

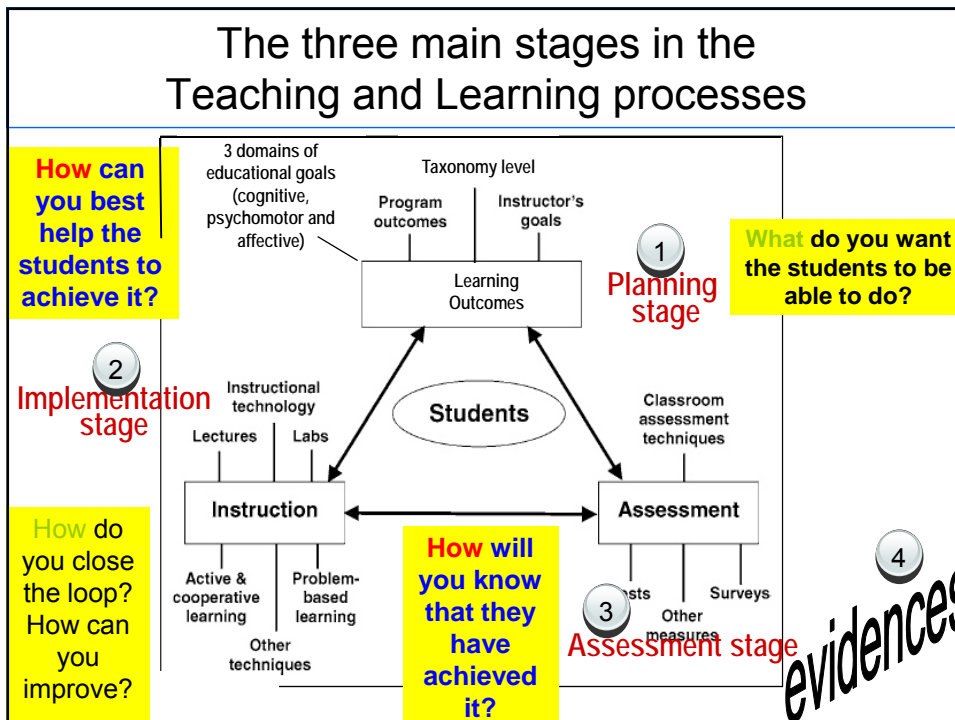


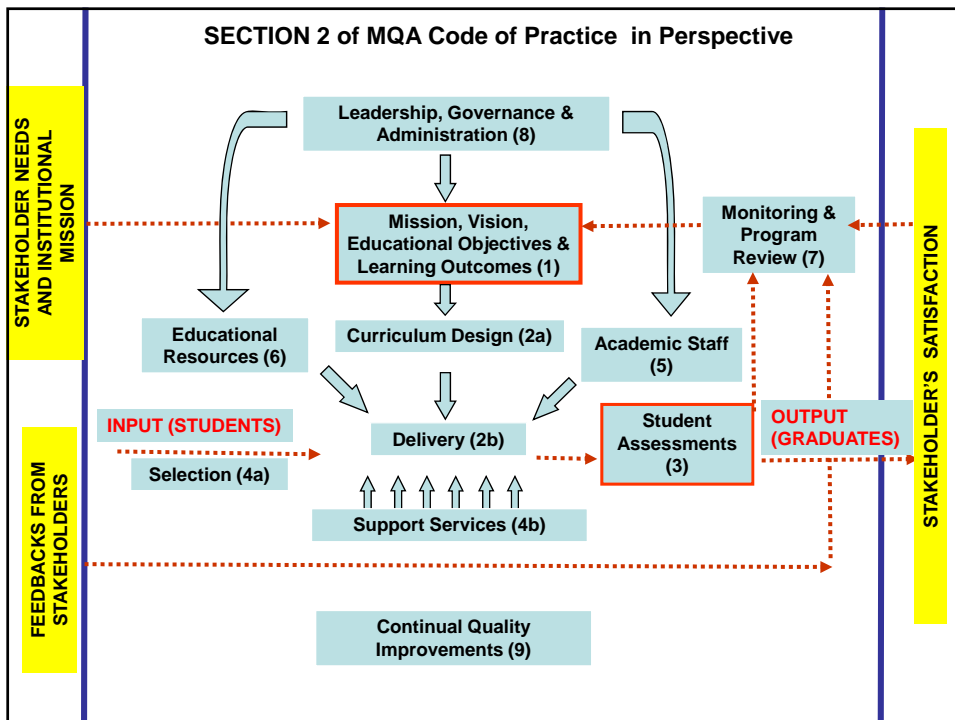
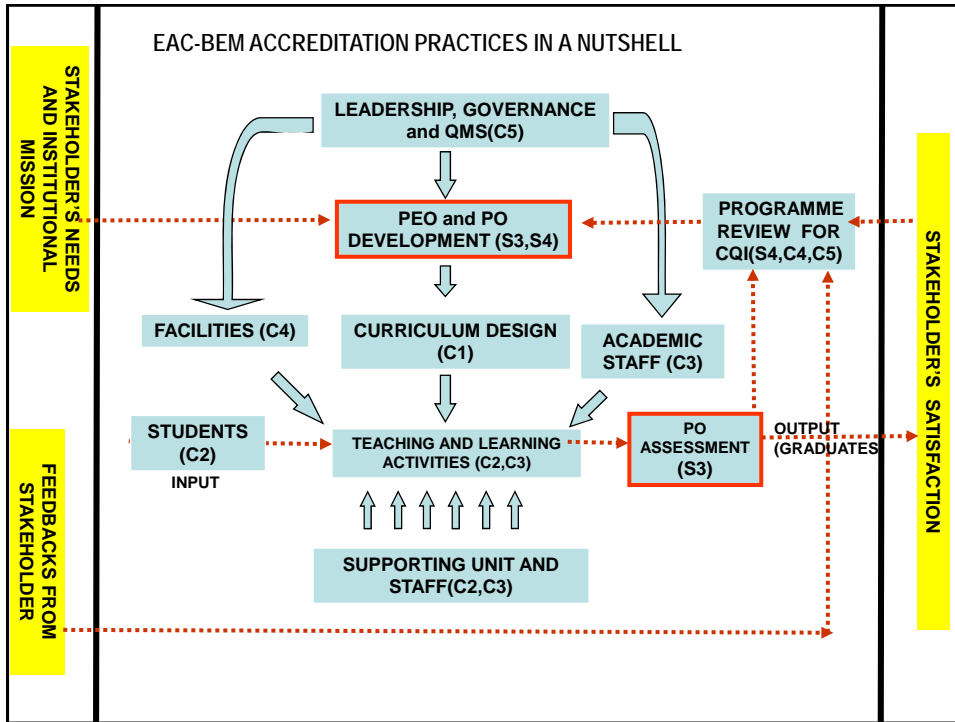
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Assessing Generic Skills at Course Level

