Pengenalan Kepada Kurikulum
Isu dan teori Asas Kurikulum

Prof Madya Dr. Jariah bt Mohamad Juoi
28 January 2019

At the end of the course, participant should be able to:

1. Explain the concept and philosophy of curriculum design based on OBE in relation to accreditation requirement
2. Describe issues that are of concerns related to curriculum design and development.
3. Apply the principles of curriculum design and development in teaching and learning activities
4. Perform CQI (continual quality improvement)

Definition

- Latin *"currere"-"a race course"*
- *"a course of study"*
- *Tanner & Tanner* (1978)-*"the planned and guided learning experiences and intended learning outcomes, formulated through the systematic reconstruction of knowledge and experience, "for the learners' continuous and willful growth in person-social competence."*

- *Bushoff et. Al.- "a curriculum is an educational plan defining:*
  - *The aims, goals and objectives of an educational action;*
  - *The ways, means and activities employed to achieve these goals*
  - *The methods and instruments required to evaluate the success of the action."*
- Curriculum- series of planned event that are intended to have educational consequences.

Activity 1

- List:
  - Name of academic Program you are lecturing
  - Level of Qualification
  - Number of total credit
  - Component of curriculum
  - Accreditation Body
  - Program Educational Outcome (PEO), Programme Outcome (PO)
  - diploma.pdf
  - materials.pdf

CURRICULUM DESIGN OVERVIEW

OVERVIEW

•Curriculum design and delivery should best **fit the needs, specialism and requirements of the HEP and its student**.

•Should **keep abreast with latest developments in the discipline**.

•Curriculum- **series of planned event** that are intended **to have educational consequences.**

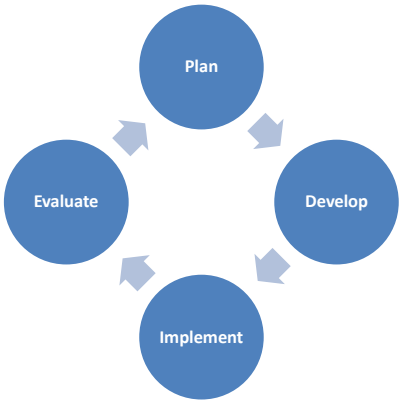

Figure 1 :Curriculum design cycle

"Always a Pioneer, Always Ahead"

Table 1: Curriculum design activities for a programme

Plan	• Convene a curriculum committee •Assess needs and issues •Identify key issues e.g. Malaysian Qualification Framework (MQF) levels and level descriptors, institutional vision/mission •Identify trends in the field of study/profession
Develop	• Articulate programme philosophy •State program goals •Sequence programme objectives and outcomes •Develop courses/modules •Identify and develop programme staff and physical resources •Develop and identify learning-teaching activities, assessment tools and procedures.
Implement	•Deliver programme •Assess the achievement of learning outcomes
Evaluate	•Review the programme •Determine the success of the programme •Update the programme

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"Always a Pioneer, Always Ahead"

Curriculum design

•Involvement of a curriculum committee- academic and administrative staff of HEP, government agencies, profesional bodies, industries and other stakeholder.

Example: JK Kurikulum fakulti (JKKF)

- Dekan (Pengerusi)
- Timbalan-Timbalan Dekan
- Ketua-Ketua Jabatan
- Penyelaras Diploma
- Akademik (Jemputan)
- Ketua Penolong Pendaftar (Urus setia)
- Penggubalan kurikulum oleh JKKF
  - Diploma
  - Sarjana Muda
  - Sarjana Kejuruteraan (Kerja Kursus / Mod Campuran)

Curriculum design

•**Curriculum structure**

•Content and structure **should keep abreast** with current development in the field of study

•**Built on a clear vision and mission**

•Defined outcomes (knowledge, skills, attitudes and attributes)

•**Curriculum should conform to:**

1. Regulation and laws, that deals with educational programme at the tertiary level (e.g. inclusion of the compulsory subjects)

1. Level of qualifications (MQF Appendix 2), learning outcome domains (MQF, Paragraph 14, 8 MQF Learning outcomes domains, student competencies (MQF, Appendix 1) and credit and academic load (MQF, Paragraphs 19-22)

3. Professional body/industry requirement

4. Internal/university policies and procedures.

MALAYSIAN QUALIFICATIONS FRAMEWORK_2011.pdf
MQF 2nd Edition 02042018.pdf

COPPA 2nd Edition Dec 2008.pdf

EACManual2012.pdf
Full Version of EAC Manual 2017ed.pdf
Program Standards Engineering Technologies.pdf
Program Standard Komputer

GGP_cdd_MQA.pdf

Malaysian Qualification Framework (MQF)

What is the MQF?

The MQF forms the basis of a benchmarked, flexible and integrated system of qualifications moving towards the national objective of knowledge and a lifelong learning society

What is the MQF?

MQF* Para 1

MQF is an instrument that develops and classifies qualifications based on a set of criteria that is approved nationally and at par with international practices, and which clarifies the earned **academic levels, learning outcomes** of study areas and **credit system based on student academic load**.

* The Malaysian Qualifications Agency (2007), *The Malaysian Qualifications Framework*, Kuala Lumpur.

7 PRINCIPLES OF THE MQF

1. Recognition for qualifications (certificates to doctoral);
2. Recognition of awarding sectors;
3. Levels of Qualifications;
4. Learning Outcomes;
5. Credit and Academic Load;
6. Flexibility of movement;
7. Educational Pathways for Individual Development (Lifelong Learning)

General Principles 1 & 2: Qualifications and Awarding Sectors

- **All Malaysian Qualifications**

Certificate- Diploma -Advanced Diploma -Graduate
Certificate /Diploma -Degree –Postgraduate
Certificate/Diploma -Masters – Doctoral

- **All Higher Education Qualification Sectors**

Skills – Vocational &Technical - Academic

General Principles 3 & 5: Levels of Qualifications & Minimum Graduating Credits

L	MGC*	Sectors		
		Skills	Vocational & Technical	Academic
	-			Doctoral
	40 30 20			Masters Postgraduate Dip Postgraduate Cert
	120 60 30			Bachelor Graduate Dip Graduate Cert
	40	Advanced Diploma	Advanced Diploma	Advanced Diploma
	90	Diploma	Diploma	Diploma
	60	Certificate 3	Certificate	Certificate
	-	Certificate 2		
	-	Certificate 1		

Note:
* MGC = Minimum Graduating Credits

Accredited Prior Experiential Learning

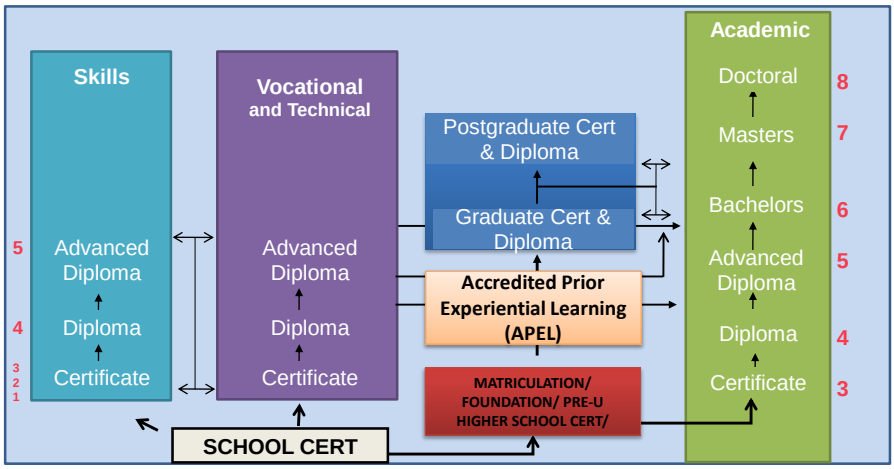
Accredited Prior Experiential Learning

General Principle 4: Learning Outcomes

(MQF Para 15) – LO Domains

1. Knowledge
2. Practical Skills
3. Social skills and responsibilities
4. Values, attitudes and professionalism
5. Communication, leadership and team skills
6. Problem solving and scientific skills
7. Information management and lifelong learning skills
8. Managerial and entrepreneurial skills

General Principles 6 & 7: Flexibility of Movement s & Pathways



Activity 2

- MQF 2nd Edition

MALAYSIAN QUALIFICATIONS FRAMEWORK_2011.pdf
MQF 2nd Edition 02042018.pdf

Malaysian Qualifications Framework (MQF) 2nd Edition

MQF Level	Minimum Graduating Credit	Academic Sector	TVET Sector
8	No credit rating	PhD by Research	
	80	Doctoral Degree by Mixed Mode & Coursework	
7	No credit rating	Master's by Research	
	40	Master's by Mixed Mode & Coursework	
	30	Postgraduate Diploma	
	20	Postgraduate Certificate	
6	120	Bachelor's degree	
	66*	Graduate Diploma	
	36*	Graduate Certificate	
5	40	Advanced Diploma	5
4	90	Diploma	4
3	60	Certificate	3
2	30	Certificate	2
1	15	Certificate	1

* Inclusive of 6 credits from general studies subjects.

