KMUTT C4ED

Outcome Based Course Design

Name:

Department:

Course:

About
this workbook

The goal of this workbook is to help the reader grasp some simple concepts for designing an effective outcome based course/lesson plan. It begins with a set of minimum guidelines for developing a KMUTT course and then leads the readers though a step-by-step process of developing an actual course of their own.

Special Thanks to... Everyone who gave their time, perspectives, feedback, and ideas to KMUTT C4ED and the course design project. We are also thankful to many other education experts, innovators and experimenters around the world who inspire us to move forward and realize the possibility of better education.

Created by

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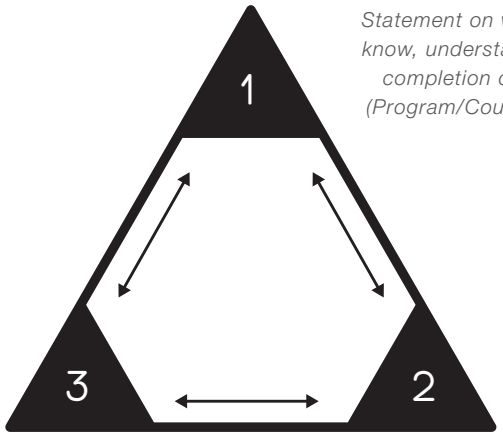
OBE
Constructive Alignment

Objectives and Learning Outcomes

Statement on what students should know, understand and can do upon completion of a period of study (Program/Course/Module/Activity).



Teaching / Learning Approaches

The teaching and learning methods which the teachers use to achieve each of the learning Outcomes. Students will know exactly why they are being asked to engage in certain teaching and learning activities in their courses.

Assessment Method

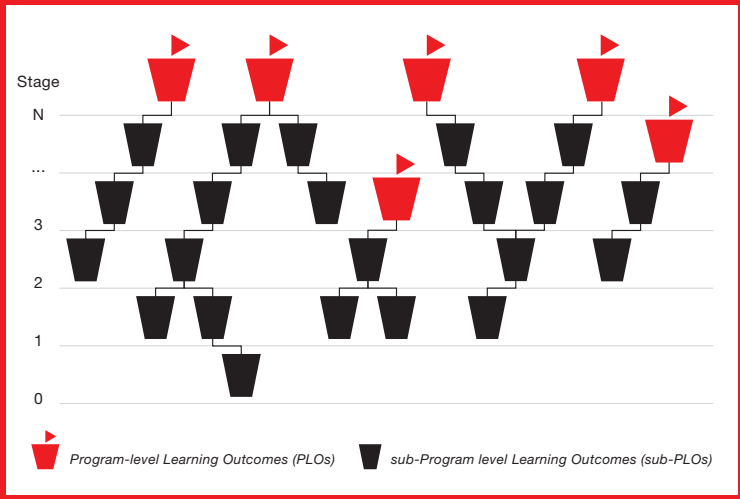
An on-going process aims at improving students' learning by measuring the learning outcomes they achieved. Feedback will be given so that students know what they need to do in order to get better grades.

Program-level
Learning Outcomes

Program - level learning outcomes (PLOs) are direct statements that describe what learners will be able to do at the end of the program. They focus on transferable knowledge, skills and behaviors that can be observed and assessed, and are reflective of disciplinary contexts.

Any concerned PLO's could be complex and take over several semesters if not the whole 4 years to develop. Typical PLO being described with broad action verbs could sometimes be difficult to be assessed in a straightforward manner.

In other words, sub-PLOs can be viewed as a set of learning outcomes organised into parts/groups based on PLO's construction methods. With the logical way of designing the structure of PLOs' attainment, the PLO then could be measured through its own sub-PLOs, of which can be disseminated to different elements, and sometimes at different levels, of your curriculum. For example, a sub-PLO can be delivered as part of a core course, a group of courses (modules), an extracurricular activity, or other core elements of the curriculum.



The relationship between Program-level Learning Outcomes and their Sub-Program-level Outcomes: Often a Learning Outcome (PLO) in a given curriculum is very much dependent on its own several Sub Learning Outcomes (sub-PLOs) which are nonexclusively scattered in the levels of Chapters, Modules, and/or Courses throughout the curriculum in which students will progressively attain sub PLOs in order to achieve that particular PLOs.

