BAETE Workshop for Program Evaluators

Evidence-Based On-site Assessment during Accreditation Visits

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Dhaka

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Organized by
Board of Accreditation for Engineering and Technical Education (**BAETE**)

Key Points

- Target audience – PEVs
- Criteria-based accreditation
- Interactive workshop 1 – working together to design the Assessment Form
- Interactive workshop 2 – working together to design assessment form for program outcomes
- Interaction workshop 3 – working together to design the Schedule of Onsite Visit
- Program outcomes (POs) attainment-assessment methodology.
- The DOs and DON’Ts during accreditation visit

Attributes of PEVs

- Trust
- Integrity
- Competent
- Professionalism

Conflict of interest

- Definition of possible conflict of interest:
  - have **financial or personal interest** in the university; or
  - have or have had a **close, active association with the programme or faculty/school** in the university. Close or active association are, for example:
    - **Employment**, as staff or consultant by the faculty/school;
    - **Attendance**, as student at the faculty/school;
    - **Business**, significant business dealing
    - **Receipt** of honorary degree from the faculty/school;
    - **Membership** of a board of the university or any committee advising on the programme being accredited.

BAETE's Accreditation Criteria

All the Accreditation Activities are for the purpose of deciding whether the program has satisfied the 11 BAETE Accreditation Criteria

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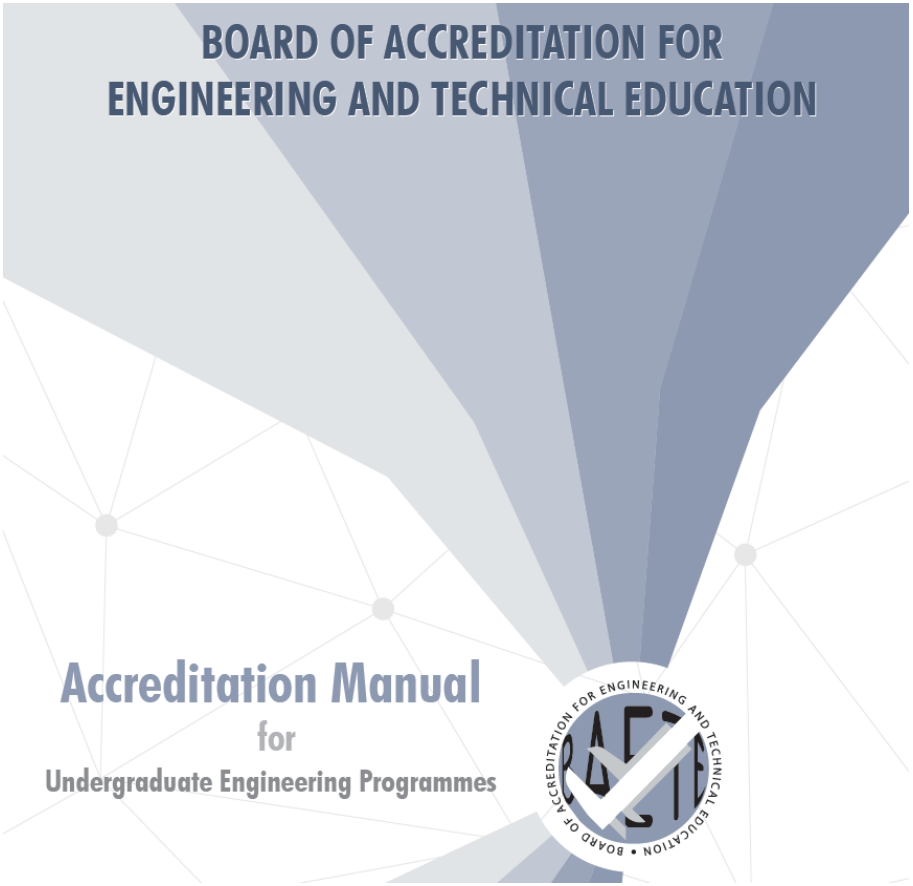


BAETE Accreditation Criteria

- 11 criteria in BAETE new Accreditation Manual
  1) **Organization and Governance**
  2) **Financial and Physical Resources**
  3) **Faculty**
  4) **Students**
  5) **Academic Facilities and Technical Support**
  6) **Curriculum and Teaching-Learning Processes**
  7) **Program Educational Objectives (PEO)**
  8) **Program Outcomes and Assessment**
  9) **Continuous Quality Improvement (CQI)**
  10) **Interactions with the Industry**
  11) **Program Specific Criteria**

Criterion 1

Organization and Governance 4.1

The major positions should be filled, and the statutory bodies/committees of the institution should be formed in accordance with the applicable rules and guidelines. These include positions such as Vice Chancellor, Pro-Vice Chancellor, Treasurer, Dean, Chairperson and bodies/committees such as Board of Trustees, Syndicate, Academic Council, Admission Committee, Finance Committee, Curriculum Committee and the Faculty Selection Committee. The appointees in the positions and the members of the committees should function effectively as per the roles defined in the relevant act/statute.

The institution should have published policies, including a mechanism for addressing grievances, regarding academic and the administrative matters involving students, faculty members and non-teaching employees. The policies should be put into practice.

Criterion 2

Financial and Physical Resources 4.2

The financial resources of the institution should be adequate to fulfill its mission and vision. Financial resources committed to the program should also be sufficient for the appropriate functioning of the program, including recruiting and retaining qualified faculty members, the procurement of necessary lab equipment, and equipment and tools to support teaching and learning.

The institution should have a process to plan the budget and allocate resources to the priority areas as per requirements. The campus infrastructure, such as the extent of the land and built-up area, extra- and co-curricular facilities, and support facilities, including maintenance support for infrastructure and facilities, should be adequate for the total number of students and employees of the institution.

The possibility of any risk from manmade or natural hazards should be properly assessed and addressed in the Safety Plan. All labs shall have their own plans to prevent and manage incidents and accidents. Fire detection and fire-fighting facilities should be adequate. An action plan is required to address safety issues when demanded by the situation. Adequate measures should be in place to make the campus safe for students, employees and visitors.

Criterion 3

4.3 Faculty

The department should have a sufficient number of full-time faculty members so that they are not overloaded with courses and so the program does not become overly dependent on part-time faculty members.

The faculty members should have adequate academic qualifications with specialization in areas closely related to the program(s) offered by the department. The proportion of senior faculty members and junior faculty members should be appropriate. Adequate interactions between students and faculty members both within and outside the classes are essential. The teacher-student ratio, class size and teaching load should not compromise opportunities for interactions.

The faculty members should be motivated to improve their pedagogy and assist the students in achieving the outcomes. They should be committed to the continuous quality improvement activities of the department. Faculty members should have the responsibility and the authority to design and update the curriculum, establish the course and program outcomes, and select and use the assessment tools appropriate for evaluating the performance of the students in the classes and the achievement of the outcomes.

Faculty members should be engaged in research, development and professional activities, such as consulting. They should also be involved in the activities of relevant professional societies. The results of these activities should benefit the students. The institution or the department should periodically arrange training for the faculty members on outcome-based education and assessment. All the faculty members should be adequately trained on how to establish course outcomes, conduct teaching-learning activities appropriate for the outcomes and assess the level of outcome achievement.

Criterion 4

4.4 Students

There should be a published policy for the admission and transfer of students into the program. The admission or transfer requirements should be appropriate for the selection of students with the potential to achieve the program's outcomes. The policy should be implemented in practice.

The academic performance of the students should be continuously monitored in terms of the achievement of the outcomes and feedback provided to the students. There should be provisions for remedial or corrective measures when necessary. Every student should be assigned an advisor. The advisor should counsel, guide and mentor the student on all academic and professional matters.

Opportunities should exist for students to participate in extra- and co-curricular activities as well as activities of relevant professional societies. The institution should ensure the participation of a significant number of students.

Criterion 5

Academic Facilities and Technical Support 4.5

The institution should have a well-stocked library. The books, journals and other resources available in the library should be adequate for the program and the faculty members. The number of classrooms available should be adequate to properly run the program. The classroom facilities and the environment should be conducive to learning.

The number of laboratories and equipment should be adequate for conducting different labs in the program. Every student should have the opportunity for hands-on activity in the laboratories.

Students and faculty members should have access to adequate computing and Internet facilities, including hardware, software tools and support.

Criterion 6

Curriculum and Teaching-Learning Processes 4.6

The curriculum should satisfy the requirements of the relevant program-specific criteria as described in Section 6.

The breadth and depth of the curriculum and the teaching-learning activities should be appropriate for the solution of complex engineering problems in the relevant discipline. The curriculum should contain an adequate number of courses on mathematics, physical science, humanities and non-engineering subjects. The teaching-learning processes and activities selected for each course should be effective and appropriate for achieving the outcomes. Student participation and learning should be enhanced. Hands-on activities in the lab should be an integral part of teaching and learning. The program should include adequate activities in the lab. There should be a final year design project or capstone project extending over a period of one year that represents a culminating demonstration of the program outcomes at the level of solving complex engineering problems.

Criterion 7

4.7 Program Educational Objectives

Program Educational Objectives (PEOs) are broad statements that describe the career and professional accomplishments that the program is preparing graduates to achieve. PEOs are assessable based on the attributes and accomplishments of graduates, preferably those who have worked for 3 to 5 years after graduation. Each engineering program should have published PEOs that should be clear, concise, assessable and realistic within the context of the available resources. The PEOs should be consistent with the vision and mission of the program-offering department. They should be supported by a curriculum and teaching-learning processes that lead to the attainment of these objectives. Justifications should be provided for how the curriculum and the outcomes contribute to the attainment of the PEOs. A process should be developed to assess the level of attainment of each of the PEOs to evaluate the effectiveness of the academic program. Adequate evidence and documentation should be provided to support the achievement of a PEO with the help of the assessment and evaluation process that has been developed. The tools should be indicated, and the way these tools are used should be explained. PEO assessment should lead to periodic review of the PEO. Feedback of the various program stakeholders, including employers, alumni, students and faculty, should be considered during the review.

Criterion 8

4.8 Program Outcomes and Assessment

Program Outcomes (POs) are narrower statements that describe what students are expected to know and be able to do by the time of graduation. These relate to the knowledge, skills and attitudes that students acquire while progressing through the program. The program must demonstrate that by the time of graduation, students have attained a certain set of knowledge, skills and behavioral traits to some acceptable minimum level. The BAETE specifically requires that students acquire the following graduate attributes.

Criterion 9

Continuous Quality Improvement 4.9

The program should have a continuous quality improvement mechanism. It should demonstrate an established system for periodically compiling the level of attainment in terms of PEO, including a mechanism to track and obtain feedback from graduates and their employers. The outcomes of these exercises should be evaluated, and the identified shortcomings and limitations should be used to refine and improve the program.

POs should be assessed on a regular cycle. Each teaching module should have clear quality requirements and facilitate the achievement of COs through teaching and evaluation methods. Students should provide feedback in every course on the appropriateness of COs, course content, delivery of content, assessment and the attainment of COs. The program should evaluate the curriculum and teaching quality on a regular basis while taking into account feedback from faculty members and students. The program should demonstrate that the results of this periodic evaluation are used for continuous improvement.