Prof Dr Shahrin Mohammad
Fakulti Kejuruteraan Awam

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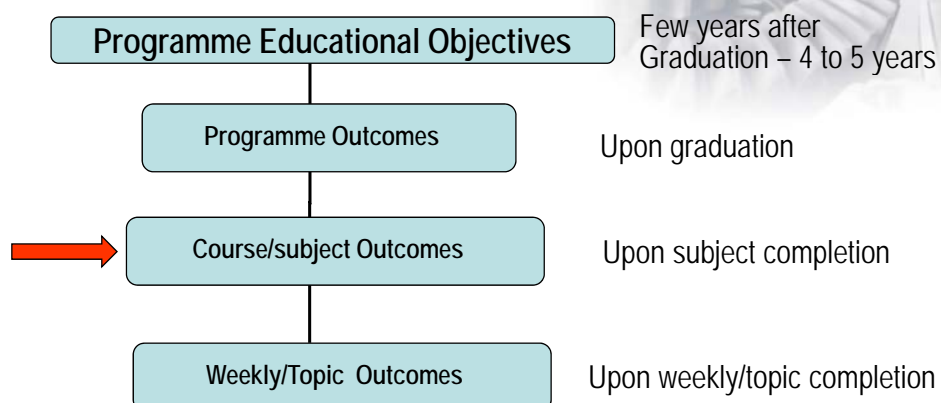


