



UTM
UNIVERSITI TEKNOLOGI MALAYSIA

Handbook

SELF-INSTRUCTIONAL
MATERIAL DEVELOPMENT



CENTER FOR ADVANCEMENT IN
DIGITAL AND FLEXIBLE LEARNING

Universiti Teknologi Malaysia

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Introduction

Open and Distance Learning (ODL) at Universiti Teknologi Malaysia starts with 3 postgraduate programs:

- Master in Educational Technology
- Master in Forensic Engineering
- Master in Business Administration

This handbook serves as a reference material for ODL instructors to develop their own Self-Instructional Material which is very essential in the delivery of ODL Programs.

It discusses the description of SIM for ODL, how a learning environment should be design for ODL, the quality assuarance aspect of SIM development, the need to create or to adapt and the proposed checklist for instructors to refer to.

What is SIM?

In **classroom-based teaching**, the basic resource is the teacher. He or she may use other resources such as textbooks or audio-visual aids, but the teacher remains the central component of the system. He or she performs many functions. He or she:

- defines what is to be learnt,
- provides information,
- gives examples,
- explains,
- questions,
- sets learning tasks, both for individuals and groups,
- marks work,
- answers learners' questions,
- checks what learners have learnt,
- provides feedback to individual learners on their progress,
- provides other resources (e.g., textbooks),
- gives advice on how to use those resources,
- gives study advice, and
- helps with individual problems.

In **distance learning**, there is **no teacher**. The teacher is replaced by a combination of learning materials and tutors. Because tutors are expensive and because distance learners mostly study at home, the tutors are only involved with learners for short periods. This means that the learning materials have to carry out all of the 14 tasks above, except for marking work.

In other words, the learning materials themselves will define what is to be learnt, provide information, give examples and so on. Creating materials that can do this is a complex technical task. That is where the need for a good understanding of instructional design comes in – the subject of this handbook.

ODL MATERIALS versus OTHER EDUCATIONAL MATERIALS

How do ODL materials differ from other learning materials – in particular, traditional textbooks? To understand the answer to this question, it helps to start by looking at a typical ODL text layout and then explore how such layouts are derived from the theories of adult learning that were presented in section

You will notice that whilst the content of ODL materials is often quite similar to that of textbooks, ODL materials place much more emphasis on the processes of learning.

THE STRUCTURE OF ODL MATERIALS

If you glance at a random sample of ODL materials, you are likely to be struck by how different they look from traditional textbooks. Probably the four things that will be most noticeable are:

- the wide range of learning devices,
- the relatively low proportion of text compared to learning devices,
- the space that is often provided for learners to write their answers in, and
- the 'generous' layout overall.

ODL MATERIALS versus OTHER EDUCATIONAL MATERIALS


A. EMBEDDED DEVICES

The term 'embedded devices' seems to have been fashioned by Martens (1998) to describe all the devices that instructional designers include in their materials. Martens noted 23 different types of embedded device in the materials that he looked at. The most common include:

- **Learning Objectives**

In the following example, for each of the e-learning pages, it starts with an introduction where the instructor welcome the students to the page together with the synopsis and learning objectives and outcomes of the particular course.

WELCOME TO THE ENERGY BALANCE COURSE PAGE FOR SECTION 03



INTRODUCTION

Dear students,

I would like to welcome you to this e-learning page for the Energy Balance (SETK 2133) Course for Section 03. In this page you can find all the information related to this course and also any updates in terms of new or change of information. Please check this e-learning page frequently every week so that you do not miss any important information or updates.

I am Dr. Azizul Azri Bin Mustafa who will be the instructor for this section. My details are as follows: Phone: +6016-2195295; E-mail: azizul@cheme.utm.my

Best regards,
Dr. Azizul

SYNOPSIS

This course introduces students to the chemical engineering profession and the fundamental operations of chemical process equipment. It also provides students with the basic principles of chemical engineering energy balances as well as calculation techniques to solve energy balance problems for chemical process systems and equipment.

COURSE OUTCOMES

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

- CLO1 - solve energy balances with respect to changes in temperature, pressure and phase for non-reactive process.
- CLO2 - analyse the standard heat of reactions using Hess' Law, heat of formation and heat of combustions and then solve energy problems for reactive processes.
- CLO3 - develop Process Flow Diagram (PFD) with mass and energy balance calculations of chemical processes.
- CLO4 - conduct complex problem solving solution of mass and energy problem using principle of conservation.
- CLO5 - commit in preparation of learning experience using e-Portfolio

Fig 1: Example of Learning Objectives in a Course

ODL MATERIALS versus OTHER EDUCATIONAL MATERIALS

- Tests of Prior Knowledge

The example below is a quiz where students are tested based on the lesson that they have learned in the previous class. It can be provided at the beginning of the class, before moving with the next lessons.

8.05-8.25 am (20 mins) - Quiz

Answer the quiz below. The quiz is to test your understanding of heat capacity and how to estimate it for dilute mixtures. Write the solution in a piece of paper, scan and upload it before 8.25 am. All the best.

Question 1

Complete

Marked out of 10.00

Flag question

Edit question

- The heat capacity of a species is $58.7 \text{ J}/(\text{mol}\cdot\text{K})$. Remembering that the temperature unit in the denominator refers to a temperature interval, what is the heat capacity of this species in $\text{J}/(\text{mol}\cdot^{\circ}\text{C})$? Show calculation using a conversion factor. **(2 Marks)**
- A 0.100 wt % aqueous solution of sodium chloride is heated from 25 to 50 $^{\circ}\text{C}$. Estimate specific enthalpy change (cal/g) for this process. C_p for water is $1 \text{ cal}/(\text{g}\cdot^{\circ}\text{C})$. **(8 Marks)**

Fig 2: Example of Testing Prior Knowledge Session in a Course

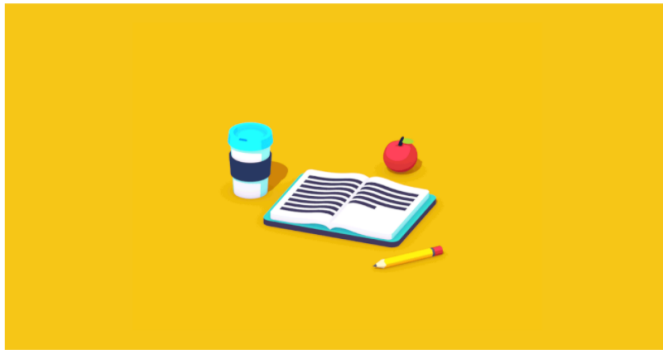
ODL MATERIALS versus OTHER EDUCATIONAL MATERIALS

- **Advance Organisers**

Brainstorming on the topics that will be learned. Students are asked to search for the topic. Then the lecturer will discuss with the students.

Brainstorming is one of the most popular ideation techniques. In this guide, we will learn why brainstorming is important, how to run an effective brainstorming session. Make sure to click the **BULB ICONS** to read on if you want to become a skilled brainstorming students and set the stage for creative and bold projects to get started.

 Brainstorming Ideas Submission



You must sketch and draw ideas at sketchpad to brainstorm approximately available innovative and unique versatile mobile application. To generate fresh ideas, participants need to consider some speedy tricks as below:

1. Find at least 3 references
2. Get an idea or a problem

Fig 3: Brainstorming activity to trigger students' interest

In this subject, an introduction to Mobile Learning Application development course, the instructor uses a mind map as an advance organizer. At the beginning of the lessons, students need to list three (3) existing examples of mobile apps available in the market that are able to solve any life problems using mind-map apps called sketchpad.

ODL MATERIALS versus OTHER EDUCATIONAL MATERIALS

- **Activities**

In this example, students need to conduct an activity after watching a recorded video lecture and the examples shown. Instructions are given in e-learning while the students need to share their solutions in Google Jamboard, a collaborative tool.

11.40 am-12.20 pm (40 mins) - Lecture 1 and Activity

Next, we will continue with a lecture on Molecular Representation, followed by this activity:

INSTRUCTIONS

- For these two chemicals: 1) Propylamine 2) Ethyl benzoate, provide the molecule representation using the following:
- 1) Chemical formula
- 2) Group vector (refer group list in Table 4.2 in text book)
- 3) Fragment-based adjacency matrix
- 4) Atomic-based adjacency matrix
- Provide your answers in Jamboard. Link [here](#). Discuss within your team.

