

To access the Challengengineering catalogue you need to login using your Swinburne login details.
Staff note: login using your OPAX number, not your email name.

At the top level of the catalogue (the first screen that you see) you are invited to either [Search](#) or [Browse](#) the catalogue.

Please do not rely on a 'Google mentality' which assumes that Searching is all you need.

To use the catalogue effectively you need to understand and use both approaches – [Searching](#) and [Browsing](#).

The screenshot shows the homepage of the Challengengineering website. At the top left is the logo 'Challengengineering'. To its right is a search bar with the text 'Search:' and a 'GO' button. Below the logo and search bar is a navigation bar with a link for 'About Challengengineering'. On the left side, there is a 'Top Categories' box containing a list of links: Engineering, Taught Units, Teaching, and Topics Index. The main content area is titled 'Browse for eLearning resources in the categories shown below' and lists four categories: Engineering (with sub-items Maths, Science, Design, ...), Taught Units (with sub-items Engineering Foundation Maths, Eng. Maths 1, Eng. Maths 2, ...), Teaching (with sub-items Educational Scenarios, Curriculum Development, Evaluation, ...), and Topics Index (with sub-items _0-9_, _ A _, _ B _, ...). At the bottom of the page, there is a footer that reads 'Challengengineering eLearning Resources'.

Browsing

There are two main branches of the catalogue that you can browse through. You can think of these as alternative perspectives on the same collection of resources.

Engineering: The first branch can be regarded as the world of Engineering categorised in a general way.

See in the diagram below where the world of Engineering has been subdivided into four subcategories:- Maths, Science, Design, and Management.

Each subcategory has been further subdivided, e.g., Science has been subdivided into several subcategories including Electromagnetism, Mechanics, and others.

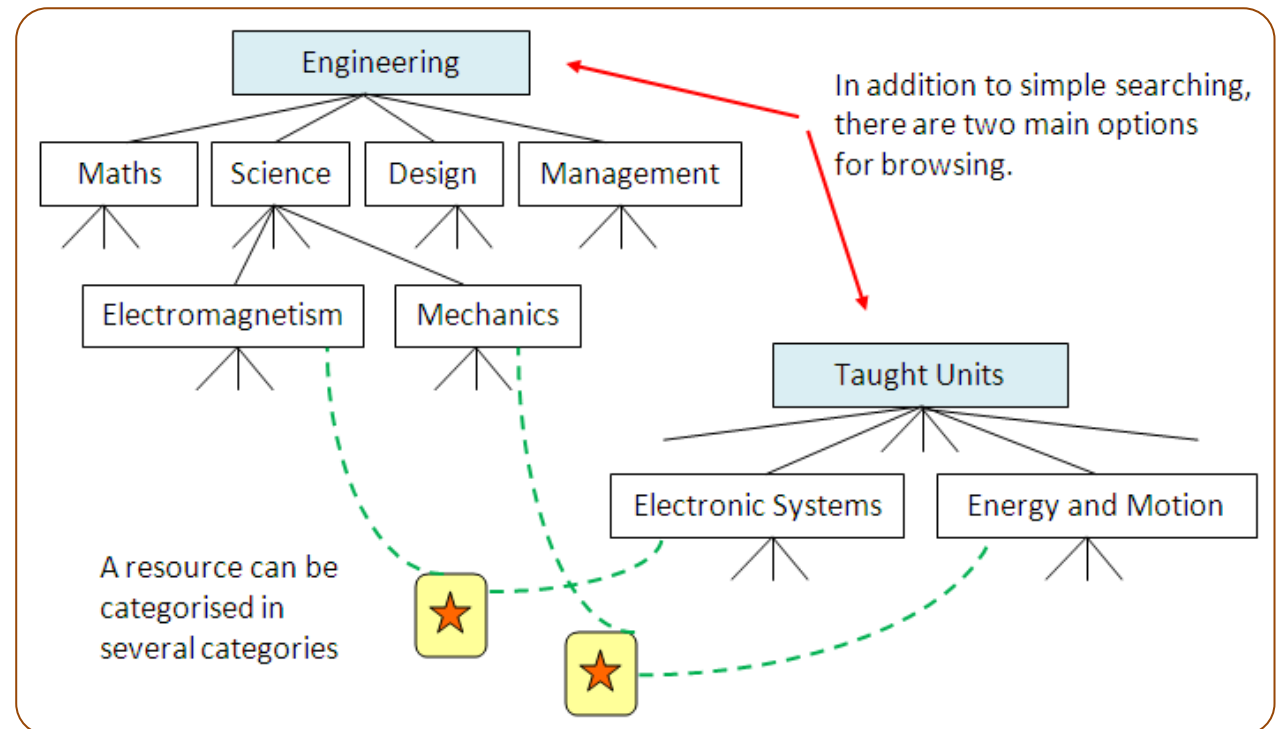
Taught Units: The second branch can be regarded as the world of Engineering categorised according to how it is taught in various units in the Associate Degree in Engineering. Each taught unit is further subdivided into categories that correspond to modules taught within the unit, e.g., Electronic Systems is subdivided into modules: Analog DC Electronics, Electromagnetism, Operational Amplifiers, and others.

