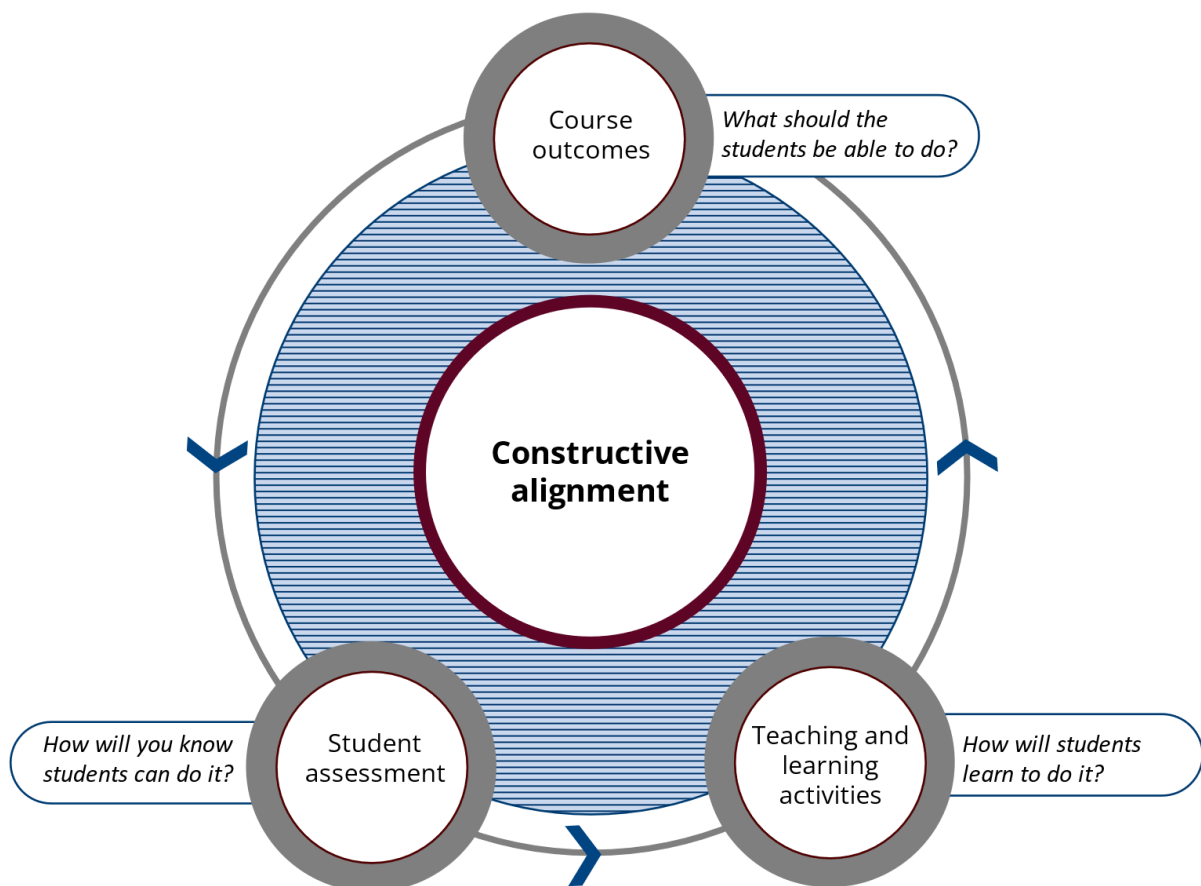




Syllabus Review Session



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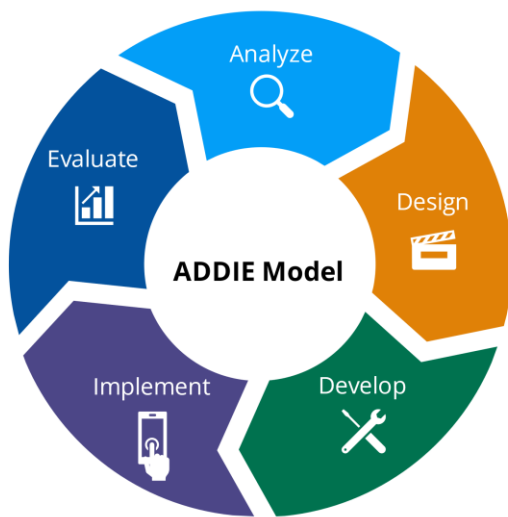
Introduction

The goal of this session is to provide a space to review the course syllabus.

During this session, you will have the opportunity to:

- Reflect on the course goals and the expected learner.
- Review the course outcomes identified for the course.
- Align the course outcomes to the appropriate teaching, learning, and assessment strategies.

The ADDIE model (CDC, 2018) and the CTE Course Design Framework (Fowler, et al, 2011) frameworks will serve as the foundation for the course review process.