SKTK 4143-02 Class 221121

Group 6

Propylamine

CCCN

1) C₃H₉N
2) Group vector
-CH₃
-CH₂
-CH₂NH₂

	CH ₃	CH ₂	CH ₂ NH ₂
CH ₃	0	1	0
CH ₂	1	0	1
CH ₂ NH ₂	0	1	0

Ethyl Benzoate

CCOC(=O)c1ccccc1

1) C₉H₁₀O₂
2) Group vector
-CH₃
-CH₂
-COO
-C₆H₆

	CH ₃	CH ₂	C ₆ H ₅	COO
CH ₃	0	1	0	0
CH ₂	1	0	0	0
C ₆ H ₅	0	0	0	1
COO	0	0	1	0

Open on a Jamboard

Fig 4: Example of Activities in a Course

ODL MATERIALS versus OTHER EDUCATIONAL MATERIALS

- **Feedback to Activities**

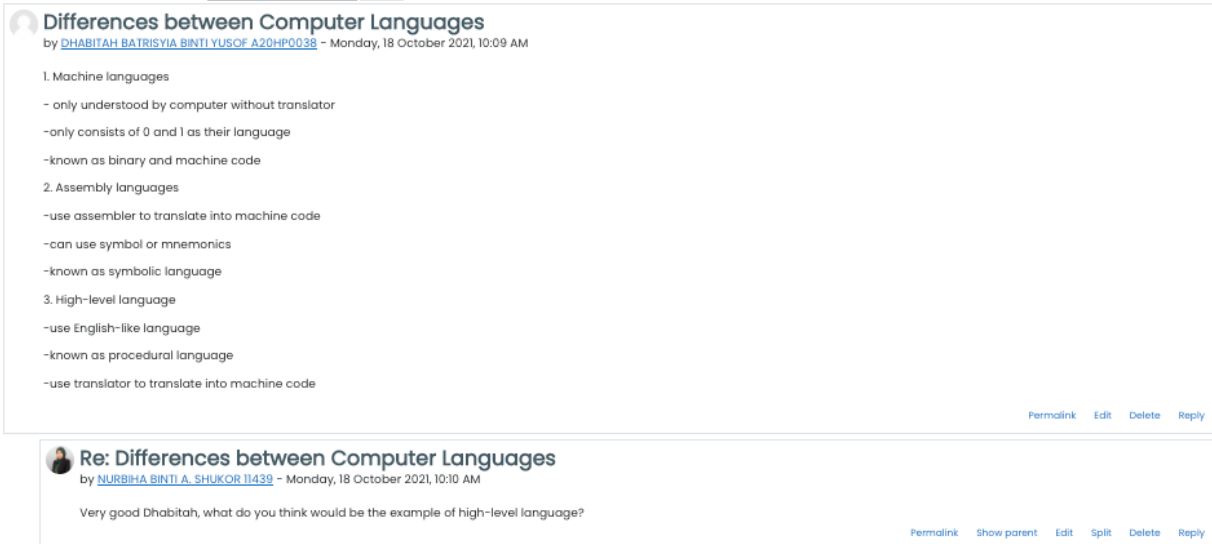
In this example, students have to discuss in a discussion forum on the different types of programming languages. Instructors then read the forum and give feedback to students' discussions.

Class Activity 1: Types of Computer Languages

There are many types of computer languages such as machine language, assembly language and high-level language.

Investigate the examples of each type. How did they differ? Share your findings in group Forum assigned to you.

15 minutes



The screenshot displays a discussion forum interface. The top post, titled "Differences between Computer Languages" by DHABITAH BATRISVIA BINTI YUSOF A20HP0038, lists three categories of computer languages: 1. Machine languages (understood by computer without translator, consists of 0 and 1, known as binary and machine code), 2. Assembly languages (use assembler to translate into machine code, can use symbol or mnemonics, known as symbolic language), and 3. High-level language (use English-like language, known as procedural language, use translator to translate into machine code). The bottom post, titled "Re: Differences between Computer Languages" by NURBINTA BINTI A. SHUKOR 11439, provides feedback: "Very good Dhabitah, what do you think would be the example of high-level language?". Both posts include action links like "Permalink", "Edit", "Delete", and "Reply".

Differences between Computer Languages
by DHABITAH BATRISVIA BINTI YUSOF A20HP0038 - Monday, 18 October 2021, 10:09 AM

1. Machine languages
 - only understood by computer without translator
 - only consists of 0 and 1 as their language
 - known as binary and machine code
2. Assembly languages
 - use assembler to translate into machine code
 - can use symbol or mnemonics
 - known as symbolic language
3. High-level language
 - use English-like language
 - known as procedural language
 - use translator to translate into machine code

Re: Differences between Computer Languages
by NURBINTA BINTI A. SHUKOR 11439 - Monday, 18 October 2021, 10:10 AM

Very good Dhabitah, what do you think would be the example of high-level language?

Fig 5: Lecturer giving feedback to a forum session assigned to students

ODL MATERIALS versus OTHER EDUCATIONAL MATERIALS

- Self tests

The following example shows the used of Concept Test which is a form of short quiz for students to self-check their understanding about the topic Programming Structure Concept.

Concept Test 3

Check your own understanding about programming structure concept. There will be 13 questions related to concepts of programming structure

SHPP2102-01 BAHASA PENGATURCARAAN (PROGRAMMING LANGUAGE)

[Dashboard](#)[My courses](#)[SHPP2102-01](#)[Programming Structure Concept](#)[Concept Test 3](#)[Preview](#)

Question 1

Not yet
answered

Marked out of
1.00

 Flag
question

 [Edit
question](#)

How can a programmer control the flow of a computer program?

- ☐ a. Using control structure mechanism
- ☐ b. Using flowchart

Quiz navigation

☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6

[Finish attempt ...](#)

[Start a new preview](#)

[Next page](#)

Fig 6: The used of quizzes for students to self-check their understanding

ODL MATERIALS versus OTHER EDUCATIONAL MATERIALS

- Summaries and Lists of Key Points

A **K-W-L table** or **chart** is a learning toolkit that implements *Think-Pair-Share* approach, which provides learners to think, summarize the important key concepts and share their understanding with their peers.

1st element; K-Know summarizes what the learners understand about the learning materials (slides, ebook, recorded videos, scenarios) for the specific topic or module.

2nd element; W-What allows learners to highlight the unclear aspects and will be scaffolded/responded by the instructor during the live meeting.

3rd element; L-Learnt provides learners to discuss the big ideas or the take away notes for the concepts of a particular topic and module.

The screenshot shows a Padlet interface with a K-W-L chart. The chart is titled "2021.SECJ 2253 RESM -02 KWL Chart Sharing Topic 6 Natural Language (NL) Text-based Requirements". The chart is organized into four columns: K-Know, W-What, L-Learnt, and Remarks, Feedbacks or Others. The K-Know column contains a list of requirements: "Incompletely specified process verbs", "Glossaries and Syntactic requirements patterns techniques can be used in avoiding ambiguity requirements.", and "Techniques in Avoiding Ambiguity Requirements in Topic 6". The W-What column contains a list of questions: "List any thing that you still wonder or unclear related to the (i), (ii) and (iii) areas in Topic 6". The L-Learnt column contains a list of responses: "Learned the transformation effects and the techniques on how to avoid them", "I have learned about the transformational effects @ cause", and "Recall the concepts of control structures when you learn PT1 - there". The Remarks, Feedbacks or Others column contains a list of comments: "No questions", "Ahmad Zulfikar (A19EC3003)", and "I have learned about the transformational effects @ cause". The chart also includes a "Rate" button for each response and a "Add comment" button for each response.

Fig 7: K-W-L Activity using a Padlet with students


ODL MATERIALS versus OTHER EDUCATIONAL MATERIALS

- Study Tips

Lecturer asks the students the meaning of success to them and their inspiration. Lecturer will share the picture of iceberg illusion and discuss with the students, factors that contribute to the success.

In this example, students are provided with an individual and a team assignment. For the team assignment, study tips (highlighted in maroon) are given to make sure that the students approach the questions given effectively rather than just divide the tasks individually and combine it later for submission.

+

TEAM AND INDIVIDUAL ASSIGNMENT 1 



Edit ▾

Dear students,

Attached below is your Individual and Team Assignment 1. Please read the instructions given carefully. The submission deadline is on **Sunday, 14 November 2021 before 12.00 noon**. If you have any problems, let me know. **For team assignment, I suggest that you follow this step, 1) solve individually, 2) compare solution and discuss, 3) come out with an agreed solution and submit.** Most of the questions are past test and finals. Submit the solutions through the links provided below. All the best.

Best regards,
Dr. AAM



+

 Individual Assignment 1 - SETK 2133 

Edit ▾

Mark as done



+


 Team Assignment 1 - SETK 2133 

Edit ▾

Mark as done



+


 Submission of Team Assignment 1 

Edit ▾ 

Mark as done

+

 Submission of Individual Assignment 1 

Edit ▾ 

Mark as done

Fig 8: An instructor giving step-by-step tips to start their assignments

ODL MATERIALS versus OTHER EDUCATIONAL MATERIALS

- Animations

There are many open source animation that can add values to ODL such as from the Phet website (<https://phet.colorado.edu/>) as shown below. It allows student to experience virtual experimentation so that they can have meaningful learning.