In comparison to the more general Engineering perspective, the Taught Units perspective is idiosyncratic but obviously still a very useful perspective to have.

Each of these perspectives has its pros and cons.

At different times, different people will prefer one or other as a way of browsing through the resources.

An important point to remember is that these two branches are not mutually exclusive, i.e., they are not separate sets of resources. They provide alternative views of the **same set of resources**.



Every resource in the catalogue will appear somewhere in *both* branches. In many cases, a single resource will appear in several places in each branch.

Challengengineering Search: **GO**

About Challengengineering

Challengengineering > Taught Units > Energy and Motion

Category: Energy and Motion

Sub Categories:

Measurement and Units for Physical Quantities	Energy and Energy Transfer	Fluid Mechanics	Superconductivity and Waves
Vectors for Dynamics	Potential Energy and Conservation of Energy	Thermodynamics	
Motion in a Straight Line	Momentum and Collisions	Oscillatory Motion	
Newton's Laws of Motion	Rotational Motion	Mechanical Waves	

eLearning Resources

challenge/100219/01
<http://challengengineering.com/challenge/100219/01>
 Interactive Multimedia from Monterey Institute for Technology - A catalogue for Advanced Placement Physics and Calculus Courses.
[\[Read more\]](#)

challenge/100308/01
<http://challengengineering.com/challenge/100308/01>
 Mechanics - introductory leaflets from MathCentre (UK)
[\[Read more\]](#)

In this screen-image you can see the user is browsing within the 'Taught Units' branch of the catalogue.

The user is currently looking at the 'Energy and Motion' category within 'Taught Units'.

'Energy and Motion' is the name of a taught unit in the Associate Degree in Engineering.

Within this Category: 'Energy and Motion', you can see further Sub Categories, e.g., 'Vectors for Dynamics', 'Motion in a Straight Line', etc. These are modules taught within the 'Energy and Motion' unit.

At this level in the catalogue (i.e., while exploring Taught Units: Energy and Motion) the catalogue has revealed a few resources and provided a minimal description of those resources.

The user can click on a resource link to see the actual resource, or click on [\[Read more\]](#) to see further details.

Many more resources will be revealed when the user browses further into the catalogue, i.e., when the user explores any of the Sub Categories.

Challengeing Search: **GO**

About Challengeing

Challengeing >>> Taught Units >>> Energy and Motion >>> Energy and Energy Transfer

Category: Energy and Energy Transfer

eLearning Resources

challenge/100318/05
<http://challengeing.com/challenge/100318/05>
Work and the Work-Energy Theorem - Interactive Multimedia from Monterey Institute for Technology - Resources for Advanced Placement Physics Courses
[Read more]

challenge/100318/08
<http://challengeing.com/challenge/100318/08>
Power - Interactive Multimedia from Monterey Institute for Technology - Resources for Advanced Placement Physics Courses
[Read more]

challenge/100318/18
<http://challengeing.com/challenge/100318/18>
This multimedia mini lecture explains weight and contact forces.
[Read more]

challenge/100318/19
<http://challengeing.com/challenge/100318/19>
This multimedia mini lecture explains energy and power.
[Read more]

eLearning Resources: 18 [1] 2 3 4 5 Next

Top Categories

- Engineering
- Taught Units
- Teaching
- Topics Index

In this screen-image you can see the user is still browsing within the 'Taught Units' branch of the catalogue.

The user is exploring the module: 'Energy and Energy Transfer' within the unit: 'Energy and Motion'.

