# BTEC Higher National Certificate/Diploma in Engineering

## Study Skills Guide

**BTEC Higher National Certificate/Diploma General Engineering**

**(and specialist pathways)**

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# Welcome to your BTEC Higher National Study Skills Guide

The BTEC Higher National Certificate or Diploma in Engineering is a well-respected qualification and the equivalent to starting university-level study. It can stand you in good stead to go on to complete a degree at university or go straight into employment.

In order to get the best out of studying at this level you will need commitment, discipline and initiative. This guide has been written to help prepare you for the demands of Level 4/5 study. It includes essential study techniques such as:

- time management
- prioritisation
- advanced research techniques
- assessing the validity of a source.

The BTEC Higher National is assessed through a range of different methods, which will be set by your centre. This may combine report writing, practical demonstrations, presentations and producing finished products. BTECs are hands-on vocational qualifications, and so you should expect your assessments to mirror the kind of work you would be completing in the Engineering sector.

Your tutor will set assignments for the qualification, which will be marked within your centre. Each assignment will include a set of assessment criteria that you must achieve in order to pass the assignment. In addition, there are opportunities to stretch yourself and achieve higher grades:

- You can be awarded a Merit for a unit if you achieve all Pass criteria and all Merit criteria for the unit.
- You can be awarded a Distinction for a unit if you achieve all Pass, all Merit and all Distinction criteria for the unit.

The third section of this guide focuses on getting the most out of your assessments, from structuring an argument to understanding what's required by the higher-level grading criteria.

This guide also includes essential information about plagiarism. Your centre will have guidelines set out for how they deal with scholarly malpractice, which can result in work not being accepted. This section will help you cite references and others' ideas clearly, reducing the risk of your assignments being rejected.

We hope that you find this Study Skills Guide useful in preparing you for your BTEC Higher National, and wish you good luck with your studies.

# Contents

# 1

# Time management

Working as a higher-level learner presents many challenges, particularly if you are returning to formal education after a break. Time management is particularly important for organising your time effectively. Making the best use of your study time will help you not only to avoid stress, but also to complete your assignments to a higher standard and get more out of your BTEC Higher National studies.

This section will provide you with a number of simple techniques that can help you to manage your time.

## Scheduling techniques

A diary is a simple but powerful tool for organising your time. If you do not manage your time effectively you will find yourself rushing your work, reducing its quality.

By planning out your day systematically, you will be better able to see how much time is available for different activities. By having a realistic picture of how much you can achieve, you will be better able to organise your time so that you do not overload yourself with work from day to day.

When you are given an assignment or a reading list by your tutor, you can break the work up into smaller tasks over a number of days, as shown in the example below.

<table>
<tr><th></th><th>Monday</th><th>Tuesday</th><th>Wednesday</th></tr>
<tr><td>0900</td><td rowspan="4">Lectures</td><td rowspan="9">Work</td><td rowspan="4">Lectures</td></tr>
<tr><td>1000</td></tr>
<tr><td>1100</td></tr>
<tr><td>1200</td></tr>
<tr><td>1300</td><td></td><td></td></tr>
<tr><td>1400</td><td></td><td rowspan="5">Start writing up assignment</td></tr>
<tr><td>1500</td><td rowspan="4">Research for assignment</td></tr>
<tr><td>1600</td></tr>
<tr><td>1700</td></tr>
<tr><td>1800</td><td></td></tr>
<tr><td>1900</td><td></td><td rowspan="2">Review research for assignment</td><td></td></tr>
<tr><td>2000</td><td></td><td></td></tr>
<tr><td>2100</td><td></td><td></td><td></td></tr>
</table>

There are a number of different online calendar systems that you could use, many of which are available free of charge, such as Google Calendar™. You can synchronise these calendars with your PC and your smartphone so that you can access them from anywhere. You can even invite people such as friends, relatives or other learners to events on your calendar so that they know where you are and what you are doing – for example, a group presentation or an exam.

## The urgent/important matrix

You will face a number of pressures during your BTEC Higher National. You will need to be able to balance your lectures, independent study, your private life and any employment commitments you may have. It helps to be systematic in prioritising tasks. By organising the different things you do each day into one of four categories as shown below, you can decide where to begin when you tackle your workload.

| | Low importance | High importance |
|---|---|---|
| Low urgency | Distractions | Important goals |
| High urgency | Interruptions | Critical activities |

- **Critical activities** – These are things that you are unlikely to be able to predict but that will require your time and attention. They might include taking care of a sick child or covering for a sick colleague at work. You will need to deal with these things as they occur and afterwards reflect on how to reorganise your important goals if these tasks take you away from them.
- **Important goals** – These are things that you are aware of in advance, such as assignment deadlines or preparation for meetings with your tutor. You must make sure that you plan to complete these activities in plenty of time before they are due, to avoid them turning into critical activities.
- **Interruptions** – Things like other learners asking for your opinion about their work or managers asking for a little help with a task might seem a good use of your time, but you need to learn to say 'no' if you have important goals that you need to achieve.
- **Distractions** – Phone calls from friends or invitations for a drink after work might be tempting, but if you have not accomplished your important goals, you should avoid these kinds of distractions.