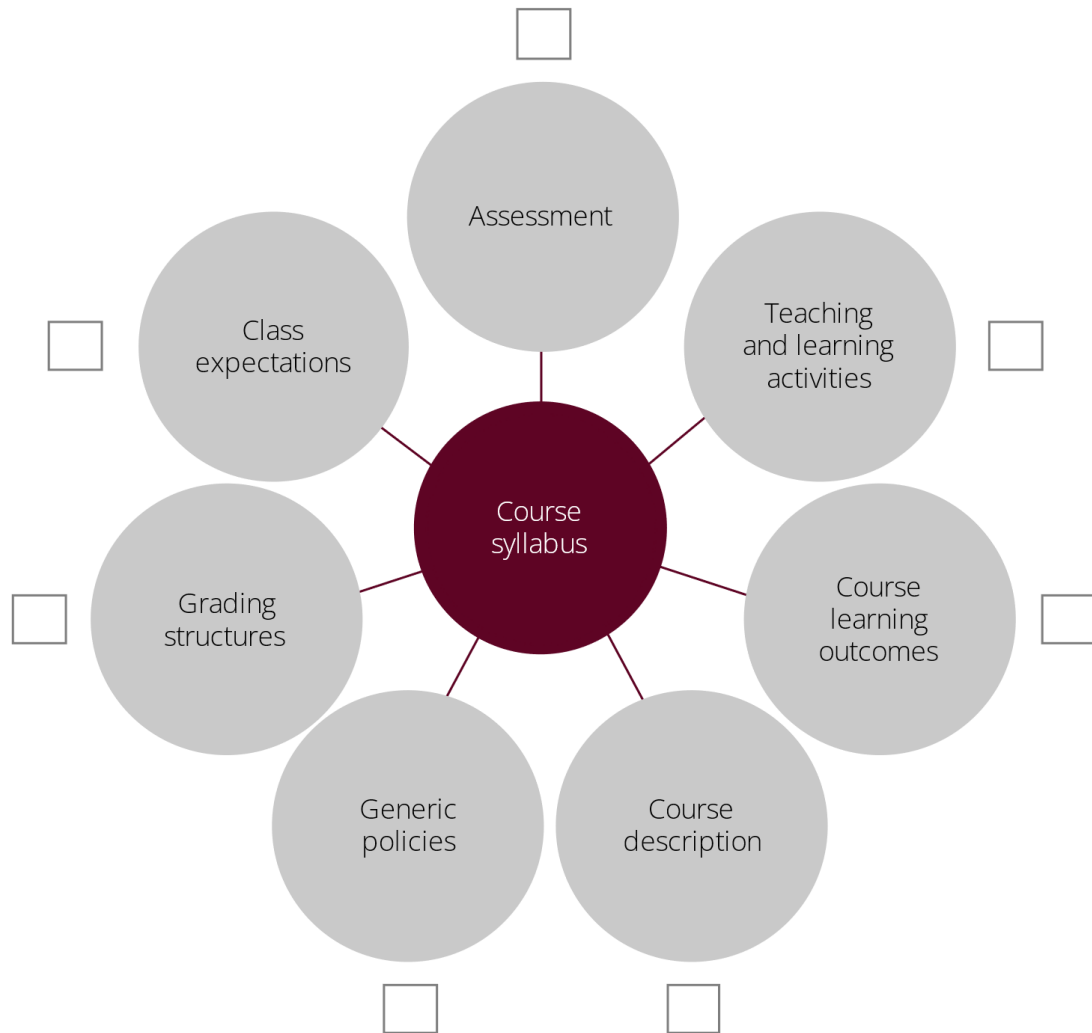
ADDIE Model



CTE Course Design Framework

Course Syllabus

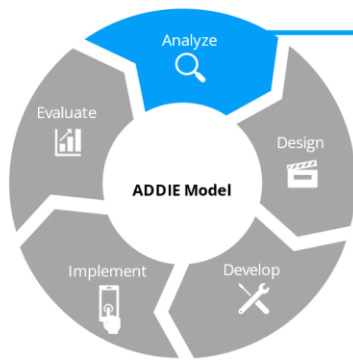
The course syllabus is a concise document that contains important information about a course. The diagram below shows the most common components of the syllabus.



Components of a course syllabus

Using the ADDIE Model and the Course Design Framework in the following sections of this manual we will review some components of the syllabus including developing course outcomes, teaching, learning and assessment activities, as well constructive alignment between the components.

Analyze



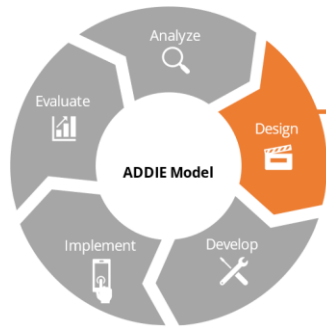
This phase of the ADDIE Model includes considerations of factors required to make informed decisions during the syllabus development redesign process.

Implications for Syllabus Design/Redesign	
<p>Learner Analysis</p> <p>Who are your learners? What pre-requisites will they require to be successful in your course? What key concepts would be required from their previous course? What concepts will need to be reviewed in the course to ensure the success of your learners? Are there language concerns?</p>	
<p>Context Analysis</p> <p>Where does your course fit within the program? Where would your class or lab take place? What time would classes hold? What supplies or equipment would be required for the courses? Would you require equipment for lectures? Are there crucial contextual factors that might affect student’s success in this course? An example could be accreditation requirements</p>	

	Implications for Syllabus Design/Redesign
<p>Course Analysis (Bain, 2004)</p> <p>What big questions will my course help students answer?</p> <p>What skills, abilities, or qualities will my course help them develop?</p> <p>How will I encourage my students' interest in these questions and abilities?</p> <p>What reasoning abilities must students have or develop to answer the questions that the course raises?</p> <p>What mental models are students likely to bring with them that I will want them to challenge?</p> <p>What information will my students need to understand in order to answer the important question of the course? How will they best obtain that information?</p> <p>How will I share the intellectual and professional standards I will be using in assessing students' work? Why do I use those standards? How will I help students learn to assess their own work using those standards?</p>	

Considerations while writing course outcomes
<p>Alignment with program level learning outcomes</p> <p>Accreditation requirements</p> <p>Expected goals for students learning</p> <p>Concepts students will require for future courses</p>

Design



In this phase of the ADDIE Model, components of the Course Design Cycle including course learning outcomes, assessment, learning activities, and alignment will be reviewed.

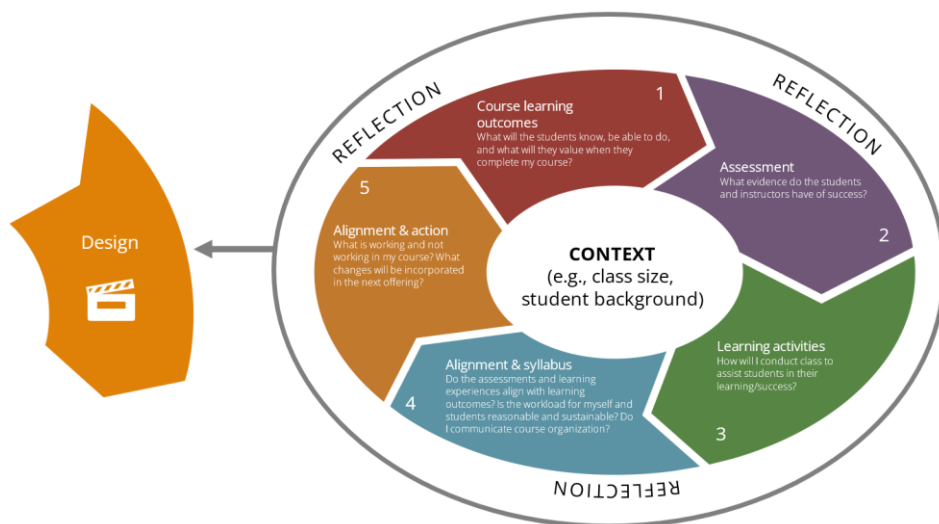
Course Outcomes

What are course outcomes?

- They are statements of what students should be able to accomplish on completion of a course.
- They can be both content and non-content focused.
- They should be concise and written as goals students may achieve.

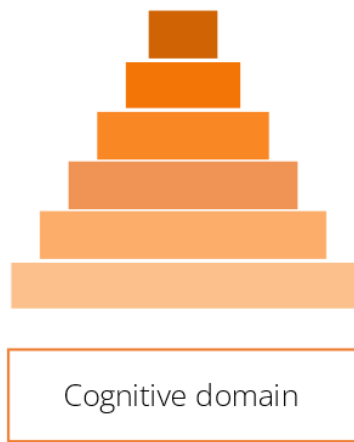
Why share course outcomes with students?

- By sharing course outcomes with students, they can create a roadmap of the course.
- Students can discover the purpose for specific objectives and understand the relevance of the course.



Bloom's Taxonomy

One way to approach writing of course outcomes is to look at Bloom's Taxonomy (1956), a classification of the knowledge, skills and abilities that you want students to learn. Lower level thinking skills include remembering and understanding. Since the model is hierarchical, students must have the basic knowledge in order to achieve higher levels of learning, including applying, analyzing, and evaluating concepts, and creating new ideas (see appendix for examples of categories).