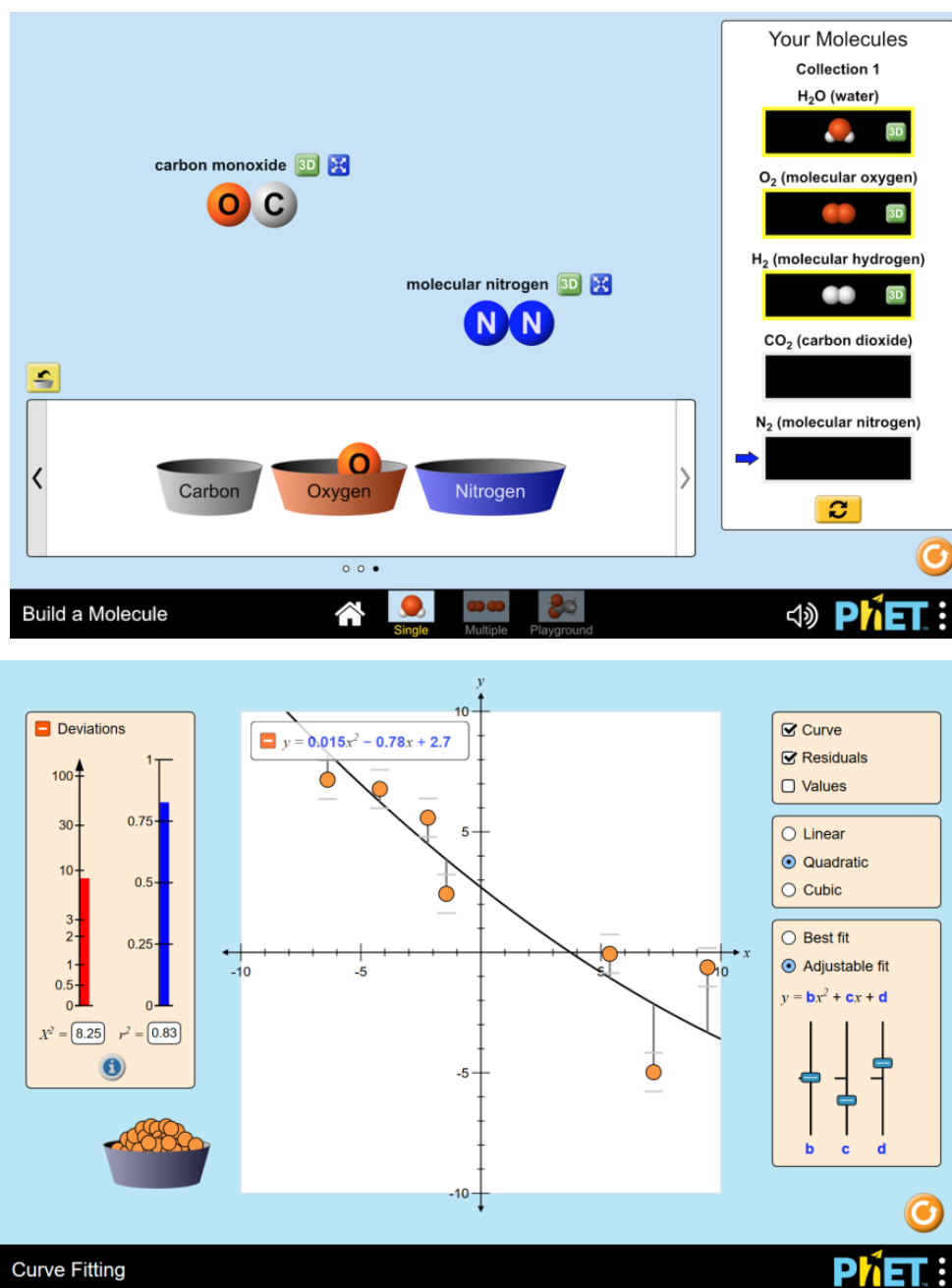


Fig 9: Students can manipulate variables using simulation in PhET

ODL MATERIALS versus OTHER EDUCATIONAL MATERIALS

- Hypertext

Hypertext is particularly useful in online learning environment for ODL and it is very easy to create. It allows students to quickly get access to information from other sources. The following is an example of hypertext material provided by an instructor in her digital learning notes.

The instructors construct learning materials utilising H5P and a hypertext link to promote interaction between students and information in this example. Each link will take students to a new website with more information to absorb.

Designer and Blocks Editor Overview

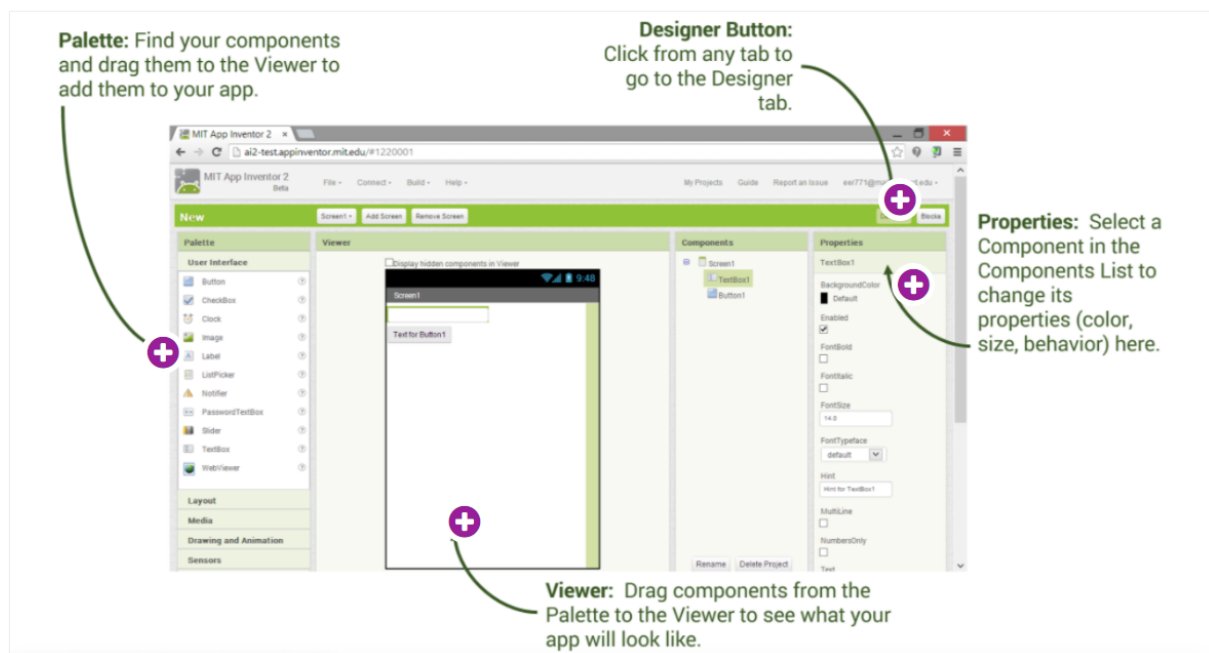


Fig 10: An example of hypertext material created using H5P tool in UTM ODL system

ODL MATERIALS versus OTHER EDUCATIONAL MATERIALS

B. SPACE FOR LEARNERS' ANSWERS

It is common practice to provide answer spaces in ODL text materials, reflecting the widespread teacher belief that this encourages learners to complete the activities. As Lockwood (1992) says, the evidence that this is the case 'is persuasive'. He reports research by Henderson (1993) which found that questions without answer spaces were answered by 40% of learners, but the same questions with answer spaces were answered by 90% of learners. Martens (1998) has also noted that learners who complete activities tend to do better on the course as a whole.

C. THE 'GENEROUS' LAYOUT

Writers on ODL instructional design repeatedly mention the desirability of a 'generous' layout and the liberal use of 'white space'.

(Interestingly, research supports the opposite case for web pages that are used for searching: see 'Reduce the amount of unused space on pages used for scanning and searching' at <http://usability.gov/guidelines/layout.html#five>.)

TYPES OF ODL INSTRUCTIONAL DESIGN

INTRODUCTION

There are many ways to classify instructional design. One simple but very useful way is that by Rowntree (1994):

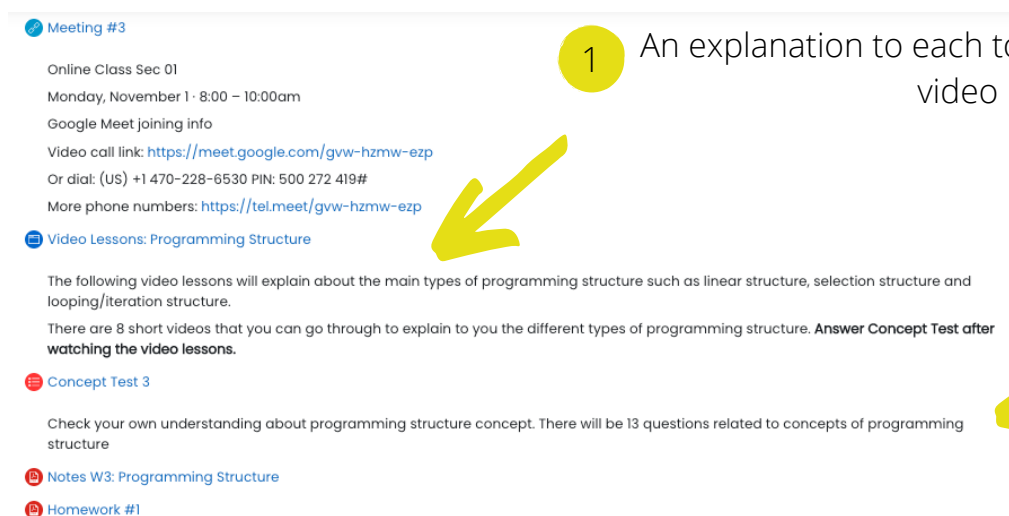
- tell-and-test
- tutorial
- reflective action guide.

These roughly correspond to behaviourist, cognitivist and constructivist approaches. The tutorial approach is the one most commonly used in ODL, although the reflective action guide approach can be found in quite a few university courses. It is important to note, though, that an instructional designer might use all three approaches in one course, depending on the learning objectives to be achieved at any one point in the course.

TYPES OF ODL INSTRUCTIONAL DESIGN

TELL-AND-TEST

In this approach, each topic consists of a piece of explanatory text (with diagrams and examples as needed) followed by a test to check whether the learners have learnt the material. A course might consist of tens or hundreds of such tell-test sequences. The emphasis of the method is on memorising rather than understanding. The advantage of this type of material is that it is comparatively easy to produce and can easily be created from existing teaching notes or lecture notes. The disadvantage is that it contains almost none of the cognitive devices thought to be necessary by researchers for long-term retention and none at all of the constructivist devices.