What are the PLOs/sub-PLOs allocated to your course?

Program name:

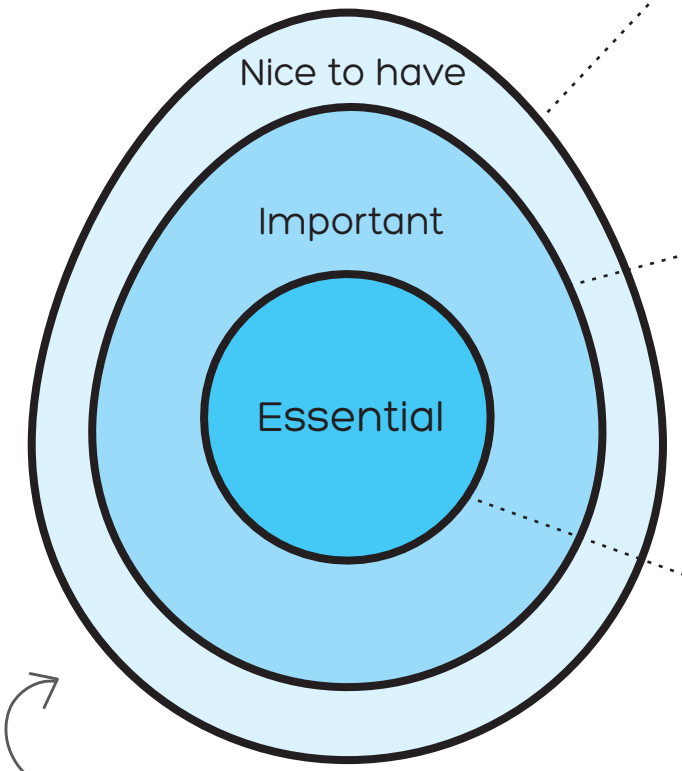
Who are the students?

Diagnostic Questions:

Are your students new to the university?
Are they new to the topic of the course or the department?
What are students' motivations for taking the course?
What might you expect students to know before the first class?
What are their misconceptions?
What range of backgrounds and previous experience is typically represented among students in this class?
What problems do students typically have with your course at this level?

What you want them to learn

Egg-shaped model



To help prioritize your proposed content, we ask you to consider how your content fits in this egg-shaped model. At the heart of your model are your Big Ideas and Enduring Understandings, from which you can determine what it is Important to Know and Do, and finally things that it is Worth Being Familiar With.

Nice to have

Important

Essential

Concept Map

Learning Outcomes

Statement on **what students should know, understand and can do upon completion of a period of study**
(Program/Course/Module/Activity).

Learning outcomes answer the questions:

- How would you describe the attributes of an ideal graduate of the program? What unique strengths should students who complete this program possess?
- What is essential that students know and be able to their learning experiences? What key knowledge, skills and values/attitudes should students who complete the program possess?

Writing your learning outcomes

Action Verb
+
Object
+
Qualifying Phrase

Learning outcomes should be SMART

- ☑ **Speak to the learner**
- ☑ **Measurable**
- ☑ **Applicable**
- ☑ **Realistic**
- ☑ **Time-bound**
- ☑ **Transparent**
- ☑ **Transferable**

Source:
The SMART(TT) method of goal setting is adapted from Blanchard, K., & Johnson, S. (1981). The one minute manager. New York: Harper Collins.

EXAMPLE

By the end of this course, students will be able recall the 5 major events leading up to the Riel Rebellion and describe their role in initiating the Rebellion.

By the end of this course, students will be able to articulate their personal responses to a literary work they have selected independently.

By the end of this course, students will be able to evaluate the theoretical and methodological foundations of secondary critical material and employ this evaluation to defend their position on the topic.