UTeM

Summary of Learners' Profile	CLUSTER 1: Knowledge and Understanding	CLUSTER 2: Cognitive skills	CLUSTER 3: FUNCTIONAL WORK SKILLS				CLUSTER 4: Personal and entrepreneurial skills	CLUSTER 5: Ethics and Professionalism
			Practical skills	Interpersonal and Communication Skills	Digital and Numeracy Skills	Leadership, Autonomy and Responsibility		
emonstrate age-appropriate lead vis engagement nd awareness of ebal issues.								
arners will have a road knowledge of e general theories, nciples and emonstrate skills in focused area of udy/discipline nabling them to ndertake specialized work ading to a career ath in technical, rofessional or anagement fields. arners express eness in pursuing rther education. arners will have a commitment for appropriate ethical ehavior and express a appreciation of ational aspirations thin global erspectives.	Demonstrate systematic comprehension (understanding) of a broad range of complex technical and theoretical knowledge and skills to undertake varied, complex, routine and non-routine tasks/ study within a field/discipline.	Identify, interpret, apply and evaluate general concepts, theory and/or operational principles within a well-defined context of a subject/discipline and/or work with minimal supervision. Solve problems of a common and well-defined kind as well as those others of a non-routine nature.	Apply a limited range of practical skills, essential tools, methods and procedures to perform required tasks/work. Reflect and make adjustments to practices and processes, as necessary, related to routine or non-routine tasks.	Communicate clearly, both orally and in writing, ideas information, problems and solutions, to others including peers, experts and non-experts. Interact effectively, individually or as member of a team with supervisors, peers and subordinates. Demonstrate a high level of proficiency in at least one other language besides the national language.	Use a range of digital applications to support study/work as well as to seek and process data related to work or study. Demonstrate skills to use and interpret routine and complex numerical and graphical/visual data.	Perform work with significant degree of personal responsibility and autonomy under broad guidance and direction on well-defined and non-routine study/work activities performed in a variety of contexts. Lead and manage diverse teams to manage issues at work.	Identify self-improvement initiatives and possibilities for further education. Develop realistic career and professional goals. Explore and engage in activities relating to entrepreneurship. Show interest in and participate at professional and civic activities leading to local and region wide communities building.	Demonstrate ability to understand and comply with, organizational and professional ethics in work environment. Demonstrate ability to apply sustainable practices in the context of local and global work and social environment.
arners have gnificant eoretical and	Describe a range of theoretical, conceptual and technical knowledge	Identify, interpret, apply, analyse and evaluate detailed	Using a range of practical skills apply essential methods	Communicate and interact effectively and cogently in a comprehensive and	Use a range of information, media and technology applications to	Perform work with substantial degree of autonomy and often carrying significant	Engage in self-directed lifelong learning effectively and participate	Demonstrate ability to exercise social responsibilities, comply with

UTeM

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

MQF LEVEL	Summary of Learners' Profile	CLUSTER 1: Knowledge and Understanding	CLUSTER 2: Cognitive skills	CLUSTER 3: FUNCTIONAL WORK SKILLS				CLUSTER 4: Personal and entrepreneurial skills	CLUSTER 5: Ethics and Professionalism
				Practical skills	Interpersonal and Communication Skills	Digital and Numeracy Skills	Leadership, Autonomy and Responsibility		
	technical knowledge. Can deal with complex situations at work and show an ability to understand and comply with, organizational and professional demands. Learners will have an ability to apply sustainable practices ethically and in the context of local and global work and social environment.	and comprehension within an advanced (specialized knowledge) field to address varied and unpredictable tasks/work /study.	technical, conceptual and theoretical knowledge in a specialized subject/discipline or work. Solve problems/issues in a broadly defined complex-routine and non-routine context or under ever unpredictable circumstances with a limited range of approaches and independence.	and procedures to a broad range of complex tasks and/or of study. Review and make adjustments and supervise others on related practices and processes.	well-structured manner to convey information, ideas, problems and solutions for social, academic and professional purposes to a range of audiences. Show a high level of oral and written proficiencies in at least two languages.	support study and/or work. Interpret and apply routine and non-routine, complex numerical and graphical/visual data.	levels of responsibilities. Make management decisions independently on resources allocation as well as performance related judgements of others in the workplace. Demonstrate capacities to take responsibility and accept accountability. Demonstrate team leadership in new environments including unfamiliar areas of work.	independently in professional collaborations. Demonstrate entrepreneurial skills in relevant selected situations. Demonstrate competencies working or studying in multicultural, multilingual and multiethnic communities locally and globally.	professional, ethical and sustainable practices. Contribute to the development of sustainable local and global communities.
Level 6 BACHELOR GRADUATE CERTIFICATE/ DIPLOMA	Learners will demonstrate a thorough comprehension of broad based and coherent body of knowledge and skills for work and full professional work embedding research, innovation and creativity in	Describe advanced and comprehensive, theoretical and technical knowledge and demonstrate relevant skills in a specialized field, or of a multidisciplinary nature related to the field of study, work and/or practice	Demonstrate intellectual independence in the application of knowledge within specific field(s) by applying critical analysis and evaluation skills in the field of study/work/practice.	Apply a range of essential methods and procedures in solving a broad range of complex problems. Review, make adjustments and supervise related practices and processes.	Convey ideas both in written or oral forms using appropriate and different forms of presentation, confidently, accurately and coherently in appropriate context in a well-structured manner to a diversity of audiences.	Use a broad range of information, media and technology applications as support study and/or work. Use and combine numerical and graphical/visual data for study/work.	Work autonomously and show leadership and professionalism in managing responsibilities within broad organizational parameters. Undertake significant levels of work related	Engage effectively in self-directed lifelong learning and professional pathways. Demonstrate entrepreneurial competency with selected prospects. Demonstrate an appreciation of	Demonstrate adherence and ability to identify ethical issues make decision ethically and act professionally within the varied social and professional environment and practice.

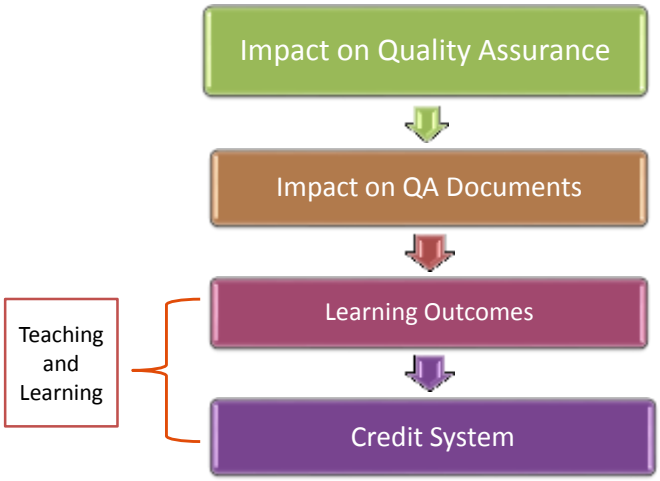
Malaysian Qualifications Framework (MQF) 2nd Edition and Lifelong Learning

MQF Level	Minimum Graduating Credit	Academic Sector	TVET Sector	Lifelong Learning/APEL Criteria for APEL(A)
8	No credit rating	PhD by Research		Admission criteria: 35 years old Bachelor's degree in relevant field/equivalent 5 years' work experience Passed APEL assessment
	80	Doctoral Degree by Mixed Mode & Coursework		
7	No credit rating	Master's by Research		Admission criteria: 30 years old STPM/Diploma/equivalent Relevant work experience Passed APEL assessment
	40	Master's by Mixed Mode & Coursework		
	30	Postgraduate Diploma		
	20	Postgraduate Certificate		
6	120	Bachelor's degree		Admission criteria: 21 years old Relevant work experience Passed APEL assessment
	66	Graduate Diploma		
	36	Graduate Certificate		
5	40	Advanced Diploma	5	
4	80	Diploma	4	Admission criteria: 20 years old Relevant work experience Passed APEL assessment
3	60	Certificate	3	Admission criteria: 19 years old Relevant work experience Passed APEL assessment
2	30	Certificate	2	3R
1	15	Certificate	1	3R

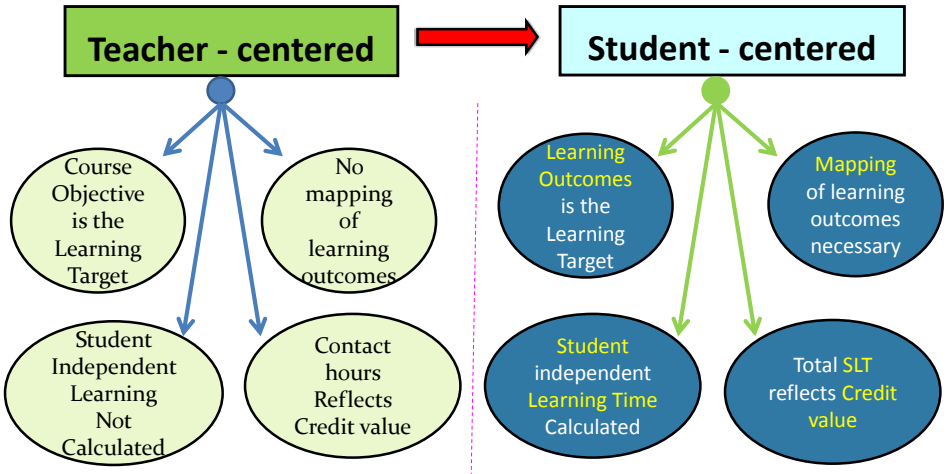
Impact of MQF

The MQF, reflected in the QA documents, GUIDES the Agency, the HEP, related HE bodies/authorities and AFFECTS all programmes, systems, processes and activities pertaining to quality of higher education qualifications in Malaysia

APPLICATION OF MQF



How Does MQF Affect Teaching-Learning?



Lecturer-Centred to Student-Centred
(incorporating SLT)

	Academic Activity (some examples)	Face 2 Face	Student Self-Learning*	Total
1	Lecture	1	2	3
2	Tutorial	1	2	3
3	Laboratory/Practical	3	2	5
4	Assignment - 2000 words	0	20	20
5	Presentation	1	4	5
	Total	**6**	**30**	**36**

Unaccounted for in the previous system

MQF Learning Outcomes

- **MQF**
  - **statement on what students should know, understand and can do upon completion of a period of study.**
- **In simple terms….**
  - Specific, understandable, measurable, assessable and student-centered statements as to what a student will be able to do at the end of a period of study.

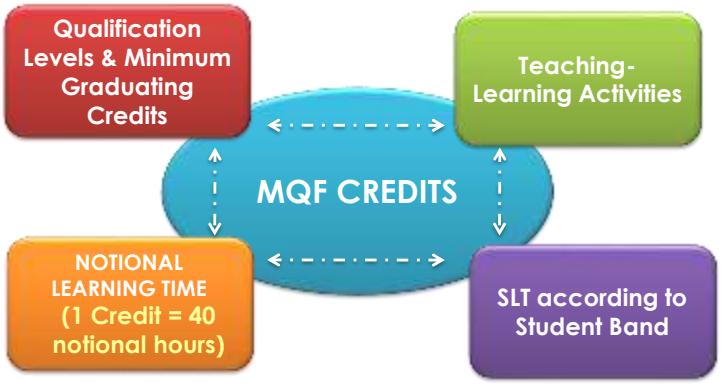
8 MQF Learning Outcome Domains

1. Knowledge
2. Practical Skills
3. Social skills and responsibilities
4. Values, attitudes and professionalism
5. Communication, leadership and team skills
6. Problem solving and scientific skills
7. Information management and lifelong learning skills
8. Managerial and entrepreneurial skills

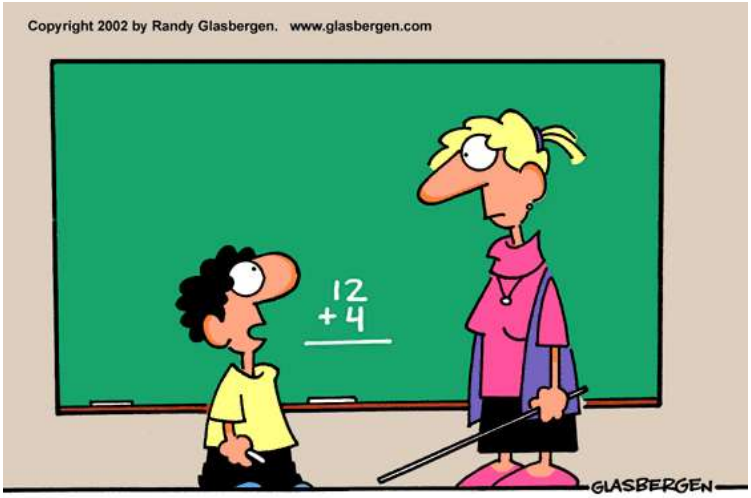
Categories and Mapping of Learning Outcomes

Categories of Learning Outcomes (Para 14, MQF)	Evidence/Mapping of Learning Outcomes
1. qualifications	1. Guided by Qualification Descriptors (MQF, Appendix 1)
2. fields of study	2. How are these made relevant to the specific requirements of the field of study?
3. programme	3. Map to curriculum and MQF Qualifications Descriptors
4. module/subject	**4. Map to Assessment**

Planning MQF Credits



Credit for trying?