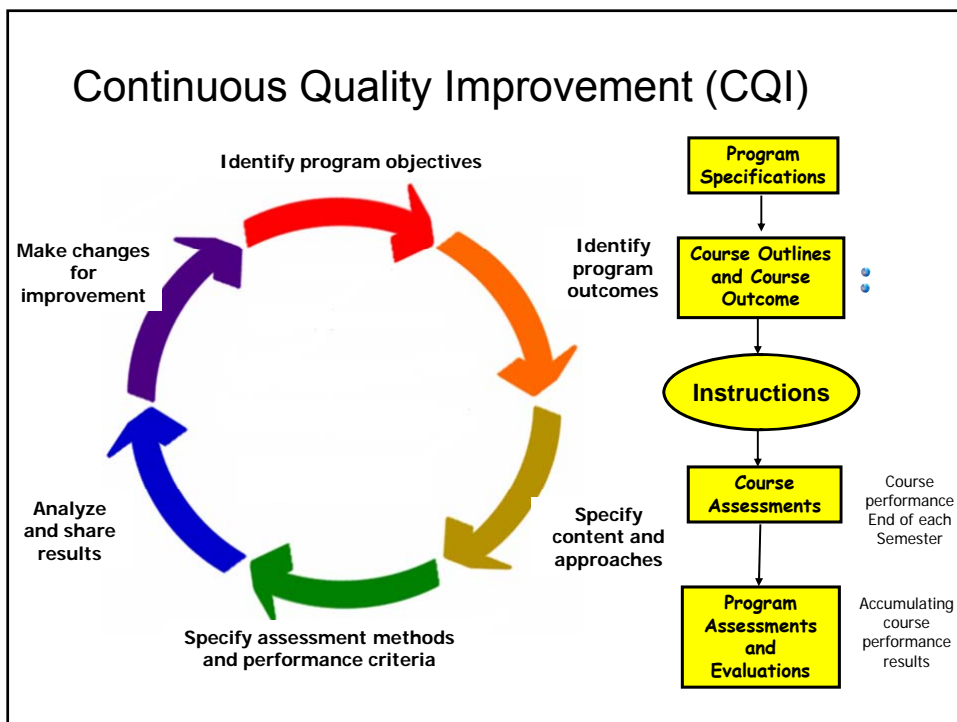
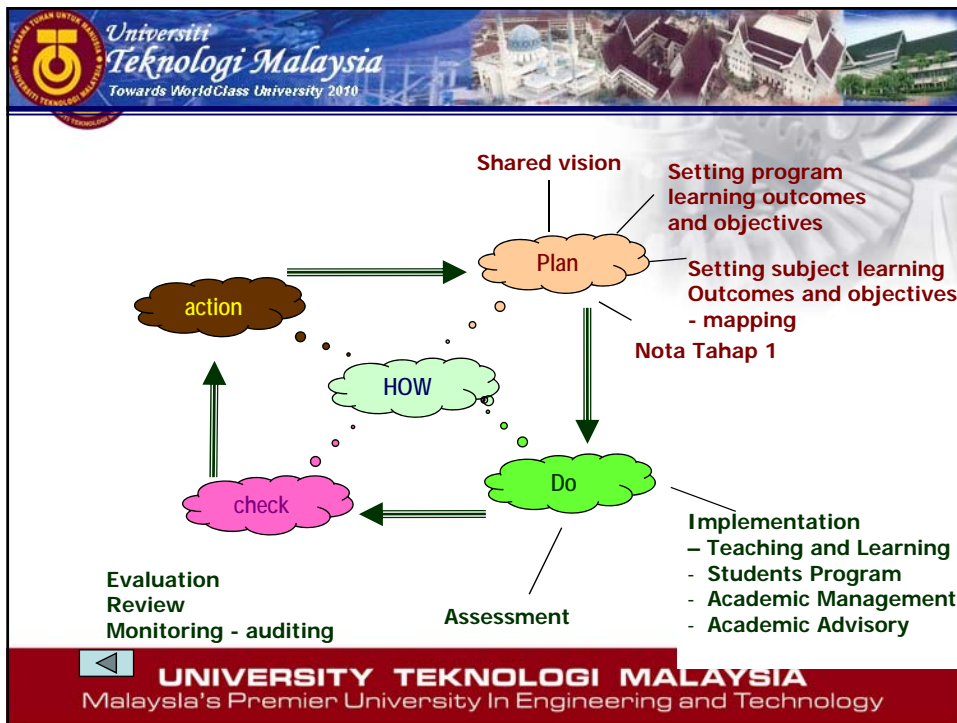
IMPLICATION OF REQUIREMENTS CHANGE IN EAC/QA

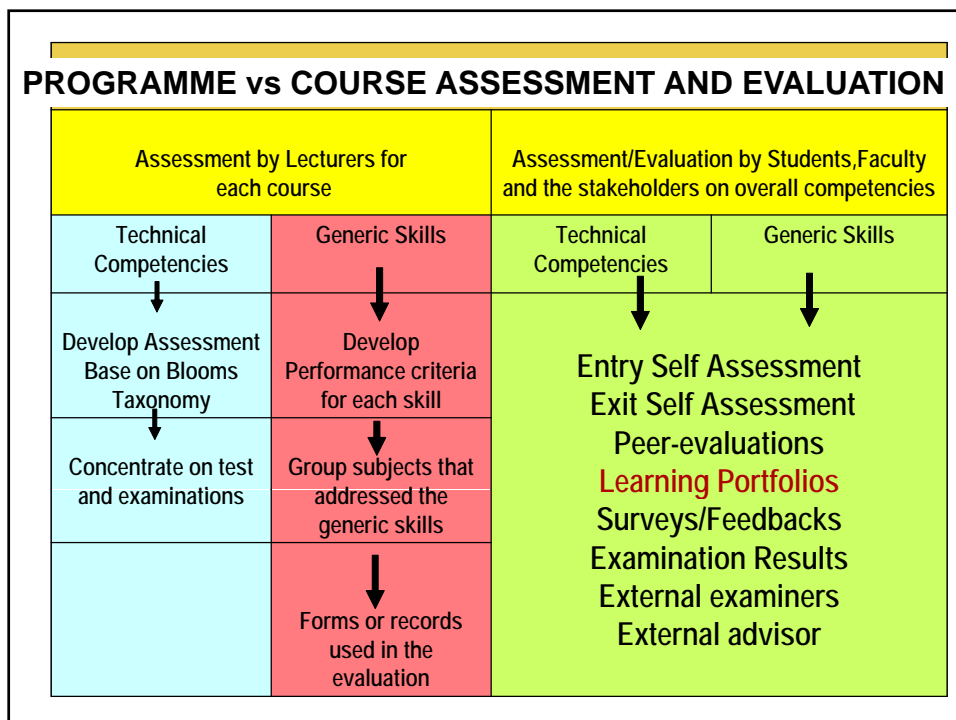
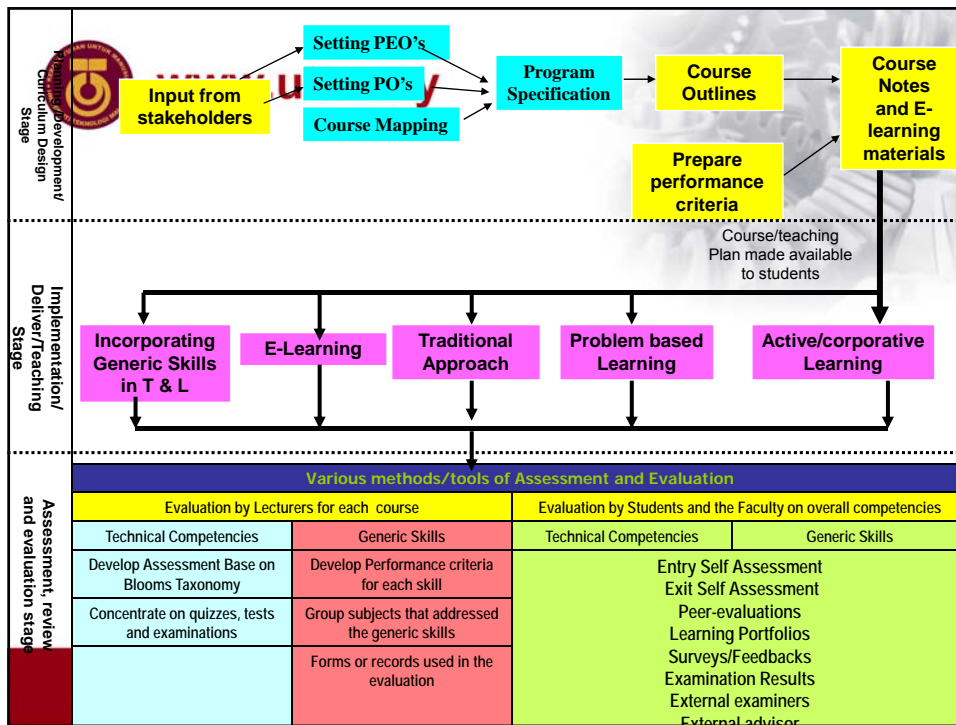
- Need to understand what is OBE/EAC/QA.
- Need to specify program educational objectives (PEO).
- Need to specify learning outcomes (LO).
- Need to revise the curriculum.
- **Need to change/modify/review teaching, assessment, and evaluation method.**
- **Need to start documenting evidences on EAC/QA.**
- Need to send staff for training
- Need to **resist disagreement** from faculty members.
- etc....