Bloom's Taxonomy of Learning Domains

Cognitive Domain

Remembering
Action Verbs: Choose, Define, Find, How, Label, List, Match, Name, Omit, Recall, Relate, Select, Show, Spell, Tell, When, Where, Why

Understanding
Action Verbs: Classify, Compare, Contrast, Demonstrate, Explain, Extend, Illustrate, Infer, Interpret, Outline, Relate, Rephrase, Show, Summarize, Translate

Applying
Action Verbs: Apply, Build, Choose, Plan, Construct, Develop, Experiment with, Solve, Identify, Interview, Make use of, Model, Select, Organize, Utilize

Analyzing
Action Verbs: Analyze, Assume, List, Categorize, Classify, Divide, Compare, Survey, Contrast, Discover, Dissect, Distinguish, Examine, Inspect, Simplify, Take part in, Test for, Function

Evaluating
Action Verbs: Agree, Appraise, Assess, Mark, Award, Choose, Select, Compare, Conclude, Criticize, Decide, Judge, Deduct, Defend, Justify, Determine, Rate, Disprove, Estimate, Evaluate, Explain, Prove, Influence, Interpret, Measure, Value, Perceive, Prioritize, Recommend, Rule on, Support

Creating
Action Verbs: Adapt, Build, Change, Choose, Combine, Compile, Plan, Compose, Construct, Create, Delete, Design, Develop, Discuss, Invent, Elaborate, Estimate, Formulate, Happen, Imagine, Improve, Make up, Maximize, Minimize, Modify, Test, Originate, Predict, Solve, Propose, Suppose

Affective Domain

Receiving Phenomena
Action Verbs: asks, chooses, describes, follows, gives, holds, identifies, locates, names, points to, selects, sits, erects, replies, uses.

Responding to Phenomena
Action Verbs: answers, assists, aids, complies, conforms, discusses, greets, helps, labels, performs, practices, presents, reads, recites, reports, selects, tells, writes.

Valuing
Action Verbs: completes, demonstrates, differentiates, explains, follows, forms, initiates, invites, joins, justifies, proposes, reads, reports, selects, shares, studies, works.

Organization
Action Verbs: adheres, alters, arranges, combines, compares, completes, defends, explains, formulates, generalizes, identifies, integrates, modifies, orders, organizes, prepares, relates, synthesizes.

Internalizing values (characterization)
Action Verbs: acts, displays, discriminates, influences, listens, modifies, performs, practices, proposes, qualifies, questions, revises, serves, solves, verifies.

Psychomotor Domain

Perception (awareness)
Action Verbs: chooses, describes, detects,identifies, differentiates, relates, distinguishes, isolates, selects.

Set
Action Verbs: begins, displays, explains, moves, proceeds, reacts, shows, states, volunteers.

Guided Response
Action Verbs: copies, traces, follows, react, reproduce, responds.

Mechanism (basic proficiency)
Action Verbs: assembles, calibrates, constructs, dismantles, displays, fastens, fixes, grinds, heats, mixes, manipulates, measures, mends, organizes, sketches.

Complex Overt Response (Expert)
Action Verbs: assembles, builds, calibrates, constructs, dismantles, displays, heats, fastens, fixes, manipulates, measures, grinds, mends, mixes, organizes, sketches.

Adaptation
Action Verbs: adapts, alters, changes, rearranges, revises, varies, reorganizes.

Origination
Action Verbs: arranges, builds, combines, composes, constructs, creates, designs, initiate, makes, originates.

Source:

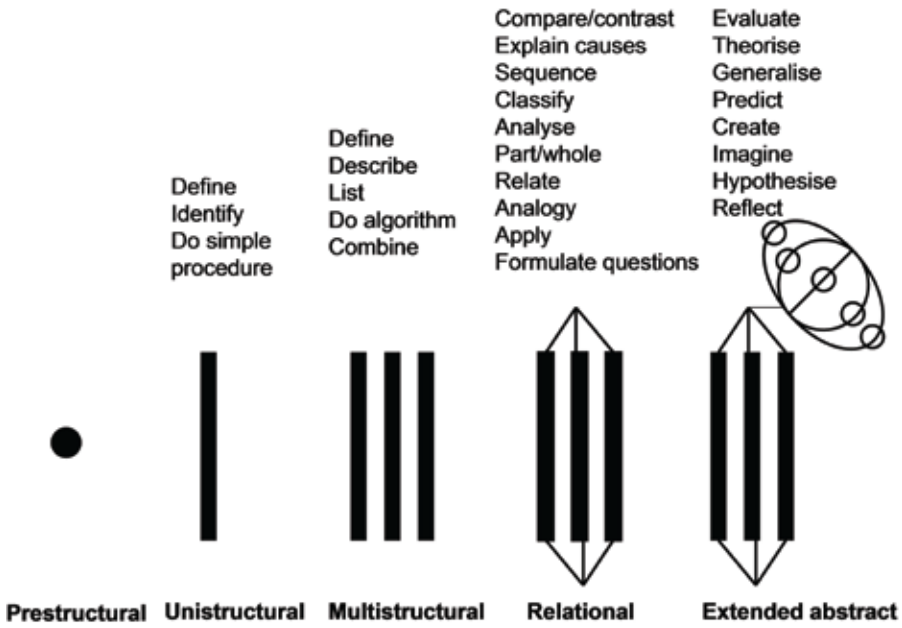
- *Bloom, B.S., Englehart, M.B., Furst, E.J., Hill, W.H., and Krathwohl, D.R. (1956). Taxonomy of Educational Objectives: The Classification of Educational Goals. Handbook I: The Cognitive Domain. New York: Longman*
- *Clark, D. (1999). Learning Domains or Bloom's Taxonomy [Online], Available: http://www.nwlink.com/~donclark/hrd/bloom.html [12 Mar 2015].*