## To-do lists

Once you have prioritised your workload, it is useful to organise your work into to-do lists. This is useful for a number of reasons:

- It helps to give you an accurate idea of how much work you have to do.
- Listing all of the different things you need to do can help you to understand the scale of your commitments.
- It gives you a sense of control over your workload.
- By dividing up your assignments into smaller components and staggering them over time, you will be able to feel more in control.
- It gives you a sense of achievement.
- Every task that you tick off from a to-do list will give you a sense of achievement. You can see your burden shrink before your eyes. This helps you to build you sense of motivation and push yourself forward to complete your work.

When you are preparing a to-do list, there are a number of stages that you should go though:

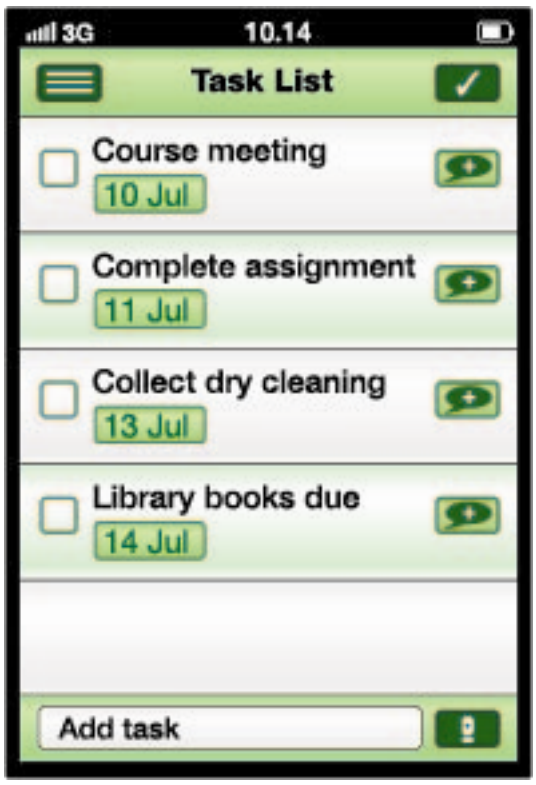
- Firstly, list all of the tasks that you need to complete. It is important that this is as comprehensive as possible. It might feel like you have a lot to do, but at this stage it is important to appreciate fully the extent of the work you need to complete.
- Secondly, break up any big tasks into smaller parts. This will help to make the list more manageable for you and can help you to feel more in control – a big job might seem less daunting and more approachable when split into its component parts.
- Thirdly, prioritise the tasks. Work out which tasks are critical activities and which are important goals. It can often help to number the tasks in order of their importance. This will help you to decide the order in which to approach them.

Once you have prioritised the tasks, go back to your diary. Add a small to-do list for each day. Think carefully about how long each activity will take and make sure that you add a realistic amount of tasks each day, otherwise the lists will be counterproductive – regularly failing to complete the lists can be very demotivating.

Once you have completed your lists and allocated tasks to each day, you can start crossing off activities as you complete them. This will make your progress through your workload easy to see and should help you to track your progress through your assignments. This should help you to feel motivated.

At this stage, you should remember that the lists are a guideline for yourself. They should not be set in stone and you should use them flexibly as circumstances change – you might move tasks from day to day or add extra tasks, for example. To do this, it might be helpful to write the lists in pencil so that you can easily erase and change items.

Alternatively, many modern smartphones have the function to create to-do lists or lists of tasks (see below). This can often have the helpful benefit of a reminder feature, which provides you with an alarm or message when an activity is due to begin. It might help to remind you that you need to write a section of your assignment once your favourite soap opera finishes, for example!




Smartphones' task list functionality often include reminders

## Balancing work with study

Studying for a BTEC Higher National alongside work is demanding on your time and concentration. Completing the Certificate is broadly the equivalent of the first year at university on a full-time degree, and completing the Diploma is broadly equivalent of the second year.

Spending too much time fixated on a task can actually be counterproductive. Although it might be important to work hard and to further your career, it is also important to take time to rest and see friends or family.

Sometimes it is useful to return to assignments or note taking after a short break. This will allow you to approach the work feeling refreshed and might help you to see things in a different way. Studies have shown that workers are more productive if they take time to relax. It is also important for your ability to concentrate.

## Using time productively

When you are studying for a higher qualification, you will need to make sure that you make the best possible use of your time. You will be able to work much more effectively if you pace yourself and take regular breaks. One method to help you strike the right balance between work and breaks is the **Pomodoro Technique.**

This technique is based on the idea that you will be more effective if you break a task up into short, focused bursts of effort that are punctuated by short breaks. By taking a break occasionally, you will be able to return to the task refreshed and with your concentration renewed.