Different Levels of Learning Outcomes









Assessing Generic Skills stated in the Program Outcomes and Course Outcome

- **PROGRAM LEVEL**
 - (Based on Program Objectives and Programme Outcomes)
- **COURSE LEVEL**
 - (Based on Course Outline - Nota Tahap 1 or L1)
- **KEY ISSUES**
 - Why Access and who should assess?
 - How to assess/evaluate?
 - What is the Performance Criteria?
 - Assessment tools?
 - Data collection and documentation?
 - Responsibilities and Monitoring systems?
 - Time frame?

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TERMINOLOGIES reviewed

- **Objectives:** Statements that describe the expected accomplishments of graduates during the first few years after graduation.
- **Outcomes:** Statements that describe what students are expected to know and able to do by the time of graduation.
- **Performance Criteria:** Specific, measurable statements identifying the performance(s) required to meet the outcome; confirmable through evidence.
- **Assessment:** Processes that identify, collect, use and prepare data that can be used to evaluate achievement.
- **Evaluation:** Process of reviewing the results of data collection and analysis, making a determination of the value of findings and action to be taken.

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Assessment (Pentaksiran)

Adalah 1 atau lebih proses/kaedah yang boleh

- Menenalpasti
- Mengumpul
- Menggunakan
- Menyediakan

data yang boleh digunakan untuk:

- Menilai pencapaian hasil pembelajaran
- Menilai objektif pembelajaran
- Penambahbaikan program

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Evaluation (Penilaian)

Satu atau lebih proses bagi menginterpretasikan data dan bukti yang terkumpul melalui amalan-amalan pentaksiran (assessment practices) yang:

- boleh menentukan sejauh mana telah tercapai hasil pembelajaran atau objektif pembelajaran, atau
- menghasilkan keputusan serta tindakan diambil untuk memperbaiki program (spt. Contoh kurikulum dan kaedah).

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Terms	Definition	Common terms for same concept
Objectives	Statements that describe the expected accomplishments of graduates during the first few years after graduation.	Goals, outcomes
Outcomes	Statements that describe what students are expected to know and able to do by the time of graduation.	Objectives, standards
Performance Criteria	Specific, <u>measurable</u> statements identifying the performance(s) required to meet the outcome; confirmable through evidence.	Standards, indicators rubrics, specifications metrics, outcomes
Assessment	Processes that identify, collect, use and prepare data that can be used to evaluate achievement.	Evaluation
Evaluation	Process of reviewing the results of data collection and analysis and making a determination of the value of findings and action to be taken.	Assessment



Assessment is

- the formative or/and summative determination for a specific purpose of the student's competence in demonstrating a specific outcome
- the processes that identify, collect, use and prepare data that can be used to evaluate achievement.



Formative Assessment

- Collecting info according to preset criteria to supply feedback on how learning can be improved
- is intended to inform students how to improve their learning
- provides feedback to students on their learning achievements

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Summative Assessment

- Judging the worth according to preset criteria of the student's demonstration of outcome attainment competence
- used to sum up a persons achievement, e.g. Written Examination.
- Reliability is essential as they are used numerically to classify students and compare them to each other

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Why Assess Generic Skills ?