Criterion 10

4.10 Interactions with the Industry

A communication channel between the educational institution and the industry should be in place. The industry should be encouraged to provide feedback concerning the quality of the teaching-learning process. There must be industry participation in the development of the curriculum to ensure that it is relevant, regularly updated, and meets the needs of the industry, particularly in areas experiencing rapid changes. An engineering program should have an Industry Advisory Panel (IAP) and an Alumni Association (AA) for this purpose. The IAP or AA may meet at certain intervals with the department to provide feedback.

The program should provide students with the opportunity to obtain industrial experience through internships, industry visits or design projects conducted by practicing engineers and faculty members with industrial experience.

Criterion 11

Interactive Workshop 1

Working together to design the Programme Assessment Form

Designing the Assessment Form

- Participants divided into 9 groups
- Each group will work on one of the accreditation criteria (except criterion 8 and criterion 11)
- Illustrate the following for each criterion
  - Evaluation criteria
  - Evidences to look out for
  - Requirements for compliance, common weaknesses and concerns
- Brief presentation/sharing with others

Interactive Workshop 2

Working together to design the Programme Outcomes Assessment Form

Designing the Program Outcomes Assessment Form

- Participants divided into 12 groups
- Each group will work on one of the 12 Program Outcomes
- Illustrate the following for each outcomes
  - Evaluation criteria for assessment of attainment of learning outcomes
  - Evidences to look out for
  - Requirements for compliance, common weaknesses and concerns
- Brief presentation/sharing with others

Interactive Workshop 3

Working together to design an
Effective criteria-based
Schedule for On-site Visit

Designing an effective Criteria-based Schedule for Onsite Visit

- Participants divided into 5 groups
- Each group will be given the current BAETE 3-day visit schedule
- Each group will work on modifying and improving the Schedule for Onsite Visit
- For each activity on the schedule, clearly identify
  - The desired activity with the specific outcomes in mind for evaluating specific criteria
  - List the Accreditation Criterion/Criteria to be evaluated from that activity/meeting/physical visit
  - The optimum time required
  - Evidences to look out for
- Suggest new activities/schedule to be included, and/or deletion of current activities/schedule
- Brief presentation/sharing with others

Evidence-Based On-site Assessment

Purpose of campus visit

- Assessment of qualitative factors which cannot be documented in written submission
  - intellectual atmosphere, morale, professional attitudes, quality of staff and students
- Examination of materials compiled by educational institution, i.e. those which cannot leave the campus
  - examination papers, student reports, instruction materials
- Clarify issues in the written submission by educational institution

Outcomes of Campus Visits & Assessment based on Pre-Visit Documents

- The role of the Evaluation Team is for the sole purpose of determining whether the program satisfies the 8 BAETE accreditation criteria
- For each criterion, the degree of compliance to be summed up as:
  - Compliance
  - Concerns
  - Weakness
  - Deficiency

Outcomes of Campus Visits & Assessment based on Pre-Visit Documents

- Where requirements of a particular criterion are not fully met, the Team will include:
  - Recommendation - aspects which are suggestions rather than mandatory requirements
  - Requirement - items requiring follow-up action as a condition of accreditation
- The Team may include observations/comments/suggestion to assist improvement process, not affecting accreditation decision

What the PEVs looks for?

- PEVs are sent to evaluate programs, certifying that they satisfy the criteria stipulated
- They look for evidences that the required criteria are met
- They identify deficiencies, weaknesses, concerns

Focus of Outcomes-based Accreditation

- Attainment of published Program Education Objectives
- Attainment of Program Learning Outcomes
- Continuous Quality Improvement system in place to sustain and improve PEO & PLO
- Resources and system available

Outcomes of Significance

- The focus of accreditation is on “Outcomes of Significance”
- Spady articulated as something that “really mattered in the long run”, long after that particular segment of curriculum or time block was over – something that learners could ultimately “take out the door and apply” …. when they “exited” the system.
- That outcomes-of-significance is encapsulated in the set of WA graduate attributes which form the multi-lateral recognition of substantial equivalency of programs within the WA framework.

Evaluation of SLOs

- Attainment of each SLOs must be carefully evaluated in terms of depth and breadth stipulated – going through evidences provided
- Application to Complex Engineering Problems

Assessment of Attainment of Student Learning Outcomes

Student Learning Outcomes (SLO)

- SLOs formulated for each programme by the institution must be consistent with the WA's Graduate Attributes. (Best practice to follow WA's Graduate Attributes, and add additional SLOs where required)
- SLOs must foster the attainment of the PEOs – mapping of SLOs to PEOs
- How and where SLOs are published and disseminated

Educational institution's Student Learning Outcomes [if different from graduate attributes in Criterion 2(i) (a) to (j)]	Graduate attributes in EAB's Criterion 2(i) (a) to (j)*									
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
(1) *Student learning outcome (..)*										
(2) *Student learning outcome (...)*										
(3)										
(4)										

Student Learning Outcomes

- Illustrations of how
  - course outcomes
  - modes of delivery of the courses
  - assessment tools
  - laboratory
  - project course work

  are used to assess the impact of course delivery/course content, and are contributing towards the attainment of the SLOs
- Attainment of SLOs assessed by direct and indirect methods

Student Learning Outcomes

- Results of assessment of each SLO shall be indicated as they play a vital role in implementing the Continuous Improvement process of the programme
- How the results of assessment of the SLOs are used to improve the programme in terms of
  - curriculum
  - course delivery
  - assessment methods
  - processes of revising/redefining the SLOs

3.1. Establish the correlation between the courses and the Program Outcomes (POs) & Program Specific Outcomes (25)

Program Articulation Matrix

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C101												
C202												
C303												
....												
....												
C4...												

1. Enter correlation levels 1, 2 or 3 as defined below:

   1: Slight (Low) 2: Moderate (Medium) 3: Substantial (High)

If there is no correlation, put "-"

Programme Curriculum

- Programme curriculum that leads to the attainment of the PEOs and the SLOs must be designed
- Flow diagram that shows the prerequisites for the courses shall also be provided
- Each programme should cover general and specialized professional content of adequate breadth and depth
- Appropriate components in the Sciences and Humanities.

Programme Curriculum

- The relevance of curriculum components including core engineering courses to the SLOs
- How the core engineering subjects in the curriculum lend the learning experience with the complex engineering problems
- Programme must satisfy Programme Specific Criteria
- Continuous Improvement process in curriculum refinement
- Evidence of assessment, evaluation and review methods – attainment of COs

2.1.3. State the components of the curriculum (5)

Program curriculum grouping based on course components

Course Component	**Curriculum Content (% of total number of credits of the program)**	**Total number of contact hours**	**Total number of credits**
Basic Sciences			
Engineering Sciences			
Humanities and Social Sciences			
Program Core			
Program Electives			
Open Electives			
Project(s)			
Internships/Seminars			
Any other (Please specify)			
Total number of Credits			

Table 3.1: Curriculum and teaching processes to achieve Student Learning Outcomes, and evaluation method/criteria

Module title	Category#	Evaluation method & criteria	Student Learning Outcomes*							
			(1)	(2)	(3)	(4)	(5)	(6)	(7)	--
		• •								
		• •								
		• •								
		• •								
		• •								
		• •								

Category is to indicate whether module is Core, Electives, Faculty Requirements, Major Requirements, University Requirements, Unrestricted Elective, etc

Table 3.2: Curriculum/Course Time Allocation and Content

(A) Course Time Allocation by semester

Semester n Year n:

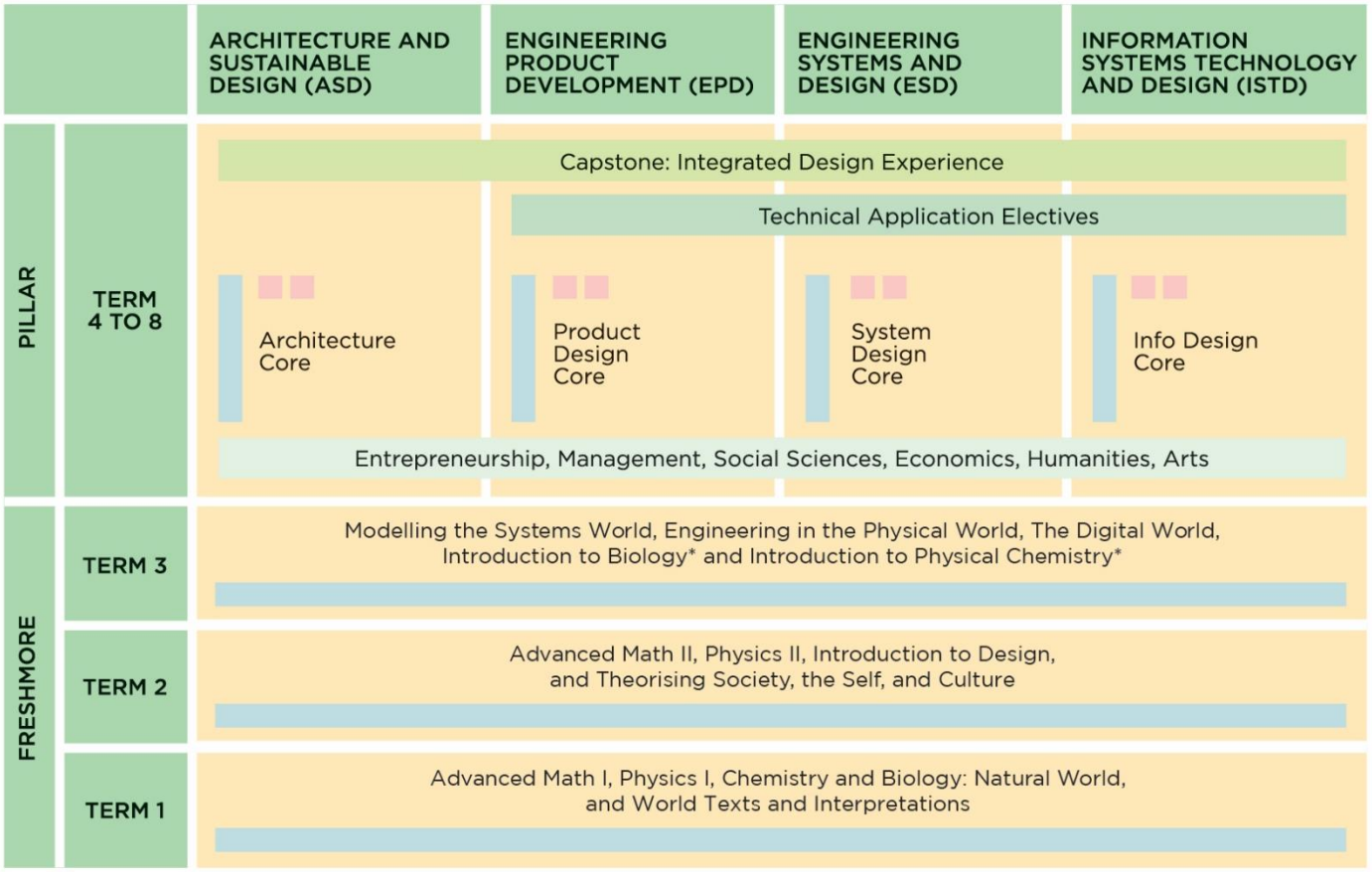
Course Title	Total Number of Contact Hours					No of MCs or AUs [2]
	Lec [3]	Tut/Con [4]	Lab [5]	Proj [6]	Total Hrs	
Total						

