

How to use the Engineering Maths CAL Material

0.0



Introduction

The core of the new Open Learning Approach is the set of workbooks you have been given. However, your mathematics course also has its own website, on which you can find materials designed to support your learning. Some of you may find that a computer — used perhaps in conjunction with the workbooks — helps you learn mathematics more effectively. (For instance, keypoints can be highlighted in ways that are impossible on the printed page; you can step through the material at your own pace; and you can attempt questions as many times as you wish.) Remember, though, that the computer-based material has not been designed to replace people. If you run into problems — get help from a human!

The purpose of this introductory unit is to describe the materials on the website, to tell you how to access the website, and to suggest possible ways of using the material.



Prerequisites

Before starting this Block you should ...

- ① be reasonably familiar with computers
- ② be familiar with a Web browser (preferably Internet Explorer)



Learning Outcomes

After completing this Block you should be able to ...

- ✓ access the **learn** server
- ✓ access the Engineering Mathematics web page and use the support materials you can find there



Learning Style

To achieve what is expected of you ...

- ☞ allocate sufficient study time
- ☞ briefly revise the prerequisite material
- ☞ attempt *every* exercise

1. Accessing the learn server

As discussed earlier in this booklet, **learn** is a university web server that contains support material on a module-by-module basis. You should investigate what **learn** has to offer for all your courses — not just mathematics.

You can access **learn** in several ways. The CAL Launcher offers one route into **learn**. You can also access **learn** via the central services menu: use a mouse to point to

Start -> Programs -> Central Services -> Teaching and Learning Server

After entering your username and e-mail password, the **learn** home page should now be visible.

The easiest method of accessing **learn** is simply to enter the following url into your browser (and then bookmark the site so that henceforth you can go directly to the page):

<http://learn.lboro.ac.uk/>

Click on Materials Index Page then follow the department and degree programme of your choice.

2. Accessing Open Learning Project material on learn

There are two ways of accessing the Engineering Mathematics material on **learn**: either go to the **learn** home page and follow the Open Learning Maths Project link under Other Resources; or enter (and then bookmark!) the following url into your browser:

<http://learn.lboro.ac.uk/olmp/>

This link works from anywhere on campus — and off campus too. (If you intend to access the material only from a PC lab supported by Computing Services, or by PC running the Halls Service package, then you should have no problems. If you intend to access the material from a Mac, or from a computer off-campus, then there are certain technical matters you need to be aware of. These points are discussed in detail under the help section on the Open Learning Project home page.)

3. The Open Learning Project home page

You will find it useful to have these notes at hand while the open learning material is visible on your screen. So if you have not already done so, go to <http://learn.lboro.ac.uk/olmp/> now.

You will see that the home page contains five links:



[Workbook](#)



[Animations](#)



[Revision questions](#)



[Help](#)



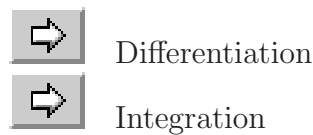
[WWW resources](#)

Clicking on either an icon or the text below the icon takes you to support material. First, follow the animations link.

Animations

If you followed the link marked ‘Animations’ you will see a list of links to various blocks. When the project is complete, every block of self-study material will be supported by CAL material. At the moment, only blocks in chapters 6–17 have associated CAL material.

Simply click on the block that interests you, and within a few seconds the title screen of that block’s animation will appear. The title screen will always look the same. Beneath the title you will find a brief description of the contents of the block and, beneath that, one or more buttons that will take you to a particular section. For example, referring to the diagram below, pressing the top button would take you to a section on differentiation; pressing the bottom button would take you to a section on integration.



After you press one of the buttons, the title screen will disappear and you will see first page of your chosen section. Look at the top right-hand corner of the screen: inside a box you will see **in green** something like “Page 1/2”. This means that the section contains two pages of material and that you are on the first page (note that a page can contain several screens of material).

The material is multimedia — a mix of text, graphics and sound (some video too). We think that the audio aspect of the material is important, so you should use headphones if at all possible. The material is also interactive: most blocks contain questions that you are expected to answer before proceeding. These questions might require you to use the mouse — to draw a vector, for instance. More often, they will require you to enter a number as the answer to a calculation. So be prepared: when you sit down at the terminal make sure that you have with you a pen, some paper and a calculator.


Follow the instructions on the screen. Often, this means that you are presented with some text and then have to press the continue button in order to see more text. (You will gain most from this material if you *think* about the material. Try to anticipate what will come next; try to complete the next stage in an argument before it is presented to you; if you are asked to do something before proceeding — do it. Don’t just sit there and idly press the continue button!)

When a page is finished, the box at the top right-hand corner of the screen will turn **red**. You can then either navigate to the next page in the section, or return to the title screen to choose another section. Or perhaps you want to quit the animation altogether. These tasks are accomplished by using the navigation toolbar at the bottom right-hand corner of the screen. The toolbar is always visible. (If you put your cursor over any icon in the toolbar, you will see a short pop-up message describing the icon’s function. Once you have some experience with the system, this might prove irritating. You can turn off the pop-ups at any time by using the menu item entitled “Pop-ups”, found at the top left-hand corner of your screen.)



So that you have a permanent record, the icon functions are also described below.

To quit the animation at any time, press the following icon: 

To return to the title screen, press the following icon: 

To move to the next page of a section, press the following icon: 

To move to the previous page of a section, press the following icon: 

To move to the first page of a section, press the following icon: 

To move to the last page of a section, press the following icon: 

To get a list of previously viewed pages, press the following icon: 

To search for a word or a phrase, press the following icon: 

In practice, the three navigation icons you will use most often are (i) the icon that takes you to the next page, (ii) the icon that returns you to the title page, and (iii) the icon that lets you quit.

Feel free to view each page as many times as you like. (Don't be put-off if the second time you view a page it turns out to be slightly different from the first view. Many of the pages have embedded within them random variables, so that each time you view the page you see slightly different examples.) Similarly, attempt the questions as often as you wish.

Workbook

This link gives you on-line access to the Open Learning workbooks. This might prove useful if you have lost the hard-copy of your workbook or, for some other reason, the hard-copy isn't handy.

The on-line version differs from the hard-copy version in a few minor respects. For instance, in the on-line version more use is made of colour; and instead of printing the answer to a question upside down, as happens in the hard-copy workbook, the on-line version instead contains a link that takes you to the answer. But in most respects the two versions are identical.

You will view the on-line version with the Adobe Acrobat viewer (following a link in the Workbook section automatically fires up the Acrobat viewer for you). The Acrobat viewer has several functions that you might find useful. For instance, the 'magnifying-glass' on the viewer toolbar lets you increase the size of the text to whatever level you find comfortable; the 'binoculars' let you search for a word or a phrase in the document; and so on.

Revision questions

Nearly all of the blocks of CAL material contain questions (generated using random numbers so that you seldom get the same question twice). These questions are presented within the context of the theoretical material that is applicable to a particular unit. Once you have worked through a unit, though, you might want to gain more practice at doing questions without having to wade through the relevant background theory. In this case just follow the [Revision questions](#) link.

WWW resources

The World Wide Web contains thousands of resources for mathematicians. By following this link, you can find the addresses of hundreds of mathematics-based web sites. Some of the sites are general resources; some contain help on specific mathematics topics.

If you come across a mathematics site that you think will be useful for others, let the project authors know and we'll add it to the list!

Help

At present, this contains mainly technical help. As the project develops, this area will contain more pedagogic help.