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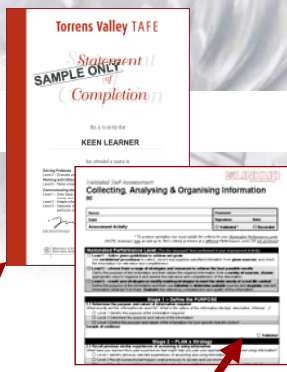


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Why 'assess' Generic Skills?

TWO reasons...

1. To **PROVE** the student skills (through formal certification)
- AND
2. To help you **UNDERSTAND** and **IMPROVE** them (through the assessment process)



PROVE & IMPROVE!

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Why 'assess' Generic Skills?

Airasian (1994) and Pellegrino, Chudowsky and Glaser (2001) asserted that assessment has three broad purposes:

- ❖ to assist learning
- ❖ to measure individual achievement
- ❖ to evaluate programs.

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Why 'assess' Generic Skills?

Figure 1: Purposes of assessment¹

Learning	<ul style="list-style-type: none"> To provide feedback to students to improve their learning To motivate students To diagnose a student's strengths and weaknesses To help students to develop their skills of self-assessment To provide a profile of what a student has learnt
Certification	<ul style="list-style-type: none"> To pass or fail a student To grade or rank a student To licence to proceed To licence to practice To select for future courses To predict success in future courses To select for future employment To predict success in employment
Quality Assurance	<ul style="list-style-type: none"> To provide feedback to lecturers on student learning To improve teaching To evaluate a course's strengths and weaknesses To assess the extent to which a programme has achieved its aims To judge the effectiveness of the learning environment To ensure the course is credit worthy to other institutions and employers To monitor standards over time




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Who is responsible ?

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Who assesses the generic skills? – OPINION 1

STUDENTS !

Assessment is based on SELF ASSESSMENT.
YOU take **control** of your assessment and YOU benefit directly...

YOU SELF ASSESS your performance, so
YOU UNDERSTAND your skills, so
YOU KNOW HOW to improve them, so
YOU can PROVE & EXPLAIN them at a job interview, so

YOU GET THE JOB! ... plus many other benefits.

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Who assesses the generic skills? – OPINION 1

STUDENTS !

Lecturer, employers & peers offer great support **but** if THEY **control** the assessment then ...

THEY ASSESS your performance, so

THEY UNDERSTAND your skills, so

THEY can PROVE & EXPLAIN your skills at a job interview, so

THEY GET THE JOB ????

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Who assesses the generic skills? – OPINION 1

"Who is responsible for developing (and assessing) generic skills?"

"Its definitely the student's responsibility"



"I think the ultimate responsibility is yourself. But its more of a contract between myself and the facilitators or teachers"



"The lecturer does make a big difference, and so does your employer, but at the end of the day ... its YOU!"



"Well I think its up to the individual"



From video - Generic Skills: Views and experiences of workers and students. Courtesy of NCVET

Who assesses the generic skills? – OPINION 2

LECTURERS !

Lecturer offer great support

by **ASSESSING** students performance, because
we **UNDERSTAND** the importance of generic skills, so
we can **PROVE & EXPLAIN** to others

To help **STUDENTS GET THE JOB**




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Who is responsible for fostering generic skills?

Research commissioned by the National Centre for Vocational Education Research (NCVER) has found that the development of generic skills requires a partnership between the learner, education and training providers, and workplaces.

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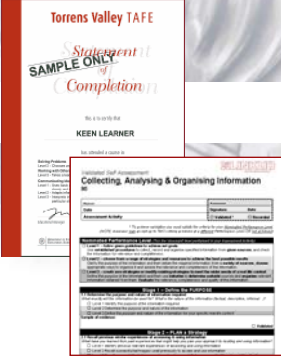


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Who should 'assess' Generic Skills?

Four PARTIES...

1. THE STUDENTS
2. THE LECTURERS AND
3. PERSON/S DELEGATED BY THE FACULTY – TD(A)? , KJ's, KP's
4. PERSON/S INCHARGE AT WORKPLACE




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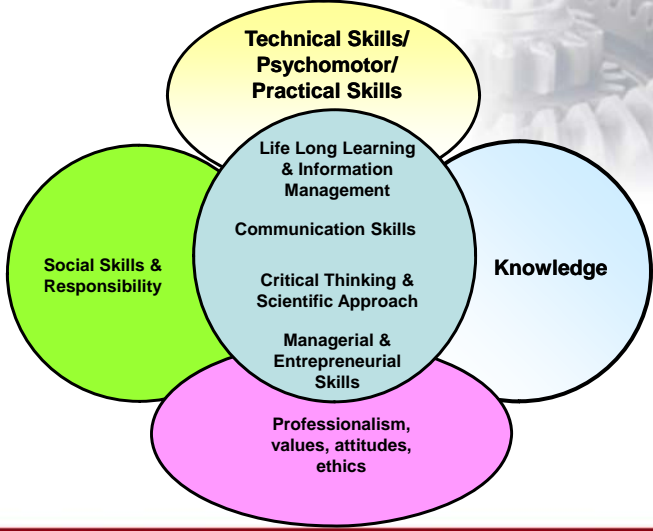
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The Needs for A Balanced Curriculum