There are four stages in the Pomodoro technique:

1. Decide what you are going to do. Pick a task. (This might be writing an assignment or making notes on a textbook, for example.)

2. Set an alarm to go off after 25 minutes. This period of work is called a 'pomodori'.
3. When your alarm goes off, take a five-minute break.
4. After every four pomodori, take a thirty-minute break.

An important part of this technique is knowing how to stay focused on your work. When you are interrupted during a pomodori, you must either deal with the interruption or scrap that pomodori and start again after dealing with whatever interrupted you.

There are four ways of dealing with interruptions:

1 **Inform:** Tell the person interrupting you that you are in the middle of a task and that you will have to get back to them.

2 **Negotiate**: See whether the person interrupting you can settle the problem themselves, or find someone else to help them.

3 **Schedule:** Agree a time to deal with the interruption. This might be later on in the same day, or later in the week.

4 **Call back:** Tell the person that you will ring or visit them when you have finished your work.

# 2

# Research

Research and preparation are key to successful assignments. There are a number of study skills, which are vital to develop if you want to become an effective independent learner.

This section will support you in collecting the information that you need to complete assignments, and in making effective use of the research resources available to you through your centre and the internet.

## Effective note-taking

In order to prepare to write assignments, you will need to be able to write useful and accurate notes. Note-taking is not about creating word-for-word copies of a lecture or of a page in a book, but about summarising key points quickly while including the main points and themes.

When taking notes, it is worth investing in a notebook with a margin. This allows you to record your notes in the main part of the page and to use the margin for 'cues'. A cue is a comment you can make on the notes you have made as a reminder to yourself, or as a stimulus for further investigation. For example, you might add a question mark in the margin next to topics that you think you should investigate further. Alternatively, you might write questions that you will later try to answer through reflection or further study, or by asking your tutor.

When you are taking notes, you should aim to **reduce** the material that you are taking notes on. This means you have to take information and simplify it. You can achieve this in a number of ways:

- Abbreviate terms where possible.
- Try to simplify the information by leaving out long examples or points that are not relevant to your assignments.
- Record keywords and references to the source of the information you are using, such as page numbers and titles. This will let you go back and check facts later.

One useful way to take notes is to use photocopies of journal articles or sections of textbooks. Rather than trying to summarise these documents, you could write questions and comments in the margins of the pages, adding criticisms or ideas. This approach to note-taking helps you to take the critical approach that you will need to demonstrate in your essay writing. By annotating a copy of a document with questions, you can either ask your tutor these questions during class sessions, or answer your own questions when you write your assignments.

Remember that handouts from lectures or seminars do not remove the need to take notes. You should annotate these documents as thoroughly as possible with references to any authors that your tutor mentions, any ideas you have for follow-up research or any ideas that are discussed during the session.

When you are taking notes, make sure that you are properly equipped with a range of pens and sticky notes. Using different-coloured pens and highlighters helps you to emphasise key points and to make your notes more visually stimulating. This is also useful when drawing diagrams. For example, you might want to draw different lines on a graph in different colours.

Sticky notes are very useful for flagging key points in an assignment brief or in a notebook. They will help you to find key sections quickly without having to leaf through many pages.

### Organising your thoughts

Sticky notes can also be a useful aid to the planning of essays and the comprehension of complex topics. They will be especially useful if you find visual

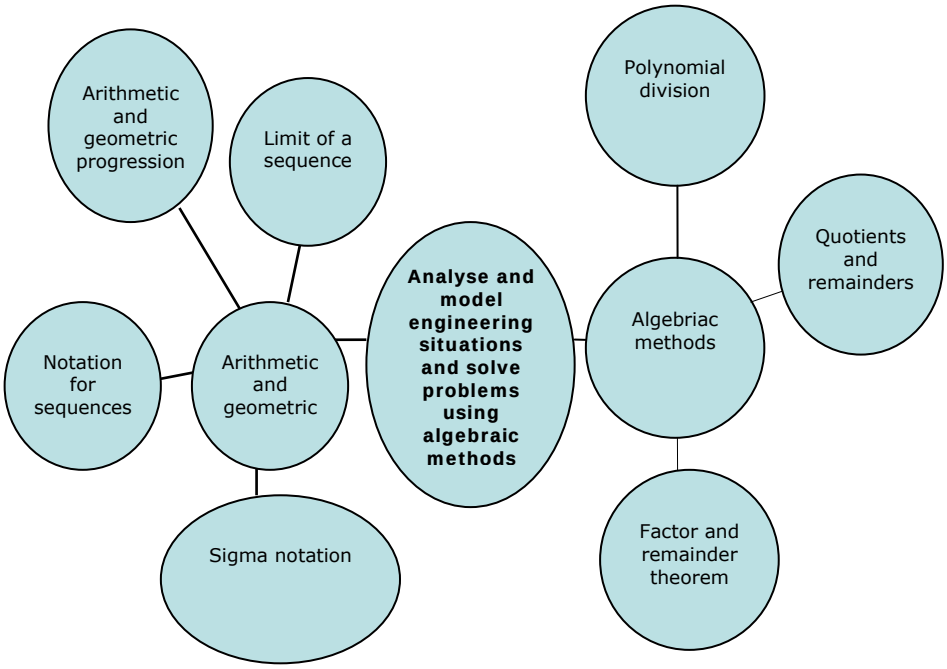
stimuli particularly helpful when you are learning about a new concept or planning a task.