Meeting #3

Online Class Sec 01
Monday, November 1 · 8:00 – 10:00am
Google Meet joining info
Video call link: <https://meet.google.com/gvw-hznmw-ezp>
Or dial: (US) +1 470-228-6530 PIN: 500 272 419#
More phone numbers: <https://tel.meet/gvw-hznmw-ezp>

Video Lessons: Programming Structure

The following video lessons will explain about the main types of programming structure such as linear structure, selection structure and looping/iteration structure.

There are 8 short videos that you can go through to explain to you the different types of programming structure. **Answer Concept Test after watching the video lessons.**

Concept Test 3

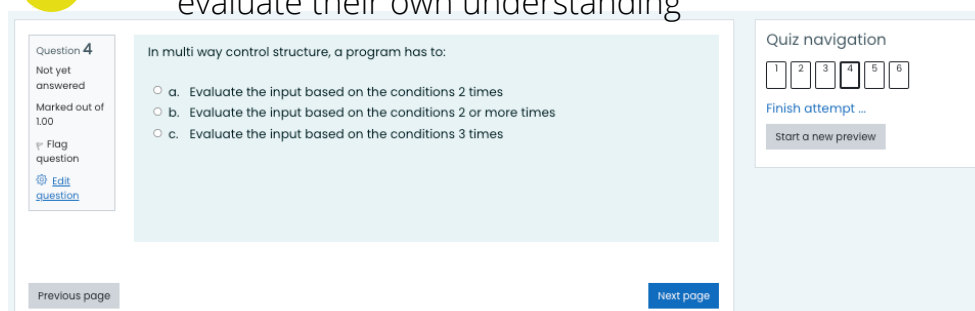
Check your own understanding about programming structure concept. There will be 13 questions related to concepts of programming structure

Notes W3: Programming Structure

Homework #1

1 An explanation to each topic is provided in video

2 Students have to answer short quiz to evaluate their own understanding



Question 4
Not yet answered
Marked out of 1.00
Flag question
[Edit question](#)

In multi way control structure, a program has to:

- ☐ a. Evaluate the input based on the conditions 2 times
- ☐ b. Evaluate the input based on the conditions 2 or more times
- ☐ c. Evaluate the input based on the conditions 3 times

[Previous page](#) [Next page](#)

Quiz navigation
1 2 3 4 5 6
[Finish attempt ...](#)
[Start a new preview](#)

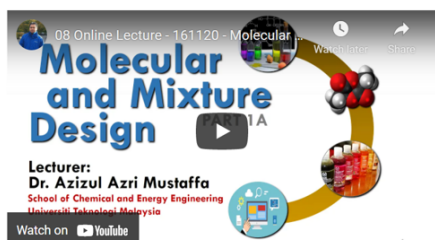
TYPES OF ODL INSTRUCTIONAL DESIGN

TELL-AND-TEST

In the example below, after going through the recorded video lecture where examples are also provided, students need to do an activity in order to test their understanding of the lesson. Discussions with the students later on will be conducted.

11.05-11.30 pm (25 mins) - Lecture 1

Watch and study the pre-recorded lecture video below on the overview of molecular and mixture design. Any questions, please ask in MS Teams.



11.30 -11.50 am (20 mins) - Activity 1

Based on the lecture video above, perform the following activity.

INSTRUCTIONS

- Given the list of needs-functions or application (see case studies below) of a molecular product (single type of molecules), translate it into a measurable properties.
- Provide 2 example molecules (existing organic chemicals) which can satisfy the needs-function and provide the values of the properties.
- Post your answers in Jamboard (link [here](#)). You can use sticky notes, text or write in a paper and upload the image. Write your name.

CASE STUDIES

- 1) A solvent must be in a liquid form at the extraction process of 25 °C
- 2) To avoid harmful condition, especially when a process is near to ignition sources, a solvent used in a process must be non-flammable
- 3) Perfume is a mixture of fragrant oils in a solvent. When the perfume is sprayed, the solvent needs to be evaporated right away, leaving the fragrant compound in the perfume

Fig 11: An example of tell and test activity in an engineering course

This style of teaching is rarely seen in ODL materials nowadays. But, it is a style that has returned to ODL in many of the web-based courses now on offer. Large numbers of these 'instant' online courses are simply SECTION 117 lecture notes turned into web pages with, sometimes, a set of self-test questions at the end.

TYPES OF ODL INSTRUCTIONAL DESIGN

TUTORIAL

The tutorial approach is characterised by the writer presenting some form of input (e.g., text, diagram, case study) and then setting an activity on it (see Example 2). The activity seeks to help the learner understand the material being taught. A complete unit consists of a succession of input-activity sequences. In this way the material mimics the teacher who gives some input and then asks a question or sets a task in the classroom.

FORUM for TUTORIAL 1 : Get Started With Adobe Animate CC

Watch the video provided : **Get Started With Adobe Animate CC.**

Try to work with Adobe Animate CC by your own.

1. **Working** with **panel**, **layer**, **frame**, and **stage**
2. **Add** an **image** and **text**
3. **Upload** your **.fla** file in the forum
4. **Due** is on **Week 4**



Fig 12: An instructor gave an input and later assign activity for students to complete

This is the dominant style in text-based ODL materials and the one on which this handbook concentrates. The tutorial model works very well when the material to be taught is a well-defined body of knowledge and methods. Thus, it works well for topics as diverse as:

TYPES OF ODL INSTRUCTIONAL DESIGN

TUTORIAL

An example for Engineering related course is shown below. It works less well for subjects such as management studies (because there is no one right way to manage) and creative writing (because every writer must find his or her own way to write). It is worth noting that the tutorial style was developed for use in print ODL materials. It can be extended to the web, but care needs to be taken in the navigation of web tutorial sites. The tutorial method assumes a carefully controlled order of presentation of input, activity and feedback. If learners are allowed to freely navigate a web site, this order will be lost and so will undermine the tutorial's structure. To avoid this problem, course web sites should be constructed with careful control over hypertext links.

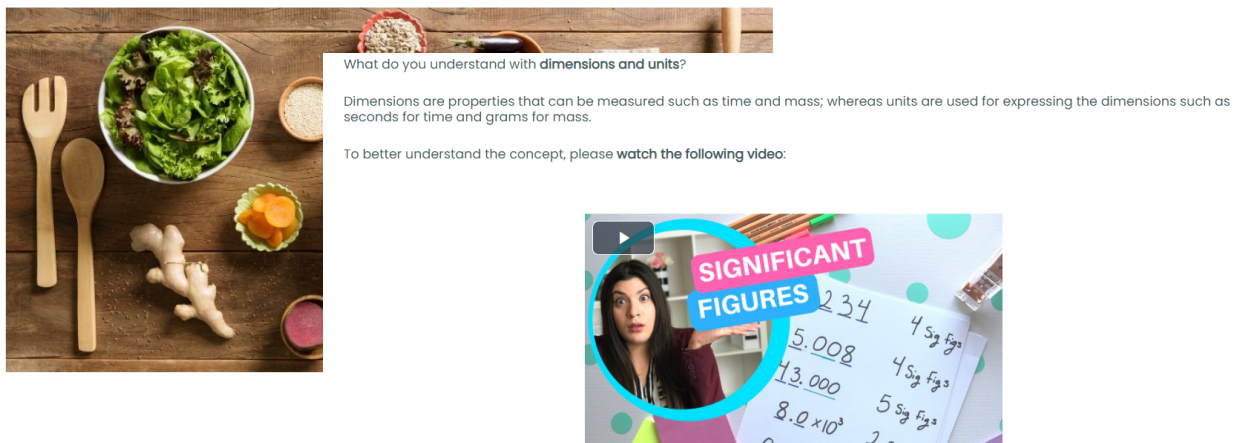
DIMENSIONS AND UNITS

LEARNING OUTCOMES:

After completing this module, you will be able to convert one set of unit into its equivalent in any other dimensionally consistent units using appropriate conversion factors.

Example context of the concepts

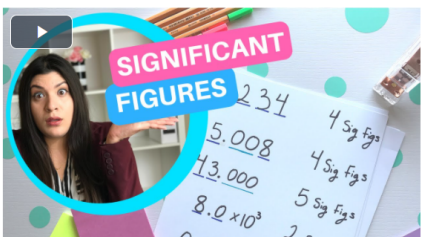
Emma was watching an Asian cooking show on television and she decided to try out one of the new recipes shared by the chef. As she was about to prepare and measure the ingredients, she realised that she was not familiar with the measurements used in the recipe. This situation could be one of the many applications of unit conversion in our daily life.



What do you understand with **dimensions and units**?

Dimensions are properties that can be measured such as time and mass; whereas units are used for expressing the dimensions such as seconds for time and grams for mass.

To better understand the concept, please **watch the following video**:



After watching the video above, please answer the **Questions Set A** below and record your answer in the Forum below before 12th February 2021.

Questions Set A

Fig 13: An example of Tutorial in an ODL Engineering course

TYPES OF ODL INSTRUCTIONAL DESIGN

REFLECTIVE ACTION GUIDE

Reflective action guides take an essentially constructivist approach to materials design. Such materials usually aim to support learners in learning from their own experiences (e.g., at work).