"Do I get partial credit for simply having the courage to get out of bed and face the world again today?"

A credit the agreed-upon value used to measure a student workload in terms of learning time required to complete course units, resulting in learning outcomes' (UNESCO, 2004)

Credit = the measurement of students' academic load

Teaching Learning Activities

Lecture	Project Work	Study Tour	Demonstration
Tutorial	Presentation	Case study	Assignments
Laboratory	Revision	E-Learning	Clinical
Work attachment	Studio work	Group Discussion	
Group Assignment	Field Work	Research Project	
Examination	Industrial training	Directed reading	

Student Learning Time **(SLT)**

Teaching/Learning + Assessment

Achievement of Learning Outcomes

e.g. 4 800 notional SLT = 120 credits

Total SLT ÷ 40 = Credit

FACTORS IN CALCULATING CREDIT

Face to Face / Guided Learning Time

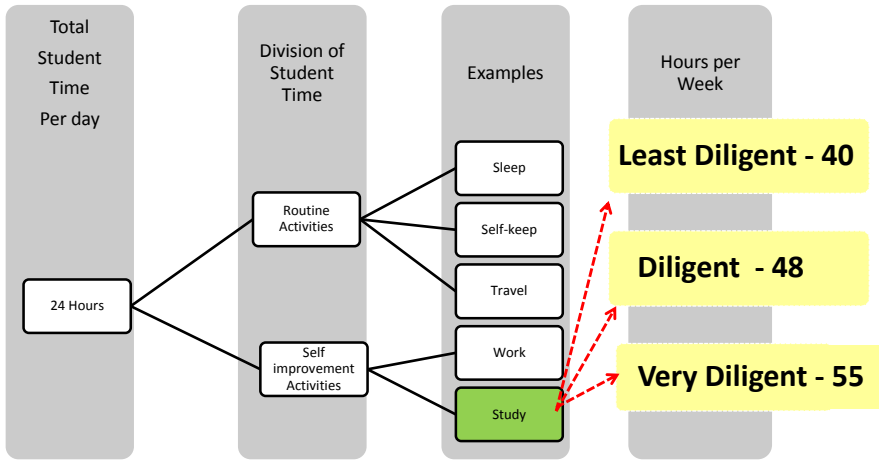
+

Student Self Learning Time

+

Total Assessment Time

Student Categories and Learning Time



Good = diligent; weak = least diligent

Examples

Recommended Student Learning Time

(For a diligent student & 17-weeks Semester)

*17 weeks = 14 weeks of teaching, 1 week each for semester break, study break and examination

8 hours a day

48 hours a week

816 hours for 17-weeks*

20.4 credits per semester

5.8 semesters for a 120 credits bachelors

Student Categories &130 credit Bachelors

		Least Diligent	Diligent	Very Diligent
1	Number of weeks in a semester (A)	17	17	17
2	Recommended SLT per week (B)	40	48	55
3	Recommended total SLT per semester (C) [A x B]	680	816	935
4	Recommended credit per semester (D) [C ÷ 40]	17	20 (20.4)	23 (23.4)
5	Total graduating credit for programme (E)	130	130	130
6	Number of semesters (long semester) (F) [E ÷ D]	7.6 (7.64)	6.5	5.7 (5.65)
7	Number of academic year (2 long semesters 1 year) [F ÷ 2]	3.8	3.3 (3.25)	2.9 (2.85)

Proposed student independent learning time

Item	Duration (hours) or requirements	Proposed Student Self Learning Time (hours)
Lecture	1	1-2
Tutorial	1	1-2
Tutorial (involving case studies)	1	3
Laboratory (including report writing)	3	2-3
Undergraduate Final Year Project/ Dissertation	6 - 10 credits	200 - 400
Studio Work	2	2
Presentation	1	3-4
Coursework/Assignment	2000 words	10 - 12
Creative Writing (or a project that last a whole semester)	100 – 150 pages	8-10
Examination	3	10 – 20*

Source: Bengkel Kebangsaan Pemantapan Sistem Kredit MQF, 31 Jan. – 2 Feb. 2005 by Quality Assurance Division, Ministry of Higher Education (Malaysia).
* Proposed by MQA, depending on the field of study and the intensity of the examination.

Learning Outcomes and Student Learning Time

(A subject with 6 learning outcomes and 1.5 credit hours)

	Learning Outcomes	Lecture	Tute	Self - learning	Total SLT
1	explain the types of contracts;	2	1	3	**6**
2	distinguish between offer, acceptance and an invitation to treat;	3	2	5	**10**
3	differentiate the types considerations;	2	1	3	**6**
4	describe the principles concerning termination and breach of contract;	4	2	4	**10**
5	Summarise principles of damages;	2	1	3	**6**
6	Examine, analyse, compile, apply and justify the principles of contract in given scenario.	0	3	6	**9**
-	Assessment (1 coursework and one 3-hour examinations)	0	4	12	**16**
	Total				**63**

Module Academic Load & Credits

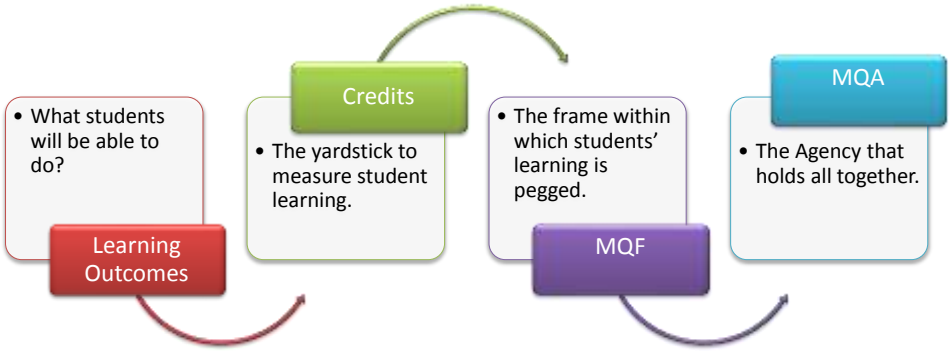
	Learning Activities	SLT (in hours)
1	Lectures	(54)
a	Attending Lectures	24
b	Pre and Post preparation*	30
2	Tutorial	(18)
a	Attending tutorial	9
b	Preparation for tutorial*	9
3	Laboratory	(36)
a	Practical	24
b	Prepreparation and Report writing*	12

	Learning Activities	SLT (in hours)
4	Assessments	(23)
a.	1 continuos assessement (1 hour + 3 hours preparation*)	4
b.	1 presentation (1 hour + 5 hours preparation*)	6
c.	1 Final Examination (3 hour + 10 hours preparation*)	13
	Total	131
	Subject Credit (131 ÷ 40 = 3.27)	3

Credits per semester

	Modules	Face to Face Learning	Independent Learning	Lab Hours	Evaluation	Total SLT	Credit
1	Genetics	42 (2+1)	42	26	16	126	**3**
2	Biochemistry	42 (2+1)	42	26	16	126	**3**
3	Cell Biology	42 (2+1)	42	12	16	112	**3**
4	ICT	28 (2+1)	28	14	10	80	**2**
5	English	42 (2+1)	63	14	7	127	**3**
6	Moral/Islamic Studies	28 (1+1)	42	0	10	80	**2**
7	Anatomy	70 (3+2)	42	0	16	128	**3**
	Total	294	301	92	91	778	**19**

The Big Picture



"Always a Pioneer, Always Ahead"

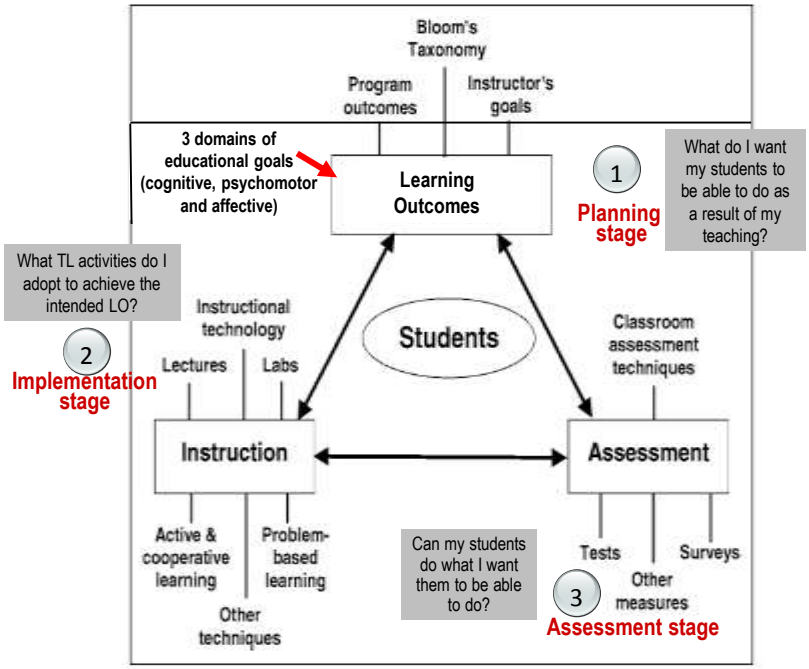


Figure 1. Elements of course design.

