

# **BEM POLICY ON NAMING AND CONTENT OF EDUCATION PROGRAMMES**

*at Dublin, Sydney and Washington Accord Levels*

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November 2019

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# **Chapter 1:**

# **PREAMBLE**

## 1. PREAMBLE

### 1.1. Introduction

The policy is intended to:

- 1.1.1. Ensure that programme names are consistent with existing MQA guidelines, BEM registration categories, and the Standards of ETAC and EAC.
- 1.1.2. Provide clarity to the public, particularly to avoid misleading programme names.

### 1.2. Scope

The scope of the Policy covers the following:

- 1.2.1. New programmes seeking approval.
- 1.2.2. Current ongoing programmes requesting for change of programme name.
- 1.2.3. Programmes for engineering and engineering technology at :-
  - Diploma level, meeting ETAC and Dublin Accord Standards;
  - Bachelor level, meeting ETAC and Sydney Accord Standards; and
  - Bachelor level, meeting EAC and Washington Accord Standards;
- 1.2.4. Programmes meeting Dublin and Sydney Accord standards under ETAC are practice-oriented in nature and are known as Engineering TVET programmes.

### 1.3. Definitions

- 1.3.1. Definitions as per MQA Guidelines on programme names.

#### 1.3.1.1. Major

A **major** is the primary focus area of study in the programme. The **major** in programme naming must represent at least 70% of engineering technology content in curriculum.

#### 1.3.1.2. Specialisation

A **specialisation** is a sub-area within the **major** area of study. A specialisation in programme naming must represent between 25-30% of engineering technology content in curriculum. The specialisation, if present within a programme, is indicated within brackets in the programme name.

- 1.3.2. Definitions as per BEM Guidelines on registration.

#### 1.3.2.1. Main branch

The approved main branches for BEM registration, namely civil, electrical, mechanical and chemical.

#### 1.3.2.2. Sub-set branch.

The approved sub-set branches under any of the four (4) main branches for BEM registration.

1.3.3. Definitions as per EAC and ETAC Standards.

**1.3.3.1. Engineering and Engineering Technology content**

The minimum core credits for engineering and engineering technology content as specified in the EAC and ETAC Standards.

**1.4. Degrees with Honours.**

1.4.1. All engineering and engineering technology degree programmes at Bachelor level which adhere to the EAC and ETAC Standards will meet both the following characteristics:-

- Four (4) years minimum duration; and
- Have a research component in the form of Final Year Project.

1.4.2. In meeting both of these two characteristics, EAC and ETAC accredited bachelor degree programmes will meet the generally accepted guidelines for Degrees with Honours.

1.4.3. Diploma level programmes do not have the phrase “With Honours” attached.

**1.5. Exemptions**

1.5.1. Exemptions from the provisions of this policy may be considered on a case-to-case basis based on individual merit.

1.5.2. If IHLs feel that any programme deserves a new name outside the current list of registration branches as approved by the Board, they may submit their case and present it as an exemption request as per (1.5.3) below. This provision allows for IHLs to innovate new pioneering frontiers of engineering and engineering technology disciplines.

1.5.3. Exemption 1:

- a) The phrase “Electrical & Electronics” (E&E) is accepted as an alternative to represent the programme major “Electrical” in programme naming.
- b) The justification is its historical usage, and that it is widely accepted especially among the non-engineering technology stakeholders (e.g. the use of E&E in international trade negotiations).
- c) Example: “Bachelor of **Electrical & Electronics** Engineering with Honours” is a programme with major in electrical engineering.
- d) The recommended branch of registration for its graduates will be “electrical”.

**1.6. Effective Date and Revision of Policy**

1.6.1. The effective date for this policy is 1<sup>st</sup> of September 2019.

1.6.2. This policy incorporates all items in previous BEM policies on naming of education programmes, and hence supersedes them.