The SOLO Taxonomy

(after Biggs and Collis 1982)

Constructive alignment also marries well with the SOLO taxonomy. SOLO stands for "structure of observed learning outcomes" and is a concept devised by John Biggs and Kevin Collis in 1982 to describe levels of increasing complexity in students' understanding. The SOLO taxonomy helps to map levels of understanding that can be built into intended learning outcomes and create assessment criteria or rubrics. It consists of five levels of understanding:

- **Pre-structural:** a student hasn't understood the point and offers a simple – incorrect – response. A student at the pre-structural stage will usually respond with "I don't understand".
- **Uni-structural:** a student's response only focuses on one relevant aspect. A student at the uni-structural stage might give a response such as "I have some understanding of this topic".
- **Multi-structural:** here, a student's response focuses on several relevant aspects but these are treated independently of each other. Assessment at this level is primarily quantitative. A student at the multi-structural stage might give a response such as "I know a few things about this topic".
- **Relational:** Here, the different aspects seen at the multi-structural level have become integrated to form a coherent whole. At this level, a student's understanding moves from quantitative to qualitative in that the different aspects are linked and integrated and now contribute to a deeper understanding of the whole. A student at the relational stage might give a response such as "I can see the connections between the information".
- **Extended abstract:** the integrated whole is now conceptualised at a higher level of abstraction. According to Hook and Mills (2011), the new understanding that emerges at the extended abstract level is "rethought" at another conceptual level, looked at in a new way, and used as the basis for prediction, generalisation, reflection, or creation of new understanding. A student at the extended abstract stage might give a response such as: "By reflecting and evaluating on my learning, I am able to look at the bigger picture and link lots of different ideas together."



As students move up the five levels, their understanding grows from surface to deep to conceptual. The SOLO taxonomy also helps develop a growth mindset because students come to understand that declarative and functioning learning outcomes are the result of effort and the use of effective strategies rather than the result of innate ability.

Source:
Panhook, (2008). The Learning Process [Online], Available: http://pamhook.com/wiki/The_Learning_Process [4 July 2016].
Matt Bromley,(2015). The SOLO taxonomy and constructive alignment [Online], Available: http://www.sec-ed.co.uk/best-practice/pedagogy-the-solo-taxonomy-and-constructive-alignment/ [23 September 2015]

Assessment method

Student assessment is one of the most important elements of higher education. The outcomes of such assessment have a profound effect on students' future careers. It is therefore important that assessment is carried out professionally at all times and takes into account the extensive knowledge that exists on testing and examination processes. Assessment also provides valuable information for institutions about the efficiency of teaching and learner support

Examples of assessment methods

- Skills demonstration
- Role play
- Observation
- Reflective journal
- Oral presentation
- Self assessment
- Peer assessment
- Work product (from employment, internship, service learning)
- Exhibition
- Field report
- Written exam - Short answer
- Written exam - Essay
- Written exam - Standardized exam
- Written exam - Matching
- Written exam - Fill-in-the-blank
- Oral exam - Structured/ structured, semi-structured, open-ended oral examinations
- Oral exam - One to one interview
- Oral exam - Panel interview
- Assignments/ Homework
- Dissertation/thesis
- Focus group
- Student surveys
- 360 Degree assessment
- Simulation

More infomation >>>

myle.kmutt.ac.th > HELP menu > Teacher > FAQ

> **Assessment Method Definitions**

or link *https://goo.gl/681djr*

Teaching learning approaches

To achieve constructive alignment, teaching method should support those activities that lead to the attainment of the intended learning outcomes. Your selection of teaching methods is critical to your students's learning. Note that it helps tremendously to clarify to your students why we choose certain teaching methods over others. By referring to the research standing behind our selections, we reaffirm to our students the commitment to do our best for their learning achievement.