Concept of Bloom's Taxonomy



Cognitive domain



Thinking, problem solving

Encouraging students to think and solve problems methodically



Affective domain



Emotional growth, interpersonal development

Leading students to more interaction with peers, as well as self-confidence



Psychomotor domain



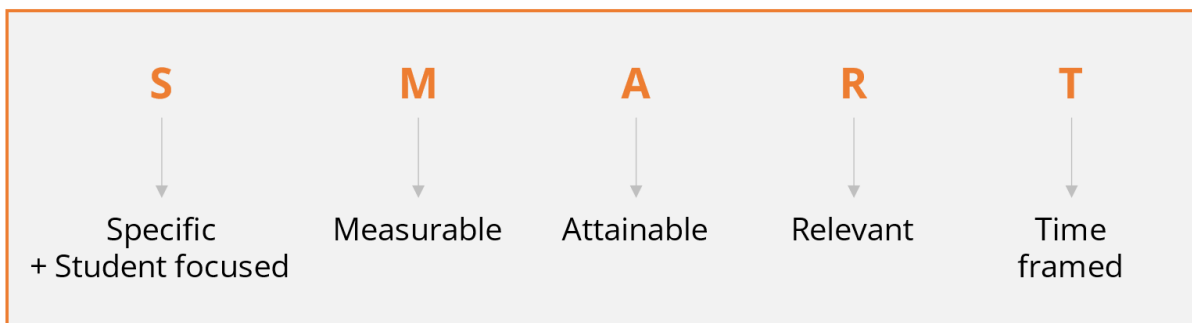
Physical activities

Activities in classroom leading to experiential learning

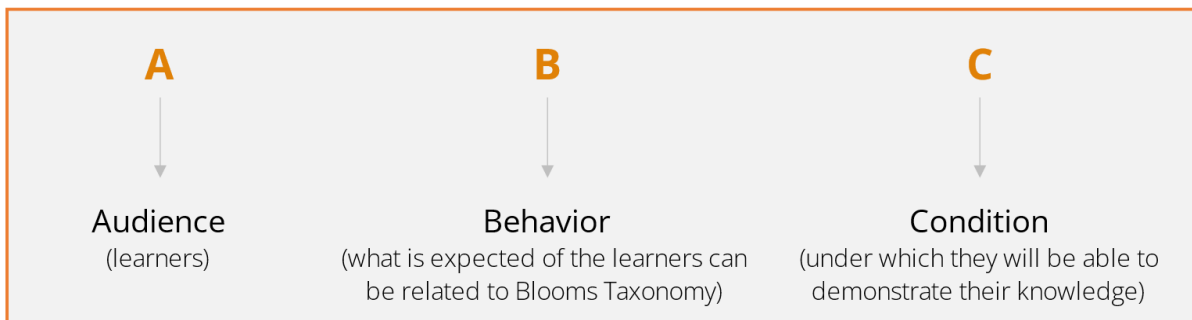
Writing Effective Course Outcomes?

- To facilitate student's focus on their learning, keep one learning outcome per statement.
- Write as many statements as required (often five to ten) to prevent vagueness in individual statements.
- Should be concise and written as goals students may achieve at the end of the course.

All course outcomes should be:



Course learning outcomes should include the following:



Examples of course outcomes

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

- Differentiate between electrical and magnetic circuits in systems.
- Apply knowledge of micro fabrication techniques to design microsystems.
- Classify the performance of vehicle systems through the use of analytical methods.
- Describe the main concepts of process safety to members of an organization.

Course Review Checklist

Use the checklist below for a quick review of each outcome developed.

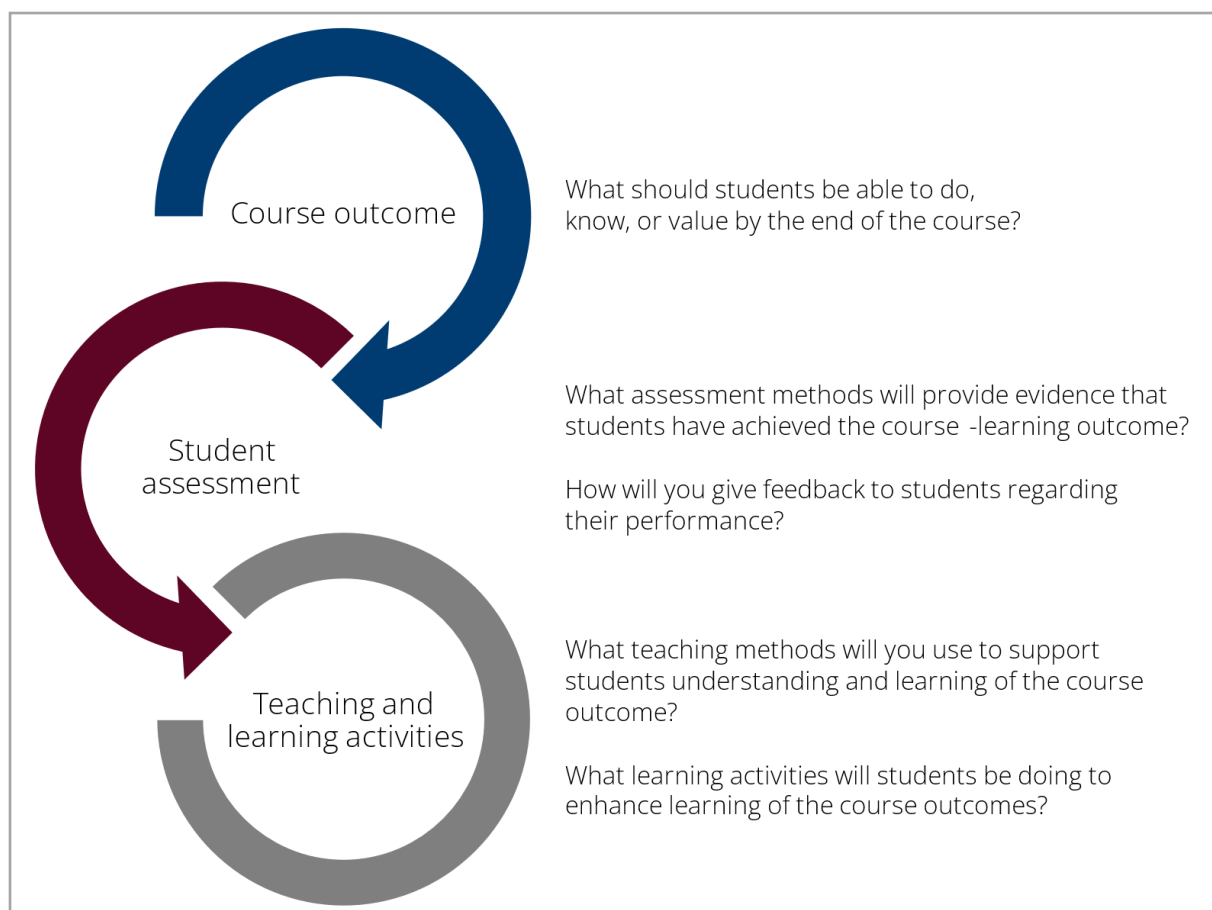
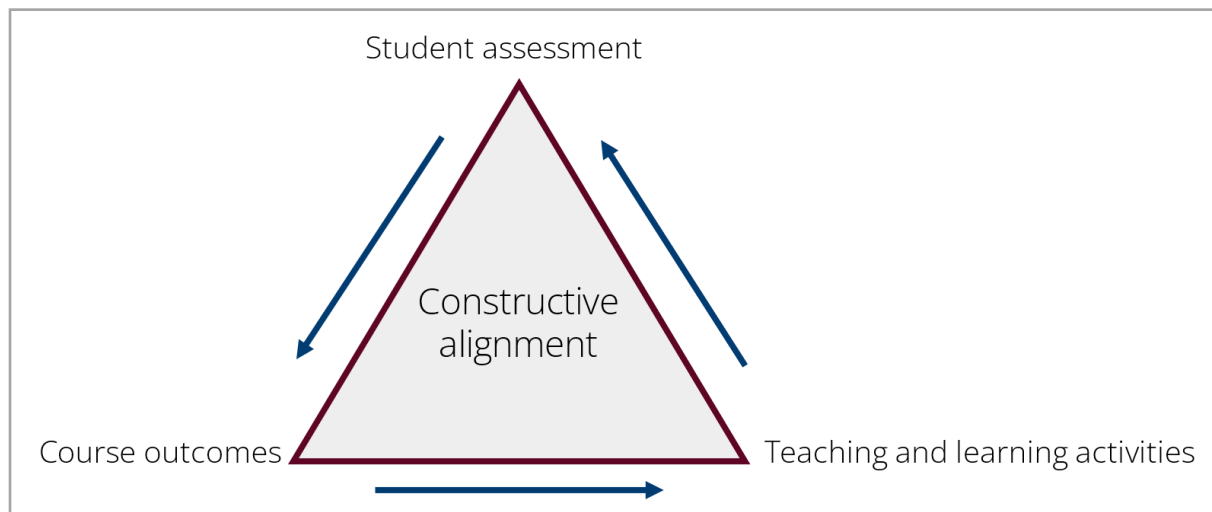
Outcome statement:

		Comment
<input type="checkbox"/>	Is the learning outcome measurable?	
<input type="checkbox"/>	Does the learning outcome target a discrete aspect of expected performance?	
<input type="checkbox"/>	Is the learning outcome student centered?	
<input type="checkbox"/>	Does the learning outcome utilize an effective, action verb that targets the desired level of performance?	
<input type="checkbox"/>	Does the learning outcome match instructional activities and assessments?	
<input type="checkbox"/>	Does the learning outcome specify appropriate conditions for performance?	
<input type="checkbox"/>	Is the learning outcome realistic given the constraints of time and resources?	

Dyjur, et al, 2014

Constructive Alignment

Constructive alignment refers to the fidelity between course outcomes, student assessment, and teaching and learning activities (Biggs & Tang, 2007). There should be a direct relationship between all the elements of a course.



Backwards Design (Wiggins & McTighe, 1998)

Course Outcome Alignment Chart

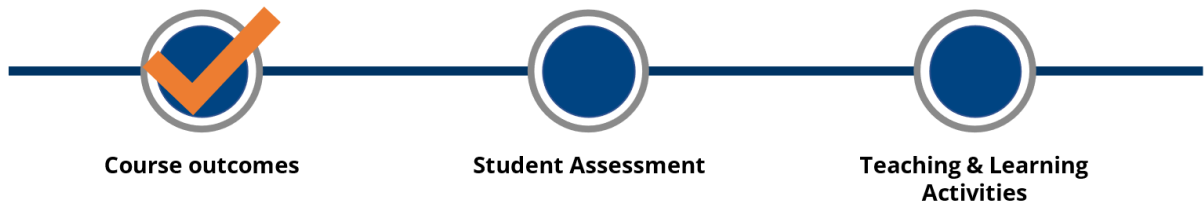
For each course outcome, state the methods used to measure student learning and activities to promote learning.

Course Outcome <i>What should students be able to do, know, or value by the end of the course?</i>	Assessment Item(s) <i>What assessment methods will provide evidence that students have achieved the course-learning outcome? How will you give feedback to students regarding their performance?</i>	Teaching and Learning Activities <i>What teaching methods will you use to support students' understanding and learning of the course outcome? What learning activities will students be doing to enhance learning of the course outcomes?</i>	Level of Bloom's Taxonomy		
			Remember/ Comprehend	Apply/ Analyze	Evaluate/ Create

For each course outcome, state the methods used to measure student learning and activities to promote learning.

Course Outcome <i>What should students be able to do, know, or value by the end of the course?</i>	Assessment Item(s) <i>What assessment methods will provide evidence that students have achieved the course-learning outcome? How will you give feedback to students regarding their performance?</i>	Teaching and Learning Activities <i>What teaching methods will you use to support students' understanding and learning of the course outcome? What learning activities will students be doing to enhance learning of the course outcomes?</i>	Level of Bloom's Taxonomy		
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Student Assessment



Following the principles of backward design (Wiggins & McTighe, 1998), the next step after developing course outcomes would be to consider strategies to assess students' learning.