As you write your notes, you could write different ideas on different-coloured sticky notes. For example, you could use yellow for key quotes, green for concepts, blue for themes and pink for headings in your assignments. You could then place these notes on a large sheet of paper or a wall, and organise them into groups to show relationships or to mock up the structure of an essay.

## Mind-mapping

There are many forms of note taking and different approaches work for different people. Some – especially those with a tendency for visual learning – find that mind mapping is a helpful way to make notes in class or from books.

A mind map visually represents the main points in a topic. It can be particularly useful for providing an overview of a topic and helping to draw out links between different key points.




Mind mapping is especially helpful for those with a tendency for visual learning

Normally, you would start with a title in the centre of a page. This might be a topic, a theory or a reference to a book chapter.

For each subsection of the topic you are looking at, draw a line from the centre and label it with the name of the subheading. Then focus on each line in turn. Draw a line for each idea or keyword that relates to the subheading. Where possible, repeat this for each line in turn. Once you have explored a subheading in detail, move on to the next subheading. Repeat the process until you have filled the page.

The final step in the process is to examine where there might be links between different branches. If different ideas are connected, draw a line between them. Label the line with a simple explanation of the link. The key is to be as economical as possible with words, so that you have an overview of the topic rather than detailed notes.

### Computer software

One way of producing mind maps is using computer software. There are a number of programs that are available for a small fee or as a free download. Alternatively, if you own a smartphone or tablet computer, there are simple apps available which can help you produce mind maps 'on the go'.

Freemind is a useful program if you use a desktop computer and it is available free of charge. If you prefer to use web apps (programs that run in a web browser, ideal if you are using a web book), Mindomo.com offers a free account that allows you to create three mind maps free of charge.

If you would like to create mind maps on your smartphone or tablet computer, you might want to try SimpleMind+ (for I phone) Thinking Space (for Android) or MindBerry (for Blackberry).

One significant advantage of using software to produce mind maps is that you can integrate rich media such as photos and videos into your maps. This can be particularly useful as a memory aid, allowing you to combine strong visual representations of key parts of topics.

### Reviewing your notes

It is wise to review your notes within a short time of making them for two reasons:

- It will help you to remember the contents. Repetition aids recollection.
- You might find you have different ideas about some of the points that you made.

This might spur you to write down a question for your tutor or to look up a particular concept again so that you can clarify something you have written. It is better to find a gap in your notes the next day rather than weeks later or the day before an assignment deadline.

## Library research

When you are studying for a higher-level qualification, you will need to use a library to independently research topics. You will be expected to 'read around' topics that are delivered in class –the reading list at the end of this Study Skills Guide will provide you with some useful sources of further reading. This will be particularly important if you want to complete a degree or other higher-level qualification after your BTEC Higher National.

There are a number of resources that you can find in a library with which you should be familiar. Different sources have different purposes, so you should take care to use materials that are pitched at the appropriate level for your course.

When investigating different sources of information, try to look at and compare a range of different titles and authors. You might find that different writers explain topics in different ways. You might find particular texts more accessible than others. This is quite normal and is nothing to worry about. If you find one resource does not meet your needs, you should investigate others.

- **Books** – Might focus on a specific area of a topic or give an overview of a range of subjects. You should aim to use the most recent books possible. Be aware that some titles will have more than one edition. You should try to study from the newest version of a text, as this is likely to represent the most up-to-date theories and examples available in your field.
- **Periodicals** – More commonly known as magazines and newspapers. These document current events locally and nationally, and can often be a useful starting point for contextual information. In some cases, periodicals can provide highly

specialised information specific to a particular sector of industry – for example, *The Grocer* focuses on the retail industry.

- **Journals** – Sources of the latest academic research. These publications are often highly specialised, focusing on a particular areas of interest. Some journals are of particular importance in each field and you should ask your tutor where they would recommend you look for research.
- **Reports** – Documents that might be published by government agencies, charities, political think-tanks or businesses. They are likely to contain a mixture of quantitative and qualitative evidence. When scrutinising reports, you should do so with a clear awareness of their source, as some agencies will have a bias. For example, think-tanks such as Policy Exchange have ties to particular political parties and may represent a specific point of view.

The range of resources available will depend on the library in your centre. Rather than spending large amounts of time searching through shelving, you can save time by searching a library catalogue. These are normally computerised. Searching library catalogues online before you visit can help you make better use of your time when you get there – you can check that the resources you require are stocked by the library and that they are available.