1.6.3. The Board reserves the right to review this policy from time to time.

**1.7. References**

1.7.1. MQA Guidelines on Programme Naming.

1.7.2. BEM’s Main and Sub-Sets for BEM registration branch (Appendix 1).

**Chapter 2:**  
**DIPLOMA PROGRAMMES**  
**AT DUBLIN ACCORD LEVEL**

## 2. DIPLOMA PROGRAMMES AT DUBLIN ACCORD LEVEL

### 2.1. Name options

- 2.1.1. The normal Diploma programme name would utilise the phrase “Engineering Technology”, but due to historical and common-usage reasons, the phrase “Engineering” may also be used.
- 2.1.2. The phrase “with Honours” will not be used in the programme name.
- 2.1.3. Example:

**Diploma of Civil Engineering Technology**

**Diploma of Civil Engineering**

- 2.1.4. Either one of the above names in the example can be adopted by the IHL. The phrase “Engineering Technology” normally refers to programmes which are relatively more practice-oriented, i.e. where more than 70% of programme content are practical components.

### 2.2. Programmes with a single major

- 2.2.1. The format of the naming shall be :-
- Diploma of “*major*” Engineering Technology .
- 2.2.2. At least 70% of engineering technology content is in the major, and
- 2.2.3. The major must be either a main branch or sub-set branch of registration.
- 2.2.4. Example: **Diploma of *Civil* Engineering Technology**  
(Civil is a main branch of registration)
- 2.2.5. Example: **Diploma of *Mechatronics* Engineering Technology**  
(Mechatronics is a sub-set branch of registration)
- 2.2.6. The following example is not allowed:-
- **Diploma of *Instrumentation* Engineering Technology**, because “Instrumentation” is not a main or sub-set branch.

### 2.3. Programmes with a major with a specialisation.

- 2.3.1. The format of the naming shall be :-  
Diploma of “*major*” Engineering Technology (“*specialisation*”) .
- 2.3.2. A minimum of 70% of engineering technology content shall be within the major.
- 2.3.3. A range of 25-30% of engineering technology content shall be within the specialisation.
- 2.3.4. The major must be either a main branch or sub-set branch of registration.
- 2.3.5. The specialisation must be either a sub-set branch of registration or any other sub-discipline not in the BEM-approved list but deemed appropriate by the IHL. This “other sub-discipline” is normally a very new and/or specialised technology.

2.3.6. Example:

**Diploma of Civil Engineering Technology (Highway)**

(“Civil” is a main branch, and “Highway” is a sub-set branch)

2.3.7. Example:

**Diploma of Highway Engineering Technology (Pavement)**

(Highway is a sub-set branch, and “Pavement” is a very specialised discipline)

2.3.8. Example:

**Diploma of Civil Engineering Technology (Pavement)**

(“Civil” is a main branch, and “Pavement” is a very specialised discipline)

2.3.9. Example:

**Diploma of Petroleum Engineering Technology (Drilling)**

(“Petroleum” is a sub-set branch, and “Drilling” is a very specialised discipline)

2.3.10. The following example is not allowed:

**Diploma of Structural Engineering Technology (Building),**

both “Structural” and “Building” are sub-set branches.

## 2.4. Multi-disciplinary (general) programmes with no major but with a specialisation

2.4.1. The format of the naming shall be :-

**Diploma of Engineering Technology (“specialisation”).**

2.4.2. A range of 25-30% of engineering technology content shall be in the specialisation.

2.4.3. The remainder range of 70-75% of engineering technology content is mixed such that it cannot be categorised under any of the main or sub-set branches.

2.4.4. The specialisation may either a sub-set branch of registration or any other sub-discipline not in the BEM-approved list but deemed appropriate by the IHL, but it cannot be a main branch.

2.4.5. Example:

**Diploma of Engineering Technology (Manufacturing)**

(“Manufacturing” is a sub-set branch)

2.4.6. Example: **Diploma of Engineering Technology (Tool & Die)**

(“Tool & Die” is a very specialised sub-discipline)

2.4.7. The following example is not allowed:

**Diploma of Engineering Technology (Mechanical),**

because “Mechanical” is a main branch.