Curriculum Design For An Academic Program

Prof Madya Dr. Jariah bt Mohamad Juoi
28 January 2019

Curriculum design

- Curriculum structure:
  - Should identify the objectives and learning outcome (Educational goal, PEO, PO, LO)
  - Learning outcomes are built upon well tested and established taxonomies (cognitive, psychomotor and affective domains, shows different level of learning from simple to complex.
  - Assessment: type of assessment, weightage, duration, frequency and rubric of assessment, mapping assessment to learning outcomes.
- **Slide_cureview.pdf**
- **Rekabentuk Kurikulum di Fakulti Kej (KAP16).pptx**

Activity 1

- Mapping BMFG UTEM
- Master PEO_PO_CLO_BMFG_19March2018.xlsx
- FKA-UTM Self Assessment Report.pdf (*p55-p65)
- Identify:
  - Program structure
  - Breadth, depth ad course content
  - Balanced of curriculum
  - Adheres to EAC
  - Coverage of course in achieving the outcomes
  - The depth of program

COPPA 2nd Edition Dec 2008.pdf
(*p16-p17, p66-68, Table 1, Table 2, Table 3)

Full Version of EAC Manual 2017ed.pdf
(*p21-26 of the document; Appendix B p45)
FKP 2017_2018.pdf

Program Standards Engineering Technologies.pdf
(*p20-p25)

Activity 2

Describe the curriculum structure of your academic program
Refer to relevant program standard
Breadth and Depth of a program

Full Version of EAC Manual 2017ed.pdf
(*p21-26 of the document; Appendix B p45)
FKP 2017_2018.pdf

Curriculum design: Planning

•Defined process by which the curriculum is established, reviewed and evaluated.

•Done by a set up academic committee, involving:
(a) Subject experts from within the HEP and other HEPs
(b) Representatives from the industry or profession that is likely to employ the graduates of the programme
(c) Representatives of local and foreign institutions who may be able to contribute to the development of the programme
(d) Representatives of the division in the HEP that is responsible for providing resources for the HEP
(e) Selected alumni

Curriculum design: Autonomy

•Autonomy from three perspectives;

(a) the institution,

(b)the department which develops the programme

(c) the staff involved in the design and delivery of the programme.

Curriculum design: Needs Analysis

• A programme is to be considered only after a needs analysis is carried out.

• Information from stakeholders (e.g. students, employers, professional bodies and alumni).

•Other relevant sources of information may include:

Alumni surveys, Tracer studies, Exit surveys, Employer surveys, Future trends, External examiner/assessor reports, National needs – Government blue prints, International experts, Student performance data, Programme standards/guidelines.

•Market demand and supply analysis.

•Resources (Human Resources, physical and financial resources) is proportion to student population and needs of the programme.

Curriculum design: Viability and sustainability of the programme

•Should develop own criteria and procedures to assess the viability and sustainability of the programme.

• Justification for the programme of its viability and sustainability is based on the needs analysis.

Curriculum design: Academic, Administrative and Physical Resources

• Adequate resources to implement the learning-teaching activities.

•Adequate number of academics with the necessary.

• Adequate administrative.

•Adequate academic resources (e.g. library resources, electronic resources)

Curriculum design: Approval Process

• Set out own process to obtain the approval of programmes taking into consideration existing MQA and MoHE/ Others approval body requirements.

Curriculum design:Programme Information

• Most current and accurate information about the objectives, outline, learning outcomes and methods of assessment of the programme should be found on the official website of the institution, Student Handbook and Course Handbook.

e.g.

(a) fees;
(b) entry requirements;
(c) student conduct;
(d) graduation requirements;
(e) academic session/calendar;
(f) synopsis of the programme;
(g) programme structure (courses);
(h) unit requirements;
(i) electives;
(j) prerequisites;
(k) internship/practicum;
(l) assessment and appeal process
(m)Credit transfer

Curriculum design:Programme Management and leadership

•Programme must have appropriate coordinator and team of academic staff responsible for the planning, implementation, evaluation and improvement of the programme.

• The programme leadership is made up of person/s who have the subject knowledge and experience to sufficiently deal with curriculum design and delivery.

•Examples:

(a) The commencement and termination of semesters

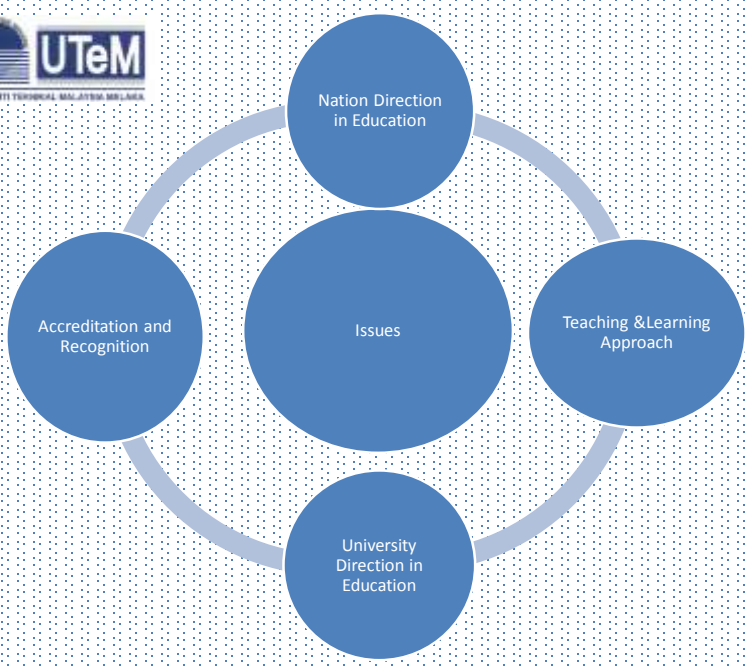
(b) Assessment schedules (e.g. setting of questions, moderations, marking, external examiners' evaluation, appeals and publication of results)

(c) Project and assignment deadlines

(d) Dates for adding and dropping courses

(e) Advanced standing, transfer of credits and exemptions

CONCERNS RELATED TO CURRICULUM DESIGN



Activity 3

Describe the intended outcome of students' education at higher institution

MALAYSIAN HIGHER EDUCATION DIRECTION

FALSAFAH PENDIDIKAN KEBANGSAAN

Pendidikan di Malaysia adalah satu usaha berterusan ke arah memperkembangankan lagi potensi individu secara menyeluruh dan bersepadu untuk mewujudkan insan yang seimbang dan harmonis dari segi intelek, rohani, emosi, dan jasmani berdasarkan kepada kepercayaan dan kepatuhan kepada Tuhan. Usaha ini adalah bagi melahirkan rakyat Malaysia yang berilmu, bertanggungjawab dan berkeupayaan mencapai kesejahteraan diri serta memberi sumbangan terhadap keharmonian dan kemakmuran masyarakat dan negara.

- PELAN STRATEGIKPENGAJIAN TINGGI NEGARA-Peletakan Asas Melangkaui 2020
- PELAN PEMBANGUNAN PENDIDIKAN (PENGAJIAN TINGGI MALAYSIA) 2015-2025

PELAN STRATEGIK PENGAJIAN TINGGI NEGARA

Peletakan Asas Melangkaui 2020

PSPTN

"Always a Pioneer, Always Ahead"

STRATEGI

"Always a Pioneer, Always Ahead"

22 PROJEK AGENDA KRITIKAL (CAPS)

1. Kepimpinan
2. Akademia
3. Pembelajaran & Pengajaran
4. R&D
5. Pengantarabangsaan
6. Kebolehpasaran Graduan
7. Pembangunan Holistik Pelajar
8. MyBrain 15
9. Industri Akademia
10. e-Pembelajaran
11. PSH
12. Keusahawanan

TERAS PSPTN	
1	Meluaskan akses & meningkatkan ekuiti
2	Menambahbaik kualiti pengajaran & pembelajaran
3	Memperteguh penyelidikan & inovasi
4	Memperkasakan institusi pengajian tinggi
5	Memperglatkan pengantarabangsaan
6	Membudayakan pembelajaran sepanjang hayat
7	Mengukuhkan sistem penyampaian KPT

13. Jaminan Kualiti
14. Tadbir Urus
15. IPTS
16. APEX
17. Aksesibiliti & Kelestarian
18. Transformasi Kolej Komuniti
19. Sistem Penyampaian KPT
20. Tranformasi Politeknik
21. *Top Business School*
22. *Centre of Excellence*

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OVERALL STRUCTURE OF THE SETARA '09 RATING INSTRUMENT

Generic Dimension		Sub - Domain	Markah UTeM
Input (20%)	1.	Governance (12%)	8.06%
	2.	Physical & Financial Resources (3%)	2.33%
	3.	Talent (5%)	2.23%
Process (40%)	1.	Curriculum (40%)	23.65%
Output (40%)	1.	Quality Of Graduates (40%)	28.38%
Total		100.00	64.66%

TIER 4 (Sangat Baik)

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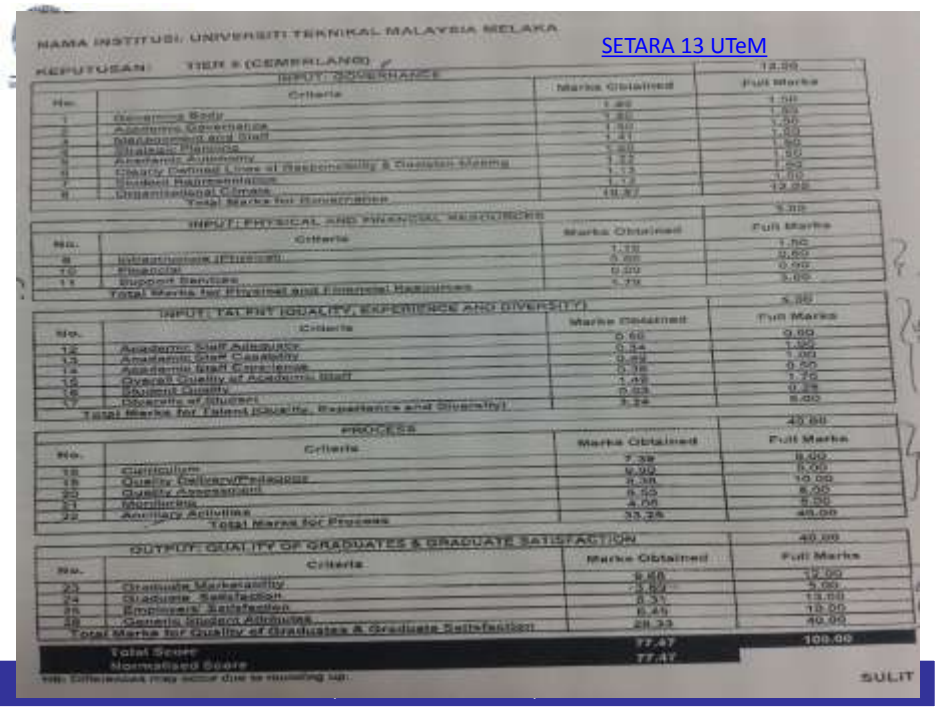