## Library shares and partnership schemes

Most libraries subscribe to an interlibrary loan service, letting you order resources from other institutions. This normally requires the payment of a small fee and can take a week or more to process. You should therefore plan ahead so you can obtain the materials you need in plenty of time before your deadlines.

One system worth investigating is the Society of College, National and University Libraries (SCONUL) scheme. If you have access to a university library, then you will be able to obtain a SCONUL card, which allows you access to university libraries in other areas (UK and Ireland only). This is especially useful if you live a long way from your own institution.

## Online library services

Online library services let you carry out keyword searches for specific topics. This can allow you to find a range of articles that might be relevant to your studies. Online libraries contain publications from a number of different publishers – for example, Taylor & Francis or Ingenta – and are normally accessible with a password. You can find out how to access these sites from your institution's library staff. Most colleges or universities have a guide to using these services on their website.

It is likely that your library will have subscribed to a service such as Athens, which gives you access to online journals and ebooks from the archives of a range of different publishers. If you are unsure how to access this service, you should visit the library at your college or university, where staff can advise you about which services are available and how you can access them.

However, you should not assume that online libraries are a comprehensive archive of journals. The titles you can access will depend on the subscriptions your institution has, and some publishers will make their content available through one online library, but not another. This means you might still need to take out an interlibrary loan for some key texts.

You can normally identify which resources you can access electronically by searching your institution's library catalogue. This is a good starting point if you need a specific article. If you are not sure, you should speak to a member of staff in your institution's library or learning resource centre.

## Working with digital content

Many learning resources are now available electronically. For example, most journal publishers make their articles available electronically, normally as .pdf files. You can search these online and download them onto your PC and print them. Alternatively, you might use a program such as iAnnotate™ on a tablet PC to review documents electronically.

In some cases your tutors will provide you with a reading list for your modules through their institution's website or Virtual Learning Environment (VLE). This will often include direct links to journal articles hosted by online libraries or to scanned copies of chapters from key textbooks. This type of content can be downloaded onto your laptop or into the library on your smartphone, making it easier for you to study from home or anywhere else. This also limits the number of heavy books and bundles of documents that you need to carry around. Alternatively, you can print copies of these documents so you can annotate them by hand.

Many publishers are beginning to offer electronic textbooks. These can range from a .pdf or ebook version of an existing text to a fully interactive version created specifically for use on screen. In some cases these books allow you to access them for a limited period of time via subscription rather than buying them outright. This can be more cost-effective than buying a hard copy of a book, although you should remember that bookshops near universities and colleges often do a brisk trade in second-hand textbooks. If you choose to buy hard copies of your course texts, you can often sell them back to these bookshops at the end of the year.

## Google Scholar™ scholarly texts search

Google scholar™ is an online resource that allows you to search for academic texts. It has a number of useful features you can use to support your research.

For example, when you search for a paper, Google Scholar™ allows you to see how many people have cited it in their own work. This has two benefits:

1 A paper with many citations is likely to be more useful than one with few citations.
2 Clicking on the 'cited by' link will provide you with a list of book chapters and journal articles that cite the paper you have searched for. They might be relevant to your work, and so it is worth reading the summaries of these papers to see if they can be of any use to you.


[PDF] A review of the application of RFM model academicjournals.org [PDF]
JT Wei, SY Lin, HH Wu - African Journal of Business ..., 2010 - academicjournals.org
RFM (Recency, Frequency and Monetary) model has been widely applied in many practical areas in a long history, particularly in direct marketing. By adopting RFM model, decision makers can effectively identify valuable customers and then develop effective marketing ...
Cited by 7 Related articles Cite More

Result of a search using Google Scholar™ (Google and the Google logo are registered trademarks of Google Inc., used with permission).

There are a number of ways to use Google Scholar™.

- **Author searches** – You can search for the name of an author. This might be someone who wrote a textbook that you have used on your course, or a particular authority on a subject.
- **Topic searches** – You can search for a specific subject using particular keywords. It helps to be as specific as possible when doing this, so that you can narrow the results down as much as possible.

You should be very careful when using searches of online journal libraries and Google Scholar™. There is lots of research available on most topics, but it might not all be relevant to your work. Read the summaries of books or articles carefully, and if you are in any doubt about their relevance, ask your tutor.

Another issue to consider is the level at which work is written. You should not be put off if you find the language or concepts in articles complex and challenging. Much of the work you find in these searches is likely to be at an advanced level and not necessarily suitable for your needs. You should not worry if you need to put a paper down and move on to something else.

## Researching current developments

You might find that in some cases you are working on assignments that relate to fairly new lines of thinking and research in your field. This means there might not be a lot of published material available in books and journals, so you will find articles or books that have not been cited by many other authors yet. If they are less than a year old, this might not mean that they are a bad-quality source, but simply that they have not been widely read yet. If you are in any doubt about the credibility or value of a source of information, you should speak to your tutor about it.