Typically such materials will:

- specify broadly defined aims but no precise learning outcomes;
- set projects;
- set tasks that require the learners to engage with others (who, for example, may be other learners or people at work);
- encourage the learners to record and reflect on their own experience (e.g., by keeping a learning journal);
- set activities that are open-ended, often being based on the learners' own experiences.

TYPES OF ODL INSTRUCTIONAL DESIGN

REFLECTIVE ACTION GUIDE

- specify broadly defined aims but no precise learning outcomes

Table 1 shows how learning outcome is planned for the subject Authoring System.

Lesson is divided into two components which the learners have to navigate the learning materials which consists of actions to be completed.

Table 1: Example of Project for Authoring System subject

Lesson no	3
Platform	Adobe Animate CC or Flash CS6
Title	Frame-by-Frame Animation
Objective	Animate series of graphics by using the Frame-by-Frame animation technique
Lesson Overview	<p>In this activity, you will learn and reflect the following:</p> <p>Actions:</p> <ul style="list-style-type: none">• Create Frame-by-Frame animation in a single movie clip symbol• Create a motion path as a guide to motion Frame-by-Frame animation <p>Reflective video:</p> <ul style="list-style-type: none">• Reflect the action of Frame-by-Frame animation• Compare between Frame-by-Frame animation and motion path
Video Link	https://www.youtube.com/watch?v=tl90Cz1ySvs&t=64s
Material Link	https://goo.gl/3EWLvn
Reflection Link	https://flipgrid.com/efac1e6e

TYPES OF ODL INSTRUCTIONAL DESIGN

REFLECTIVE ACTION GUIDE

- set projects;
- set tasks that require the learners to engage with others (who, for example, may be other learners or people at work);

The following example shows the setting of project in students' learning environment.

The task requires learners to set up a group that consists of stakeholders to choose the suitable test for a corrosion monitoring scope of work. They need to discuss the suitability of the test from a viewpoint as a stakeholder.

There are many types of standard tests available for corrosion monitoring in reinforced concrete structure. Decision on the type of test need to be brainstorming among the stakeholders involved in the corrosion monitoring project. Form a group to choose for the most suitable test for corrosion monitoring and defends your selection. The stakeholders can be from a client and test laboratory representatives.

Example of collaborative discussion:

HALF CELL POTENTIAL TEST Group members:
Izzaty, Deli & Saiful

Test	Principle of Test	Purpose/s	Others
Standard Test Method	<p>Corrosion monitoring technique standardized in Standard Test Method of Uncoated Reinforcing Steel in Concrete : ASTM C876-15</p> <p>References electrode will be placed on the surface of concrete and connected to the other half cell represented by the embedded rebar</p> <p>To determine the potential corrosion of steel in concrete</p>	<p>Used to determine the probability of corrosion within the rebar in reinforced concrete structures</p> <p>Locate corroding rebars and the present corrosion condition of the reinforcement during the inspection and condition assessment of RC structure</p> <p>To check corrosion and strength of surface area to corrosion</p>	<p>Test that suitable mainly on reinforced concrete structures exposed to the atmosphere</p> <p>Test carried out to check the extent of repair</p> <p>Fast result of estimating corrosion and can be done on uneven or curved surface</p> <p>The test can estimate the potential corrosion but cannot clearly explain its rate and nature</p> <p>It may lead to mistakes in cases where the concrete is water saturated, carbonated & exposed to very low temperature</p>

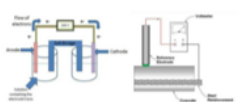
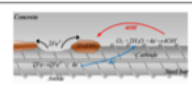



Figure 1 Modified concrete corrosion reaction

Fig 14: An instruction where a project is set and the task is described

TYPES OF ODL INSTRUCTIONAL DESIGN

REFLECTIVE ACTION GUIDE

- set projects;
- set tasks that require the learners to engage with others (who, for example, may be other learners or people at work);

Alternatively, the used of case studies is also encouraged. The following is an example where case studies are used where the related documents were given to the learner to analyse and discuss the technical issues. Based on the case study and related standard, they will conduct a reflective action to analyse and recommend suitable solutions.

EXAMPLE: Example of a reflective action tack based on a case study.

Case Study

Read this notes

The notes contain information regarding in-situ testing to determine the strength and integrity of a structure.

BS 12504

Figure 1 shows one (1) concrete core with 150 mm diameter drilled from a beam component in reinforced concrete jetty investigation work. Unfortunately, there is one (1) steel reinforcement which has been cut off during the process. The size of steel reinforcement is 25 mm diameter normal to the core axis and positioned at 40 mm from one end. The measure crushing load from compressive strength test is 450 kN. Based on your knowledge and understanding:

- (1) Discuss how the cut-off steel reinforcement affecting the results of your concrete core?
- (2) Define the integrity of your beam component using a suitable standard (e.g. BS EN 12504-2) based on the concrete core strength. State your assumption when determine the concrete core strength.



Figure 1: Concrete core

Fig 15: An example of reflective action using case study

TYPES OF ODL INSTRUCTIONAL DESIGN




REFLECTIVE ACTION GUIDE

- encourage the learners to record and reflect on their own experience (e.g., by keeping a learning journal);


The following example shows keeping of students' journal using Flipgrid tool.

The reflection can be recorded via reflective tools which are necessary for the students to check and improve their progress of learning.

Groups / MPPP1223 / Class Reflection for ODL

Join Code: [efac1e6e](#) [Member view](#)   

Oct 18, 2020

 Moderated Topic

Class Reflection for ODL

12 Responses • 116 views • 0 Comments • 3.5 hours of engagement

Class Reflection for ODL

12 Responses [Export Data](#) [Print QR Codes](#)
















<input type="checkbox"/>	Name	Date	Comments	
<input type="checkbox"/>	 USTAZAH NABILAH R 0 views	Nov 8, 2021	-	  Hidden  
<input type="checkbox"/>	 SHAHFADIR BIN DRAHMAN M 0 views	Nov 8, 2021	-	  Hidden  
<input type="checkbox"/>	 Mahani Abu Talib 0 views	Nov 8, 2021	-	  Hidden  

Fig 16: Reflection activity by students

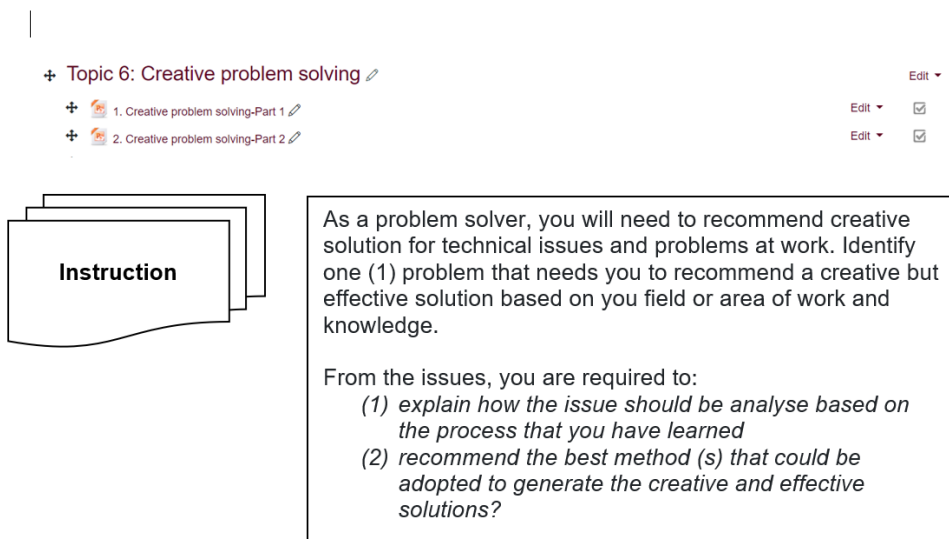
TYPES OF ODL INSTRUCTIONAL DESIGN

REFLECTIVE ACTION GUIDE

- set tasks that require the learners to engage with others (who, for example, may be other learners or people at work);

In the following example, the learners will need to read notes on creative problem solving topics. After completing the activity, they will need to give explanations based on their understanding, knowledge and experience.

EXAMPLE: Example of a reflective action task based on the learners' own experience.



The screenshot shows a user interface for a learning management system. At the top, there is a header bar with a plus icon and the text "Topic 6: Creative problem solving" followed by an edit icon. Below this, there are two sub-topics listed: "1. Creative problem solving-Part 1" and "2. Creative problem solving-Part 2", each with a plus icon, a document icon, and an edit icon. To the right of these sub-topics, there are two "Edit" buttons with dropdown arrows and checkmark icons. Below the sub-topics, there is a box labeled "Instruction" containing the following text:

As a problem solver, you will need to recommend creative solution for technical issues and problems at work. Identify one (1) problem that needs you to recommend a creative but effective solution based on you field or area of work and knowledge.

From the issues, you are required to:

- (1) *explain how the issue should be analyse based on the process that you have learned*
- (2) *recommend the best method (s) that could be adopted to generate the creative and effective solutions?*

Fig 17: Reflective action using problem solving

TYPES OF ODL INSTRUCTIONAL DESIGN

PROBLEM BASED LEARNING: A VARIATION OF REFLECTIVE ACTION GUIDE

Problem-based learning is similar to the reflective action guide type of instructional design, and even considered by some people to be a fourth type of instructional design. It is an approach that is widely used in medicine and engineering in particular.