## 2.5. Multi-disciplinary or general programmes with no major or specialisation.

2.5.1. The naming shall be:

**Diploma of Engineering Technology .**

2.5.2. The engineering technology content is mixed which cannot be categorised under any of the main or sub-set branches.

2.5.3. The engineering technology content nevertheless meets the minimum engineering technology core credits as per ETAC Standard and hence deserves accreditation (upon meeting other stipulated criteria).

2.5.4. It is recognised that IHLs should have the flexibility and freedom to innovate new engineering technology programmes which address pioneering frontier areas of engineering technology knowledge outside the current scope of registration branch recognised by the Board. This provision allows for such flexibility and freedom.

**2.6. Engineering Technology programmes with additional non-engineering technology major**

2.6.1. For additional non-engineering technology **major** such as Law, Business or IT, the additional components must be over and above minimum required total ETAC credits.

2.6.2. Example: **Diploma of Civil Engineering Technology and Law**

(Law discipline contents should meet the relevant standards for the law profession, over and above the minimum required total ETAC credits. Engineering Technology contents must meet the preceding provisions).

**2.7. Determination of Branch for Registration of graduates with BEM**

2.7.1. The branches for registration of Graduates will be restricted to one of the four main branches of BEM, i.e. Civil, Mechanical, Electrical and Chemical.

2.7.2. If the major in the name of the programme is one of the four main branches of BEM, the branch for registration of graduates as Inspector of Works (IoW) will be based on the major.

2.7.3. For programmes which are specialised in nature, the registration branch will be one of the four main branches which is closest to it. Hence if the major is not one of the four main branches of BEM, i.e. it is one of the subset branches, the branch for registration of graduates as Inspector of Works (IoW) will be based on the main branch related to the subset branch.

*Examples:-*

<b>NAME OF PROGRAMME</b>	<b>BRANCH OF REGISTRATION</b>
<i>Diploma of <b>Civil Engineering Technology</b></i>	<i><b>Civil</b></i>
<i>Diploma of <b>Mechanical Engineering Technology</b></i>	<i><b>Mechanical</b></i>
<i>Diploma of <b>Electrical Engineering Technology</b></i>	<i><b>Electrical</b></i>
<i>Diploma of <b>Chemical Engineering Technology</b></i>	<i><b>Chemical</b></i>
<i>Diploma of <b>Mechatronics Engineering Technology</b></i>	<i><b>Mechanical</b></i>
<i>Diploma of <b>Civil Engineering Technology (Environment)</b></i>	<i><b>Civil</b></i>

<i>Diploma of <b>Mechanical Engineering Technology (Materials)</b></i>	<i><b>Mechanical</b></i>
<i>Diploma of <b>Computer Engineering Technology</b></i>	<i><b>Electrical</b></i>
<i>Diploma of <b>Computer Engineering Technology (Microelectronics)</b></i>	<i><b>Electrical</b></i>
<i>Diploma of <b>Engineering Technology</b></i>	<i><b>General</b> (as <u>approved by the Board as per Board Meeting 319, 27/6/2016</u>)</i>

**Chapter 3:**  
**ENGINEERING TECHNOLOGY**  
**PROGRAMMES**  
**AT SYDNEY ACCORD LEVEL**

### 3. ENGINEERING TECHNOLOGY PROGRAMMES AT SYDNEY ACCORD LEVEL

#### 3.1. Programmes with a single major

3.1.1. The format of the naming shall be :-

- Bachelor of “*major*” Engineering Technology with Honours.

3.1.2. At least 70% of engineering technology content is in the major, and

3.1.3. The major must be either a main branch or sub-set branch of registration.

3.1.4. Example: **Bachelor of Civil Engineering Technology with Honours**

(Civil is a main branch of registration)

3.1.5. Example:

**Bachelor of Mechatronics Engineering Technology with Honours**

(Mechatronics is a sub-set branch of registration)

3.1.6. Not allowed:-

**Bachelor of Instrumentation Engineering Technology with Honours,**  
because “Instrumentation” is not a main or sub-set branch.