## Copyright

### Photocopying and printing

When you use a library, you might want to photocopy resources you find in order to refer to important material later on when you are writing assignments. This can be a useful practice to develop, but keep in mind the following.

According to the Copyright Design and Patents Act 1988, you are entitled to copy 5 per cent of a book, or one article from a journal or a periodical. This is called a 'fair use' provision. You should remember that you are only entitled to do this for personal use when studying. If you need to run a training session, you cannot claim fair use if you copy chapters or articles as handouts.

These fair use rules also apply to electronic resources such as online journal articles and ebooks, so be careful how much you print.

Another possibility to be aware of is that your college or university may well have obtained a licence from the Copyright Licensing Agency. This allows a subscribing institution to make multiple copies of books or journals through the payment of an annual fee. However, this still does not allow you to make copies of more than one chapter of a book or a single article from a journal. It might, however, allow you to make multiple copies of such documents if you needed to lead a session for your class as part of your course.

### Electronic reproduction

You should also be aware of these issues if your course requires you to produce any material such as a website or a blog that is available on the internet. It is your responsibility to ensure that your work complies with copyright law. This means you should not include extracts from copyright material of any form unless you have explicit permission from the copyright holder to reproduce the material.

Copyright regulations also apply to material that you find on the internet. Simply being available in the public domain does not make material exempt from copyright. The only possible exception to this is when material is published under a creative commons licence. This means that some images are free from copyright restrictions, as long as you acknowledge their source. You can find such copyright-free material by using an advanced search on Google Images or by carrying out an advanced search of picture-sharing sites such as Flickr.

Even if you find material that is not subject to copyright, you must still reference it using appropriate conventions. These systems are explained on page 22.

## Creative commons

Creative commons is a licensing scheme that allows individuals or institutions to give other people permission to use their work. There are different types of creative commons licence and you should check for terms and conditions when using work covered by this scheme. For example, some licensors allow you permission to use their materials as long as you do so for personal use only, while others set a condition that anything you create using their work must be made available to other people – a 'sharealike' licence.

These licences can be applied to a range of different forms of intellectual property including text, music and images. This type of material might be useful if you are building a website or preparing a presentation as part of a module – you can obtain music and images to enhance your work and still be able to share your work with other learners. This is especially important if your college wants to place your work on their website.

## Internet research

The internet provides an immense resource to learners, but also a number of challenges. The World Wide Web contains an enormous volume of information, and it can be difficult to filter for content that is relevant, accurate and current. A search

for common keywords can return millions of results. It is necessary to develop the ability to filter and refine the data from search results so you can extract the most relevant points.

The quality of the information available needs to be seriously appraised. Many websites are run by enthusiasts who share their ideas and opinions on a topic. While these can be interesting to read and can help you to shape your own arguments, they do not represent valid sources of information on topics. It is important to consider carefully whether the sites you look at are appropriately authoritative sources. Similarly, businesses and other organisations might present information that is biased in favour of their own products, services or political agenda. You will need to learn to be discerning and to root out the useful information from among the less useful material.

### Refining searches

There are a number of different ways that you can refine your internet searches. One helpful technique is to use Boolean operators. These are keywords you can put into a search to limit the scope of the results that are returned. For example, if you search for the word 'green' you will get many millions of results. But inserting the word AND in capital letters into your search along with one or more additional terms – for example, 'green AND environment' or 'green AND environment AND pollution' will help you to refine your search. The more keywords you have in your search, the fewer results will be returned. However, if you have fewer results from your search, it is more likely that they will be relevant to your work.

Another way to refine your search is to use the word NOT to separate search terms. This will ensure that the search results you get will not include a particular point. For example, you might search for 'motivation NOT Maslow' to return results that exclude a particular theorist.

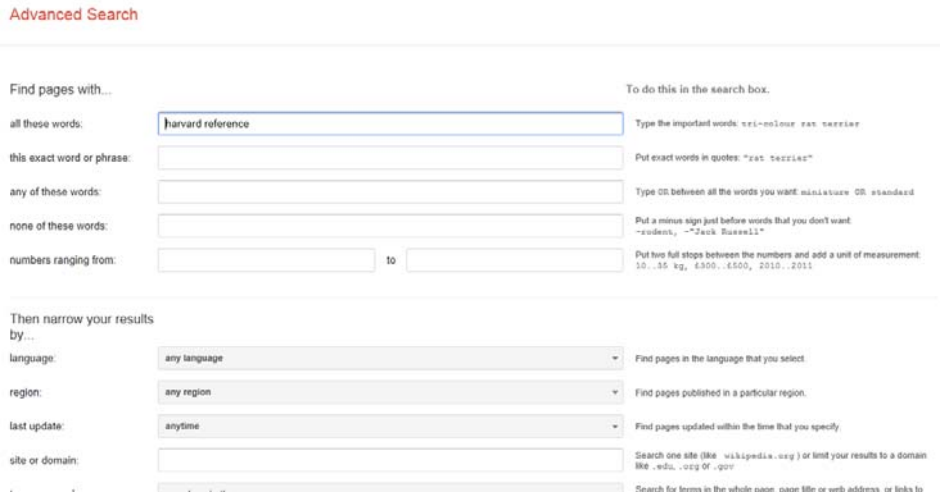
Another useful operator is the word NEAR. This is useful if you want to use keywords that might be relatively common words. Using this operator ensures that the words you choose are close to each other on the pages you look at.