Complex problems

(A requirement of WA)

- *Involve wide-ranging or conflicting technical, engineering and other issues*
- *Have no obvious solution and require abstract thinking, originality in analysis to formulate suitable models*
- *Requires research-based knowledge much of which is at, or informed by, the forefront of the professional discipline and which allows a fundamentals-based, first principles analytical approach*
- *Involve infrequently encountered issues*
- *Are outside problems encompassed by standards and codes of practice for professional engineering*
- *Involve diverse groups of stakeholders with widely varying needs*
- *Have significant consequences in a range of contexts*
- *Are high level problems including many component parts or sub-problems*

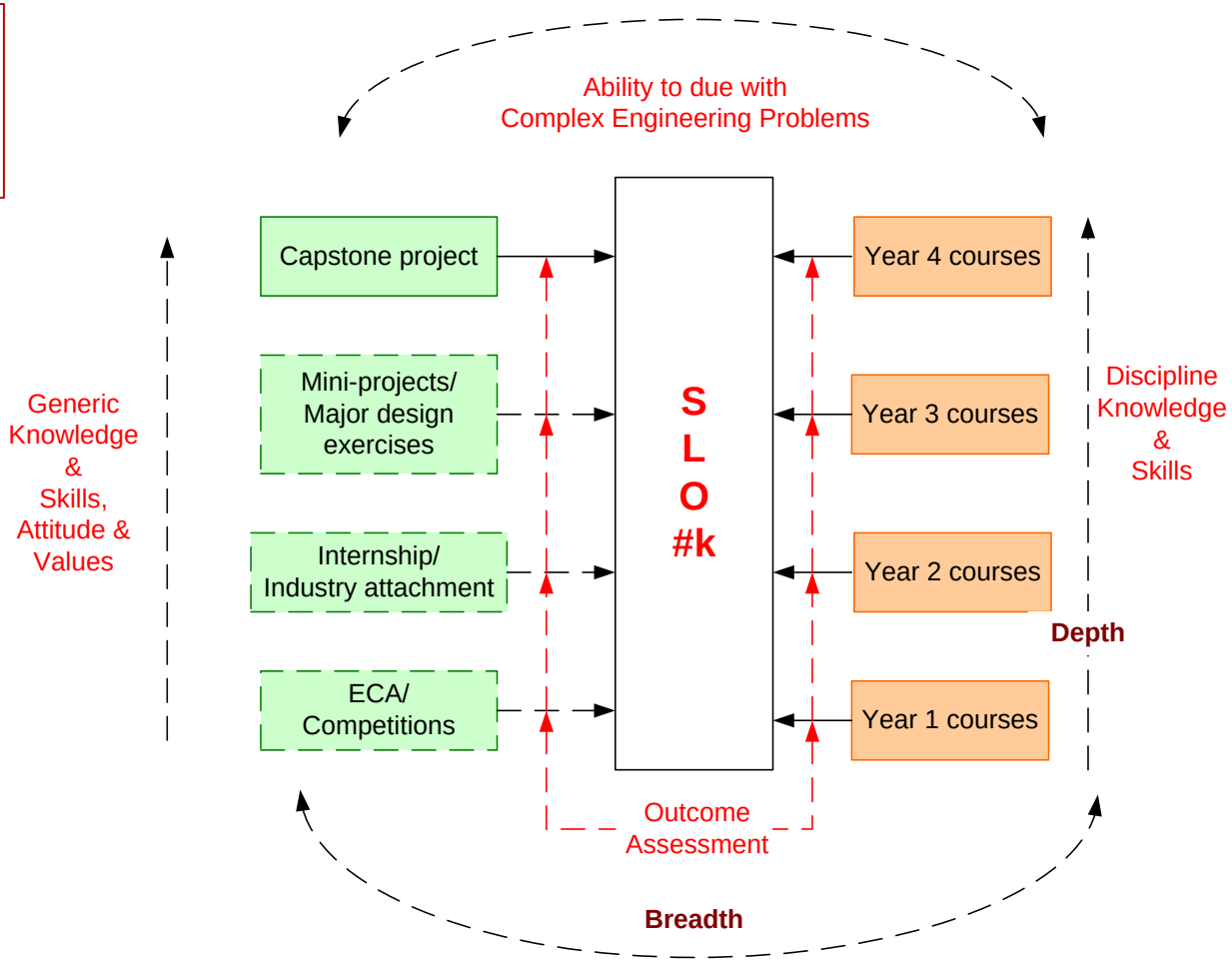
Unique Academic Structure at Singapore University of Technology and Design
http://www.sutd.edu.sg/Education/



Evaluation of SLOs

- Attainment of each SLOs must be carefully evaluated in terms of depth and breadth stipulated – going through evidences provided
- Application to Complex Engineering Problems

The achievement of each SLO, both breadth and depth, should be assessed and evaluated.



SLO Folder

- For accreditation evaluation, good to prepare a folder for each outcomes
- Contains relevant subjects and assessment details which support achievement of the SLO
- Includes other student learning activities and assessment details
- Samples of student work

Evidence beyond mapping exercise

- Program Accreditation Committee undertake the task of mapping subjects/courses to each outcomes
- Faculty teaching a particular subject is not aware of the outcomes contribution from his subject, and has not conducted proper outcomes assessment
- Just a mapping exercise – not acceptable

Evidences from Meetings/Interviews

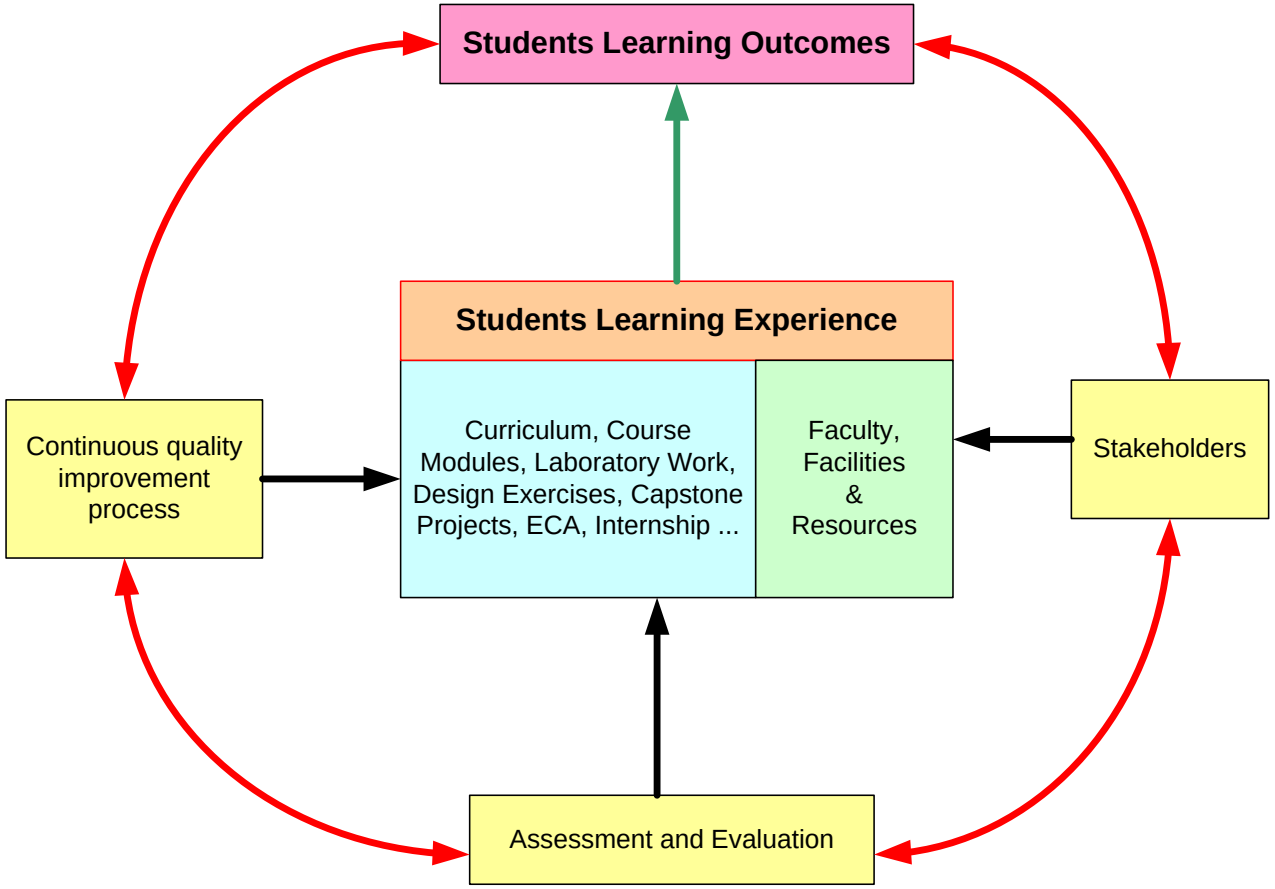
- Provost/President
- Dean and Head of Department/Program
- Group of faculty members
- Group of alumni
- Group of students
- Group of other constituencies, e.g. members of industrial advisory board, employers

Evidences from Examination of Exhibits (1)

- Sample of teaching materials
- CV of faculty staff, publications
- Sample of exam papers
- Sample of exam scripts –excellent, good, marginal
- Transcripts of immediate past graduates
- Sample project and design reports
- Sample of industry attachment reports & assessment

Evidences from Examination of Exhibits (2)

- Samples of student feedback form
- Reports of other internal or external reviews of the course, department and faculty
- Results of quality assurance reviews
- Statistics of graduate employment
- Other documents requested by the evaluaton team


Students Learning Outcomes
Students Learning Experience
Curriculum, Course Modules, Laboratory Work, Design Exercises, Capstone Projects, ECA, Internship ...
Faculty, Facilities & Resources
Continuous quality improvement process
Stakeholders
Assessment and Evaluation

Course Learning Outcomes (COs)

- A learning outcome is what a student can do as a result of a learning experience.
- It describes a specific task that student is able to perform at a given level of competence under a certain situation.
- The three broad types of learning outcomes are:
  - Disciplinary knowledge and skills
  - Generic skills
  - Attitudes and values

Table 3.1: Curriculum and teaching processes to achieve Student Learning Outcomes, and evaluation method/criteria