**Technical Skills/
Psychomotor/
Practical Skills**

**Life Long Learning
& Information
Management**

Communication Skills

**Critical Thinking &
Scientific Approach**

**Managerial &
Entrepreneurial
Skills**

Knowledge

**Social Skills &
Responsibility**

**Professionalism,
values, attitudes,
ethics**

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Inculcating GS Among UG Students: The KPT's Vision and Commitment



Modul
PEMBANGUNAN
KEMAHIRAN INSANIAH
(SOFT SKILLS) untuk
Institusi Pengajian Tinggi Malaysia

Dilancarkan secara rasmi oleh YB Menteri Pengajian Tinggi Malaysia pada 22 Ogos 2006 di Universiti Putra Malaysia, Serdang

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Atribut Graduan UTM @ 7 Nov 2006

Teks Atribut berwarna merah adalah kemahiran yang wajib ada bagi pelajar UTM

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KEMAHIRAN BERKOMUNIKASI

Kod	Keterangan
CS1	Kebolehan menyampaikan idea dengan jelas, berkesan dan dengan penuh keyakinan, secara lisan dan bertulis.
CS2	Kebolehan mengamalkan kemahiran mendengar yang aktif dan memberi maklum balas.
CS3	Kebolehan membuat pembentangan secara jelas dengan penuh keyakinan dan bersesuaian dengan tahap pendengar.
CS4	Kebolehan menggunakan teknologi dalam pembentangan.
CS5	Kebolehan berunding dan mencapai persetujuan.
CS6	Kebolehan berkomunikasi dengan mereka yang mempunyai budaya berlainan.

PEMIKIRAN KRITIS DAN KEMAHIRAN MENYELESAIKAN MASALAH

Kod	Keterangan
CTPS1	Kebolehan mengenal pasti dan menganalisis masalah dalam situasi kompleks dan kabur, serta membuat penilaian yang berjustifikasi.
CTPS2	Kebolehan mengembang dan membaiki kemahiran berfikir seperti menjelaskan, menganalisis dan menilai perbincangan.
CTPS3	Kebolehan mencari idea dan mencari penyelesaian alternatif.
CTPS4	Kebolehan berfikir melangkaui batas (outside the box).
CTPS5	Kebolehan memahami dan menyesuaikan diri kepada budaya komuniti dan persekitaran kerja yang baru.

KEMAHIRAN KERJA BERPASUKAN

Kod	Keterangan
TS1	Kebolehan membina hubungan baik, berinteraksi dengan orang lain dan bekerja secara efektif bersama mereka untuk mencapai objektif yang sama.
TS2	Kebolehan memahami dan mengambil peranan bersilih ganti antara ketua kumpulan dan ahli kumpulan.
TS3	Kebolehan mengenali dan menghormati sikap, kelakuan, dan kepercayaan orang lain.

PEMBELAJARAN BERTERUSAN DAN PENGURUSAN MAKLUMAT

Kod	Keterangan
LL1	Kebolehan mencari dan mengurus maklumat yang relevan daripada pelbagai sumber.
LL2	Kebolehan menerima idea baharu dan berkeupayaan untuk pembelajaran autonomi.
LL3	Kebolehan mengembangkan minda ingin tahu dan dahagakan ilmu.

KEMAHIRAN KEUSAHAWANAN

Kod	Keterangan
KK1	Kebolehan mengenal pasti peluang perniagaan.

ETIKA DAN INTEGRITI

Kod	Keterangan
EM1	Kebolehan mengamalkan sikap beretika disamping mempunyai rasa tanggungjawab terhadap masyarakat.
EM2	Kebolehan menganalisis dan membuat keputusan dalam penyelesaian masalah secara beretika.
EM3	Kebolehan memahami kesan sosiobudaya, ekonomi, politik dan alam sekitar dalam amalan profesional.

KEMAHIRAN KEPIMPINAN

Kod KI	Keterangan
LS1	Pengetahuan asas kepimpinan.
LS2	Kebolehan memimpin.

PROGRAM LEARNING OUTCOMES B.Eng (Civil Engineering)			
Technical competencies			
	PROGRAM LEARNING OUTCOMES	TEACHING & LEARNING METHODS	ASSESSMENTS
LO1	Ability to acquire knowledge of science and civil engineering principles	Lectures, tutorials, seminars, laboratory works, directed reading, independent study, active learning	Examinations, laboratory reports, presentations, assignments, problem-based exercises, project reports
LO2	Ability to use the techniques, skills and modern civil engineering tools	Lectures, tutorials, computer hands-on sessions, laboratory works, industrial training, surveying camps	Examinations, laboratory reports, presentations, assignments, problem-based exercises, project reports, design tasks, simulation exercises, industrial training reports
LO3	Ability to analyse, interpret, develop and conduct experiments; and design components, systems, or processes	Project supervision, lectures, tutorials, laboratory works, directed reading, simulation exercises, computer-based exercises, independent study, problem-based learning	Final Year Project reports, project reports, design tasks, examinations, laboratory reports, presentations, assignments