NAMA INSTITUSI: UNIVERSITI TEKNIKAL MALAYSIA MELAKA

KEPUTUSAN: TIER 5 (CEMERLANG)

SETARA 13 UTeM

INPUT: GOVERNANCE			
No.	Criteria	Marks Obtained	Full Marks
1	Governing Body	1.40	1.50
2	Academic Governance	1.50	1.50
3	Management and Staff	1.41	1.50
4	Strategic Planning	1.50	1.50
5	Academic Autonomy	1.33	1.50
6	Clearly Defined Lines of Responsibility & Decision Making	1.13	1.50
7	Student Representation	1.13	1.50
8	Organisational Climate	10.31	12.00
	Total Marks for Governance		12.00

INPUT: PHYSICAL AND FINANCIAL RESOURCES			
No.	Criteria	Marks Obtained	Full Marks
9	Infrastructure (Physical)	1.13	1.50
10	Financial	0.00	0.50
11	Support Services	1.19	0.00
	Total Marks for Physical and Financial Resources		3.00

INPUT: TALENT (QUALITY, EXPERIENCE AND DIVERSITY)			
No.	Criteria	Marks Obtained	Full Marks
12	Academic Staff Adequacy	0.60	0.60
13	Academic Staff Capability	0.54	1.00
14	Academic Staff Competence	0.62	1.00
15	Overall Quality of Academic Staff	0.38	0.50
16	Student Quality	1.49	1.70
17	Diversity of Student	0.03	0.25
	Total Marks for Talent (Quality, Experience and Diversity)	3.24	5.00

PROCESS			45.00
No.	Criteria	Marks Obtained	Full Marks
18	Curriculum	7.39	8.00
19	Quality Delivery/Pedagogy	9.00	9.00
20	Quality Assessment	8.38	10.00
21	Monitoring	8.53	8.00
22	Ancillary Activities	4.06	9.00
	Total Marks for Process	33.36	45.00

OUTPUT: QUALITY OF GRADUATES & GRADUATE SATISFACTION			40.00
No.	Criteria	Marks Obtained	Full Marks
23	Graduate Marketability	9.60	12.00
24	Graduate Satisfaction	3.80	5.00
25	Employers' Satisfaction	8.51	13.00
26	General Student Attributes	6.45	10.00
	Total Marks for Quality of Graduates & Graduate Satisfaction	28.33	40.00

Total Score	77.47	100.00
Normalised Score	77.47	

Note: Differences may occur due to rounding up.

SULIT

CURRENT STATE OF HIGHER EDUCATION

The higher education system in Malaysia

10 Years — Substantial increase in **ACCESS**

- **70%** increase in total tertiary enrolment to 1.1 million students and 36% enrolment in MoE institutions (IPT, KK, Poly)
- **6x** increase in **Bachelor** degree enrolment (1990 to 2010)
- **10x** increase in **Master's and PhD** enrolment (1990 to 2010) – now ranked 3rd in ASEAN behind Singapore, Thailand

5 Years — Rapid improvements in **RESEARCH**

- **3.1x** increase in **publications** from 2007-2012, **highest in the world**
- **4x** increase in number of **citations** from 2005 to 2012
- **70%** of publications from 2003-12 contributed by **5 Research Universities**
- **11%** yearly growth in number of **patents** from 2007 to 2011 – Malaysia was 28th in the world in 2011
- **RM 1.25 billion** revenues generated from RUs as **solution provider** to industries, agencies, NGOs (2007-2012)

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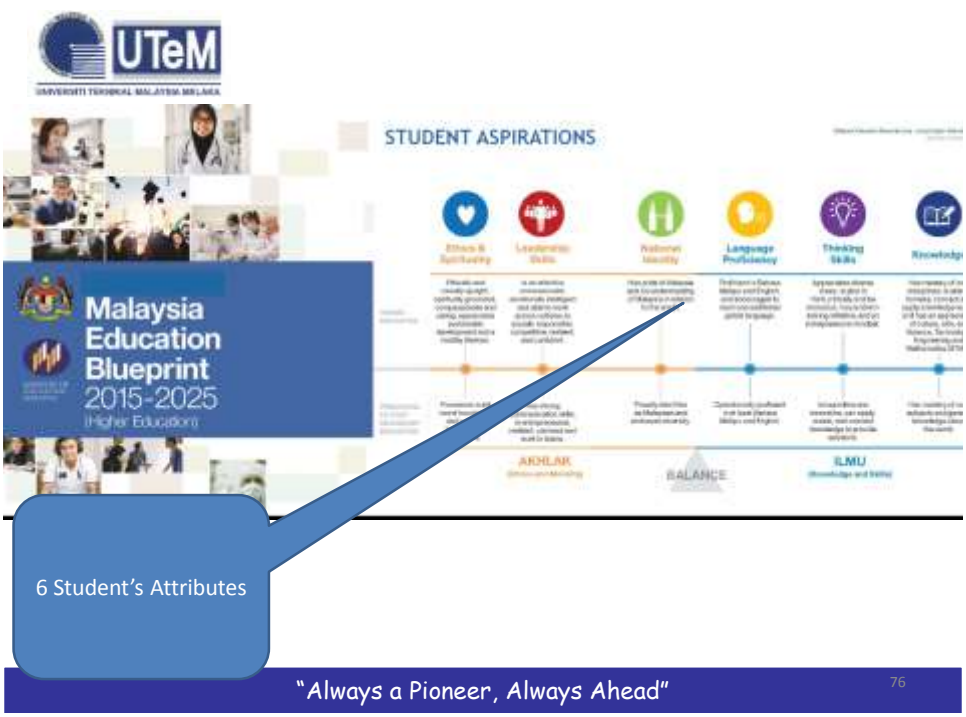
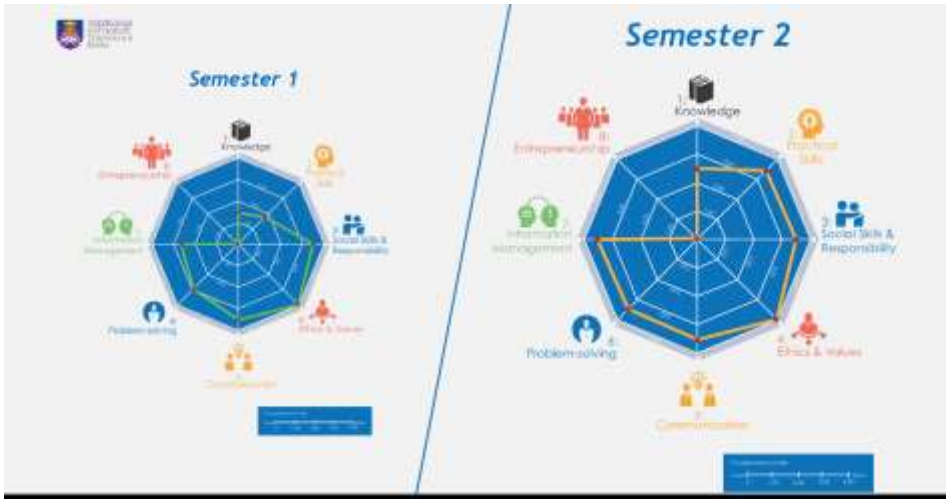
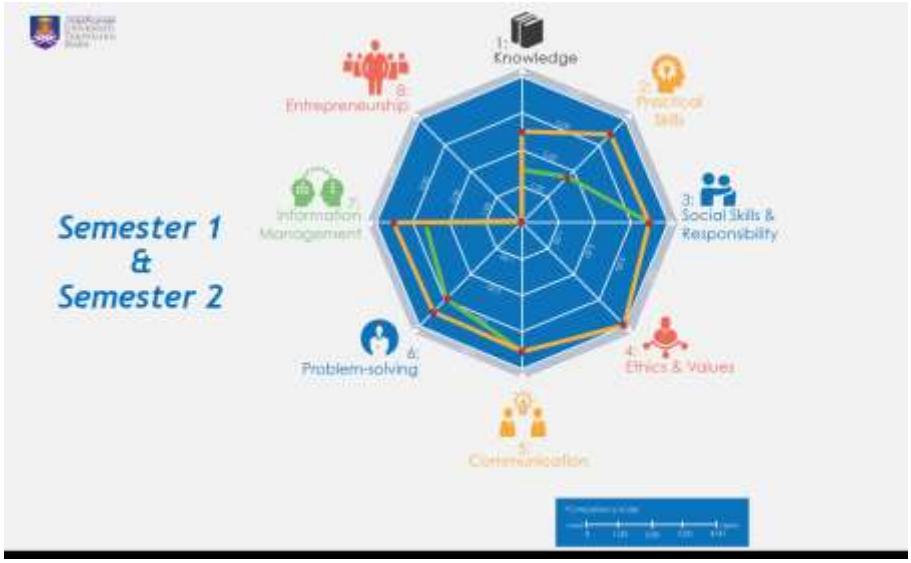
The 10 Shifts
PELAN PEMBANGUNAN PENDIDIKAN TINNGGI(PENGAJIAN TINGGI 2015-2025 TRANSFORMASI PENGAJIAN TINGGI)
Learned Values-Driven Talent
Enablers
Outcomes
Holistic, Entrepreneurial and Balanced Graduates


UTeM
Malaysia Education Blueprint 2015-2025 (Higher Education)
STUDENT ASPIRATIONS
6 Student's Attributes
"Always a Pioneer, Always Ahead"

UTeM
UNIVERSITI TEKNIKAL MALAYSIA MELAKA

UTeM
UNIVERSITI TEKNIKAL MALAYSIA MELAKA





- ICGPAUtem.pdf

UTeM's DIRECTION

Vision

To Be One of the World's Leading Innovative and Creative Technical Universities

Mission

UTeM determined to lead and contribute to the wellbeing of the country and the world by:

1. Promoting knowledge through innovative teaching & learning, research and technical scholarship;
2. Developing professional leaders with impeccable moral values;
3. Generating sustainable development through smart partnership with the community and industry.