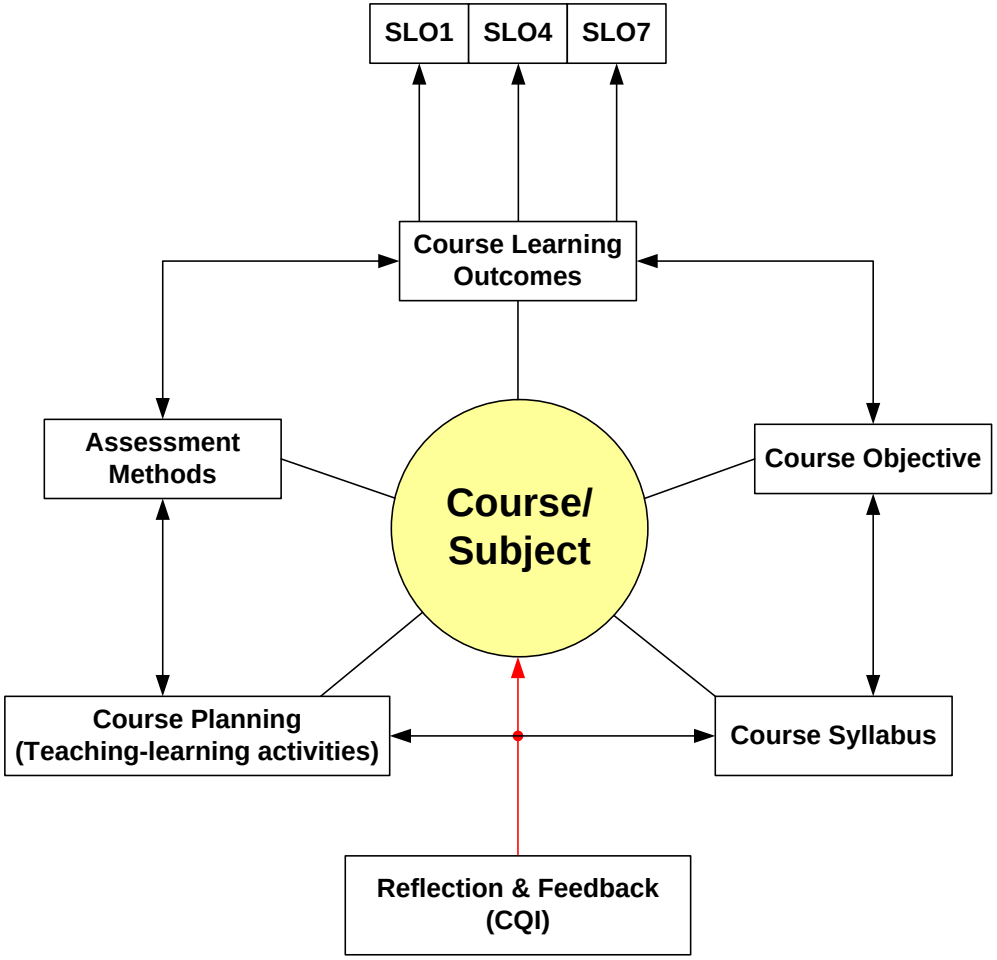
Module	Category #	Evaluation method & criteria	Student Learning Outcomes*							
			(1)	(2)	(3)	(4)	(5)	(6)	(7)	--

Course Learning outcomes

- Course Learning Outcomes describe the complex performances a student should be capable of as a result of learning experiences within a course.
- These are determined by the course instructor (s)
- Mapping course learning outcomes to program outcomes and how overall learning experience meet the accreditation criteria

Learning outcomes of a subject/course may support several SLOs.

Evidence of course assessment to be documented.



Contribution of each course

- Each undergraduate course in the programme contributes to a list of SLOs
- Usually, a course may contribute strongly to some SLOs and less strongly to other SLOs
- While a course may contribute to several SLOs, usually only a subset of its strong outcomes need to be used for SLO assessment.

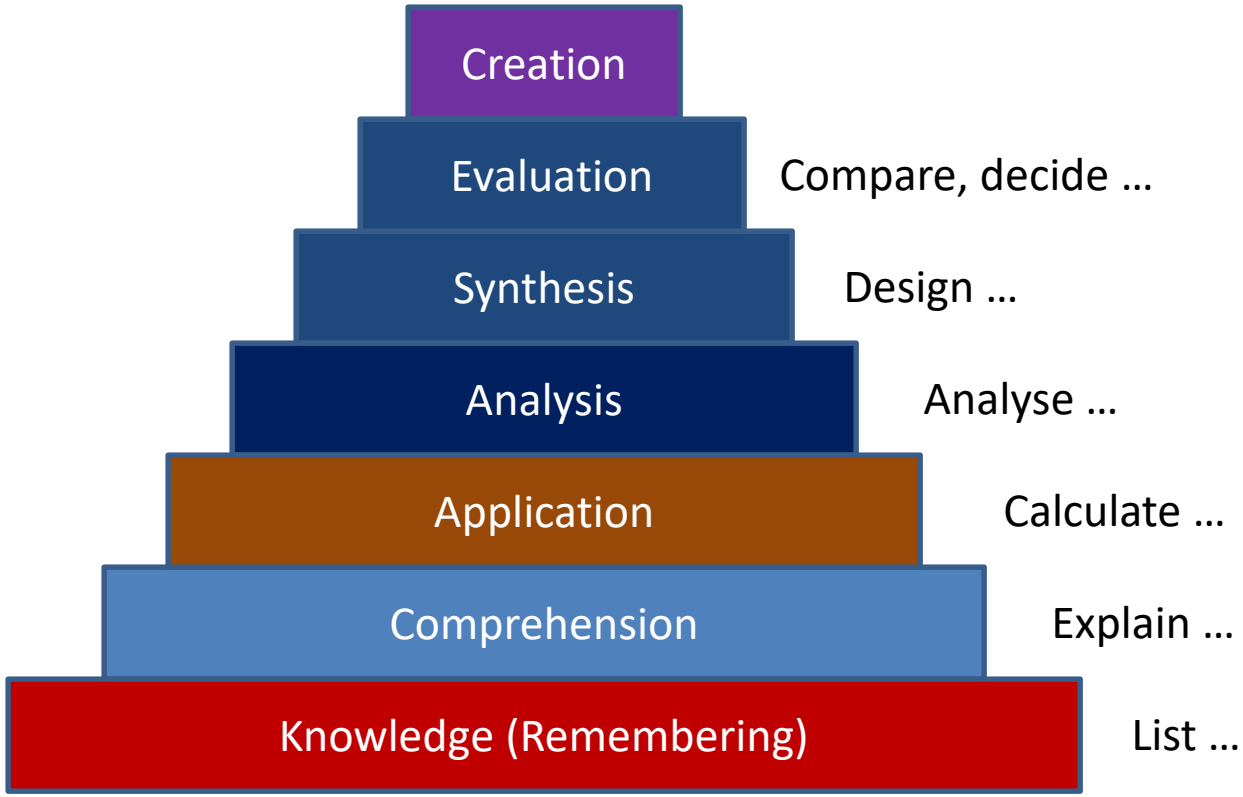
Evidences of Outcomes Assessment

- Not merely mapping of courses to outcomes
- Evidence of outcomes assessment at course level
- Evidence that faculty has training in conducting outcomes assessment
- Going beyond subject/course marks & grading being used as justification that overall outcomes are contributed by the subject(s)

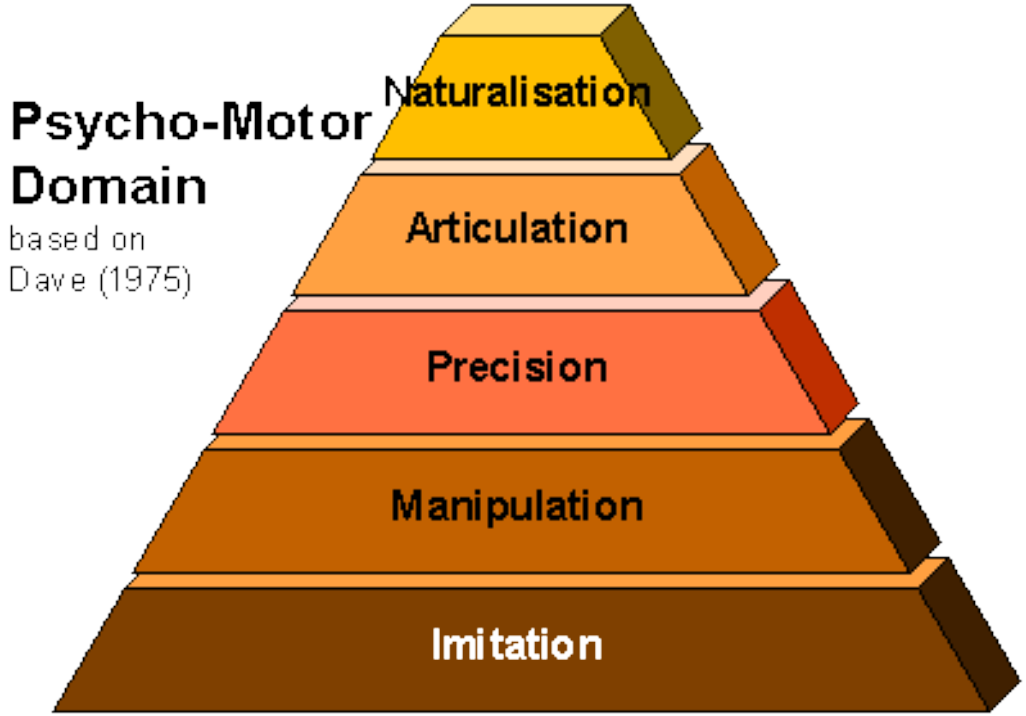
Evidence of Faculty actively involved in outcomes assessment

- Do faculty members know the requirements of outcome-based accreditation?
- Are they trained in outcomes assessment?
- Evidence of faculty conducting outcomes assessment at their courses
- Reflection and continuous improvement at course level

Bloom's Taxonomy – Cognitive Domain
(modified by Anderson & Krathwohl)

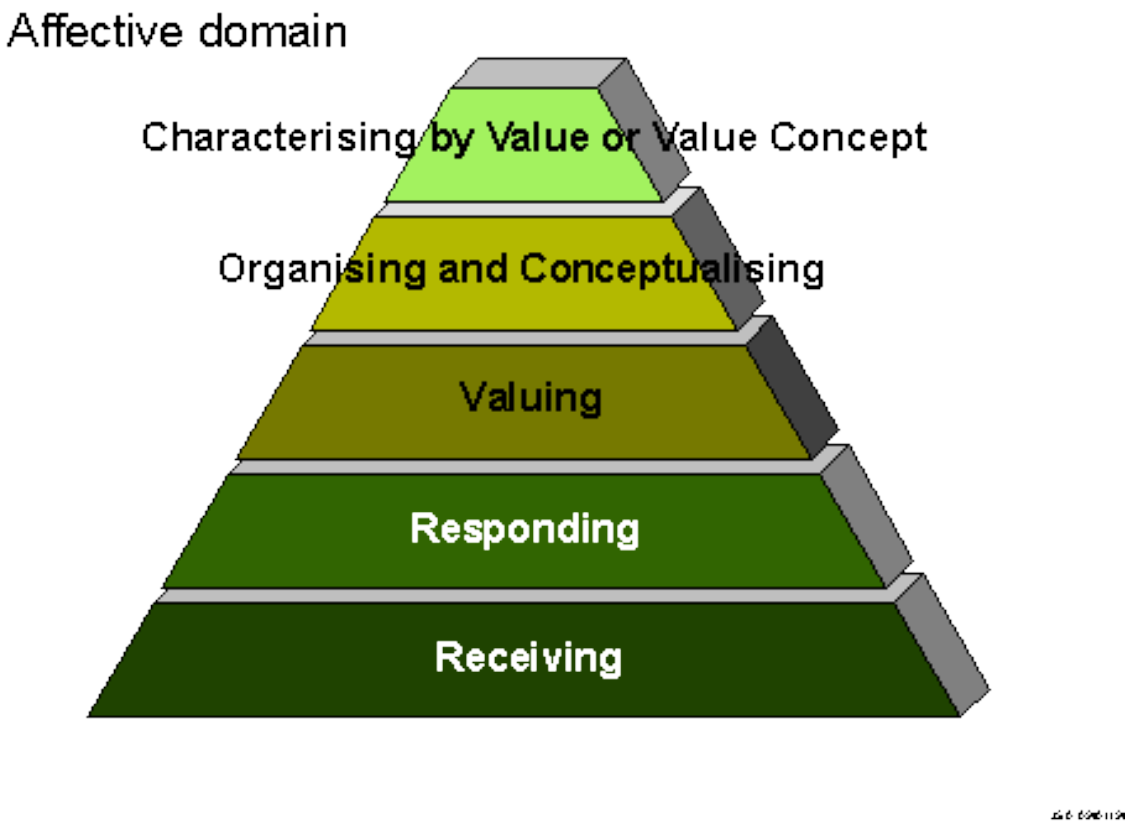


Psychomotor Domain



http://www.learningandteaching.info/learning/bloomtax.htm

Affective Domain



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COGNITIVE learning is demonstrated by knowledge recall and the intellectual skills: comprehending information, organizing ideas, analyzing and synthesizing data, applying knowledge, choosing among alternatives in problem-solving, and evaluating ideas or actions.