Generic Skills competencies			
	PROGRAM LEARNING OUTCOMES	TEACHING & LEARNING METHODS	ASSESSMENTS
LO4	Ability to identify, formulate and solve civil engineering related problems	Project supervision, lectures, tutorials, laboratory works, group projects, independent study	Final Year Project reports, project reports, design tasks, examinations, laboratory reports, presentations, assignments
LO5	Ability to communicate effectively and with confidence	Projects, independent study, tutorials, surveying camps	Oral presentations, written reports
LO6	Ability to respond and adapt to changing situations and priorities	Lectures, laboratory works, group assignments, Industrial training, final year project	Industrial training reports and logbooks, final year project reports and logbooks
LO7	Ability to function effectively as an individual and/or in a team to achieve common goals	Independent projects, group projects, industrial training, final year project, surveying camps	Industrial training report and logbook, project report, final year project report and logbook
LO8	Ability to perpetually seek and acquire contemporary knowledge	Independent study, final year projects	Final year project reports, assignments
LO9	Ability to think positively and possess self-esteem	Group projects, independent study, tutorials, industrial training, final year project	Written assignments, project reports, essays, final year project report, Industrial training reports
LO10	Ability to apply high ethical standards in professional practice and social interactions for sustainable development	Final year projects, Laboratory works, Industrial training, surveying camps	Written assignments, laboratory reports, essays, Final year project reports, Industrial training report,

Mapping of Programme Learning Outcomes to Subjects

Code	Course	LO1	LO2	LO3	LO4	LO5	LO6	LO7	LO8	LO9	LO10
SAB 1011	Engineering Survey – Fieldwork	b	a	c	2	2	-	2	-	2	2
SAB 1023	Engineering Survey	a	c	c	2	2	-	-	-	-	2
SAB 1031	Survey Camp	a	a	c	2	1	-	1	-	2	2
SAB 1042	Civil Engineering Laboratory I	a	a	a	2	1	-	2	2	2	2
SAB 1213	Applied Mechanics	a	b	b	2	2	2	2	2	-	2
SAB 1413	Computer Programming	a	a	b	2	2	-	-	-	2	2
SAB 1423	Civil Engineering Drawing	a	a	b	2	2	-	-	2	-	2
SAB 1513	Fluid Mechanics	a	b	b	2	2	2	2	-	2	2
SAB 1713	Soil Mechanics	a	b	b	2	2	2	2	2	2	2
SAB 2012	Civil Engineering Laboratory II	a	a	a	2	1	-	2	2	2	2
SAB 2032	Mechanical & Electrical System	a	b	b	2	2	2	-	2	2	2
SAB 2112	Civil Engineering Materials	a	b	b	2	2	2	2	2	2	2



Key:
 Technical Skills : a = major contribution to outcome; b = moderate contribution to outcome; c = minor contribution to outcome
 Generic Skills : 1 = Substantial (with assessment) 2 = not substantial (introduction/observation)

COURSE OUTCOMES MATRIX COURSE : SAM 4324 (STRUCTURAL STEEL AND TIMBER DESIGN)

No	Course Outcomes (CO)	Programme Learning Outcomes (PLO)										Delivery	Assessment	Key Performance Indicators/Index	
		Knowledge		Use of Techniques Analyse & Development		Problem Solving		Communication		Adaptability					
		1	2	3	4	5	6	7	8	9	10				
1.	Able to describe the concept and philosophy of steel and timber design based on the relevant code of practice	3	3	3									Lectures, CL, design practices, tutorials	Tests, Final Exam	Students able to analyse, design and evaluate the member capacity of the structural element based on the standard codes of practice
2.	Able to estimate the design loadings and to analyse structural elements correctly	3	3	3	1	2							Lectures, CL, design practices, tutorials	Tests, Final Exam, Project Submission	
3.	Able to use the code of practice to design structural steel and timber elements.	3	3	3	1	2							Lectures, CL, design practices, tutorials	Tests, Final Exam, Project Submission	
4.	Able to prepare structural design report, drawing plan and structural element detailing <i>kefene work 15</i>					1							Project work, CL	Project Submission	Reports are clear, correct and well presented. Drawings according to standards specifications. 100% passes
5.	Able to work effectively in a team producing a design report within a stipulated timeframe					1		1					CL	Peer Assessment, Observation	No complains from team members 80% students achieved 80%
6.	Able to apply professional practice and ethics within a given time frame											1	Project work, CL	Peer Assessment, Observation	No students barred from final exams. 80% coursework delivered on time. 90% attendance during each lectures


Key:
 Technical Skills : a = major contribution to outcome; b = moderate contribution to outcome; c = minor contribution to outcome
 Generic Skills : 1 = Substantial (with assessment) 2 = not substantial (introduction/observation)




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How to assess GS?

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■ **How to assess?**

- Using paper & pen tests or performance tests?
- using a variety of assessment modes (essays, reflective writing, presentation, projects, lab work, field work)
- Importance of assignment brief
- Performance criteria (rubrics?)
- Assessment tools – forms or template
- Level of achievement (at course level)
- Communicating the results (how to convey feedbacks?)