Burgess (nd) describes problem-based learning as that which 'starts from a problem, a question or a scenario, within which a number of themes or dimensions of learning are present'. In other words, complexity is a characteristic of the items used in problem-based learning. Problem-based learning is used to encourage higher level learning skills (such as critical thinking), problem solving skills and deep learning (Poon et al., 1997; Burgess, nd).

It is also seen as an approach that encourages self-directed learning in which students become responsible for their own learning and the teacher becomes a facilitator of learning (Poon et al., 1997; Burgess, nd). The basic principles of problem-based learning are:

- to set a practical problem; and
- to leave students to access whatever sources they wish to come up with a solution.

Whilst problem-based courses may include tutor-prepared ODL materials, students are also likely to need to make use of other materials such as libraries, the web, databases and so on.

As an approach, problem-based learning has been found to compare well with traditional methods in terms of promoting on-the-job performance and higher level learning, but less well in terms of increasing basic knowledge (Burgess, nd).

TYPES OF ODL INSTRUCTIONAL DESIGN

MIXING INSTRUCTIONAL DESIGN TYPES

It is perfectly acceptable to mix the types of ODL design within a course to suit different needs. The most common mix would be a combination of tutorial to cover outcomes associated with well-defined material, and reflective action guide to cover less well-defined material.

For example, a course on interviewing might contain some very well-defined outcomes (e.g., ones to do with how to use open and closed questions) and some material on the total experience of being an effective interviewer. The former part might be done using a tutorial approach and the latter might be done using a reflective action guide.

The following can also be done:

- Mixing Tell and Test and Tutorial Types
- Mixing Tell and Test and Reflective Types

TYPES OF ODL INSTRUCTIONAL DESIGN

- Mixing Tell and Test and Tutorial Types



Meeting 3

Project Management in design and production of mobile application for teaching and learning



Notes : Project & Development Management

Done: View

There are many issues that could arise during project development process. Among the main issues would involve: Cost, Timeline and People How would you tackle them?



Share your project management planning here

#Synchronous Class activity

You will be developing a mobile learning apps in group.

- Suggest one mobile learning apps to be developed
- Identify your team member
- Build a matrix chart of required skills to help describe your team.
- Layout the phases, tasks and work items along with the timelines.
- Use Gantt Chart & Milestone

In this example, the instructor combines two learning strategies: tutorial and tell and test. The activity begins with students reading the material provided in pdf format and working in groups to construct their own project management using Gantt Charts and Milestones. They will then receive feedback from the teacher and make the necessary changes to their submission.

So, to recap: project management tools help you organize projects to avoid issues such as incomplete project an low quality output.

Check out our video on project management tools below for more information:



Mark as done



Self-assessment (Quiz on Project Management)

Mark as done

The learning continues with a Tell and test technique, with extra notes delivered in video format, and students then taking a quiz to test their own understanding. Students can take the quiz as many times as they want.

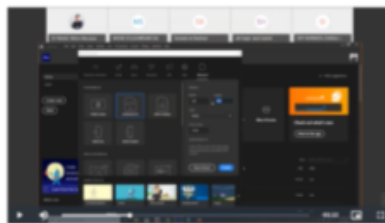
TYPES OF ODL INSTRUCTIONAL DESIGN

- **Mixing Tell and Test and Reflective Types**

The mixture of tell and test and reflective learning provides students with opportunity to demonstrate their understanding by showing the instructor their recorded works in which the instructor can add extra reinforcement in the forms of video, notes or discussion. Students can also record their reflections in the multimedia format i.e. text, audio or video.

Webinar 1: Introduction to Animate CC, Trace Bitmap & Tweening

Video rakaman webex berkaitan dengan kuliah pengenalan kepada Animate CC, Trace Bitmap dan Tweening. Mohon ambil kesempatan untuk lakukan sesi hand-on seperti dalam seksyen yang berasingan dengan menyertakan hasil akhir dalam bentuk fail Animate CC beserta dengan refleksi anda.



[Add a new discussion topic](#)

Discussion	Started by	Last seen by	Replies	Subscrib
Shahar Tweening	 MICHE NABILA ... 27 Mar 2021	 MICHE ZULKARNI ... 8 Jul 2021	45	
Latihan Animasi 27 Mar 2021 (tweening animasi)	 MICHE NABILA ... 27 Mar 2021	 NABILA BINTI ... 8 Jul 2021	45	
Contoh file Animate CC	 MICHE NABILA ... 27 Mar 2021	 NABILA BINTI ... 8 Jul 2021	37	



[Details](#) Closed Captions

USTAZAH NABILAH R

Nov 8, 2021 · 1:26pm · 1 view [More details](#)

Refleksi Syafiqah Nabilah

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Fig 18: Students doing reflection through videos

QUALITY ASSURANCE CHECKLIST FOR INSTRUCTIONAL MATERIALS

INTRODUCTION

A good self-instructional resource will not only provide information, but will also clarify

- what needs to be learnt,
- provide examples,
- answer questions,
- assign learning tasks,
- allow learners to self-assess, and
- offer study suggestions.

To aid distant learners, open and distance learning instructors should be able to design and construct relevant Self-Instructional Materials. The Checklist for Open and Distance Learning Instructional Learning Materials was established to aid instructors in reviewing learning materials supplied for their online course, providing greater programme quality and consistency, as well as a competency- and Outcome-Based Education approach.

A typical unit in a self-instructional material has the following structure:

- Introductory Unit
- Learning Material/Resources
- Learning Activity
- Assessment

QUALITY ASSURANCE CHECKLIST FOR INSTRUCTIONAL MATERIALS


- **Introductory Unit**

Before the start of Unit /Lessons, students must be introduced to an overview of what they are about to learn, who will be teaching them and communication information.

Guidance is also required for the learners while they try to learn new material. Units / Lessons can be structured compartmentalised in self-learning resources. Each unit normally starts with a brief recap of what the learners have already learned/studied (i.e. pre knowledge) in the previous unit(s), followed by an introduction to the new learning points/experiences. This aids in the formation of a link between what the learner already knows and what he or she is about to learn.

1. Course learning outcomes for each topic
2. Instructor information is available
3. The course synopsis was clearly stated in the course
4. Course Learning Outcome must be clearly stated

WELCOME TO THE ENERGY BALANCE COURSE PAGE FOR SECTION 03



INTRODUCTION

Dear students,

I would like to welcome you to this e-learning page for the Energy Balance (SETK 2133) Course for Section 03. In this page you can find all the information related to this course and also any updates in terms of new or change of information. Please check this e-learning page frequently every week so that you do not miss any important information or updates.

I am Dr. Azizul Azri Bin Mustafa who will be the instructor for this section. My details are as follows: Phone: +6016-2195295; E-mail: azizul@cheme.utm.my

Best regards,
Dr. Azizul

SYNOPSIS

This course introduces students to the chemical engineering profession and the fundamental operations of chemical process equipment. It also provides students with the basic principles of chemical engineering energy balances as well as calculation techniques to solve energy balance problems for chemical process systems and equipment.

COURSE OUTCOMES

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

- CLO1 - solve energy balances with respect to changes in temperature, pressure and phase for non-reactive process.
- CLO2 - analyse the standard heat of reactions using Hess' Law, heat of formation and heat of combustions and then solve energy problems for reactive processes.
- CLO3 - develop Process Flow Diagram (PFD) with mass and energy balance calculations of chemical processes.
- CLO4 - conduct complex problem solving solution of mass and energy problem using principle of conservation.
- CLO5 - commit in preparation of learning experience using e-Portfolio

Fig 19: An introductory unit in an online learning space

QUALITY ASSURANCE CHECKLIST FOR INSTRUCTIONAL MATERIALS

- Learning Material/Resources

The learning material / resources offered must be able to guide students through the course goals in the time allotted. Determine what resources are missing from the textbook or lecture notes that could have aided the student in achieving the learning outcome through self-paced learning.

1. The reference provided in the course can be access / download easily

MAIN REFERENCES

OPEN TEXTBOOK

-  Teacher Transition into Innovative Learning Environments : A Global Perspective by Wesley Imms and Thomas Kvan(2021)
-  The Role of Technology in Education by Fahriye Altınay (2020)
-  Creating Online Learning Experiences by Matt Crosslin et al. (2018)

WEBSITE

-  OECD OFFICIAL WEBSITE – Innovative Learning Environment Project

Fig 20: A list if references should be provided to students in ODL

QUALITY ASSURANCE CHECKLIST FOR INSTRUCTIONAL MATERIALS

- Learning Material/Resources

2. Many materials provide additional supplementary knowledge in this course

A **pressure** is the ratio of a force to the area on which the force acts.

$$\text{Pressure} = \frac{F}{A}$$

If the unit of force is N and area is m^2 , then the unit of pressure is N/m^2 . The SI unit of pressure is **Pascal (Pa)**. Forces acting on a smaller surface will produce a greater pressure and vice versa.

Read this article to learn about pressure application in your daily life – [Click Here](#).

Watch the following video to have a better comprehension on pressure and its application.



Now, try Question 1 and record your answer in Padlet – [Link](#).

Prior to the class please fill up the questionnaire on Learning Style below:

<https://educationdesignsinc.com/index-of-learning-styles/>

Dear all, below are the important task that we have discussed in class today:

1. Team Presentation – Will be conducted during our Wednesday class, 20th Oct 2021. During this presentation, each team need to present their team name, team motto and logo, team goals as well as rules and regulation. Presentation can be done using ppt and 3 min are given for each team. All team members need to take part during the presentation.