Examples of teaching methods

- Lecture
- Large Group Discussion
- Small Group Discussion
- Tutorial group
- Seminar
- Deductive /direct instruction
- Inductive / discovery teaching or inquiry teaching
- Case study
- Fieldwork
- Field trip / excursion
- Learning Center
- Dramatization
- Game
- Simulation
- Role Playing
- Apprenticeship
- Active Learning
- Structured/Traditional/Cookbook Laboratory
- Unstructured Laboratory Programmed Instruction/Computer Assisted Instruction: CAI/Online Instruction
- Practice
- Research-based instruction
- Problem-based instruction
- Project-based instruction
- Inquiry-based instruction
- Reflective thinking
- Independent study
- Resource person
- Micro teaching (in teacher education)
- Supervision
- Consult
- Work-Integrated Learning
- Self-directed learning
- Brainstorming
- Apprenticeship
- Active Learning

More infomation >>>

myle.kmutt.ac.th > HELP menu > Teacher > FAQ

> **Pedagogy Definition**

or link *https://goo.gl/m0SNqS*

Teaching methods

How will I support students' learning?

Week No.

Teaching Material / Tool

Learning Outcome

What do I want students to be able to do?

Assessment method

How will I measure students' abilities?

Learning Outcome

What do I want students to be able to do?

By the end of the course, students should be able to:

LO 1 Differentiate between sustainable and less sustainable products, services and practices

LO 2 Develop strategies to improve their own sustainable living practices

LO 3 Critique products and services based on how sustainable they are

Assessment method

How will I measure students' abilities?

Assessment Task 1: Improve your sustainable living practices (LO1, LO2, LO3)

Students are to 1] assess their existing daily habits, practices and products and services they use, 2] Reflect on how sustainable these are and 3] develop strategies for improving their identified sustainable living practices.

Assessment Task 2: Critique a product or service based on its environmental impact (LO3)

Students are to choose a product or service that they currently use and critique it based on its level of environmental sustainability. Students can critique regular products/services or ones that are typically considered "green."

Teaching methods	Week No.	Teaching Material / Tool
How will I support students' learning?		
Method: *Step1-> Discussion on the following topics-* *1) Garbage Island challenge: Students to come up with one solution to Garbage Island problem (groups). Reflection, discussion, sharing.* *2) Businesses solving (water) pollution problem: Seabin, Take 3 Initiative, biodegradable products, water pollution docos. Discussion.*	*Week 1*	*• Web blog tool* *• Videos on sustainable issues of the world* *• KMUTT LE online course management* *• Google drive for file/picture sharing*
Step 2-> What is sustainability?: Group definitions and examples of sustainability. Students encouraged to think creatively and look for meaningful pictures and videos online, to explain via representation.	*Week 2*	*• Facebook discussion group* *• etc.*
Step 3-> Watch a video to understand the criteria of Sustainability (Your sustainability level: How sustainable are you right now? - video link)	*Week 3*	
Step 4-> Discuss Causes of the existing production and consumption model as well as the impact to the environment.	*Week 4*	
Step 5-> Critiquing products in groups: Students bring in products from home (some "green" products, others not) and critique based on sustainability criteria. *Critiquing businesses, services and practices: Students extend their critique to the businesses around them, at the university etc.*	*Week 5*	
Step 6-> Measure your ecological footprint: Students explore the different ways you can measure ecological footprint and try to calculate their own footprint related to living and share ideas on how to be more living sustainable.	*Week 6*	

Additional Information

1. Writing and Assessing Course-Level Student Learning Outcomes

https://goo.gl/AZFXnM

2. Other Psychomotor Domain Taxonomies

https://goo.gl/8Axqjn

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