### Advanced search techniques

Most search engines have an advanced search function (see below) that allows you to refine your searches in very specific ways. These functions can be very useful if you need specific types of data or information.

- **Date ranges** – You can search for information that was posted between specific dates and times. This can be useful if you need material that relates to particular historic events or captures examples of practice at a specific point in time. Alternatively it can help you find an article on a particular subject, if you know roughly when it was published.
- **Geographic location** – It is easy to forget that the internet is a global resource. You can search for material that was published in a specific country. This is especially helpful if you are searching for articles on a topic that is seen differently in different countries.
- **Language** – You can include or exclude search pages that are in specific languages. This can help you to exclude material that you are not able to read. However, it is worth remembering that if you think a website in a language you do not understand contains useful information, there are many internet sites that can translate pages for you, some of which are integrated into search engines. Popular web translation services include Google Translate and Babelfish.

- **Document types** – You can narrow your results to include only items in specific file formats. This might be useful if you are looking for sources of raw data and want spreadsheets. Alternatively you might be looking for a report that was published in .pdf format. It might be possible to find Word documents containing essays on subjects related to your assignments that you can take inspiration from, or you might be able to find presentation slides on topics relevant to your work.
- **Images** – By searching for images, you might be able to find diagrams of theoretical models or pictures relevant to your work that can illustrate points in your assignments. You can normally filter image searches by the size of the image, allowing you to find higher-quality pictures. You can also filter out copyrighted material so that you are free to use the images that you find.




The advanced search screen in Google™ (Google and the Google logo are registered trademarks of Google Inc., used with permission).

## Triangulating information to verify facts

Most people are aware that although the internet provides a wide range of information sources, not all of these sources will provide accurate or valid information. How can you verify the accuracy of material that you find online, or indeed from an off-line source?

A useful approach is called triangulation. This is when you confirm that something is accurate by finding the same or similar point in other sources. In order to triangulate something, you should aim to find three or more sources that say roughly the same thing. You can then feel confident that the facts you have found are reasonably accurate. The more sources that you can find to confirm a piece of information, the more confident you can be that it is accurate.

Be careful though. You must consider the merits of the pages from which you triangulate information. For example, you could not claim to have verified the accuracy of a point if you happened to find it on three different blogs.

It is important to consider not only the **number** of sources you find but also the **type** of sources when you triangulate information. When you are considering the accuracy of information you find online, remember that sources such as the mainstream media are likely to have considerable resources and well-established procedures for checking the accuracy of facts. Small organisations or private individuals publishing material on their own are not as likely to have checked the facts as thoroughly. Similarly, material published on a business's website or a private blog is very likely to be slanted towards a particular point of view.

### Appraising information – key points to check:

Aside from the type of site that you look at, what else should you take into consideration when you are deciding how reliable a web page might be as a source of information?

- **Bias** – Some websites might contain information that was written from a specific point of view. It might present a convincing argument weighted in favour of one side of an argument. Organisations such as political parties, think-tanks and some businesses are especially likely to present information with a particular slant. You should treat information from a source with which you are not familiar with a sense of scepticism and reflect critically on any claims you read. If possible, investigate any sites so you can identify their particular form of bias.
- **Date of publication** – You should aim to find material that is as recent as possible. The older information is, the more sceptical you should be about its value. Aim to find the most up-to-date ideas to include in your assignments.
- **Citations** – If you find a reference to a theorist of a report on a web page, you could try searching for it on Google Scholar™. Look at the number of citations that the resource has had in other people's articles. The more times a source has been cited, the better quality it is likely to be.

One useful way of checking a source of information is to compare it to the material in the books and journals on your reading list. If the information is similar and seems to fit with those sources, then it is likely that it is a useful source.

Despite these points, if you are in any doubt as to the quality of a source, speak to your tutor about whether it is relevant and appropriate to your assignments.

# Referencing

When you write an assignment, you are required to acknowledge material that is someone else's idea. This relates not only to direct quotations but also when you summarise someone else's ideas. Failing to acknowledge where your work takes its ideas from another source is a form of plagiarism and could lead to the rejection of your assignment by your tutor, or worse. The best defence against accusations of plagiarism is, therefore, to add references rigorously to the sources of information you use. The most widely accepted convention for adding these references is the Harvard referencing system.

Using the Harvard system is a two-part process.