UTeM

VISI Menjadi Universiti Teknikal yang kreatif dan inovatif terkemuka di dunia

MISI

UTeM bertekad untuk menerajui sumbangan kepada kesejahteraan negara dan dunia dengan :

01 Memartabatkan ilmu melalui pendidikan, penyelidikan dan kesarjanaan teknikal yang inovatif

02 Membentuk pemimpin bersahsiah murni yang profesional

03 Menjana pembangunan lestari bersama industri dan komuniti

Our Core Values

Our Tagline

tagline:

Always a Pioneer Always Ahead

Sentiasa Merintis Sentiasa Menerajui

UTeM

EDUCATIONAL GOALS

- To conduct **academic and professional programmes** based on relevant needs of the industries
- To produce graduates with relevant **knowledge, technical competency, soft skills, social responsibility and accountability**
- To cultivate **creative and innovative** problem solving skills and autonomy in decision making amongst graduates
- To foster development and innovation activities in **collaboration with industry and community** for the prosperity of the Nation
- To equip graduates with **leadership and teamwork skills** as well as develop communication and life-long learning skills
- To develop **technopreneurship and managerial skills** amongst graduates
- To instill an appreciation of the **cultural values** and awareness of healthy life styles amongst graduates

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Tranformasi UTeM

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OBE

OBE "Revisit"

- OBE Philosophy
- OBE Process
- Constructive Alignment
- UTeMs' Vision
- UTeMs' Mission
- General Education Goal

OBE implementation

- KUTKM & UTeM
  i. KUTKM –Practice and Application Oriented (PAO)
  ii. Accreditation Evaluation
  - Malaysia Qualification Framework (MQF), 2005, emphasizes on learning outcomes.
  - Programme standards, Engineering Program Accreditation Manual
  - Accreditation Panel: MQA, EAC
  - Code of Practice for Programme standard (COPPA)
  - First accreditation visit in 2005 (FKE)

WHAT IS OBE?

- Outcome Based Education OBE is a **method of curriculum design and teaching that focuses on what students can actually do after they are taught**.

- OBE addresses the key questions as:
  – Why do you want the students have/able to do? – **Vision, Mission, PEOs, POs, LOs**
  – What do you want the students to learn? – **course structure, syllabus**
  – How can you best help students learn it? – **Learning Activities**
  – How will you know what they have learnt? - **Assessment**

CONT. WHAT IS OBE?

- OBE is a model of education that refuse the traditional focus on what the school provides to students, in favor of making students demonstrate that they "know and are able to do" whatever the required outcomes are.

- A shift in focus from curricula, resources and processes towards **OUTCOMES** and **OBJECTIVES** such as how many hours students spend in class, or what textbooks are provided.

WHY OBE?

- **MQA Accreditation & MQF**
- **Engineering Accreditation Council (EAC)**
- **Washington Accord, 1989**
- **Improve Quality/Employability of Graduates**

Advantages of OBE

1. Alert and concern : qualities of the graduates produced.
2. CQI with input and feedback from various constituencies or external stakeholders
3. Students are well informed and trained of the skills required out of them
4. Encourage more systematic, innovative and flexible teaching approach or learning design — for example: CL , PBL, etc.
5. Encourage more exposures to professional practice through LI, site visits, industry through industry-linked projects or assignments, industry mentors, student dialogue with industry professionals or visiting industry speakers.
6. Higher assurance of the delivery of the outcome capabilities in every graduate.

Outcome Based Education

- "OBE means clearly focusing and organizing everything in an educational system around what is essential for all students to be able to do successfully at the end of their learning experiences. This means starting with a clear picture of what is important for students to be able to do, then organizing the curriculum, instruction, and assessment to make sure this learning ultimately happens" (Spady, 1994).

What do we bring into the system?

What are we doing with the inputs?

How many?

What is the effect?

Inputs	Processes	Outputs	Outcomes
Students credentials	Programs and services offered	Students grades; graduation rates, employment statistics	What have student learned? What skills have they gained? Attitudes developed?
Academic and support staff	Teaching and research environment	Research outputs; courses per staff	Research Citation; staff development
Campus resources	Policies, procedures, governance, quality system	Statistics on resource availability; participation rates	Student learning and growth

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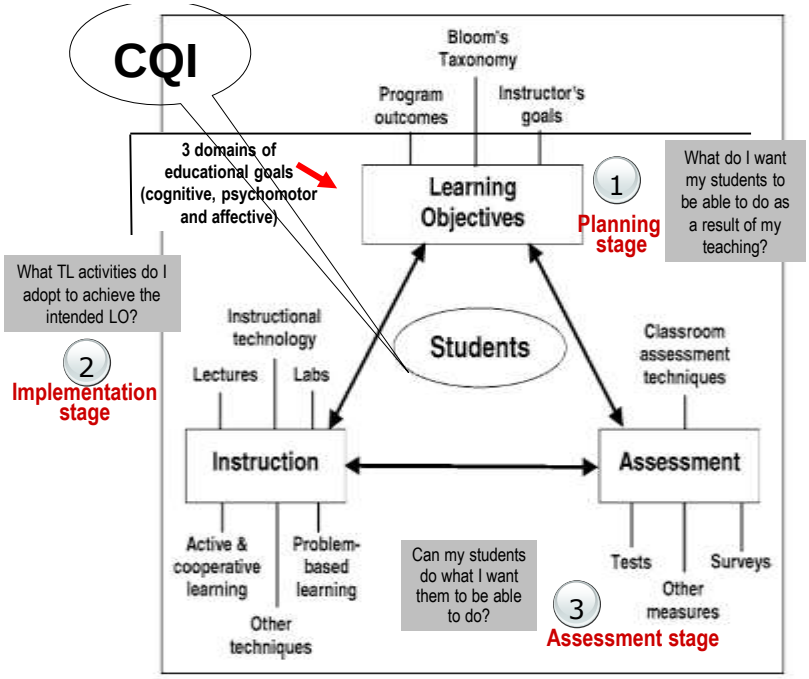


Figure 1. Elements of course design.

Objectives vs. Outcomes

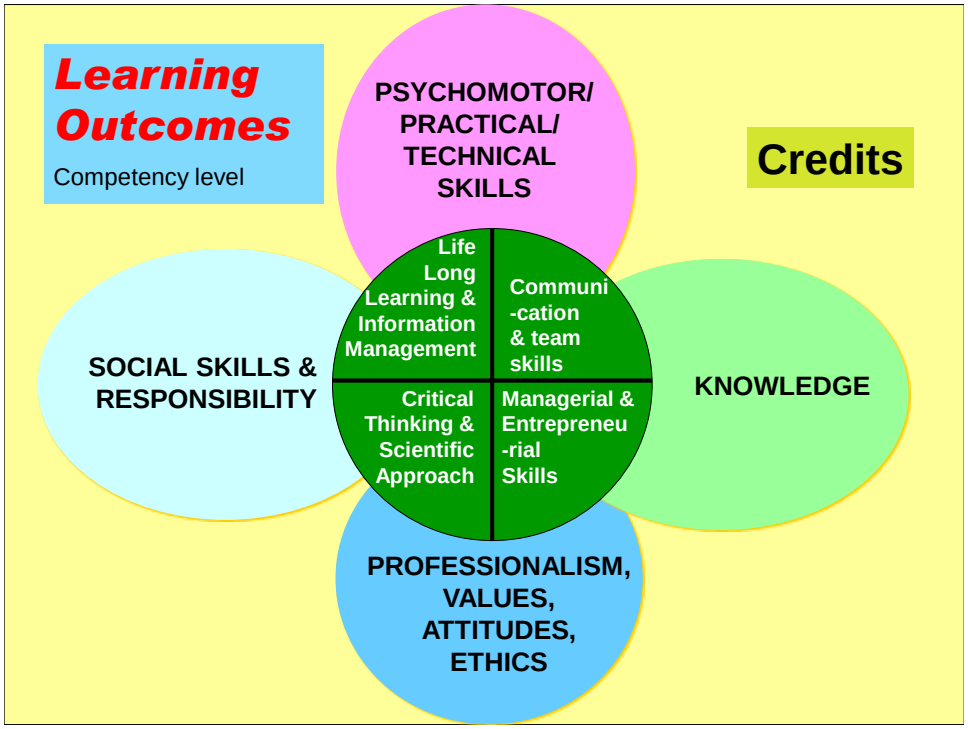
Objectives	Outcomes
Describes what a teacher needs to do to teach, and what needs to be planned to teach	Describes what students should know, understand and able to do upon completion of a study period
Requires the use of basic thinking skills-knowledge, comprehension and application.	Requires the use of higher thinking skills-analysis, synthesis and evaluation
Do not necessarily result in a product.	Result in a product that can be measured and assessed

Learning Outcomes

Abilities in various domains of learning that students are expected to demonstrate as evidence of competency.

MQF Domain of Learning

1. **Mastery of body of knowledge (depth, breadth and relative difficulty of specific content)**
2. **practical or psychomotor skills (range and complexity),**
3. **scientific method, critical thinking, problem solving, autonomy in decision-making**
4. **communication skills, leadership and team work**
5. **information management and life long learning skills**
6. **personal attributes, ethics, shared values and professionalism**
7. **social responsibility and accountability**
8. **Entreprenerial and managerial skills**



Learning Outcomes

- The LEVELS are distinguished from each other principally by <u>learning outcomes</u>
- Other distinguishing characteristics may include:
  - minimum entrance requirement,
  - typical duration
  - cumulative duration in full time equivalent (part-time courses)

Cognitive Domain

(Thinking, Knowledge)

- EVALUATION — Judges the value of…….
- SYNTHESIS — Formulates new structure
- ANALYSIS — Understands both content & structure
- APPLICATION — Uses learning in new & concrete situation
- COMPREHENSION — Grasps the meaning
- KNOWLEDGE — Remembers previous material

(Benjamin S. Bloom, 1956)

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Psychomotor Domain

(Doing, Skills)

- ORGANIZATION — Creates new pattern…….
- ADAPTION — Adjusts, modifies, translates…..
- COMPLETE OVERT RESPONSE — Reforms automatically
- MECHANISM — Performs with increasing efficiency
- GUIDES RESPONSE — Imitates the practice skills
- SET — Mentally, emotionally & physically ready
- PERCEPTION — Senses

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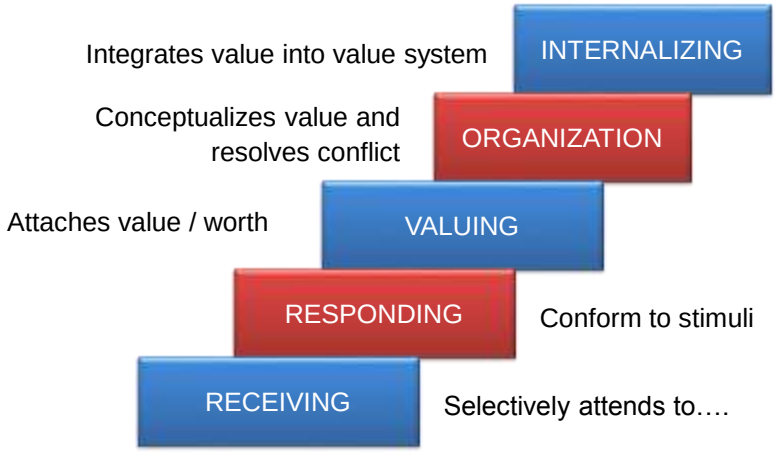
Affective Domain