There are no further Sub Categories.

At this level, the catalogue has revealed 18 resources and provided a minimal description of those resources.

The user can click on a resource link to see the actual resource, or click on [Read more] to see further details.

The next screen-image will show what happens when the user clicks on [Read more] for this resource.

Challengeing

Search: GO

[About Challengeing](#)

Challengeing >>> Listing Details

Top Categories

- ▶ [Engineering](#)
- ▶ [Taught Units](#)
- ▶ [Teaching](#)
- ▶ [Topics Index](#)

Title: **challenge/100318/08**

URL: <http://challengeing.com/challenge/100318/08>

Challenge: Explore the concept of power

Brief Description: Power - Interactive Multimedia from Monterey Institute for Technology Resources for Advanced Placement Physics Courses

Keywords: work, energy, power

Categories: [Taught Units: Energy and Motion: Energy and Energy Transfer](#)
[Engineering: Science: Mechanics: Power](#)

Technical Format: HTML (WebPage), Flash (.swf)

Source: Advanced Placement Courses - Monterey Institute for Technology and Education www.archive.org/details/ap_courses

Copyright: Creative Commons license: creativecommons.org/licenses/by-nc-nd/2

Added by: Douglas Siviter

Contact: adelearn@swin.edu.au

Date added: October 15, 2012 12:00:00 AM

Last updated: October 15, 2012 12:00:00 AM

Cat-ID: 104

Irrespective of how you find a resource, i.e., by searching or by browsing, eventually you are presented with a page like this one.

Every resource in the catalogue has a description page which looks similar to this example.

Some resource descriptions will also include 'Further Description' fields.

Note how this resource has been categorised in both of the main branches of the catalogue, i.e., it is categorised somewhere in the 'Taught Units' branch and also somewhere in the 'Engineering' branch. The user could have found this resource by browsing either branch. The user could click here to go straight to these sections of the catalogue.

[Challengeing eLearning Resources](#)

Searching and using the Topics Index

The first thing to realise about **Searching** is that this is a very simple catalogue with a very primitive search facility. This is not an elaborate repository system or a Google search engine. The catalogue's search facility will simply find all instances of whatever you type into the search field. You will not be able to apply any filtering or smart search options. Furthermore, you cannot specify phrases like "group work" by putting group work in quotes. This simple search facility will regard that "quoted phrase" as two separate words and search for both of them. So, your search results would then include all instances of 'group' and all instances of 'work'.

Therefore your main problem when using **search** is that you will nearly always find too much information and the items you want will be hidden amongst unwanted noise. For this reason, you are recommended to understand the value of the **Topics Index** and be prepared to use **both** the **Search** and the **Topics Index** effectively.

An illustrative example is provided below.

An example where Search is not your best option

Imagine you are searching for resources about 'work', where 'work' is a well-defined concept in mechanics.

We are using the term 'work' in the sense of "the work done by, or energy transferred by, a force acting through a distance" (<http://en.wikipedia.org/wiki/Work>)

We do not want any of the many other uses of the term 'work', e.g., work out a problem, work with logarithms, group work, etc. The English language uses the word 'work' in many different ways. That is a problem for a simple search facility in a catalogue. When you search for 'work', the catalogue has no way of knowing that you mean only the physics interpretation. The catalogue search facility will simply show you all instances of 'work' without knowing what any of them mean.

The next screen-image illustrates the example of searching for the term 'work'.

After the next screen-image you can see how using the **Topics Index** will be a more effective strategy than using **Search**.

The screenshot shows the Challengeing website interface. At the top left is the logo "Challengeing". To its right is a search bar containing the text "work" and a "GO" button. Below the search bar is a navigation menu with "About Challengeing". On the left side, there is a "Top Categories" sidebar with links for Engineering, Taught Units, Teaching, and Topics Index. The main content area is titled "Challengeing Search Results" and displays a list of search results under the heading "eLearning Resources". The results are:

- challenge/100304/03**
Category: Taught Units: Eng. Maths 1: Vectors
<http://challengeing.com/challenge/100304/03>
Vectors - Interactive Multimedia from Monterey Institute for Technology - Resources for Advanced Placement Calculus Courses
[Read more]
- challenge/100307/04**
Category: Taught Units: Eng. Maths 1: Vectors
<http://challengeing.com/challenge/100307/04>
Pages 4 - 6 of this pdf file describe vector addition, vector subtraction, work with unit vectors. There is also an accompanying video.
[Read more]
- challenge/100307/05**
Category: Taught Units: Eng. Maths 1: Vectors
<http://challengeing.com/challenge/100307/05>
This video describes vector addition, vector subtraction, work with unit vectors. There is also an accompanying pdf file.
[Read more]
- challenge/100307/14**
Category: Taught Units: Eng. Maths 1: Vectors
<http://challengeing.com/challenge/100307/14>
Pages 6 - 8 of this pdf file describe how to calculate the angle between a position vector and an axis; work with direction cosines. There is also an accompanying video.
[Read more]

At the bottom of the results list, it says "eLearning Resources: [1] 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 Next 263".

The user asked for 'work' in the **Search** field.

The catalogue provided all 263 examples where it found the word 'work' being used. And, of course, most of these are irrelevant.

For example, 'work with unit vectors', 'work with direction cosines'.

With this simple search facility there is no way of eliminating these unwanted results.

A much better strategy (in this case) is to use the **Topics Index**

The image shows two screenshots of the Challengengineering website. The top screenshot shows the 'Topics Index' page with a grid of letters. The bottom screenshot shows the '@Work' category page with a list of sub-categories.

Challengengineering Search:

Challengengineering → Topics Index

Category: Topics Index

Sub Categories:

0-9	_G_	_N_	_U_
A	_H_	_O_	_V_
B	_I_	_P_	_W_
C	_J_	_Q_	_X_
D	_K_	_R_	_Y_
E	_L_	_S_	_Z_
F	_M_	_T_	

Challengengineering Search:

Challengengineering → Topics Index → **_ W _**

Category: _ W _

Sub Categories:

- [@Waste Management](#)
- [@Wavelets](#)
- [@Weight and Mass](#)
- [@Work](#)**

Challengengineering eLearning Resources

The **Topics Index** is an alphabetical index of every *category* used by the catalogue to classify the resources.

The user has browsed into the **Topics Index** and is now selecting 'w'.

The user is hoping that a word like 'work' (in the 'physics' sense of the word 'work') has been included in the catalogue's categories.

The user got lucky this time and found that 'work' is actually one of the categories used by the catalogue.

The @ symbol in front a word means that this is a link to somewhere in the catalogue.

PC users can think of these @ symbols as similar to shortcuts; Mac users can think of these @ symbols as similar to aliases.

By clicking on **@Work** the user will be taken to the section of the catalogue where the category 'work' is being used.

(see next screen-image)

Challengengineering Search: **GO**

About Challengengineering

Challengengineering >>> Engineering >>> Science >>> Mechanics >>> Work

Top Categories

- Engineering
- Taught Units
- Teaching
- Topics Index

Category: Work

eLearning Resources

challenge/100318/05
<http://challengengineering.com/challenge/100318/05>
 Work and the Work-Energy Theorem - Interactive Multimedia from Monterey Institute for Technology - Resources for Advanced Placement Physics Courses
[\[Read more\]](#)

challenge/100408/03
<http://challengengineering.com/challenge/100408/03>
 Work concepts map - A window onto the external resource: HyperPhysics
[\[Read more\]](#)

challenge/100408/04
<http://challengengineering.com/challenge/100408/04>
 Work done by a constant force acting in the direction of the motion - A window onto the external resource: HyperPhysics
[\[Read more\]](#)

challenge/100408/05
<http://challengengineering.com/challenge/100408/05>
 Work done by a constant force where the force acts at an angle to the direction of motion - A window onto the external resource: HyperPhysics
[\[Read more\]](#)

eLearning Resources: 6 [\[1\] 2 Next](#)

The user can now see where in the hierarchy of categories the term 'work' is being used, i.e., within Engineering / Science / Mechanics / Work

The user can also see that there are 6 resources available that are about 'work' in the physics sense of the word 'work'. This is obviously a lot more useful than the 263 results returned by the **Search** approach, of which only 6 were actually useful.

It is habitual in the Google age for people to go straight to **Search** and hope for the best. Hopefully, this example has shown that relying on **Search** alone is not an effective strategy.

This does not mean that **Search** is not valuable, but it is better to regard **Search** as a supplementary option.

Thinking carefully about what you are looking for and **Browsing** through the categories is usually your best option.