#### 3.2. Programmes with a major with a specialisation.

3.2.1. The format of the naming shall be :-

Bachelor of “*major*” Engineering Technology (“*specialisation*”) with Honours.

3.2.2. A minimum of 70% of engineering technology content shall be within the major.

3.2.3. A range of 25-30% of engineering technology content shall be within the specialisation.

3.2.4. The major must be either a main branch or sub-set branch of registration.

3.2.5. The specialisation must be either a sub-set branch of registration or any other sub-discipline not in the BEM-approved list but deemed appropriate by the IHL. This “other sub-discipline” is normally a very new and/or specialised technology.

3.2.6. Example:

**Bachelor of Civil Engineering Technology (Highway) with Honours**

(“Civil” is a main branch, and “Highway” is a sub-set branch)

3.2.7. Example:

**Bachelor of Highway Engineering Technology (Pavement) with Honours**

(“Highway” is a sub-set branch, and “Pavement” is a specialised technology)

3.2.8. Example:

**Bachelor of Civil Engineering Technology (Pavement) with Honours**

(“Civil” is a main branch, and “Pavement” is a very specialised technology)

3.2.9. Example:

**Bachelor of Petroleum Engineering Technology (Drilling) with Honours**

(“Petroleum” is a sub-set branch, and “Drilling” is a very specialised technology)

3.2.10. The following example is not allowed:

**Bachelor of Structural Engineering Technology (*Building*) with Honours,**  
because both "*Structural*" and "*Building*" are sub-set branches.

### 3.3. Multi-disciplinary (general) programmes with no major but with a specialisation

3.3.1. The format of the naming shall be :-

**Bachelor of Engineering Technology ("*specialisation*") with Honours.**

3.3.2. A range of 25-30% of engineering technology content shall be in the specialisation.

3.3.3. The remainder range of 70-75% of engineering technology content is mixed such that it cannot be categorised under any of the main or sub-set branches.

3.3.4. The specialisation must be either a sub-set branch of registration or any other sub-discipline not in the BEM-approved list but deemed appropriate by the IHL, i.e. it cannot be a main branch.

3.3.5. Example:

**Bachelor of Engineering Technology (*Manufacturing*) with Honour**

("Manufacturing" is a sub-set branch)

3.3.6. Example:

**Bachelor of Engineering Technology (*Tool & Die*) with Honours**

("Tool & Die" is a very specialised sub-discipline)

3.3.7. The following is not allowed:

**Bachelor of Engineering Technology (*Mechanical*) with Honours,**  
because "*Mechanical*" is a main branch.

### 3.4. Multi-disciplinary or general programmes with no major or specialisation.

3.4.1. The naming shall be:

**Bachelor of Engineering Technology with Honours.**

3.4.2. The engineering technology content is mixed which cannot be categorised under any of the main or sub-set branches.

3.4.3. The engineering technology content nevertheless meets the minimum engineering technology core credits as per ETAC Standard and hence deserves accreditation (upon meeting other stipulated criteria).

3.4.4. It is recognised that IHLs should have the flexibility and freedom to innovate new engineering technology programmes which address pioneering frontier areas of engineering technology knowledge outside the current scope of registration branch recognised by the Board. This provision allows for such flexibility and freedom.

### 3.5. Engineering Technology programmes with additional non-engineering technology major

3.5.1. For additional non-engineering technology **major** such as Law, Business or IT, the additional components must be over and above minimum required total ETAC credits.

3.5.2. Example 5: **Bachelor of Civil Engineering Technology and Law with Honours**

(Law discipline contents should meet the relevant standards for the law profession, over and above the minimum required total ETAC credits. Engineering technology contents must meet the preceding provisions).

3.6. **Determination of Branch for Registration of Graduate Engineering Technologist with BEM**

3.6.1. The branch for registration of Graduate Engineering Technologist with BEM is recommended to be based on the major in the name of the programme.