2. Team log book – example of team log book is attached. Remember the role for each member need to be rotate for each meeting. The roles are as below:

a. **Moderator** – set meeting, deadlines, time keeper etc

b. **Scriber** – jot down discussion ideas, updating log book etc

c. **Skeptic/accuracy** – need to critically assess the information, ideas etc

d. **Reporter/checker** – act as spokesman for the team and should be the one to update us when needed.

3. Individual Learning Portfolio – See attachment

4. Engineering Overview (EO) assignment – Checkout the EO group assignment as well as the articles attached. Some of the articles link are below:

<https://www.loc.gov/rr/scitech/SciRefGuides/eng-disciplines.html>

<https://sites.tufts.edu/eeseniordesignhandbook/2013/an-engineers-path-to-critical-thinking/>

https://rdmc.nottingham.ac.uk/bitstream/handle/internal/112/Engineering%20Sustainability/17_the_engineer_s_role_in_sustainability.html

<https://monash.edu.my/news-and-events/pages/latest/articles/2019/industrial-revolution-4.0-and-the-future-of-engineering>

5. **Peer Teaching Notes** – Remember for the EO assignment, you need to submit individual **peer teaching notes** (PTN) based on the articles and link provided. Please refer to the attached how to prepare a PTN below. The deadline is on 25th Oct 2021 at 8 am.

+ Indexed of Learning Styles

Mark as done

Edit

Fig 21: Various resources should be made available to students in ODL

QUALITY ASSURANCE CHECKLIST FOR INSTRUCTIONAL MATERIALS

- Learning Material/Resources

3. The learning materials in video format is original.

Information Search

Speaker: Dr. Muhammad Arif Ab Aziz

SETK1511 SEMINAR INDUSTRI & PROFESION (INDUSTRIAL SEMINAR & PROFESSION)

SEMINAR ON:

The Art of Information Search

3 Nov 2021, 2.00 – 3.00 pm (MYT)

Dr. Muhammad Arif Ab Aziz
School of Chemical & Energy Engineering
Faculty Engineering
Universiti Teknologi Malaysia

Link Webex: <https://bit.ly/3nByG20>

School of Chemical and Energy Engineering, Faculty of Engineering, Universiti Teknologi Malaysia
<https://www.facebook.com/schoolchemicalenergyutm>

UTM

Reflection Journal

Speaker: Ir. Dr. Zaki Yamani Zakaria

SETK1511 SEMINAR INDUSTRI & PROFESION (INDUSTRIAL SEMINAR & PROFESSION)

SEMINAR ON:

How to Make the Best Out of Your Reflection Journal

3 Nov 2021, 3.00 – 4.00 pm (MYT)

Ir. Ts. Dr. ZAKI YAMANI ZAKARIA
School of Chemical & Energy Engineering
Faculty Engineering
Universiti Teknologi Malaysia

Link Webex: <https://bit.ly/3nByG20>

School of Chemical and Energy Engineering, Faculty of Engineering, Universiti Teknologi Malaysia
<https://www.facebook.com/schoolchemicalenergyutm>

UTM

Reflection Journal Talk Video Recording: <https://www.youtube.com/watch?v=CxNJ5tJZLTU>

Another Video about Reflection Journal that Shows you How to write Reflection journals with 3 examples:



Fig 22: Videos should be prepared by the instructor or from a known reliable source

QUALITY ASSURANCE CHECKLIST FOR INSTRUCTIONAL MATERIALS

- Learning Activity

All learning in distance education is essentially a personal activity. Every distance learner works on his own and at his own pace for which there is need for individual tutoring, as may be required. From the behaviourist viewpoint distance learning can take place through the process of **stimulus-response**, and '**feedback**' comes from the distance teacher in terms of tutor comments. Whereas cognitive theorists view that the distance learner can learn through discovery, in which case feedback comes from the distance learner himself in terms of **successful completion of the learning activity**.

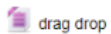
1.The learning activity is provided for each Unit/Topic

Meeting 3

Development of stand-alone application project – interactive quiz

After completing this topic, you should be able to:

- Creating Input & Output Fields
- Developing Multiple Choice Questions:
- Text Entry Questions, Drag and Drop Questions etc.

[Mark as done](#)

Sesi Hand-on: Menu Utama

[Mark as done](#)

Webinar 3: Kuliah Button Type - Hit, Menu Utama, KeyPress, GoTo Scene and Stop

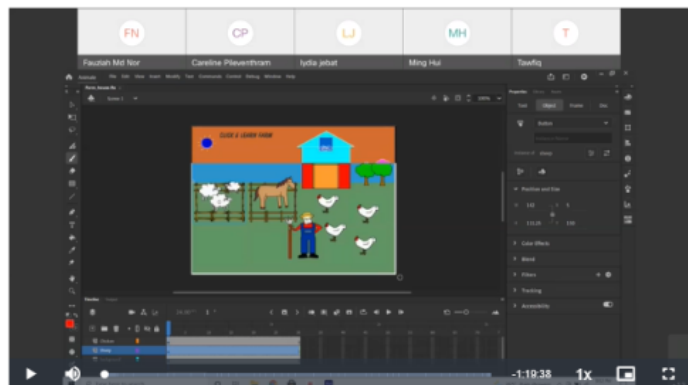
[Mark as done](#)

Fig 23: Example of learning activities in an online learning space

QUALITY ASSURANCE CHECKLIST FOR INSTRUCTIONAL MATERIALS

- Learning Activity

2. The instructions for each Unit/Topic are available and easy to understand.

Students' learning space should be equipped with clear, accurate and concise instructions as to what they have to do for every Unit/Topic. This is so that they can learn without the presence of their instructor. An example is shown below.

Meeting 8

Discussion of other issues

After completing this topic, you should be able to:

- Adding security into your web-based application - Development of Admin Page
- Distribution of web page through the Internet
- Uploading web page files to a server
- Development of Mobile Apps through Dreamweaver and other applications

Contoh Projek

BRIEFING PROJEK DAN FINAL EXAM

- Internet and Computer Availability & Compatibility Form for Online Final Exam
- Online Final Examination Procedure Consent Form
- Quiz Dreamweaver
- Perbincangan Berkaitan Dengan Isu-Isu Authoring System Bhgn 2

Fig 24: Instructions explicitly written for students in the ODL space

QUALITY ASSURANCE CHECKLIST FOR INSTRUCTIONAL MATERIALS

- Learning Activity

3. The self-learning materials are available in multi format.

To tackle to students' needs, students should be supported with different types of materials such as text, video, audio, or animation. The following example shows the multi format resources available to students for a specific learning Unit.

The screenshot displays a learning unit titled "Development of basic interactive application - montage". Below the title, it states "After completing this topic, you should be able to:" followed by a list of learning objectives. The resources are organized into sections: "Animate CC/Flash", "Animate CC/Flash working area, workspace and panel", "Working with texts and graphics, sound and video", and "Motion and Simple Animation". Each section contains a list of resources with icons indicating their format: a blue circle with a play button for video, a red square with a document icon for text, and a blue circle with a folder icon for animation. Three yellow arrows point to specific resources: "Animate Basic Activity - Resting man", "Flash Symbol, Instance and Shape", and "Animate CC/Flash Hand-on: Angry Bird Tweening".

Development of basic interactive application - montage

After completing this topic, you should be able to:

- Working with Animate CC/Flash work area, work space and panel.
- Working with texts and graphics, sound and video
- Motion and Simple Animation

Animate CC/Flash

- Class Reflection
- Introduction to Animate CC/Flash

Animate CC/Flash working area, workspace and panel

- Animate work area, workspace and panel
- Animate Basic Activity - Resting man

Working with texts and graphics, sound and video

- Drawing with Animate CC/Flash
- Flash Symbol, Instance and Shape
- Creating frame by frame animation

Motion and Simple Animation

- Flash motion and animation
- Animate CC/Flash Hand-on: Angry Bird Tweening
- Webinar 1: Introduction to Animate CC, Trace Bitmap & Tweening

Fig 25: Availability of resources in many format

QUALITY ASSURANCE CHECKLIST FOR INSTRUCTIONAL MATERIALS

- Learning Activity

4. A platform for group communication is accessible

The following example shows the communication channel using Padlet application embedded in UTM ODL system for students' communication related to the given task.



Fig 25: A medium for students to communicate for learning using Padlet

QUALITY ASSURANCE CHECKLIST FOR INSTRUCTIONAL MATERIALS

- Assessment

The online course should make it clear how students will be evaluated during the course. To supplement the self-paced learning provided, self-assessment should be available.

1. How students will be assessing is clearly explain in the course

The following figure shows the mapping of assessment and Program Learning Outcome as well as the student learning time. It also details put the weightage of all the related assessment that the students need to know. It is stated clearly in students' learning space.

Continuous Assessment		PLO	Percentage	Total SLT
1.	IP	PLO1 (KW)	20	As in CLO1 (19h)
2.	IP	PLO7 (NS)	10	As in CLO3 (25h)
3.	GP (Simulation)	PLO10 (ENT)	10	As in CLO5 (24h)
4.	CAD	PLO11 (ETS)	30	As in CLO3 (22h)
Final Assessment			Percentage	Total SLT
5.	FEEP	PLO2 (CG)	30	As in CLO2 (19h)
Grand Total			100%	120H

Group Assignment (Due Meeting 6) [✎](#)

Edit [▼](#) [🔗](#)

Mark as done

Group Assignment 30% from coursework

Form a group consist of maximum 4 students. Each group are required to choose any 2 topics from the following topics of discussion. For each topic, find one current issues in finance to be discussed which providing the root caused of the issue, your own view and suggested solution in resolving the issue. Submission due date **3 JUL 2021, Saturday midnight**.