Level	Illustrative Verbs	Definition	Example
Knowledge	arrange, define, describe, duplicate, identify, label, list, match, memorize, name, order, outline, recognize, relate, recall, repeat, reproduce, select, state	remembering previously learned information	memory of specific facts, terminology, rules, sequences, procedures, classifications, categories, criteria, methodology, principles, theories, and structure
Comprehension	classify, convert, defend, describe, discuss, distinguish, estimate, explain, express, extend, generalize, give examples, identify, indicate, infer, locate, paraphrase, predict, recognize, rewrite, report, restate, review, select, summarize, translate	grasping the meaning of information	stating problem in own words, translating a chemical formula, understanding a flow chart, translating words and phrases from a foreign language
Application	apply, change, choose, compute, demonstrate, discover, dramatize, employ, illustrate, interpret, manipulate, modify, operate, practice, predict, prepare, produce, relate, schedule, show, sketch, solve, use, write	applying knowledge to actual situations	taking principles learned in math and applying them to figuring the volume of a cylinder in an internal combustion engine
Analysis	analyze, appraise, break down, calculate, categorize, compare, contrast, criticize, diagram, differentiate, discriminate, distinguish, examine, experiment, identify, illustrate, infer, model, outline, point out, question, relate, select, separate, subdivide, test	breaking down objects or ideas into simpler parts and seeing how the parts relate and are organized	discussing how fluids and liquids differ, detecting logical fallacies in a student's explanation of Newton's 1st law of motion
Synthesis	arrange, assemble, categorize, collect, combine, comply, compose, construct, create, design, develop, devise, design, explain, formulate, generate, integrate, manage, modify, organize, plan, prepare, propose, rearrange, reconstruct, relate, reorganize, revise, rewrite, set up, summarize, synthesize, tell, write	rearranging component ideas into a new whole	writing a comprehensive report on a problem-solving exercise, planning a program or panel discussion, writing a comprehensive term paper
Evaluation	appraise, argue, assess, attach, choose, compare, conclude, contrast, defend, describe, discriminate, estimate, evaluate, explain, judge, justify, interpret, relate, predict, rate, select, summarize, support, value	making judgments based on internal evidence or external criteria	evaluating alternative solutions to a problem, detecting inconsistencies in the speech of a student government representative

Gronlund, N. E. (1981). *Measurement and evaluation in teaching, 4th ed.* New York, Macmillan Publishing.
McBeath, R. J., (Ed.). (1992). *Instructing and evaluating in higher education: A guidebook for planning learning outcomes.* Englewood Cliffs, NJ: Educational Technology

Revised 04/21/10 G. Rogers

AFFECTIVE learning is demonstrated by behaviors indicating attitudes of awareness, interest, attention, concern, and responsibility, ability to listen and respond in interactions with others, and ability to demonstrate those attitudinal characteristics or values which are appropriate to the test situation and the field of study.

Level	Illustrative Verbs	Definition	Example
Receiving	asks, chooses, describes, follows, gives, holds, identifies, locates, names, points to, selects, sits erect, replies, uses	willingness to receive or attend	listening to discussions of controversial issues with an open mind, respecting the rights of others
Responding	answers, assists, complies, conforms, discusses, greets, helps, labels, performs, practices, presents, reads, recites, reports, selects, tells, writes	active participation indicating positive response or acceptance of an idea or policy	completing homework assignments, participating in team problem-solving activities
Valuing	completes, describes, differentiates, explains, follows, forms, initiates, invites, joins, justifies, proposes, reads, reports, selects, shares, studies, works	expressing a belief or attitude about the value or worth of something	accepting the idea that integrated curricula is a good way to learn, participating in a campus blood drive
Organization	adheres, alters, arranges, combines, compares, completes, defends, explains, generalizes, identifies, integrates, modifies, orders, organizes, prepares, relates, synthesizes	organizing various values into an internalized system	recognizing own abilities, limitations, and values and developing realistic aspirations
Characterization by a value or value complex	acts, discriminates, displays, influences, listens, modifies, performs, practices, proposes, qualifies, questions, revises, serves, solves, uses, verifies	the value system becomes a way of life	a person's lifestyle influences reactions to many different kinds of situations

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PSYCHOMOTOR learning is demonstrated by physical skills: coordination, dexterity, manipulation, grace, strength, speed; actions which demonstrate the fine motor skills such as use of precision instruments or tools, or actions which evidence gross motor skills such as the use of the body in dance or athletic performance.

Level	Illustrative Verbs	Definition	Example
Perception	chooses, describes, detects, differentiates, distinguishes, identifies, isolates, relates, selects, separates	using sense organs to obtain cues needed to guide motor activity	listening to the sounds made by guitar strings before tuning them, recognizing sounds that indicate malfunctioning equipment
Set	begins, displays, explains, moves, proceeds, reacts, responds, snows, starts, volunteers	being ready to perform a particular action: mental, physical or emotional	knowing how to use a computer mouse, having instrument ready to play and watching conductor at start of a musical performance, showing eagerness to assemble electronic components to complete a task
Guided response	assembles, builds, calibrates, constructs, dismantles, displays, dissects, fastens, fixes, grinds, heats, manipulates, measures, mends, mixes, organizes, sketches	performing under guidance of a model: imitation or trial and error	using a torque wrench just after observing an expert demonstrate a its use, experimenting with various ways to measure a given volume of a volatile chemical
Mechanism	(same list as for guided response)	being able to perform a task habitually with some degree of confidence and proficiency	demonstrating the ability to correctly execute a 60 degree banked turn in an aircraft 70 percent of the time
Complex or overt response	(same list as for guided response)	performing a task with a high degree of proficiency and skill	dismantling and re-assembling various components of an automobile quickly with no errors
Adaptation	adapts, alters, changes, rearranges, reorganizes, revises, varies	using previously learned skills to perform new but related tasks	using skills developed learning how to operate an electric typewriter to operate a word processor
Origination	arranges, combines, composes, constructs, creates, designs, originates	creating new performances after having developed skills	designing a more efficient way to perform an assembly line task

Gronlund, N. E. (1981). *Measurement and evaluation in teaching, 4th ed.* New York, Macmillan Publishing.
McBeath, R. J., (Ed.). (1992). *Instructing and evaluating in higher education: A guidebook for planning learning outcomes.* Englewood Cliffs, NJ: Educational Technology Publications.

Revised 04/21/10 G. Rogers

SLOs & Assessment Domains

	SLO	Assessment Domain	Evidence?
1	Engineering Knowledge	Cognitive	
2	Problem Analysis	Cognitive	
3	Design/Development of Solutions	Cognitive, Affective	
4	Investigation	Cognitive, Psychomotor	
5	Modern Tool Usage	Psychomotor, Cognitive	
6	Engineer & Society	Affective	
7	Environment & Sustainability	Affective, Cognitive	
8	Ethics	Affective	
9	Individual & Team Work	Psychomotor, Affective	
10	Communication	Psychomotor, Affective	
11	Project Management & Finance	Cognitive, Psychomotor	
12	Life-long Learning	Affective, Psychomotor	

Avoid Obsession with Assessment

- Assessment involves:
  - Cognitive domain (thinking, knowledge)
  - Psychomotor domain (doing, skills)
  - Affective domain (feeling & attitude)
- Is the assessment efforts sustainable?

Wrong Justification of Outcomes Attainment

- Wrong interpretation of the Bloom's Taxonomy
- Entry level courses are used to map achievement of outcomes at mastery level simply because some assessment exercises include activities of
  - Write
  - Evaluate
  - Design, etc
- Note that Complex Engineering Problems should be used for assessment at masterly level

Evidences that Curriculum adequate to support all the 12 SLOs

- Curriculum adequately structured to achieve all the 12 SLOs?
- Common curriculum deficiencies
  - The engineer and society
  - Environment and sustainability
  - Ethics
  - Finance and project management

Curriculum

- Does the curriculum satisfy the program specific criteria of the particular engineering discipline?
- Are performance indicators established to measure the outcomes of the courses with respect to the student learning outcomes of accreditation criteria)?
- Major design experience?
- Prerequisites
- Course syllabi
- Cores and electives

Adequate evidences to demonstrate compliance with criteria?

- Sufficient evidences to demonstrate compliance with criteria?
- Best practices
  - Course folders
  - Folders for each outcomes
  - Samples of student portfolio

Check Samples of Student Works

- Each course is required to save samples of student homework solutions, laboratory reports, project or design reports, and exam solutions, typically from poor to good quality.
- At the end of each quarter, the lecturers of all undergraduate courses must compile a binder containing in addition to the solutions, the corresponding homework questions, exam questions, lab description, and project description.

Assessment
&
Demonstration of Outcomes Achievement

Breadth
Depth
Where gained
Learning Process
Assessment Methods

Reference: **Designing Better Engineering Education Through Assessment**
by JE Spurlin, SA Rajala & JP Lavelle
Stylus Publishing LLC, 2008

Assessment of SLO

- Assessment is big subject and probably the major challenge of the teaching faculty
- Are assessment methods adequate to provide evidence of achievement of SLO?
- Each SLO may be measured or evaluated in terms of performance indicators
- Is there a system in place to ensure that students will acquire the stated SLO before graduation? (bearing in mind the various core and optional subjects available, and overseas attachment)

Sustainable Program Assessment Processes

- Direct and indirect methods of assessment to be applied to measure a wide variety of different student abilities
- Consider best fit between program needs, satisfactory validity and affordability (time, money and effort)
- Need to use multiple methods to maximise validity and reduce bias of any approach – triangulation.