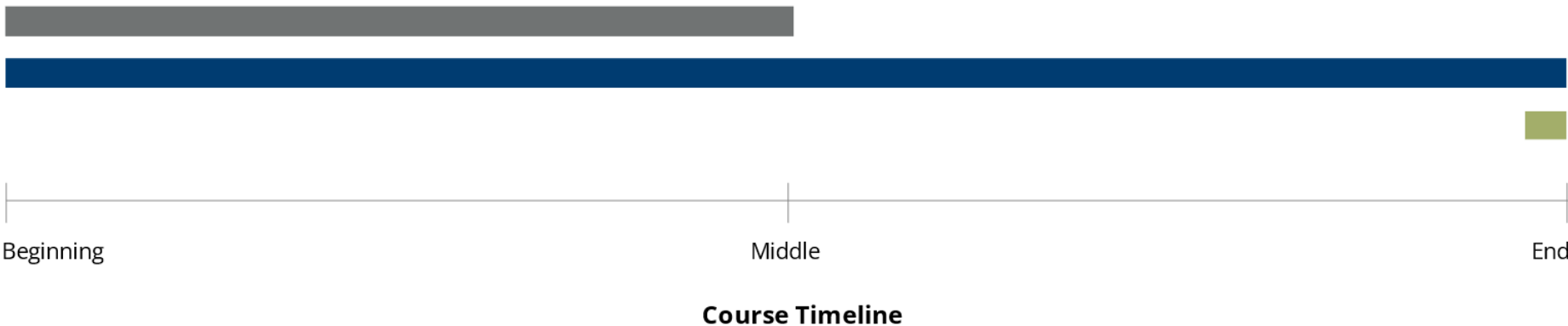
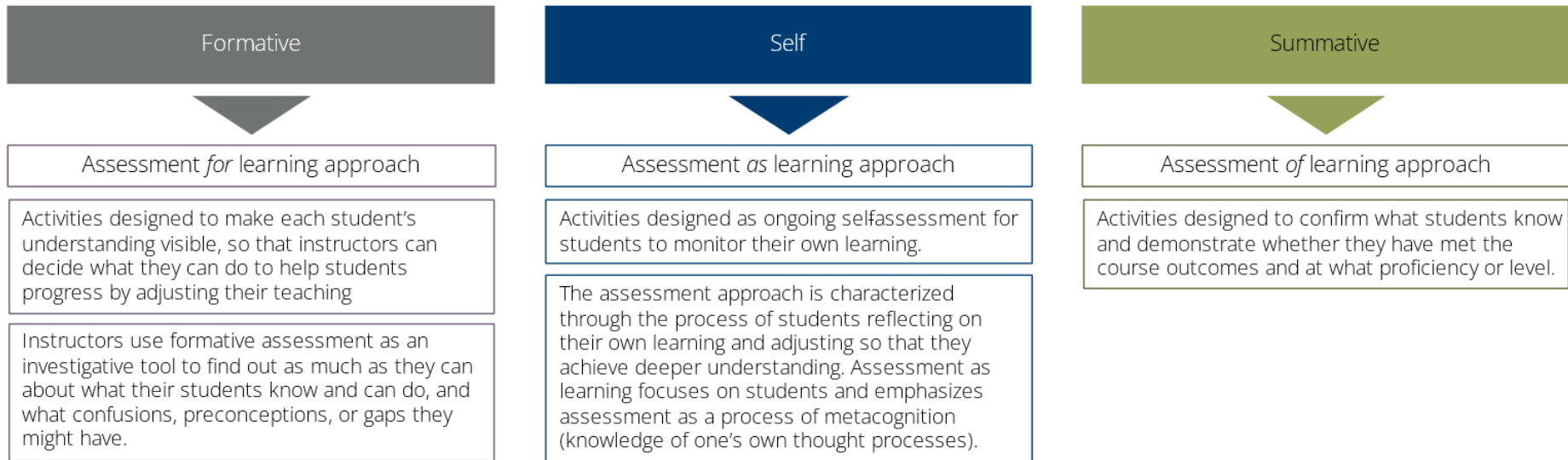
The goal is to select strategies to determine the extent to which students have met the intended outcomes.

Examples of assessment strategies include:

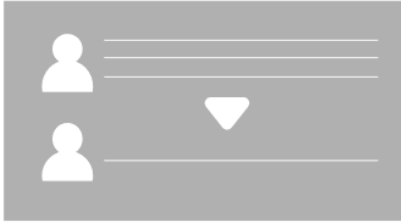
- Multiple choice exams
- Papers
- Presentations
- Learning journals
- Project reports
- Problem solving
- Peer evaluations

Assessment should be an ongoing process that takes place throughout the learning process using different approaches.

Types of assessment (but not limited to)



Examples of Assessment Strategies



One-sentence summary

Instructors use this technique to test students' ability to summarize a topic in one sentence, evaluating their concise, complete, and creative understanding.



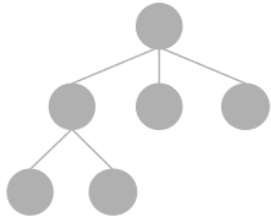
Annotated portfolio

Collection of student work with reflective explanations to show how they apply what they've learned. Instructors can see how well students can explain their applications.



The minute paper

Use a written prompt to encourage student reflection on recently taught material. Collect responses for review or have students discuss in pairs. Anonymous or signed submissions both have value.



Concept maps

These visually display the mental connections students make between a main concept and related concepts they've learned, providing insight into their conceptual growth and changes



Anecdotal notes

Instructor takes short notes during or after the lesson to reflect on students' progress toward outcome mastery. These notes help adjust instruction to meet student needs.



Patchwork test

Students complete various forms of writing each week, such as descriptions or critical incident analyses, and share their work in small groups to receive feedback. The final assignment is a selection of their writing presented within an interpretative reflective framework to explore an overall theme.



Exit ticket

Have students write down a question they have that didn't get answered during class and collect it before they leave.



In-class survey

Use a short, non-graded pop quiz to assess students' understanding of key concepts. Provide a set of prepared questions or have students answer questions on a slide