Examples:-

<b>NAME OF PROGRAMME</b>	<b>BRANCH OF REGISTRATION</b>
<i>Bachelor of <b>Civil Engineering Technology</b> with Honours</i>	<b>Civil</b>
<i>Bachelor of <b>Mechanical Engineering Technology</b> with Honours</i>	<b>Mechanical</b>
<i>Bachelor of <b>Electrical Engineering Technology</b> with Honours</i>	<b>Electrical</b>
<i>Bachelor of <b>Chemical Engineering Technology</b> with Honours</i>	<b>Chemical</b>
<i>Bachelor of <b>Mechatronics Engineering Technology</b> with Honours</i>	<b>Mechatronics</b>
<i>Bachelor of <b>Civil Engineering Technology (Environment)</b> with Honours</i>	<b>Civil</b>
<i>Bachelor of <b>Mechanical Engineering Technology (Materials)</b> with Honours</i>	<b>Mechanical</b>
<i>Bachelor of <b>Computer Engineering Technology</b> with Honours</i>	<b>Computer</b>
<i>Bachelor of <b>Computer Engineering Technology (Microelectronics)</b> with Honours</i>	<b>Computer</b>
<i>Bachelor of <b>Engineering Technology</b> with Honours Bachelor of <b>Engineering Technology (Computer)</b> with Honours Bachelor of <b>Engineering Technology (Pavement)</b> with Honours Bachelor of <b>Engineering Technology (Tool&amp;Die)</b> with Honours</i>	<b>General</b> <i>(as approved by the Board as per Board Meeting 319, 27/6/2016)</i>

**Chapter 4:**  
**ENGINEERING PROGRAMMES**  
**AT WASHINGTON ACCORD**  
**LEVEL**

#### 4. ENGINEERING PROGRAMMES AT WASHINGTON ACCORD LEVEL

##### 4.1. Programmes with a single major

- 4.1.1. The format of the naming shall be :-  
Bachelor of “*major*” Engineering with Honours,
- 4.1.2. At least 70% of engineering content is in the major, and
- 4.1.3. The major must be either a main branch **or** sub-set branch of registration.
- 4.1.4. Example 1: **Bachelor of Civil Engineering with Honours**  
(Civil is a main branch of registration.)
- 4.1.5. Example 2: **Bachelor of Mechatronics Engineering with Honours**  
(Mechatronics is a sub-set branch of registration.)

##### 4.2. Programmes with a major with a specialisation.

- 4.2.1. The format of the naming shall be :-  
Bachelor of “*major*” Engineering (“*specialisation*”) with Honours.
- 4.2.2. A minimum of 70% of engineering content shall be within the major.
- 4.2.3. A range of 25-30% of engineering content shall be within the specialisation.
- 4.2.4. The major must be a main branch of registration.
- 4.2.5. The specialisation must be a sub-set branch of registration.
- 4.2.6. Example 3: **Bachelor of Civil Engineering (*Building*) with Honours**  
 (“Civil” is a main branch, and “Building” is a sub-set branch.)
- 4.2.7. The following example is not allowed;  
**Bachelor of Structural Engineering (*Building*) with Honours,**  
because both “*Structural*” and “*Building*” are sub-set branches.

##### 4.3. Multi-disciplinary (general) programmes with no major but with a specialisation

- 4.3.1. The format of the naming shall be :-  
Bachelor of Engineering (“*specialisation*”) with Honours.
- 4.3.2. A range of 25-30% of engineering content shall be in the specialisation.
- 4.3.3. The remainder range of 70-75% of engineering content is mixed such that it cannot be categorised under any of the main or sub-set branches.
- 4.3.4. The specialisation must be one of the sub-set branches of registration, i.e. it cannot be a main branch.
- 4.3.5. Example 4: **Bachelor of Engineering (*Manufacturing*) with Honours**  
 (“Manufacturing” is a sub-set branch.)
- 4.3.6. The following example is not allowed,  
**Bachelor of Engineering (*Mechanical*) with Honours,**  
because “*Mechanical*” is a main branch.