Terms	Definition
Program Educational Objective	Broad statements that describe the career and professional accomplishments that the program is preparing the graduates to achieve.
Student outcomes	Narrower statements that describe what students are expected to know and be able to do by the time of graduation. These relate to the skills, knowledge, and behaviors that students acquire in their matriculation through the program.
Performance Indicators (Criteria)	Specific, measurable statements identifying the performance(s) required to meet the outcome; confirmable through evidence.
Assessment	Assessment is one or more processes that identify, collect, and prepare data to evaluate the attainment of student outcomes and program educational objectives. Effective assessment uses relevant direct, indirect, quantitative and qualitative measures as appropriate to the objective or outcome being measure. Appropriate sampling methods may be used as part of an assessment process.
Evaluation	Evaluation is one or more processes for interpreting the data and evidence accumulated through assessment processes. Evaluation determines the extent to which student outcomes and program educational objectives are being attained. Evaluation results in decisions and actions regarding program improvement

ABET Definitions

Assessment

- Assessment is one or more processes that identify, collect, and prepare data to evaluate the attainment of student learning outcomes and program educational objectives.
- Effective assessment uses relevant direct, indirect, quantitative and qualitative measures as appropriate to the objective or outcome being measured.
- Appropriate sampling method may be used as part of an assessment process.

Evaluation

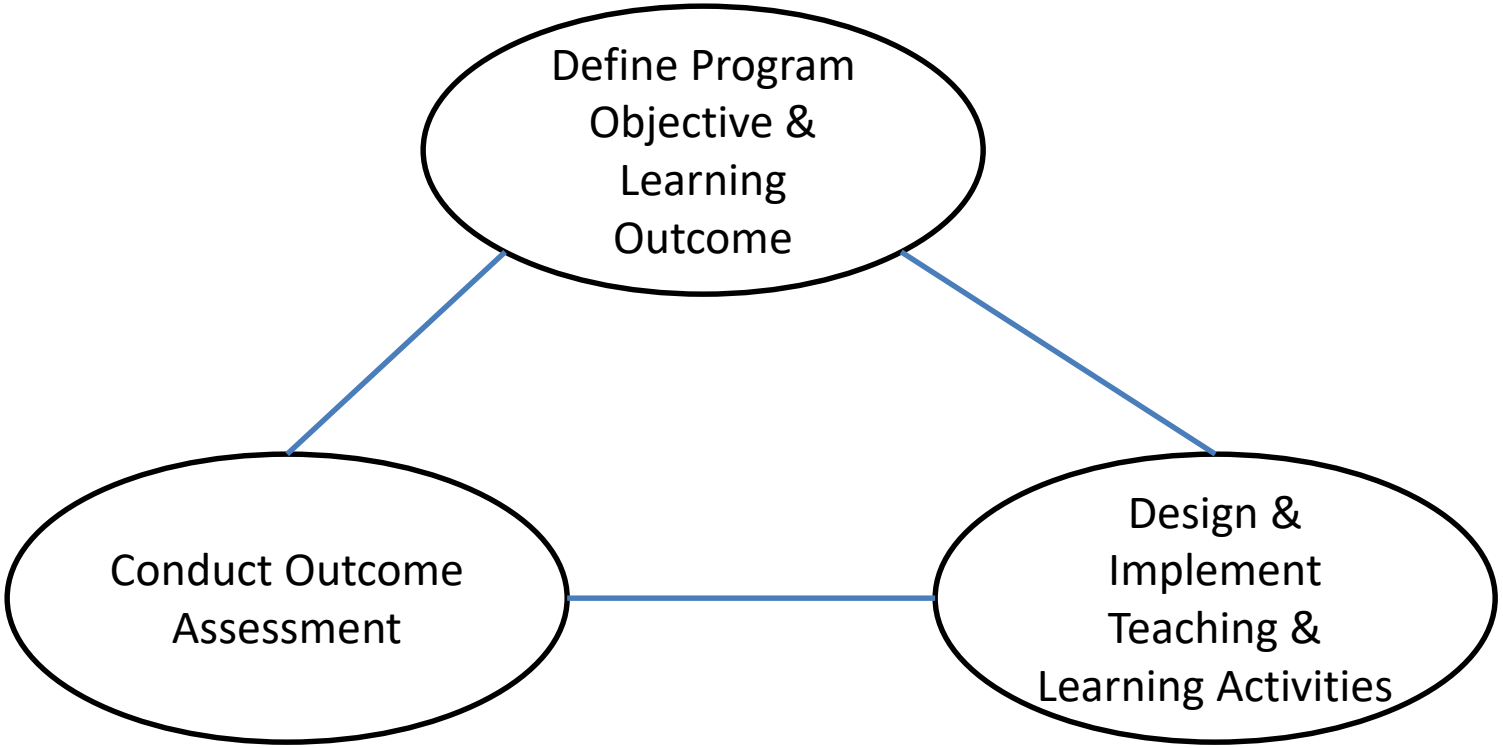
- Evaluation is one or more processes for interpreting the data and evidence accumulated through assessment processes.
- Evaluation determines the extent to which student outcomes and program educational objectives are being attained.
- Evaluation results in decisions and actions regarding program improvement.

Outcome based education & assessment

- An OBE curriculum 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.

A learning outcome is what a student CAN DO as a result of a learning experience. It describes a specific task that he/she is able to perform at a given level of competence under a certain situation. The three broad types of learning outcomes are:

- Disciplinary knowledge and skills
- Generic skills
- Attitudes and values



What students are able to do once they have completed a course or program?
What evidence that they are able to do so?
How to assess each learning outcome?
What evidence of student learning is most relevant for each learning outcome?
What standard or criteria to be used to evaluate that evidence?

Selecting teaching and learning activities to help students to attain the intended learning outcomes and engage them in these learning activities through the teaching process.

Steps for assessment design

1) Define results to be measured
2) Identify data required and sources
3) Review existing assessment method
4) Define additional methods and measures
5) Implement & evaluate

Assessment tools and methods

- **Formative assessment**
  The collection of information about student learning during the progression of a course or program in order to improve students learning. Example: reading the first lab reports of a class to assess whether some or all students in the group need a lesson on how to make them succinct and informative.

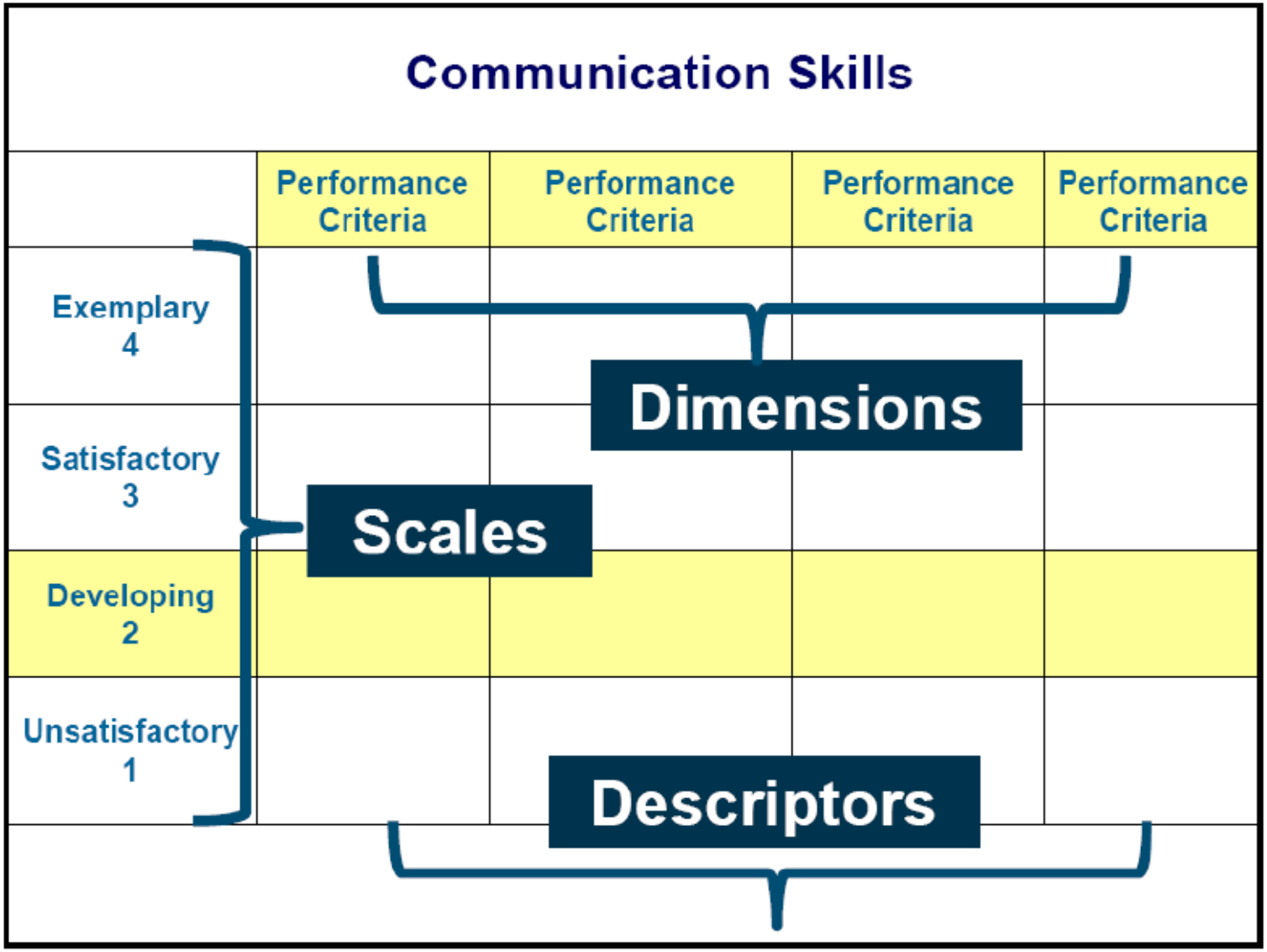
Summative assessment

- The gathering of information at the conclusion of a course, program, or undergraduate career to improve learning or to meet accountability demands. When used for improvement, impacts the next cohort of students taking the course or program. Examples: examining student final exams in a course to see if certain specific areas of the curriculum were understood less well than others; analyzing senior projects for the ability to integrate across disciplines.

Rubric

- A rubric is a set of criteria for assessing student work or performance. Rubrics are particularly suited to learning outcomes that are complex or not easily quantifiable, for which there are no clear “right” or “wrong” answers, or which are not evaluated with standardized tests or surveys. Assessment of writing, oral communication, critical thinking, or information literacy often requires rubrics.