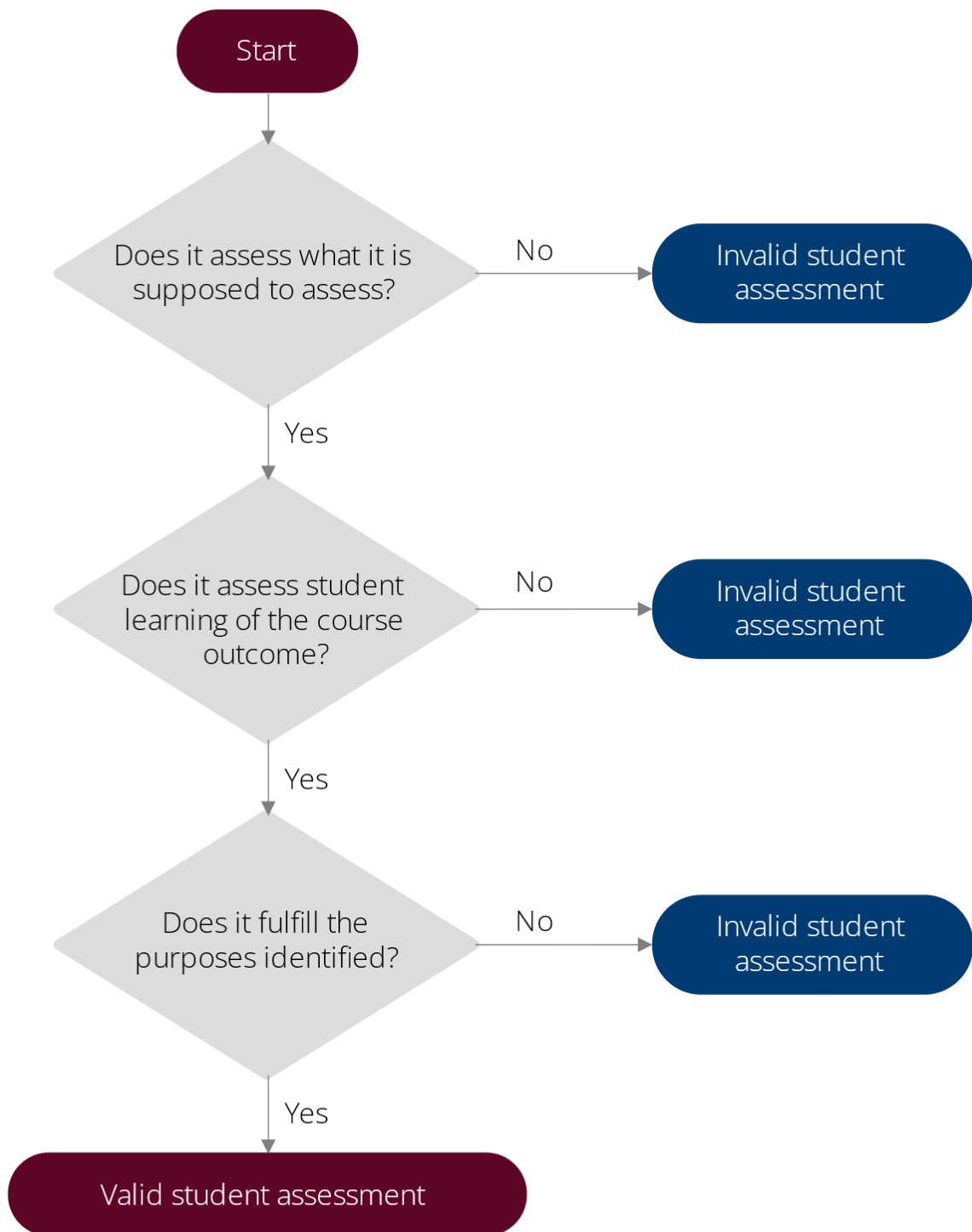


Who wants to be a millionaire?

This is a group quiz game where one student at a time answers questions to earn the "hot seat" and continues until they can no longer answer correctly. Contestants have three lifelines to help, and prizes are available at different stages. Difficulty increases as the quiz progresses.

Colors indicate the type of assessment

Creating Valid Student Assessments



Example of a Valid Student Assessment

Course outcome	Valid Assessment	Invalid Assessment
Build and test analog circuits using Op Amp	Project: Build a circuit embedded in an amplifier	Multiple-choice exam questions

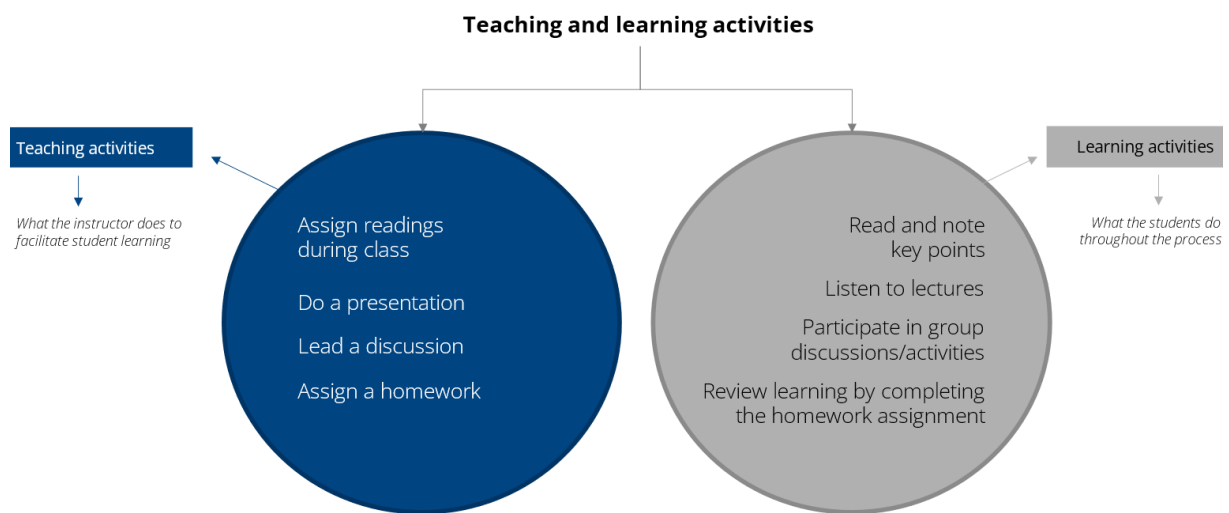
Check the validity of your assessments

Course outcome	How it is assessed


Teaching and Learning Activities



Teaching and learning activities are various methods and techniques used by the instructor to support students learning in the classroom. Delving into the activities of the instructor and how students will learn, creates a student-centered learning experience.



The chart shown on the next page gives some examples of teaching and learning activities aligned to various levels of the Blooms Taxonomy.



Levels of Thinking	Verbs	Teaching and Learning Activities
Create	Create, invent, predict design, devise, formulate, infer, hypothesize, produce	Design a survey, construct a concept map, participate in a role play, generate a plan, compose a song or a poem, develop a proposal to redesign a rural healthcare system
Evaluate	Judge, select, decide, debate, justify, verify, argue, assess, prioritize	Participate in a debate, panel discussion, prepare a case to present your view
Analyze	Analyze, sort, contrast, investigate, separate, defend, predict, differentiate, break down	Derive information from a flowchart, write an investigative paper, defend a statement
Apply	Solve, show, illustrate, model, draw, classify, use	Use a formula to solve a math problem, construct a model, classify items according to a given criteria
Comprehend	Explain, discuss, describe, compare, generalize, summarize, extend, paraphrase, match	Illustrate a main idea, summarize, match, do a diagram, graph
Remember	Tell, list, describe, locate, label, identify, memorize, define, describe	Write multiple choice questions, read, listen to lectures, write an item list, make a timeline

(Dyjur, et al, 2014)

Course Outcome Alignment Chart

For each course outcome, state the activities are most appropriate for students to meet the course outcomes.

Course Outcome <i>What should students be able to do, know, or value by the end of the course?</i>	Assessment Item(s) <i>What assessment methods will provide evidence that students have achieved the course-learning outcome? How will you give feedback to students regarding their performance?</i>	Teaching and Learning Activities <i>What teaching methods will you use to support students' understanding and learning of the course outcome? What learning activities will students be doing to enhance learning of the course outcomes?</i>	Level of Bloom's Taxonomy		
			Remember/ Comprehend	Apply/ Analyze	Evaluate/ Create
Build and test analog circuits using Op Amp	Circuit Plan Mathematical modelling Test circuit Circuit embedded in an amplifier	Teaching Activities Lecture on circuits Introduce examples of circuits by bringing in models. Ask questions Model mathematical equations Assign sample questions for group problem solving activities Assign homework Provide feedback as students develop test circuit (formative assessment)			
		Learning Activities Take notes during lecture Review examples of circuits and predict reactions due to changes based on questions. Answer questions using the Think-Pair-Share activity. Practice sample mathematical modelling Deepen learning by participating in group activities Complete homework assignment to review learning Apply knowledge in designing test circuits. Synthesize learning by embedding a circuit in an amplifier.			

For each course outcome, state the activities are most appropriate for students to meet the course outcomes.

Course Outcome <i>What should students be able to do, know, or value by the end of the course?</i>	Assessment Item(s) <i>What assessment methods will provide evidence that students have achieved the course-learning outcome? How will you give feedback to students regarding their performance?</i>	Teaching and Learning Activities <i>What teaching methods will you use to support students' understanding and learning of the course outcome? What learning activities will students be doing to enhance learning of the course outcomes?</i>	Level of Bloom's Taxonomy		
			Remember/Comprehend	Apply/Analyze	Evaluate/Create

Examples of Teaching and Learning Activities



Think-pair-share

Each person considers the topic/question and writes down some ideas/answers. S/he joins with one other person for discussion. This provides a good basis for wider discussion.