(Feeling, Attitude)



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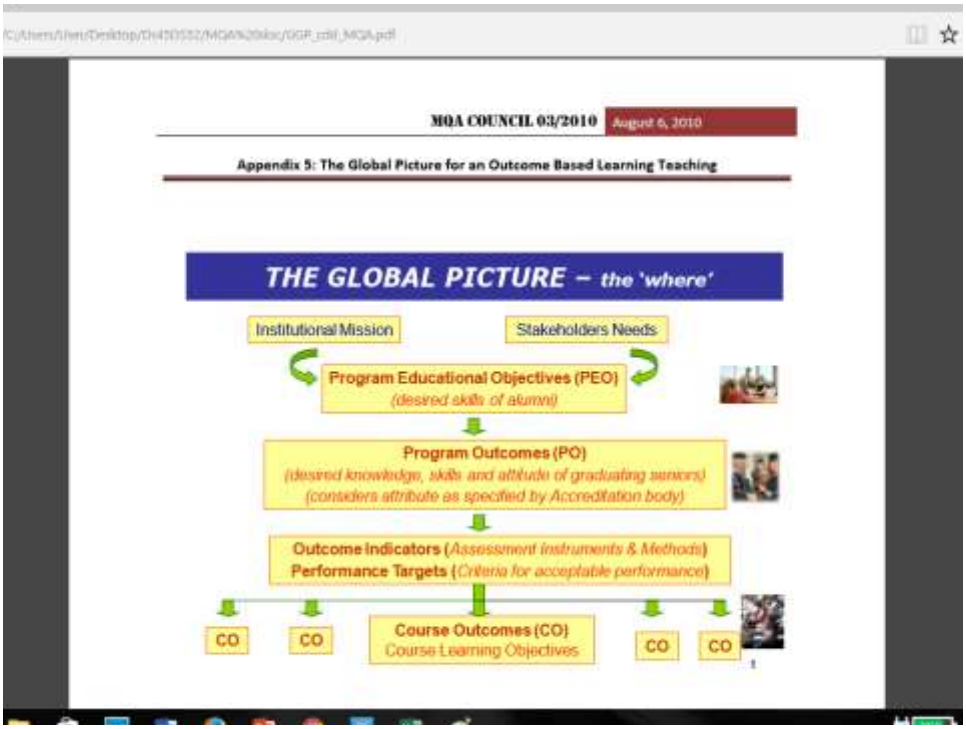
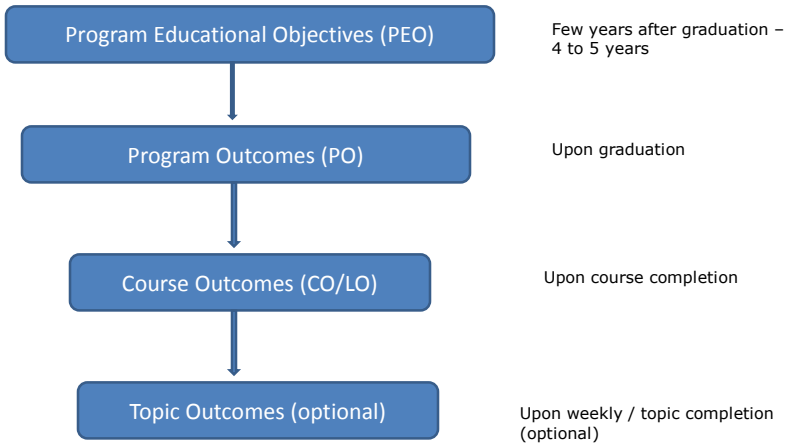


Different Levels of Learning Outcomes



Program Educational Objectives (PEO)

- Definition of **Programme Objectives**:
  - "…broad statements that describe the career & professional accomplishments that the program is preparing the graduates to achieve." (*ABET Criteria 2004*)
  - "Broad goals that addresses institutional and program mission statements and are responsive to the expressed interests of various groups of program stakeholders" (*Felder & Brent, 2003*)
  - Broad outcomes at career & professional level

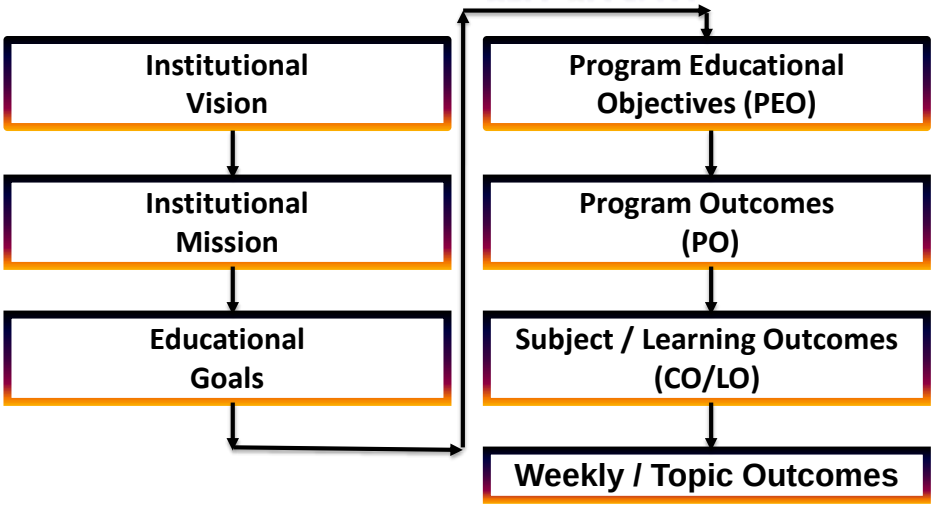
Program Educational Objectives (PEO)

- Beyond graduation and during professional development (typically between 4 -6 years of employment);
- Minimum graduate registration of 4 years from accredited engineering programs before sitting for professional interview;
- Minimum graduate registration of 6 years from non-accredited engineering programs after bridging programs before qualifying for professional interview

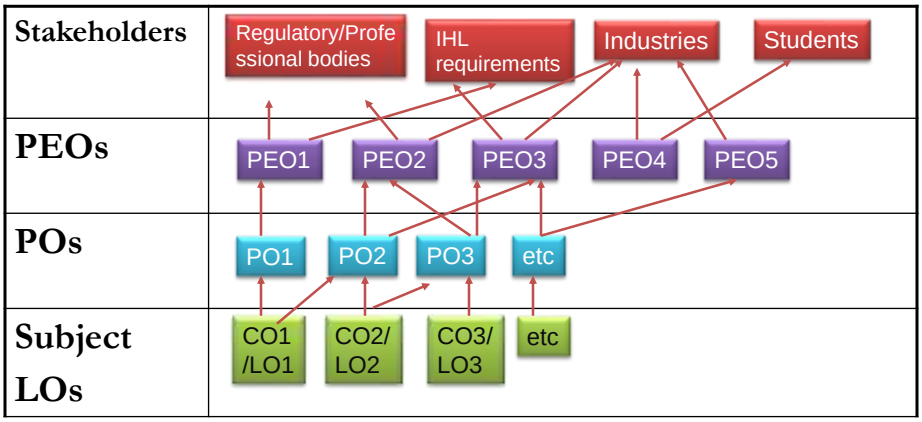
PROGRAM OUTCOMES (PO)

- "Statements that describe **what students are expected to know or be able to do by the time of graduation**" *(ABET Criteria 2004)*
- **Knowledge, skills and behaviors** that students acquire throughout the program
- Typically 4 years of B.Eng. Program
  - Intake after STPM/Matriculation = 4 years

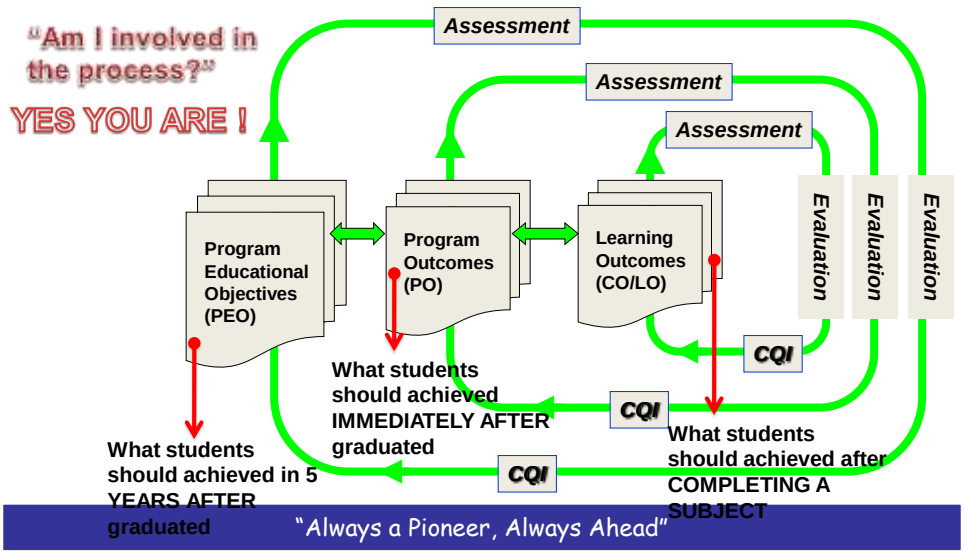
HIERARCHY OF VISION, MISSION, EG, PEO, PO & LO



Relationships – PEO, PO, LO and Stakeholders



Assessment, Evaluation & CQI Cycle – The Loop

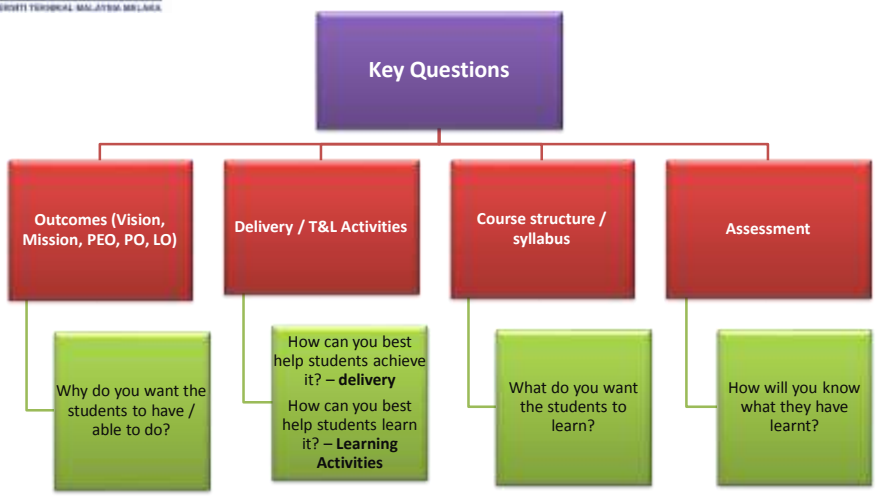


OBE & SCL

- It is not what we teach, It is what they learn
- Students are equally responsible for their own learning.
- Teacher-centered vs. student-centered
- Traditional teaching vs. SCL based teaching
- Teacher delivered content and answers vs. teacher as a facilitator who provides guidelines for the acquisition of knowledge.