Figure 2: Example of Rubrics (Accessed from Rogers, 2010)



Rubric For Conducting Laboratory Experiments

Criteria	1	2	3	4	5
Set-up and Equipment Care	• Set-up of equipment is not accurate, help is required with several major details • Many necessary supplies must found in mid-lab	• Set-up of equipment is generally workable with several details that need refinement • Some necessary supplies must be searched out	• Set-up of equipment is generally accurate with 1 or 2 small details that need refinement • All necessary supplies on hand	• All equipment accurately placed • All necessary supplies on hand	• All equipment accurately placed • All necessary supplies on hand • Very neat and organized
Following Procedure	• Lacks the appropriate knowledge of the lab procedures • Often requires help from the teacher to even complete basic procedures	• Demonstrates general knowledge of lab procedures • Requires help from teacher with some steps in procedures	• Demonstrates good knowledge of the lab procedures • Will ask peers for help with problems in lab procedures • Works to follow each step before moving on to the next step	• Demonstrates sound knowledge of lab procedures • Will discuss with peers to solve problems in procedures • Carefully follows each step	• Demonstrates very good knowledge of the lab procedures • Gladly helps other students to follow procedures • Thoroughly and carefully follows each step before moving on to next step
Data Collection	• Measurements are incomplete, inaccurate and imprecise • Observations are incomplete or not included • Symbols, units and significant figures are not included	• Measurements are somewhat inaccurate and very imprecise • Observations are incomplete or recorded in a confusing way • There are 3 or more minor errors using symbols, units and significant digits or 2 major errors	• Measurements are mostly accurate • Observations are generally complete • Work is organized • Only 2 or 3 minor errors using symbols, units and significant digits	• Measurements are accurate with reasonable precision • Observations are thorough • Work is generally neat and organized • Includes symbols, units and significant digits	• Measurements are both accurate and precise • Observations are very thorough and may recognize possible errors in data collection • Work is neat and organized • Includes appropriate symbols, units and significant digits
Safety	• Proper safety precautions are consistently missed • Needs to be reminded often during the lab	• Proper safety precautions are often missed • Needs to be reminded more than once during the lab	• Proper safety precautions are generally used • May need to be reminded once during the lab	• Proper safety procedures are consistently used • Uses general reminders of safe practices independently	• Proper safety precautions are consistently used • Consistently thinks ahead to ensure safety • Will often help other students to conduct labs safely
Clean-up	• Proper clean-up procedures are seldom used • Often requires help to complete clean-up • 3 or more items left at station or station not cleaned	• Needs to be reminded more than once during the lab to use proper clean-up procedures • 1 or 2 items left at station or not cleaned	• Proper clean-up procedures generally used • May need some help on occasion to complete tasks • Station generally left clean	• Consistently uses proper clean-up procedures • Station generally neat and clean	• Consistently uses proper clean-up procedures • Often will help other students to complete tasks properly • Station always left neat and clean

Blaine Pearce, Regina Public Schools, August 2003

RBG: RUBRIC FOR EVALUATING PROGRAM OUTCOME B

"DESIGN AND CONDUCT ELECTRICAL ENGINEERING EXPERIMENTS, AS WELL AS TO ANALYZE AND INTERPRET DATA"

Performance Indicator	Exemplary 4	Satisfactory 3	Developing 2	Unsatisfactory 1
Ability to conduct experiment	Quite able to conduct the entire experiment with negligible help from the lab instructor.	Able to conduct experiment with some help from the lab instructor.	Able to conduct experiment with a lot of help from the lab instructor.	Unable to conduct experiment on his own; lab instructor provides help in almost every step of the experiment.
Data collection and presentation	Collects data very accurately; very systematically; presents data very clearly using appropriate graphics; figure captions and units are always included.	Collects data accurately most of the time; systematically most of the time; presents data clearly using appropriate graphics; figure captions and units are included most of the time.	Some of the data collected is inaccurate; somewhat systematic in data collection; data presentation is not that clear; figure captions and units are not always included.	Much of the data collected is inaccurate; not at all systematic in data collection; presents data in a very obscure manner.
Data analysis and interpretation	Always analyzes and interprets data correctly and precisely; always draws correct and useful conclusions; always compares theory against experiment and calculates related error.	Analyzes and interprets data correctly most of the time; most of the conclusion are correct and useful; compares theory against experimental data and calculates related error most of the time.	Analyzes and interprets data correctly occasionally; some conclusion are incorrect; occasionally compares theory against experimental data and calculates related error.	Analyzes and interprets data incorrectly most of the time; many conclusions are incorrect; most of the time never attempts to compare theory against experiment data.
Subject Knowledge	Fully understands the experiment, including its purpose and results; able to discuss experimental protocols in a clear and precise manner.	Has very good understanding of the experiment, its purpose and results; able to discuss experimental protocols in a reasonably clear manner.	Has some understanding of the experiment, its purpose and results; almost able to discuss experimental protocols in a clear manner.	Has poor understanding of the experiment, its purpose and results; unable to discuss experimental protocols.

Notes:

1) This rubric, RBG, is to be used for program outcome (b) assessment in any EE lab with the exception of EE 390 lab.

2) Evaluation of students' performance using this rubric is to be reported using the corresponding excel file **RBG-EEXXX Lab-Section (yyy)-zzz.xls**.

3) Before sending the filled excel file, please rename it using the following naming codes: **XXX** = core course number, **yyy** = lab section number and **zzz** = current semester code. Example: **RBG-EE201 Lab-Section (051)-081.xls**.

Figure 2: Example of Analytic Rubrics (Accessed from Rogers, 2010)

Work Effectively in Teams				
	Unsatisfactory 1	Developing 2	Satisfactory 3	Exemplary 4
Research & Gather Information	Does not collect any information that relates to the topic.	Collects very little information--some relates to the topic.	Collects some basic information--most relates to the topic.	Collects a great deal of information--all relates to the topic.
Fulfill Team Role's Duties	Does not perform any duties of assigned team role.	Performs very little duties.	Performs nearly all duties.	Performs all duties of assigned team role.
Share in work of team	Always relies on others to do the work.	Rarely does the assigned work--often needs reminding.	Usually does the assigned work--rarely needs reminding.	Always does the assigned work without having to be reminded.
Listen to Other Teammates	Is always talking--never allows anyone else to speak.	Usually doing most of the talking--rarely allows others to speak.	Listens, but sometimes talks too much.	Listens and speaks a fair amount.

Evidences Required

- Demonstrate that students have achieved the specified learning outcomes at appropriate level by the time of graduation, and
- Provide evidence that the program has contributed to students' ability to achieve the SLOs

Performance Indicators

- **PIs** indicate what concrete actions the student should be able to perform as a result of participation in the program.
- They are measurable/observable knowledge and skills necessary for the mastery of learning
- They allow the desired behavior of the students to be described, and will eliminate ambiguity concerning demonstration of expected competencies.
- PIs are made up of at least two main elements; action verb and content (referent).
- The expected behavior must be specified by name, using an observable action verb such as demonstrate, interpret, discriminate, or define.

Sample PIs
(G. Rogers)

- Students will know a professional code of ethics. (knowledge)
- Students will be able to describe the problem solving process. (comprehension)
- Students will solve research problems through the application of scientific methods. (application)

Assessment of SLO – Where?

- Course work & curricular activities
  - Classes chosen, major
- Classroom experience
  - Pedagogy, facilities, faculty & student interaction
- Out-of-class experience
  - Co-curricular, internships, support services

Capstone/Final Year Project

- A well-designed capstone/final year project is a culminating demonstration of whole range of learning outcomes
- Depth of specialized topic, e.g. design, analysis, investigation, ..
- Breadth of other outcomes, e.g. communication, environment, project management, …

Assessment Methods

- Written exams
- Class tests
- Project reports
- Final Year/Capstone projects
- Design assignments
- Locally developed examinations, e.g. FEE for Professional Engineers
- Oral exam
- Internship/Industry Attachment report
- Lab reports

- Written surveys and questionnaires
- Exit and other interviews
- Focus groups
- External examiner
- End-of-course instructor survey
- End-of-course student survey
- Portfolios
- …

The Program Learning Outcomes are supported by learning outcomes of individual modules of student learning activities

We should therefore look for evidences that assessment of learning outcomes is carried out at individual modules of student learning activities

Table 3.1: Curriculum and teaching processes to achieve Student Learning Outcomes, and evaluation method/criteria

Module	Category#	Evaluation method & criteria	Student Learning Outcomes*							
			(1)	(2)	(3)	(4)	(5)	(6)	(7)	--

Writing Intended Learning Outcomes

- Intended learning outcomes need to be written at both program and course levels.
- Both of them need two essential elements:
  - A statement of what content are the students expected to be able to do at the end of learning experience;
  - The levels of understanding or performance in those content areas.

Course Learning outcomes

- Course Learning Outcomes describe the complex performances a student should be capable of as a result of learning experiences within a course.
- These are determined by the course instructor (s)
- Mapping course learning outcomes to program outcomes and how overall learning experience meet the accreditation criteria

Contribution of each course

- Each undergraduate course in the department contributes to a list of SLOs.
- Usually, a course may contribute strongly to some BAETE SLOs and less strongly to other outcomes.
- While a course may contribute to several BAETE SLOs, usually only a subset of its strong outcomes need to be used for BAETE assessment.

Adapted from: UCLA Electrical Engineering Department's "Guide for instructors and teaching Assistants of undergraduate courses

Two Assessment Mechanisms

- The End-of-Course Instructor Survey and
- The Instructor Evaluation of Students' Performance on an BAETE-related Problem
  - It is the main mechanism used to obtain instructor feedback on whether the students in the course achieved some of the desired course outcomes.

Adapted from: UCLA Electrical Engineering Department's "Guide for instructors and teaching Assistants of undergraduate courses

BAETE – outcome problem

- The BAETE problem is meant to measure how well the students in a course learned some of the most significant (strong) SLOs that a course contributes to.
- The BAETE problem could be chosen as any of the following:
  - One of the problems in a midterm or a final examination in a lecture course.
  - One of the problems in a quiz in a laboratory course.
  - The instructor's personal evaluation of a student ability to participate in teamwork, to successfully complete a design assignment, to write good technical reports, or to make good presentations. This option, in combination with others, may be useful for laboratory courses required to assess student ability to function in a team or for design courses that do not have examinations or quizzes.
  - The instructor's personal evaluation of a student performance in a supervised research course.

Adapted from: UCLA Electrical Engineering Department's "Guide for instructors and teaching Assistants of undergraduate courses

Student Survey

- End-of-Course Student Surveys.
- The Student Surveys collect student input on course material, course organization, and instruction.
- Besides asking students questions about the quality of a course and its instruction, the surveys also assess, for each course, the main topics that students are expected to have been exposed to during the course.

Adapted from: UCLA Electrical Engineering Department's "Guide for instructors and teaching Assistants of undergraduate courses

Student Survey

- Students are asked to rate, on a scale from Poor to Excellent, whether they feel they have had an opportunity to learn the Specific Course Outcomes well.
- The student input is then summarized and tracked in:
  1. Individual reports on Course Performance for each course offering.
  2. Yearly reports on Course Performance during an academic year.
  3. Quarterly reports on Department Performance.
  4. Yearly reports on Department Performance.

Adapted from: UCLA Electrical Engineering Department's "Guide for instructors and teaching Assistants of undergraduate courses

Other student feedback mechanisms

- Student feedback may be collected through two additional mechanisms:
  - *Exit surveys administered to graduating seniors.*
  - *Student Advisory Committee.*

Saving Samples of Student Works

- Each course is required to save samples of student homework solutions, laboratory reports, project or design reports, and exam solutions, typically from poor to good quality.
- At the end of each quarter, the lecturers of all undergraduate courses must compile a binder containing in addition to the solutions, the corresponding homework questions, exam questions, lab description, and project description.