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#### 4.4. Multi-disciplinary or general programmes with no major or specialisation.

4.4.1. The naming shall be :-

##### **Bachelor of Engineering with Honours.**

4.4.2. The engineering content is mixed which cannot be categorised under any of the main or sub-set branches.

4.4.3. The engineering content nevertheless meets the minimum 90 SLT credits as per EAC Manual and hence deserves accreditation (upon meeting other stipulated criteria).

4.4.4. It is recognised that IHLs should have the flexibility and freedom to innovate new engineering programmes which address pioneering frontier areas of engineering knowledge outside the current scope of registration branch recognised by the Board. This provision allows for such flexibility and freedom.

#### 4.5. Engineering programmes with additional non-engineering major

4.5.1. For additional non-engineering **major** such as Law, Business or IT, the additional components must be over and above minimum of 135 SLT credits.

4.5.2. Example 5: **Bachelor of Civil Engineering and Law with Honours**

(Law discipline contents should meet the relevant standards for the law profession, over and above the minimum 135 SLT credits. Engineering contents must meet the preceding provisions.)

#### 4.6. Determination of Branch for Registration of Graduate Engineers with BEM

4.6.1. The branch for registration of Graduate Engineers with BEM is recommended to be based on the major in the name of the programme.

*Examples:-*

<b>Name of Programme</b>	<b>Branch of Registration</b>
<i>Bachelor of <b>Civil Engineering</b> with Honours</i>	<i>Civil Engineering</i>
<i>Bachelor of <b>Mechanical Engineering</b> with Honours</i>	<i>Mechanical Engineering</i>
<i>Bachelor of <b>Electrical Engineering</b> with Honours</i>	<i>Electrical Engineering</i>
<i>Bachelor of <b>Chemical Engineering</b> with Honours</i>	<i>Chemical Engineering</i>
<i>Bachelor of <b>Mechatronics Engineering</b> with Honours</i>	<i>Mechatronics Engineering</i>
<i>Bachelor of <b>Civil Engineering (Environment)</b> with Honours</i>	<i>Civil Engineering</i>
<i>Bachelor of <b>Mechanical Engineering (Materials)</b> with Honours</i>	<i>Mechanical Engineering</i>
<i>Bachelor of <b>Computer Engineering</b> with Honours</i>	<i>Computer Engineering</i>

<i>Bachelor of <b>Engineering (Computer)</b> with Honours</i>	<i>General Engineering, or a new branch category <u>to be approved by the Board</u></i>
<i>Bachelor of <b>Engineering</b> with Honours</i>	<b>General</b> <i>(as <u>approved by the Board as per Board Meeting 319, 27/6/2016</u>)</i>

# APPENDICES

## Appendix 1

### Main and Sub-Branches for BEM Registration

*Main and Sub-Branches for BEM Registration as per 19<sup>th</sup> May 2020*

*(BEM may review this classifications from time to time – refer to BEM's website for the latest updates)*

Main Branch	CIVIL	MECHANICAL	ELECTRICAL	CHEMICAL
1	Building	Aerospace	Computer	Environmental
2	Construction	Agricultural	Electronics	Petroleum
3	Environmental	Automotive	Communication	Process (Polymer, Pharmaceutical, Food)
4	Geotechnical	Building Services		Nuclear
5	Mining	Manufacturing		
6	Structural	Marine		
7	Transportation	Material		
8		Mechatronic		
9		Metallurgy		
10		Mining		
11		Naval Architecture		
12		Nuclear		

The registration branch of **“General”** has been approved by the Board as per Board Meeting No.319, 27/6/2016), item 6.0

This is to replace the original “Others” category for programmes that meet the minimum engineering content but does not fit into any of the main or sub-set branches in the table above.