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Assessment of Generic Skills – General Issues

- 1) How should GS be assessed?
 - paper & pencil tests vs performance tests (e.g. presentation, working in groups)
 - using a variety of assessment modes (essays, reflective writing, presentation, participation in tutorials, studio work, etc)
 - Guidelines for writing assignment briefs

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Assessment of Generic Skills – Some General Issues

- 2) How should marks for GS be awarded?
 - assessing product or process?
 - group mark or individual mark?
 - awarding marks for process using observation schedule & rating scales (using reflective writing/journal)
 - Self-evaluation

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Assessment of Generic Skills – Some General Issues

- 3) How should the results be conveyed to students?
- through regular feedback (formative)?
 - at the end of the semester?
 - in the form of grades (A, B, C, etc.)?
 - narrative/descriptive? Oral feedback?

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Workshop 1 : Identifying the assessment method

Task

Individually, identify the assessment method required to address the course outcome stated in your course outlines.

Procedure

- Step 1: Identify at least two attributes/generic skills you wish to assess.
- Step 2: List the criteria for the generic skills and decide the descriptor for at least 3 level of performance (1-3-5).
- Step 3: Develop an assessment guide/brief for the students

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Workshop 2 : Preparing an Assessment Guide to Assess GS

Task

In groups, prepare an assessment guide to assess at least two of the UTM Graduate Attributes.

Procedure

- Step 1: Identify at least two attributes/generic skills you wish to assess.
- Step 2: List the criteria for the generic skills and decide the descriptor for at least 3 level of performance (1-3-5).
- Step 3: Develop an assessment guide/brief for the students

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Assessment Guide to Assess GS: Other Examples (Example 1 – Check List)

Ability to independently seek information	Assign 1 or 0 points
Included 3 citations	
Interviewed two people	
Included 2 additional points not mentioned in lectures	
References include a journal in current year	

Preparing assessment form				
Performance criteria	Marks allocated			
PRESENTATION SKILLS	Poor	Average	Good	Excellent
Personal appearance is appropriate	1	2	3	4
Speaks clearly and with sufficient volume	1 2	3 4	5 6	7 8
Achieves rapport with the audience	1	2	3	4
Uses engaging vocalization	1	2	3	4
Total				
Overall Marks				

Assessment Guide to Assess GS: Other Examples (Example 2)					
Teamworking	Standard/Marks				
Criteria/Traits	V. Gd	Gd	Av.	Below Av.	Weak
Relationship with group members	6	5	4/3	2	1
Contribution to group effort	6	5	4/3	2	1
Responsibility	5	4	3	2	1
Leadership	3	2.5	2	1.5	1
Total	20	16.5	13/11	7.5	4

Assessment Guide to Assess GS: Other Examples
(Example 3 – Rating Scale with Descriptors)

Team-working	Standard/Marks				
Criteria/Traits	A	B	C	D	E
Relationship with group members	6 Excellent working relationship with group members. Tactful use of language...	5	4/3 Satisfactory working relationship with...	2	1 Poor working relationship with gr. members. Untactful use of language...
Contribution to gr effort	6	5	4/3	2	1
Responsibility	5	4	3	2	1
Leadership	3	2.5	2	1.5	1
Total	20	16.5	13/11	7.5	4

Assessment Guide to Assess GS: Other Examples
(Example 4 – Holistic Rating Scale with Descriptors)

A (marks)	Student possesses <i>excellent working relationship</i> with group members. He/She <i>contributes very actively</i> to the success of the group. He/She is <i>highly responsible</i> and displays <i>excellent leadership</i> qualities.
B (marks)	Student possesses <i>good working relationship</i> with group members. He/She <i>contributes actively</i> to the success of the group. He/She is <i>responsible</i> and displays <i>good leadership</i> qualities.
C	Student

Example 5: Assessment Guide to assess Problem Solving

Understanding the problem

- 0 – No attempt 1 – Completely misinterprets the problem
- 2 – Misinterprets major part of the problem
- 3 – Misinterprets minor part of the problem
- 4 – Complete understanding of the problem

Solving the problem

- 0 – No attempt 1 – Totally inappropriate plan
- 2 – Partially correct procedure but with major fault
- 3 – Substantially correct procedure with major omission or procedural error
- 4 – A plan that could lead to a correct solution with no arithmetic errors

Answering the problem

- 0 – No answer or wrong answer based upon an inappropriate plan
- 1 – Copying error, computational error, partial answer for problem with multiple answers; no answer statement; answer labeled incorrectly
- 2 – Correct solution

Source: Szetela & Nicol, 1992 cited in Kubiszyn & Borich, 2003.



ASSESSMENT METHOD

- **There will always be more than one way to measure any course learning outcome**
- **No single method is good for measuring a wide variety of different student abilities**
- **There is generally an inverse relationship between the quality of measurement methods and their expediency**
- **It is important to pilot test to see if a method is appropriate for your program**



ADVICE FROM THE FIELD

- You cannot be doing everything (time and resources)
- All assessment questions are not equal
- More data are not necessarily better
- One size does not fit all
- Pick your battles
- Take advantage of local resources
- Don't wait until you have a "perfect" plan
- It does not happen in one year

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In summary

Where assessment of generic skills was being conducted most successfully, it was learner-centred, with learners taking responsibility for their own self-evaluation, and in a climate of teacher/assessor support, with practitioners having opportunities to critically reflect on what is required and then to develop appropriate assessment tools.

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