Concluding Remarks

- Onsite accreditation visits should focus on evidence-based assessment of attainment of outcomes
- Adequate breadth and depth of POs
- Evidences of outcomes assessment – at course level
- Evidence of Continuous Improvement process
- Outcomes folder, course folder, portfolio of student work
- Evidences from interactions with stakeholders – faculty, students, alumni, …

Role of PEVs & Convener in Accreditation Visits

Pre-visit Activities

- The University
  - Determine need & readiness for accreditation
  - Request for accreditation visit – a few months before visit
  - Preparation of documents for submission (self-study materials
- Accreditation Board
  - Notify acceptance to conduct accreditation visit and communicate with university to clarify accreditation requirements
  - Arrange timeline of accreditation visit and the submission of self-study materials
  - Assemble the evaluation team.

Team Convener

- has the overall responsibility for the accreditation visit
- assigns duties to each team member keeping in view the overall perspective
- be familiar with the accreditation process and gather in advance the earlier reports
- has the responsibility for the preparation of the consolidated team report and its timely submission, for the consideration of the BAETE

Attributes of Program Evaluators

- Enthusiastic volunteer
- Technically competent
- Well-regarded
- Effective communication
- Listening skill
- Interpersonal skill
- Team-oriented
- Professional approach
- Courteous
- Time management
- Organised

Communication – Active Listening

(耳) **Ear**
Physiologically, we need ears to listen. As someone once said, " God made us with a pair of ears and one mouth so that we can listen more and talk less!" Listening involves bending our ears to people.

(目) **Eyes** We listen with our eyes. We know someone is listening to us when there is eye contact. The non-listener tends to look at his watch or elsewhere or becomes distracted by more important people.

(一) **Undivided attention**
Active listeners focus their attention on the person who is talking. People go to counselors and psychiatrists because in that one hour, they are given an uninterrupted hearing. We show concern when we are focused.

(王) **King**
True listening treats the other person as royalty. We honor the person when we listen. We acknowledge that what he or she says is important.

(心) **Heart**
Effective listening involves paying attention to verbal and non-verbal communication. Too often, we neglect the latter. We must learn to listen not just to facts but also to feelings being communicated. We should be sensitive to the frown, sweaty palms, indifferent posture, or anxious cracking of knuckles.

Role & Responsibilities of PEV

- Team Members, including Chairman
  - Evaluate programme together with Team Leader
  - Received training
  - Familiar with accreditation system in general
  - Well-versed with accreditation criteria
  - Good understanding of outcomes-based system and assessment
  - Go through self study report, and seek clarification or additional information
  - Thorough evaluation of criteria and outcomes
  - Professional approach, unbiased, free of conflict of interest
  - Committed full-time during accreditation visit, focused

Role & Responsibilities of Secretary - If provided for

- Secretary
  - Liaise with university on additional information, changes to schedule, etc
  - Take notes of comments, concerns, etc
  - Obtain from Chairman & Team members main issues to be included in report
  - Draft report – use standardise format of report for consistency
  - Refrain from acting as PEV

Role & Responsibilities of Convener/Chairman (1)

- Team Convener/Chairman:
  - Lead the evaluation team
  - Chair Team meetings
  - Chair Exit Interview with HOD
  - Spoke person for the Team
  - Harmonise comments from team members when preparing report
  - Collate Team inputs from review of Self-Study-Report and request clarification or further information

Role & Responsibilities of Convener/Chairman (2)

- Team Convener:
  - Meet/interview Provost/President/Top Management
  - Sign and be responsible for evaluation report
  - Liaise with BAETE, and with the institution where necessary
  - Receive factual clarification from institution on draft report and make report adjustment accordingly (with input from other team members if issue is major)

Desirable Attributes of Convener/Chairman

- Good professional standing
- Expertise in subject matter and/or accreditation system & process
- Professional approach
- Leadership skills
- Communication skills – Listening in particular

Conflict of interest

- Definition of possible conflict of interest:
  - have **financial or personal interest** in the university; or
  - have or have had a **close, active association with the programme or faculty/school** in the university. Close or active association are, for example:
    - **Employment**,as staff or consultant;
    - **Attendance**, as student at the faculty/school;
    - **Receipt** of honorary degree from the faculty/school;
    - **Membership** of a board of the university or any committee advising on the programme being accredited.

BAETE Guidelines on Conflict of interest??

- Does BAETE has documented definition of conflict of interest?

Confidentiality of information

- Information provided by University and derived from evaluation process, including reports, should be classified as confidential
- They should not be released to any unauthorised persons except with written permission from the University
- BAETE has Non-Disclosure Agreements with universities:
  - Accreditation documents are classified as confidential
  - Use the information provided for the purpose of the specific evaluation exercise only
  - Do not share any of the given information with any party outside of the evaluation team

Pre-visit activities of Evaluation Team

- Pre-visit communication among team members
- Analyse the self-study documents from university
- Check whether additional information required
- Preliminary assessment (identify concerns, if any) and prepare list of questions for campus visit
- Pre-visit meeting with team members, briefing on accreditation process and admin program
- Team to discuss initial assessment & issues specific to each Team

Campus Visit

- Normally 3 days for BAETE
- Detailed visit time-table proposed by institution based on template of accreditation body
- Adjustments could be made after pre-visit discussion

Purpose of campus visit

- Assessment of qualitative factors which cannot be documented in written submission
  - intellectual atmosphere, morale, professional attitudes, quality of staff and students
- Examination of materials compiled by educational institution, i.e. those which cannot leave the campus
  - examination papers, student reports, instruction materials
- Clarify issues in the written submission by educational institution

Outcomes of Campus Visits & Assessment based on Pre-Visit Documents

- The role of the Evaluation Team is for the sole purpose of determining whether the program satisfies the accreditation criteria
- For each criterion, the degree of compliance to be summed up as:
  - Compliance
  - Concerns
  - Weakness
  - Deficiency

Outcomes of Campus Visits & Assessment based on Pre-Visit Documents

- Where requirements of a particular criterion are not fully met, the Team will include:
  - Recommendation - aspects which are suggestions rather than mandatory requirements
  - Requirement - items requiring follow-up action as a condition of accreditation
- The Team may include observations/comments/suggestion to assist improvement process, not affecting accreditation decision

Evaluation of PLOs

- Attainment of each PLOs must be carefully evaluated in terms of depth and breadth stipulated – going through evidences provided
- Application to Complex Engineering Problems

The DO’S

During Campus Visit

- Discuss issues of concern
- Interview Dean, HOD, management team, faculty, alumni and students to assess:
  - Morale, attitudes and motivation
  - Institutional and industry support
  - Theoretical and practical aspects of curriculum
- Tour **relevant** physical facilities
- Review of examination papers, student reports, instruction materials
- Exit Interview –present Team's prelim findings

What the PEVs looks for?

- PEVs are sent to evaluate programs, certifying that they satisfy the criteria stipulated
- They look for evidences that the required criteria are met
- They identify deficiencies, weaknesses, concerns

Meetings/Interviews

- Provost/President
- Dean and Head of Department/Program
- Group of faculty members
- Group of alumni
- Group of students
- Group of other constituencies, e.g. members of industrial advisory board, employers

Examination of Exhibits (1)

- Sample of teaching materials
- CV of faculty staff, publications
- Sample of exam papers
- Sample of exam scripts –excellent, good, marginal
- Transcripts of immediate past graduates
- Sample project and design reports
- Sample of industry attachment reports & assessment

Examination of Exhibits (2)

- Samples of student feedback form
- Reports of other internal or external reviews of the course, department and faculty
- Results of quality assurance reviews
- Statistics of graduate employment
- Other documents requested by the evaluaton team

Visits

- Laboratories (teaching)
- Classrooms
- Library
- Computer facility
- Others if necessary

Major focus

- Quality assurance processes, including internal reviews
- Entry standards for admission of students
- Qualifications, enthusiasm, workload of faculty
- Facilities
- Industry participation

Major focus

- **Undergraduate degree** in engineering
  - equivalent to a 4-year full-time course
- Title of a programme as shown on graduate's certificate and transcript
- All modes of delivery have to satisfy the accreditation criteria
  - full-time on-campus
  - evening or part-time

Post-visit activities

- Coordinate with team members to finalize evaluation report, if this is not completed at the end of the accreditation visit
- Secretary may help to draft report under guidance of Chairman
- Team members to review report through e-mail
- Submit report to Consistency Committee
- Team members to review any comments and changes by Consistency Committee
- Submit final draft report to university for comments on errors of fact
- Submit final report to Secretary
- Accreditation Board to meet and decide on recommendation by Evaluation Team
- Secretary will notify Chair/Team Members of Board decisions

Understanding the Terminology

- Observation – a comment or suggestion not affecting accreditation decision; is to assist improvement process
- Concern – indicates criterion, policy or procedure is met, but situation could potentially exists for criterion, policy or procedure not to be met in near future
- Weakness – criterion, policy or procedure met substantially, but lacks strength of compliance; remedial action to strengthen compliance is necessary before next evaluation
- Deficiency – criterion, policy or procedure is not met

- Recommendation - aspects which are suggestions rather than mandatory requirements
- Requirement - items requiring follow-up action as a condition of accreditation

Possible accreditation decisions

- Full accreditation - for maximum of 5 years:
  - Possible even when there are some concerns
  - If weaknesses are **not** severe, need to indicate:
    - whether the adequacy of the corrective action(s) can be determined on the basis of a written report (with appropriate supporting documentation); or
    - whether a follow-up review visit is required in order to assess the adequacy of the action(s)

Possible accreditation decisions

- Full accreditation but for a shorter term, say 2 to 3 years:
  - If weaknesses are severe
  - If deficiencies are not severe
  - Need to indicate:
    - Whether corrective action(s) can be determined on the basis of a written report (with appropriate supporting documentation); or
    - whether a follow-up review visit is required in order to assess the adequacy of the action(s)

Possible accreditation decisions

- Not to be accredited
  - If deficiencies are severe
  - When one or more of BAETE's criteria are not met
  - Requirements in order to achieve accreditation should be specified

The DON’Ts

DON’Ts

- Don’t keep on talking most of the time
- Don’t waste time listening to presentation of information already well-documented (e.g. in self-study report)
- Don’t give solutions/advices to problems identified – no need to tell how you would have run the program
- Don’t group diverse stakeholders in a joint feedback session, e.g. employers, alumni and parents all together

DON’Ts

- Don’t group HOD, senior Professors in management position and junior staff in a single session for faculty feedback
- Don’t engage in non-accreditation activities during the campus visit
- Don’t be aloof, abusive – but should be assertive at times
- Don’t be overly fault-finding – adopt a balanced assessment of strengths and weaknesses

DON’Ts

- Don’t engage in bean-counting – rather look at the bigger picture & the outcomes
- Don’t examine all thoroughly – sufficient samples are good enough
- Don’t delay in completing and submitting the evaluation report
- Don’t engage in conflict-of-interest activities

Summary

- Working together to design effective accreditation evaluation form
- Evidences-based onsite assessment
- Desirable attributes of program evaluation team
- DO’s and DON’Ts during accreditation visit

Q&A

Thank you!