This will also address the following issues:-

1. Some IEA jurisdictions have among their IHLs programmes under the general branch category, and a number of their graduates are Malaysians who have problems applying for registration because the category “Others” had been removed from the BEM list.
2. Some Malaysian IHLs may commence engineering programmes which are either very specialised or very novel such that the engineering content, though meeting the minimum engineering credit requirement, do not fit into any of the 36 existing categories.

## **Appendix 2**

### **Working Group Members**

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1. Dato' Prof. Ir. Dr. Hassan Basri - Chairman
2. Datuk Prof Ir Dr Chuah Hean Teik
3. Ir. Prof. Abdul Aziz Omar
4. Ir. Prof. Dr. Ramesh Singh
5. Ir. Prof. Megat Johari Megat Mohd Noor
6. Prof. Dr. Shahrin bin Mohammad
7. Ir. Prof. Dr. Siti Hawa Hamzah
8. Ir. Prof. Adnan Zulkiple
9. Prof. Dr. Ahmad Yasir Md. Said
10. Noor Azizan Itam

*Presented in EAC No. 5/2018-2019 on 25<sup>th</sup> September 2019 & ETAC No. 5/-2018-2019 on 30<sup>th</sup> September 2019*

*Approved in 341<sup>st</sup> Board Meeting on 19<sup>th</sup> May 2020*



## BEM POLICY ON

# NAMING OF ENGINEERING PROGRAMMES AT BACHELOR LEVEL

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## 1. Preamble

- 1.1. The policy is to ensure programme names are streamlined to a common standard set out by existing MQA guidelines, as well as ensuring consistency with BEM guidelines and the EAC Manual.
- 1.2. It is also intended to provide clarity to the public, particularly to avoid misleading programme names.

## 2. Scope

The scope of the Policy includes the following:

- 2.1. All new programmes seeking approval.
- 2.2. All current programmes requesting for change of programme name.

## 3. Definitions

### 3.1. Definitions as per MQA Guidelines on programme names.

#### 3.1.1. Major

A **major** is the primary focus area of study in the programme. The major in programme naming must represent at least 70% of engineering content in curriculum.

#### 3.1.2. Specialisation

A **specialisation** is a sub-area within the major area of study. A specialisation in programme naming must represent between 25-30% of engineering content in curriculum. The specialisation, if present within a programme, is indicated within brackets in the programme name.

### 3.2. Definitions as per BEM Guidelines on registration.

#### 3.2.1. Main branch

The approved main engineering branches for BEM registration, namely civil, electrical, mechanical and chemical.

#### 3.2.2. Sub-set branch.

The approved sub-set engineering branches under any of the four (4) main branches for BEM registration.

### 3.3. Definitions as per EAC Manual.

#### 3.3.1. Engineering content

The minimum 80 EAC Credits for engineering content as specified in the EAC Manual.

4. Programmes with a single major

4.1. The format of the naming shall be :-

Bachelor of "*major*" Engineering with Honours.

4.2. At least 70% of engineering content is in the major, and

4.3. The major must be either a main branch or sub-set branch of registration.

4.4. Example 1: Bachelor of *Civil Engineering* with Honours

(Civil is a main branch of registration)

4.5. Example 2: Bachelor of *Mechatronics Engineering* with Honours

(Mechatronics is a sub-set branch of registration)

5. Programmes with a major with a specialisation.

5.1. The format of the naming shall be :-

Bachelor of "*major*" Engineering ("*specialisation*") with Honours.

5.2. A minimum of 70% of engineering content shall be within the major.

5.3. A range of 25-30% of engineering content shall be within the specialisation.

5.4. The major must be a main branch of registration.

5.5. The specialisation must be a sub-set branch of registration.

5.6. Example 3: Bachelor of *Civil Engineering (Building)* with Honours

("Civil" is a main branch, and "Building" is a sub-set branch)

5.7. The following is not allowed, Bachelor of *Structural Engineering (Building)* with Honours, because both "*Structural*" and "*Building*" are sub-set branches.

6. Multi-disciplinary (general) programmes with no major but with a specialisation

6.1. The format of the naming shall be :-

Bachelor of Engineering ("*specialisation*") with Honours.