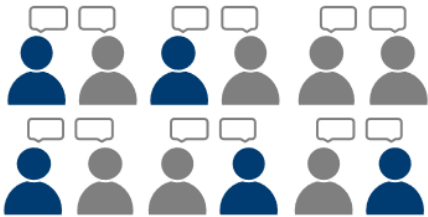
'Buzz' groups

Small groups of students come together to discuss an issue. They can discuss what they already know about the topic, what they are not sure about, and share their opinions on the topic.



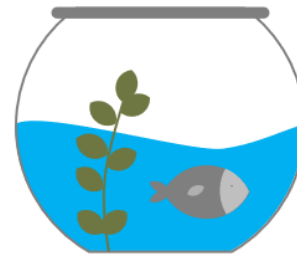
Case studies

A 'story' or scenario is presented to the group. Groups discuss the story or work together on questions.



Group discussion

This activity involves small groups discussing a topic with guidance from the lecturer. A set of questions is provided to structure the discussion, but larger groups can make it difficult for everyone to participate actively.



Fishbowl

One group discusses a topic while the other group observes and records either their partner's contributions or important parts of the discussion, depending on the task instructions.



Presentations

Individuals or small groups find information on a topic, then prepare and deliver a short informative session to the wider group.



Panel

Several 'experts' are invited to the session and answer questions from the class.



Question and answer session

An activity where a specific time is set aside for a discussion/answer session to check students' understanding of a topic. Questions can be submitted in writing or orally.



Group project

Students work in groups to research and present information, developing both cooperative skills and discipline content knowledge.



Brainstorming

Everyone thinks of as many different ideas as possible. All ideas are accepted and recorded without comment. The ideas are evaluated after a set time period or when inspiration ends.



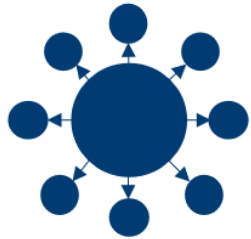
Student/teacher role swap

The facilitator asks students to write their ideas/information on the white board and then explain them. S/he places several white board pens on the desk and sits with class members.



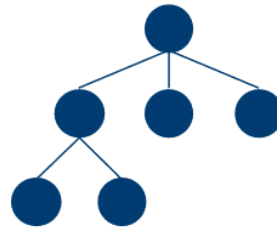
Matching

This activity is a way to divide a large group into pairs, where each member is given a card containing either a title or definition and must find their complementary partner. This helps students think about the topic and they then work together on an exercise or problem related to their cards. Afterwards, reporting on their findings widens the learning experience.



Withdrawal

While groups work together or alone on set work, the lecturer spends time with individual students or small groups. The individual assistance can be rotated through the course so that everyone gets a turn, or it can focus on people who need extra help.



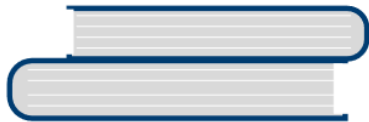
Concept maps

These visually display the mental connections students make between a main concept and related concepts they've learned, providing insight into their conceptual growth and changes.



Organizing information

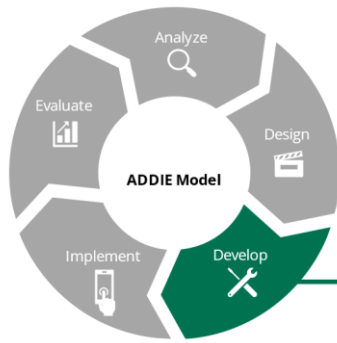
Students arrange out-of-sequence information items in order in pairs or small groups. Results are shared and discussed with the wider group. Information can be provided on a worksheet or in pieces.



Ignorance

Students write down questions they want to know before the class begins. They may share the questions, and then write more questions at the end of the session. These later questions may involve a higher level of thinking and can be used for further study.

Develop



During this phase, all elements of the course are developed. For instance, course readings and appropriate textbooks are identified, resources created, and rubrics developed if needed.

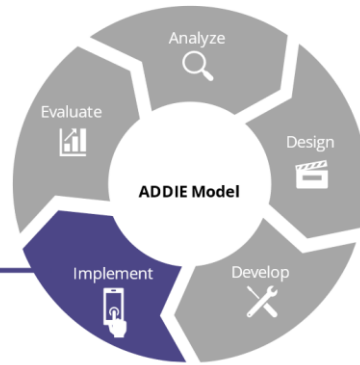
The checklist below can serve as an initial guide during the development phase.

		Comment
<input type="checkbox"/>	Course description accurate and listed on the university calendar.	
<input type="checkbox"/>	Learning outcomes are aligned to the program learning outcomes and accreditation requirements.	
<input type="checkbox"/>	Thorough context and learner analysis completed.	
<input type="checkbox"/>	Information collected through the analysis used to enhance the syllabus.	
<input type="checkbox"/>	Course schedule developed.	
<input type="checkbox"/>	Teaching, learning, and assessment strategies align with the expected outcomes.	

<input type="checkbox"/>	Resources required for the course have been developed.	
<input type="checkbox"/>	Required textbooks have been identified and listed.	
<input type="checkbox"/>	Develop lecture notes for lessons.	
<input type="checkbox"/>	Create required teaching and learning aids for example Power Point Slides, in-class activities.	
<input type="checkbox"/>	Develop assessment guidelines.	
<input type="checkbox"/>	Create rubrics.	

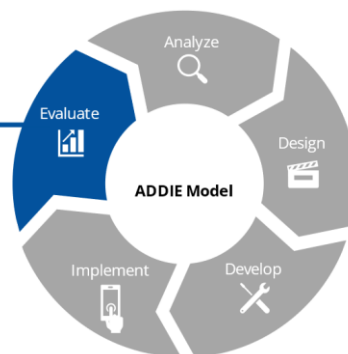
Implement

During this phase, the course is taught. Engaging in reflective practice during the delivery of the course, leads to the evaluation phase of the process.



Evaluate

During this phase, the developed syllabus can be evaluated in addition to the course delivery. However, to ensure effectiveness, the evaluation process needs to be intentional.



The guide used to support the course development process (pg. 27) could be used at this point to evaluate the effectiveness of the various elements of the course.

Other forms of evaluation can include reviewing assessment results from the course. Some examples include using the 3R-EC Model as a framework to reflect on the assessments and students' performance in relation to the required cognitive level and teaching practice (Brownlee, et al, 2017).