Key Questions:

- What do we want our students to have or to be able to do?
- How can we best help students to achieve it?
- How do we know whether they have achieve it?
- How do we measure the attainment of the outcome?



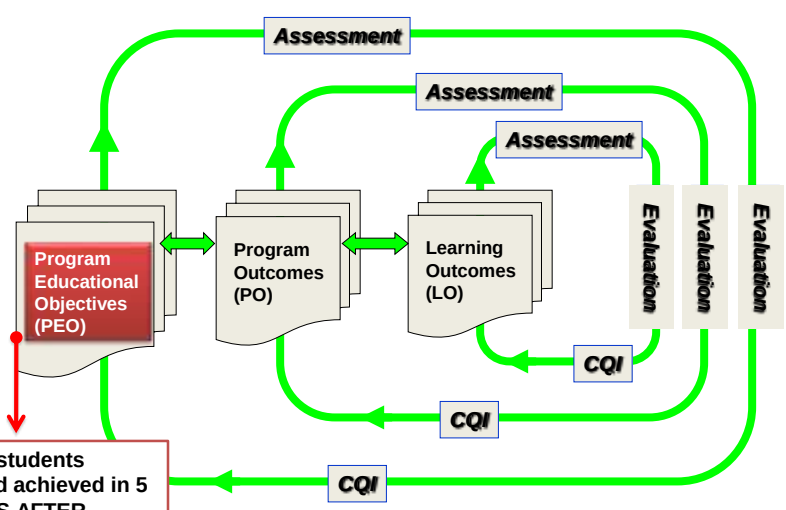
Program Educational Objectives (PEO) by EAC

Programme Objectives are specific goals consistent with the **mission and vision** of the IHL, that are responsive to the expressed interest of programme stakeholders, describing the expected achievements of graduates in their career and professional life few years after graduation.

The programme shall have a clear linkage between **Programme Objectives** and **Programme Outcomes.**

	Programme Objectives (Faculty)	Programme Outcomes (Faculty)								
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9
a	Apply knowledge and skills that are application and practice-oriented in the field of mechanical engineering	x	x	x					x	
b	Formulate and implement solutions for complex mechanical engineering problems with competency and creativity.	x	x	x	x		x			
c	Pursue continuous professional development.		x		x		x	x	x	
d	Conduct professional duties ethically and upholds sustainability.			x	x	x	x			
e	Communicate effectively at all level of societies and posses good leadership qualities with global visions.					x		x	x	x
f	Adapt and complete in multi-cultural working environment, locally and internationally.					x	x	x	x	x

Assessment, Evaluation & CQI Cycle



Characteristics of Good PEO

- Should be stated such that a graduate can demonstrate in their career or professional life after graduation (long term in nature)
- Distinctive/unique features/having own niche
- Specific, measurable, achievable, result oriented and having a time frame
- Clear, concise, consistence and reachable
- Has clear link to PO & Curriculum design
- Review, revised & updated continually published

Example of PEO - FKE

- **PEO for the Electrical Engineering Program at Faculty of Electrical Engineering.**
  i. To produce graduates who practice electrical engineering knowledge in broad engineering applications as related to manufacturing, process, robotics, project development, utilities industry, services, maintenance, management, and research development.
  ii. To produce graduates who are successful in engineering career, possess leadership quality, able to work independently, and practice professional ethical conduct.
  iii. To produce graduates who engage with life-long learning and adapt to constantly evolving technology and entrepreneurial skills.

Example of PEO - FKE

- **PEO for the Mechatronics Engineering Program at Faculty of Electrical Engineering.**
  - To produce graduates who practice mechatronics engineering knowledge in broad engineering applications as related to manufacturing, process, robotics, project development, utilities industry, services, maintenance, management, and research development.
  - To produce graduates who are successful in engineering career, possess leadership quality, able to work independently, and practice professional ethical conduct.
  - To produce graduates who engage with life-long learning and adapt to constantly evolving technology and entrepreneurial skills.

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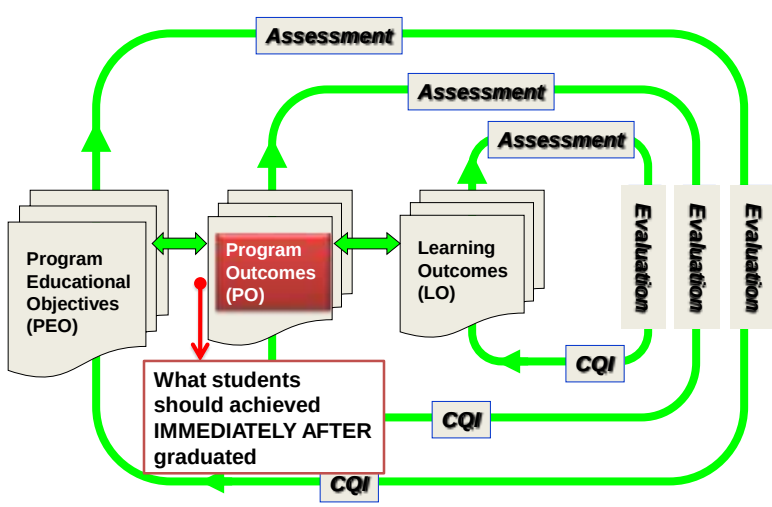
Assessment, Evaluation & CQI Cycle



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PROGRAM OUTCOMES (PO)

- "Statements that describe **what students are expected to know or be able to do by the time of graduation**" *(ABET Criteria 2004)*

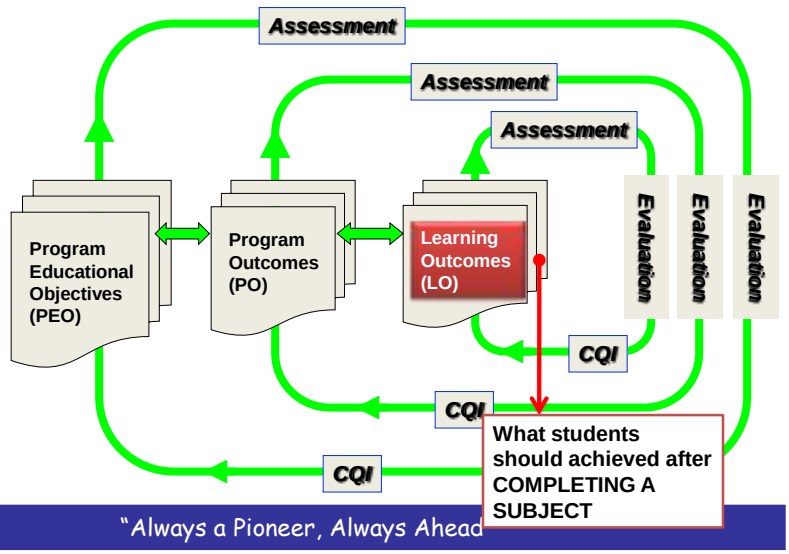
- **Knowledge, skills and behaviors** that students acquire throughout the program

- Typically 4 years of B.Eng. Program
  - Intake after STPM/Matriculation = 4 years

Characteristics of Good PO

- Each PO describes an area of knowledge and/or skills that a person can possess;
- Should be stated such that a student can demonstrate before or by the time of graduation;
- Should be supportive/responsive to one or more programme objectives, PEO (linked);
- Do not have to include measures or performance expectations.

Assessment, Evaluation & CQI Cycle



Characteristics of Good LO

- Cover most of the related topics in the subject;
- Cover most of the related level of Bloom Taxonomy;
- Should have 3 main components – **verb (V), condition (C) and standard (S)**;
- Well written verbs must be **SMART** – Specific, Measurable, Achievable, Realistic, Time Frame, Observable;
- Condition – context/situation which the behavior is to occur;
- Standard - criteria of acceptable level of performance

Example of LO

Example 1

- explain the operation and construction of semiconductor devices (V)
- Orally explain on operation and construction of semiconductor devices (V,C)
- Orally explain on operation and construction of semiconductor devices such as Diode, BJT, FET, MOSFET and Op Amp. (V,C,S)

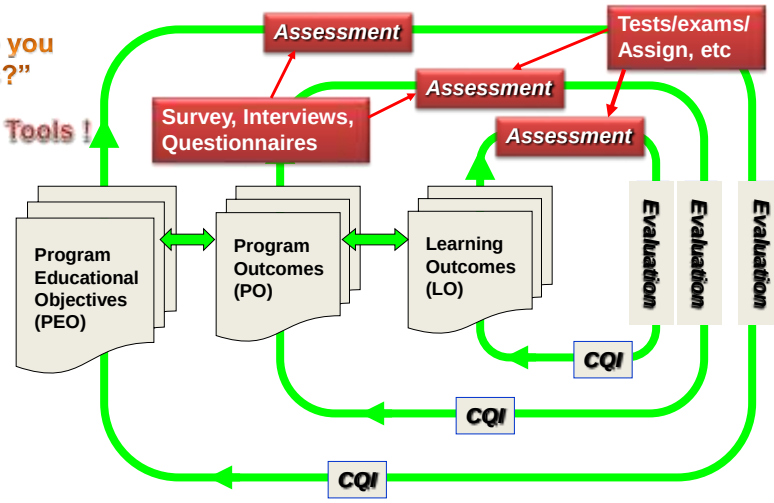
Example 2

- simulate the operation of semiconductor devices. (V)
- simulate the operation of semiconductor devices using simulation software. (V,C)
- simulate the operation of semiconductor devices using PSPICE simulation software for ideal case. (V,C,S)

Assessment, Evaluation & CQI Cycle

"How do you assess?"

Assessment Tools !



Activity 4

-Constructive Alignment of LO-Delivery-Assessment
-CQI

Course Evaluation Report
ANALYSIS & EVALUATION_2017matselbmfg.docx

"Always a Pioneer, Always Ahead"