>
<tr>
<th>Rubric</th>
<th>4 – Exceeds Criteria</th>
<th>3 – Meets Criteria</th>
<th>2 - Progressing to Criteria</th>
<th>1 - Below Expectations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Content</strong></td>
<td>Provides ample</td>
<td>Provides adequate</td>
<td>Some details but may</td>
<td>Inconsistent or few</td>
</tr>
<tr>
<td></td>
<td>supporting detail to</td>
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<td>include extraneous or</td>
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<td>loosely related material.</td>
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<td>Little evidence of</td>
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<td>pattern is logical &amp;</td>
<td>&amp; wholeness, though</td>
<td>organization or any</td>
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<td>organization attempted.</td>
<td>sense of wholeness &amp;</td>
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<td>&amp; wholeness.</td>
<td>&amp; wholeness with</td>
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<td>completeness.</td>
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<td>Uses effective</td>
<td>Limited &amp; predictable</td>
<td>Limited or inappropriate</td>
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<td>language &amp;</td>
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<td>appropriate</td>
<td>not appropriate for</td>
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<td>word choices for</td>
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<td>purpose.</td>
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<td>audience &amp; purpose.</td>
<td>intended audience &amp;</td>
<td>purpose.</td>
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<td>Generally follows</td>
<td>Generally does not</td>
<td>Does not follow the</td>
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<td>the rules of standard</td>
<td>the rules for</td>
<td>follow the rules of</td>
<td>rules of standard</td>
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</table>

Adopted from G. Rogers

Accreditation Criteria

4.1 Organization and Governance
4.2 Financial and Physical Resources
4.3 Faculty
4.4 Students
4.5 Academic Facilities and Technical Support
4.6 Curriculum and Teaching-Learning Processes
4.7 Program Educational Objectives (PEO)
4.8 Program Outcomes and Assessment
4.9 Continuous Quality Improvement (CQI)
4.10 Interactions with the Industry......
Lessons Learnt

- Many models
- Extent of adherence
- Minimum mastery
- Ability to solve complex problem
- Back to the Manual
- Use right terminology
- Appropriate measurement
<table>
<thead>
<tr>
<th>Programme Educational Objective (after 3-5 Years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Programme Learning Outcome (at Exit)</td>
</tr>
<tr>
<td>Course/Unit/Learning Outcome (Abilities &amp; Intentional)</td>
</tr>
</tbody>
</table>
Internally Driven CQI

POs

Design of subject 1
Implement the design
Assess

Design of subject 2
Implement the design
Assess

PEOs

Improve
IAP
EE
Others

Improve

Improve
Let’s work it out

• Provide your comments on the statements in the slides allocated to the four groups. What are the probing required and your final judgment on the issue?
• How would you improve the situations?
• How would you write your judgment?
Group 1

• Uni Q decided to measure attainment of POs in the last two years of the program.
• Uni Y prefers in selecting a number of subjects within the program to show attainment of POs.
• Uni Z chose to include only subjects own by the department conducting the program in showing attainment of POs.
• Uni X has very few subjects allocated for non-technical POs.
• Uni A demonstrated strong attainment of technical POs but allowed students to fail only one of the non-technical POs
• Uni B approaches to demonstrate complex problem only at FYP
• Uni C defines complex problem as having breadth and depth at subject level
• Uni D specifies complex problem shall include all the knowledge profile
Group 3

- Two of 11 academics were not adhering to the designed OBE system. These two were teaching basic subjects; Statics and Mathematics
- Two thirds of the academics misaligned final examination questions from the CO-PO mapping
- Half of the academics set their assessment at higher taxonomy than the designed
- Rubrics were used as assessment tools in cognitive domain
Group 4

- The benchmarks for the attainment of POs were set at 50% for 50% of the students.
- Three of the 30 subjects were allowing students who failed in one or two of the non-technical PO components of the subjects to move up the year without repeating the exact components.
- Academics were having different understanding as to the interpretation of taxonomy level and strictly adhering to their interpretation.
- Rubrics were not used in assessing teamwork.
BAETE’s Expectations on Evaluators

- Commitment
- Not “Auditors”
- Pre-Visit Planning & Discussion
- Day -1 meeting (be seen doing it)
- Visit Day Aplomb & Decorum
- Reporting
- Response to factual inaccuracies
Pre-Accreditation Visit Meeting

• Meet at least once (in addition to the meeting on Day -1) before the Accreditation Visit, to study and discuss documents, and systematically identify shortcomings.

• Strategically plan and/or request supplementary input from the University to fill the gaps. (Prepare interim report, checklist, schedule and assignment)

• Further information required, communicate through PEC.
Day -1 Meeting

• Findings (interim report)
• Strategy (schedule & assignment)
• Update checklist
EVALUATION DAY

• Opening meeting
• Meeting with
  • staff members,
  • students,
  • external stakeholders such as alumni, employers, and industry advisor
• Visiting facilities.
• Checking relevant documents.
• Exit meeting
OPENING MEETING

• **Introduce** evaluation team members
• Mention the **objective** of the visit (programmes)
• Mention that it is **not fault finding** exercise but to identify the programme conformance to the Accreditation criteria
• Explain the **methods** of conducting the evaluation
• **Review** the plan and **schedule**
• **Confirm** the time of the **closing meeting**
• Invite the Programme owner to fill up **the latest** (within a specified timeframe) if any
Curriculum development (specification/input)
• Curriculum implementation (process)
• Demonstrated outcomes (output)
Evidence is the facts or information used to prove or disprove a proposition. It should be collected through:

- Interviewing
- Observation of environment
- Observation of implementation
- Checking of records or document
Objective Evidence

- Evidence that exists
- Not influenced by emotion or prejudice
- Can be documented
- Is about quality
- Can be quantitative or qualitative
- Can be verified
Objective Evidence

The facts or information used to conclude whether a programme has or has not undertaken appropriate activities effectively to demonstrate attainment of the necessary outcomes.
EVALUATOR’S APPROACH

• Sensible questioning
• Check records
• Observing processes
• Analyse inputs and outputs
• Organised using tables, matrices, flowcharts and checklists
Questioning


Best friend – Show Me

Additional skills of LISTENING and OBSERVING
EFFECTIVE COMMUNICATION

Occurs when the right person, says the right things, to the right people, at the right place at the right time and in the right way to be heard and understood and to produce the right response.

Important

• Person is at ease in communicating with the Evaluator.
• Evaluator should do all he/she can to make person feel at ease.
EFFECTIVE COMMUNICATION (Cont..)

Tips

- Gain attention from the person before starting.
- Explain clearly the purpose of the session/visit.
- Include friendly remarks or express your interest in what he/she is doing.
- Politeness all the way never antagonise or belittle the person.
- Establish eye contact all the times.
- Communicate in the language he/she is comfortable.
- Use of body language to promote the dialogue. (Spoken message is 7%, verbal and vocal 38% and 55% facial).
- Listen, listen, listen, an Evaluator need to train himself to be an active listener.
POINTS TO CONSIDER IN DERIVING FINDINGS/CONCLUSION

- Establish requirement
- Probe process
- Whom do you speak to?
- What to look for?
- Sampling
- How long to persist?
- Is there any shortcomings?
- Is it significant?
- Consult team members
What are the six (6) typical starting words that Evaluators can begin with, when questioning?

Evaluators’ Best friend?
What are the three (3) methods/techniques employed by Evaluators when conducting an accreditation exercise?
Opening Meeting - Evaluators

- Greetings
- Purpose
- Introduce team
- State standard & method
- Confidentiality
- Highlight some issues of interest
- Prepare questions for top management
Exit Meeting - Evaluators

• Greetings
• Thank IHL
• Relate strength
• Raise concerns
• Mention “detailed report & response to factual accuracies”
• Decision
## Dos & Don’ts
### Aplomb & Decorum

<table>
<thead>
<tr>
<th>Dos</th>
<th>Don’ts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formal attire</td>
<td>Track suit</td>
</tr>
<tr>
<td>Preparedness</td>
<td>Based on presentation</td>
</tr>
<tr>
<td>Time management</td>
<td>Not punctual</td>
</tr>
<tr>
<td>Well versed</td>
<td>Lack of knowledge</td>
</tr>
<tr>
<td>Probing</td>
<td>Surface</td>
</tr>
<tr>
<td>Big Picture</td>
<td>Compartmentalized</td>
</tr>
<tr>
<td>Triangulate</td>
<td>Single evidence</td>
</tr>
<tr>
<td>State the fact</td>
<td>Giving solutions</td>
</tr>
<tr>
<td>No surprises</td>
<td>Shocking decision</td>
</tr>
<tr>
<td>Collegial</td>
<td>Too formal</td>
</tr>
<tr>
<td>Serious</td>
<td>Too lighthearted</td>
</tr>
</tbody>
</table>
Don’ts

• Answering phone calls
• Silent
• Excused early
• Poor listener
• Opinionated
• Argumentative
• Please complete the list ....
COMPETENCY OF EVALUATORS

- Organizing skills
- Knowledge of the manual
- Questioning skills
- Comprehensiveness of the evaluation
- Listening to persons
- Overall appearances
- Reporting
- Overall judgment
- Overall rapport with persons
- Aplomb (self-confidence) and decorum (etiquette)
Random Observations

• Bullet points & Aggregation
• Ambiguous
• Poor time management
• Guidelines supersede Manual
• Keywords as sole determination
• Interrogative
Assessment for Decision
Ten of the 40 subjects were indicating cognitive taxonomy level of 3 over a scale of 6. The rest, including the third and final years’ subjects were indicating level 4. The final year’s final examination questions mostly reached up to level 6. An External Examiner’s report indicated dissatisfaction over what he termed as poor curriculum design with regards to the taxonomy level.

Laboratory works were mostly open ended. Final Year Projects (FYPs) were based on the research areas of the academic staff. Capstone design subject had industry involvement.

Majority of the students scored A in FYP and Capstone subject. Assessment Rubrics were widely used. Students were not satisfied with the Capstone subject on the allocated time and lacked of meeting space.
Question

How would you pursue to arrive at a decision, and state the justification. Classify the decision according to the clauses of the manual, indicating; strength, weakness, concern (major or minor) or OFI.
Consistency of Decision

3 decisions meetings per year

EAC Accreditation Decision Meeting (ADM)

Director

Associate Directors (Discipline)

Head of Delegation

Panel 1

Panel 2
Reporting

- Qualitative
- Strength
- Shortcomings (weaknesses)
- Concerns
- Opportunities for Improvement
Closing Remarks