The topics are:

1. Agency theory
2. Transaction cost theory,
3. Stakeholder theory,
4. Corporate Governance,
5. Corporate ethics,
6. Risk and financial stability,
7. Breach of Financial Contract

For group who fail to submit on the due date, the mark will be deducted.

Fig 26: Details about assignment/assessment is communicated clearly to students in the ODL system

QUALITY ASSURANCE CHECKLIST FOR INSTRUCTIONAL MATERIALS

- Assessment

2. The self- assessment is available for each Unit/Topic

The following figure shows the example of how the instructor explained to the students the self-assessment that they have to follow through for every topic.

The figure displays a digital learning interface with four main panels:

- In-Situ Testing Phase:** Features a photograph of a building under construction with scaffolding. Below the image, the text reads: "Strength, Integrity and Durability Assessment Techniques".
- Self-directed learning (self assessment):** Contains a Padlet link "utm" and a "CORE TEST" section. The instruction states: "Instruction: (1) Read the lecture notes. (2) By referring to exercise given in the lecture slide on the in-situ testing, please calculate the compressive strength of the concrete core of the".
- Learning Activities:** Displays a Google Jamboard titled "DURABILITY TEST - Google Jamboard". The text explains: "Jamboard activity- this activity will be conducted as a group discussion. You need to discuss as per given group and report the findings in the Jamboard. Click the link for submission." Below this is a table with columns: "Topic", "Principle of Test", "Parameters", and "Others".

Topic	Principle of Test	Parameters	Others
1. A group of students...
2. A group of students...
3. A group of students...
4. A group of students...
5. A group of students...
- Synchronous session:** Includes the Cisco Webex logo and the URL "utm.webex.com". It states: "Meet virtually with Cisco Webex. Anytime, anywhere, on any device. We will conduct a synchronous session for this particular topic. Therefore, please prepare yourself prior to our class. The details for the class is given below: - 29 March 2021 @ 5 PM 17 Mar 2021 @ 5:30 PM".

Fig 27: Students are explained about the self-assessment that they can take at their own time and space.

Appendices

The following appendix will be useful for ODL instructors to develop SIM.



01. SIM Development Quality Assurance Process

It details out the processes that one can go through for quality SIM.



02. Student Learning Times for SIM List

It shows how an instructor can estimate student learning time based on the materials that they provide.



03. SIM Checklist

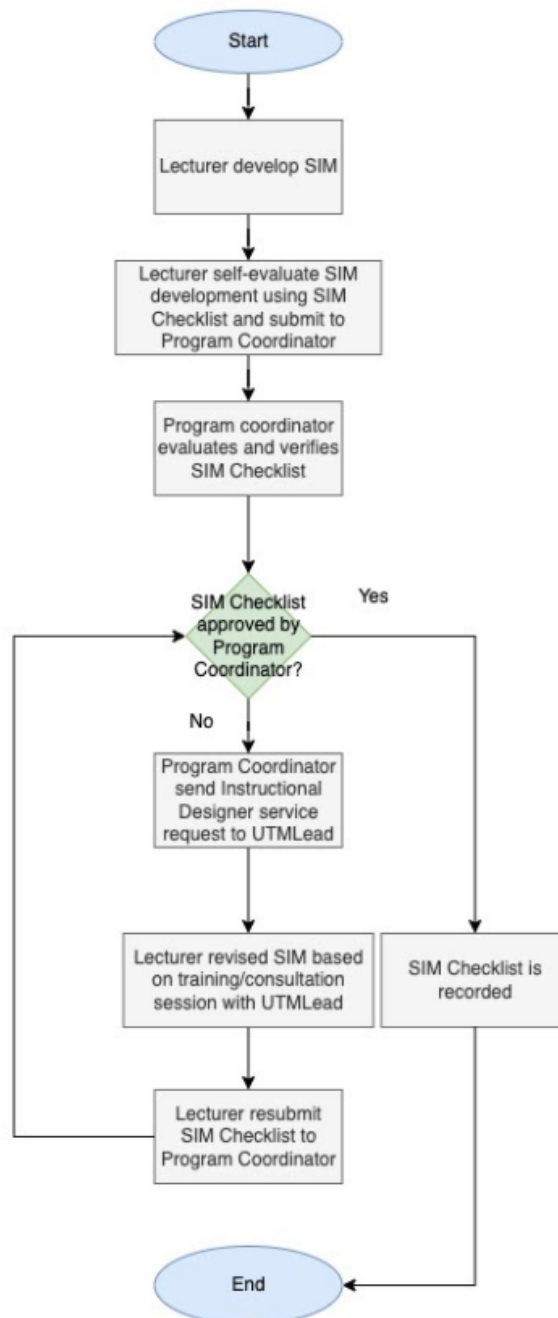
It provide guidance for an ODL instructor to check if they have met the minimum requirement for their online learning space before ODL can start.

Appendices



01. SIM Development Quality Assurance Process

The following figure shows the processes that an instructor has to go through to check the approval of their developed SIM.



Appendices



02. Student Learning Times for SIM List

The following example of calculation can be used to estimate the SLT based on the provided SIM.

Student Learning Times for SIM List

COURSE NAME :

COURSE CODE :

SEM / SESSION :

Learning Materials	Type (ie. pdf / youtube video / moodle quiz etc)	Category (Original / Adopt / Adapt)	Student Learning Time
TOPIC /UNIT 1			
- Lecture video (pre-recorded)			20 minutes
- Group activity (Discussion)			60 minutes
- Self-assessment (Quiz)			60 minutes
- Reading material (Notes)			20 minutes
TOPIC / UNIT 2			
- Live webinar			120 minutes
- Tutorial (Notes with activity)			60 minutes
- Web References			30 minutes
- Self-assessment (Quiz)			20 minutes
TOPIC / UNIT nth			
-			
-			
-			
TOTAL (**Minimum SLT for 3 credit hours should be 42 hours)			

Appendices



02. Student Learning Times for SIM List (cont.)

The following example of calculation can be used to estimate the SLT based on the provided SIM.

Example tasks and completion times, 3-credit online course

Teaching & Learning Activity	Time
Viewing three, 15-minute lectures (video)	1 hour
Exploring links - https://www.uxbooth.com/articles/designing-for-mobile-part-1-information-architecture/	½ hour
Reading assignments	1 hour
Completing a 10-item online quiz	1 hour
Posting to discussions (original post, responses to three classmates' posts, responses to responses)	45 minutes
Small group project meetings (web conference or asynchronous discussion)	1 hour <input type="checkbox"/>
Work on final research paper and presentation	1½ hours
Total	6 hour 45 minutes

References :

Turner, T. (2005). Student workload in the online course: Balancing on a rule-of-thumb. Educator's Voice, 6(3).

Appendices



03. SIM Checklist

It provides guidance for an ODL instructor to check if they have met the minimum requirement for their online learning space before ODL can start.



Checklist for Open and Distance Learning Instructional Learning Materials

This checklist will help content owner to verify that their Instructional Learning material is comply with the basic standard for UTM Open and Distance Learning course.

Course Code & Name	Academic Session

Instructor / Coordinator Name (s)

1. Checklist	Yes	No
a. What will be learnt in the course were clearly established (based on Course Learning Outcome)		
b. Instructor information is available (Name, Contact number, email, website, profile photo etc.)		
c. The course description included a detailed summary.		
d. The Course Learning Outcome were clearly stated		
e. An outline of the topics covered in the syllabus is available.		
f. Timetable and meeting link is available		
g. A platform for group communication is accessible.		
h. Learning resources for reference provided		
i. In this course, many materials provide further supplementary knowledge.		
j. The course clearly states how students will be assessed.		
k. Student learning time for this course is suitable		
l. The learning materials, activities and assessment provided are aligned with Course Learning Outcomes.		
m. Webinar/Online Meeting are recorded and published for students' reference and revision.		

2. How many Unit / Topics lists are available in this course?

Appendices



03. SIM Checklist (cont.)

It provides guidance for an ODL instructor to check if they have met the minimum requirement for their online learning space before ODL can start.

3. Quality of Unit / Topic (*Please indicate the availability of the following in your online course.)	Yes	No	Comments
a. The Unit/Topic description was available			
b. The unit/topic learning outcomes is clearly stated in each unit/topic			
c. Each Unit/Topic is straightforward, so students know what to do, and the sequence of instruction is also clear.			
d. The self-learning materials are available in multi format of each Unit/Topic			
e. The self-learning material in each Unit/Topic is suitable to support self-directed learning			
f. Self-assessment is available at the end of each Unit/Topic to check whether students understand the Unit/Topic.			
g. Many materials provide additional supplementary knowledge in each unit.			
h. Activity for students to self-check their understanding (ie. forum, quiz, etc) is available			
i. At least 50% of the overall Unit/Topic must have original learning resources in video format.			

4. ODL Active learning Award Checklist	Yes	No	Comments
a. Course Outline / Course Information (≥ 1)			
b. Resource (≥ 14)			
c. Activity (≥ 6)			
d. Assessment (≥ 4)			

5. Comment on the checklist – for improvement

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