6.2. A range of 25-30% of engineering content shall be in the specialisation.

6.3. The remainder range of 70-75% of engineering content is mixed such that it cannot be categorised under any of the main or sub-set branches.

6.4. The specialisation must be one of the sub-set branches of registration, i.e. it cannot be a main branch.

6.5. Example 4: Bachelor of Engineering (*Manufacturing*) with Honours

("Manufacturing" is a sub-set branch)

6.6. The following is not allowed, Bachelor of Engineering (*Mechanical*) with Honours, because "*Mechanical*" is a main branch.

7. Multi-disciplinary or general programmes with no major or specialisation.

7.1. The naming shall be :-

Bachelor of Engineering with Honours.

7.2. The engineering content is mixed which cannot be categorised under any of the main or sub-set branches.

case and present it as an exemption request as per (10) below. This provision allows for IHLs to innovate new pioneering frontiers of engineering disciplines.

9.2.1. Note: Many WA jurisdictions have among their IHLs programmes under the general engineering category, and a number of their graduates are Malaysians who have problems applying for graduate engineer registration because the category "Others" had been removed from the BEM list. Provision 9.2 addresses this issue.

## 10. Exemptions

10.1. Exemptions from the provisions of this policy may be considered on a case-to-case basis based on individual merit.

10.2. Exemption 1:

10.2.1. The phrase "Electrical & Electronics" be accepted as an alternative as to represent the programme major "Electrical" in programming naming.

10.2.2. The justification is its historical usage, and that it is widely accepted especially among the non-engineering stakeholders (e.g. the use of E&E in international trade negotiations).

10.2.3. Example 5: "Bachelor of Electrical & Electronics Engineering with Honours" is a programme with major in electrical engineering.

10.2.4. The recommended branch of registration for its graduates will be "electrical".

## 11. Effective Date and Revision of Policy

11.1. The effective date for this policy is 1<sup>st</sup> of January 2017.

11.2. The Board reserves the right to review this policy from time to time.

## 12. References (attached)

12.1. MQA Guidelines on Programme Naming.

12.2. BEM's Main and Sub-Sets – Main and sub-sets of field or discipline for BEM's registration (attached next page).



# LEMBAGA JURUTERA MALAYSIA

ENGINEERING ACCREDITATION COUNCIL (EAC)

ENGINEERING TECHNOLOGY ACCREDITATION COUNCIL (ETAC)

Reference Document  
(307 Board Meeting held on 27<sup>th</sup> October 2014)

## MINIMUM CREDIT HOURS FOR CORE SUBJECTS AND THE REQUIREMENTS OF CORE SUBJECTS IN THE FOUR MAIN SETS

### CORE SUBJECT FOR CIVIL ENGINEERING

SUBJECTS	MINIMUM CREDIT HOURS
1. Strength of Materials	3
2. Structural Analysis	3
Design	3
3. Fluid Mechanics/ Hydraulics	3
4. Soil Mechanics/ Geotechnical Engineering	3
5. Civil Engineering Material	3
Total	21

### CORE SUBJECT FOR ELECTRICAL ENGINEERING

SUBJECTS	MINIMUM CREDIT HOURS
1. Machines and Drives	3
2. Fields and Circuits	3
3. Power Engineering	4
Total	10

### CORE SUBJECT FOR MECHANICAL ENGINEERING

SUBJECTS	MINIMUM CREDIT HOURS
1. Statics and Dynamics	6
2. Thermodynamics	6
3. Fluid Mechanics	6
4. Materials	3
5. Mechanical Design	3
Total	24

### CORE SUBJECT FOR CHEMICAL ENGINEERING

SUBJECTS	MINIMUM CREDIT HOURS
1. Chemical Thermodynamics	3
2. Material and Energy Balance	3
3. Chemical Kinetics	2
Reactor Design	2
4. Heat and Transfer	6
5. Separation Process	3
6. Process Design	3
Total	22