3R-EC Model for Reflection	
Stage 1	<p>Reflection – Reflect on the assessment and the processes involved</p> <p><i>How do my assessment practices connect with or align with the knowledge goals I have for my students? How well did the students responses demonstrate their learning of the content?</i></p>
Stage 2	<p>Reflexive Deliberation</p> <p><i>How can I better align my teaching goals, classroom practices, and assessments? How can the assessment be redesigned to accurately measure student learning? How can my rubric be redesigned?</i></p>
Stage 3	<p>Resolved Action – Engage in decisions to enact changes in practice</p> <p><i>What will I do?</i></p>

The **assessment blueprint** is another example of a framework that could be used for evaluating a course using students assessment results. An assessment blueprint can be defined as a map or plan of assessment to ensure all aspects of the educational domains are covered by the assessment programs over a specified period (Patil, et al, 2015). An example is given below:

No.	Learning Outcome	Cognitive Level	Assessment Type	Structure	Feedback	No. of Points	Students Performance	Reflect on Students Performance	Action
1	Build and test analog circuits using Op Amp	Create	Project: Develop a circuit in an audio amplifier	Plan Mathematical modelling Test circuit Project	Week 3 Week 4 Week 6 Week 10	10 10 20 30		<p><i>This includes reviewing how students learned based on their assessment results, teaching and learning strategies, and the effectiveness of resources used.</i></p> <p><i>Any reflection model can be used for this process including:</i></p> <ul style="list-style-type: none"> • Kolbs • Gibbs • SWOT analysis • 3R - EC 	<p><i>What changes need to be made if any, to enhance students learning in this course?</i></p>
2									
3									

Further Resources

1. Center for Teaching Excellence

- Course Design - <https://cte.tamu.edu/transform-learning/fundamentals/course-design>
- Learning Outcomes Module – <https://rise.articulate.com/share/pnQDKvqsyG1DucjIQCZ253-CJKMexndF#/>

The purpose of this module is to enhance instructional practice specific to creating or revising learning outcomes that meet TAMU's [Minimum Syllabus Requirements](#). Achieving this goal will also result in a set of learning outcomes that serve as a foundation for a well-aligned course. In support of these goals, the module provides the rationale for learning outcomes, defines learning outcomes, describes their structure, suggests an approach for their creation, and identifies resources and tools that support the process.

2. Dee Fink – Taxonomy of Significant Learning

Fink, D. L. (2005). A self-directed guide to designing courses for significant learning.

https://www.bu.edu/sph/files/2014/03/www.deefinkandassociates.com_GuidetoCourseDesignAug05.pdf

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* Adapted from Dyjur, P., Kelly, P., Yu, L., Norman, D., Bair, H., & Pedersen, R. (2014). Course design program manual.

Appendix

Cognitive Domain

The cognitive domain (Bloom, 1956) involves knowledge and the development of intellectual abilities.

			Key verbs	Examples
Increasing order of thinking skills ↑	Put elements together; reorganize elements into a new pattern or structure	CREATE	tell, list, recognize, describe, recite, locate, label, identify, memorize, define, match, name, outline, recall, reproduce, select, state	Students should be able to: <i>Generate</i> a business plan based on the clients' needs. <i>Produce</i> an Individual Program Plan (IPP) for students with a learning disability.
	Make judgments based on criteria and standards	EVALUATE	judge, select, decide, debate, justify, verify, argue, assess, prioritize, predict, appraise, conclude, critique, defend, evaluate, estimate, test	Students should be able to: <i>Debate</i> the extent to which human activities might affect climate change. <i>Critique</i> the methodology section of a research article.
	Break down and analyze the material's structure and purpose	ANALYZE	analyze, sort, contrast, investigate, separate, differentiate, break down, compare, diagram, deconstruct, illustrate, infer, outline, relate, organize, integrate, structure, calculate, modify, solve	Students should be able to: <i>Differentiate</i> between plant and dwarf plant. <i>Sort</i> a given set of plants by genus or species.
	Carry out or use a procedure or process theory in a given situation	APPLY	solve, show, classify, use, execute, carry out, implement, choose, report, apply, compute, construct, demonstrate, manipulate, modify, operate, prepare, produce	Students should be able to: <i>Solve</i> linear equations. <i>Use</i> rhetorical activities to make arguments in writing.
	Perceive meaning and grasp mentally	COMPREHEND	explain, describe, clarify, compare, generalize, summarize, extend, paraphrase, represent, exemplify, illustrate, classify, contrast, convert, distinguish, instantiate, estimate, give examples, infer, interpret, rewrite, arrange, match, paraphrase	Students should be able to: <i>Compare</i> different artistic painting styles. <i>Explain</i> the formation process of igneous rock.
	Retrieve relevant knowledge from long term memory	REMEMBER	analyze, sort, contrast, investigate, separate, differentiate, break down, compare, diagram, deconstruct, illustrate, infer, outline, relate, organize, integrate, structure, calculate, modify, solve	Students should be able to: <i>Locate</i> different countries on the world map. <i>Identify</i> styles of architecture in urban settings, such as Doha.

Affective Domain

The affective domain (Krathwohl, Bloom & Masia, 1973) includes the manner in which we deal with things emotionally, such as feelings, values, appreciation, enthusiasm, motivation, and attitudes.

			Key verbs	Examples
Increasing order of thinking skills ↑	Adopt belief system and philosophy	CHARACTERIZE	act, display, influence, solve, practice, propose, revise, defend, organize	Students should be able to: <i>Revise</i> judgments and change behavior in light of new evidence.
	Reconcile internal conflicts; develop value system	ORGANIZE	build, develop, formulate, defend, modify, relate, prioritize, reconcile, contrast, arrange, compare, propose, verify	Students should be able to: <i>Prioritize</i> emergency responses after a disaster.
	Identify values and express personal opinions	VALUE	demonstrate, differentiate, explain, justify, propose, affirm	Students should be able to: <i>Demonstrate</i> sensitivity towards individual and cultural differences.
	React and participate actively	RESPOND	react, respond, seek, discuss, interpret, clarify, provide additional examples, contribute, question	Students should be able to: <i>Participate</i> actively in a group by contributing to or building on new ideas.
	Open to experience; willing to listen	RECEIVE	ask, listen, focus, attend, take part, discuss, acknowledge, hear, read	Students should be able to: <i>Listen</i> to new information with neutrality.

Psychomotor Domain

The psychomotor domain (Simpson, 1972) includes physical movement, coordination, and use of the motor skills.

			Key verbs	Examples
Increasing order of thinking skills ↑	Create new movement to fit a particular situation or specific problem.	NATURALIZE	design, specify, manage, invent, convert, create, fix, generate, plan	Students should be able to: <i>Create</i> a new gymnastic routine.
	Adapt and integrate expertise to satisfy a new objective	ADAPT	construct, solve, combine, coordinate, integrate, adapt, develop, formulate, modify, master, illustrate	Students should be able to: <i>Drive</i> a vehicle in various weather conditions.
	Execute skill reliably, independent of help	PERFORM	demonstrate, complete, show, perfect, calibrate, control, measure	Students should be able to: <i>Fix</i> a leaking faucet.
	Reproduce activity from instruction or memory	EXECUTE	re-create, build, perform, execute, implement, follow	Students should be able to: <i>Follow</i> instructions to dissect a shark.
	Copy action of another; observe and replicate	IMITATE	copy, follow, replicate, repeat, adhere	Students should be able to: <i>Observe</i> and copy dance steps.