1 In the body of the text that you are writing, add the surname of the author of your source along with the year of publication.
2 At the end of your assignment, add a comprehensive list of all of your sources on the final pages. This is normally headed 'References' or 'Works Cited'.

You will need to reference different types of source in slightly different ways as follows:

## Books

There are two different types of book that you might encounter – a book written by an author or group of authors, or a book containing a collection of articles by a range of authors that have been edited for publication by one or more experts.

Where you are referencing a book authored by one person, you would normally put their surname and the year of publication in the text of your work, e.g. '(Bloggs 2013)'. At the end of your assignment, you would then include a line with the following information:

Author surname, initials (year of publication). *Title of Book Edition*, Publisher, City.

Where a book has been written by two authors, you should give both names in the text (e.g. 'Smith and Jones 2013') and then give both names in the reference list. Where a book has been written by three or more authors, you should include the name of the first author in the text of your assignment along with the phrase '*et al.*', which is Latin for 'and others'. E.g. 'Bloggs *et al.* 2013'. You would then give the names of all of the authors in your reference list.

## Journals and periodicals

Journals and periodicals are normally referenced in a very similar way to books. You would normally give the name of the author of the article in the text of your assignment. The main difference is in the information that you give in the references list. This is slightly different as you need to give the name of the article that you are citing as well as the name of the journal, in a similar way to how you cite a section of an edited book:

Author surname, initials (year of publication). 'Title of article', *Title of Journal*.

## Websites

Websites change over time – information may be edited, amended, added, deleted, and sometimes entire web pages will vanish. Remember when you reference information on a website that you should state the date on which you accessed the site.

### Music

Published music can be cited in a similar way to books. Begin with the name of the composer, followed by the year of publication, the title of the music, place of origin and the publisher.

### Videos

The rules for citing material in a video or television broadcast are slightly different to those above. Instead of starting your citation with the name of the author, you should start with the name of the film, followed by the year of release in brackets. After this you should state the type of media being cited (e.g. film or television program) followed by the director, place of production and finally the name of the company that produced the film.

### Images

Images can be cited in a similar way to films. You begin your citation with the name of the artist who created the image, followed by the year in brackets, the title of the work, the location of the work (e.g. at a museum or in a book), the identity of the editor/author (if the image is in a book) or the curator (if the image is in a gallery).

### Specialist software

The process of referencing can be simplified by the use of specialist software such as Endnote. Alternatively, some word-processing programs such as Word contain a function that builds a database of sources and automatically compiles reference list for you.

## Primary research

Some of your assignments might call for you to collect original research in order to meet the assessment criteria. Primary research requires careful planning, from planning how you will collect the required information to analysing the results.

### Conducting interviews and discussions

If you plan to collect research from interviews and discussions, there are a few important points you need to consider.

- **How are you going to record the evidence that you collect?**
  Will you write notes or record your interviews? Writing notes might mean that you miss something important that your subject says to you because you are concentrating on writing. On the other hand, if you record an entire conversation, it might take a long time to transcribe everything that is said.
- **How will you cover all of the points that you need to investigate?**
  It is worth preparing carefully if you want to use this method of research. You should write out a list of the people that you think you might interview, and the questions that you think you might ask them. Once this is completed, you should compare your list of questions to the criteria against which your work will be assessed. Make sure that the questions you ask are relevant to the assignment you are completing.

- **Differences between interviews and discussions.**
  Interviewing people individually can be time-consuming. Having a discussion with a small group of people can save time but is not as easy to manage. It is important to play the role of 'chairman' and make sure that people speak one at a time.
- **Evidencing unplanned or ad-hoc conversations.**
  You might bump into a senior colleague or expert practitioner at work who shares information that is relevant to one of your assignments. In these circumstances, even if you do not make notes or recordings at the time, you should write down the details of the conversation as soon as possible afterwards. This is called an 'analytic memo'. You can then refer to this evidence in your assignment.

## Survey tools

A number of websites exist that you could use to design and distribute a simple questionnaire electronically. This can save time, as such websites are able to collect the results of your survey into a spreadsheet, which you can download. This might be simpler than typing up the outcomes of a number of paper surveys. Some websites even carry out analysis for you automatically, carrying out statistical tests and producing graphs or charts.

- **Google Drive™ online storage service** – Google drive contains a spreadsheet program with the facility to create forms. This allows you to collect a range of different question types into a simple online page. Once you have written your questions, you can email a link to your form to people. Alternatively, you could post the link on a public web page such as a social network or a company intranet. Any answers to the questions in your form will be collected in a spreadsheet. Once you have collected all of the responses to your survey, you can download the responses and analyse them, producing graphs and charts to illustrate your assignments.
- **Survey Monkey™/Qualitrics™** – These sites are intended for professional researchers and charge a fee for access to their full range of services. However, both allow you to create a free account which lets you create simple online surveys and analyse the results using statistical models.

## Sources of raw data

There are a number of sources of raw data that are publicly available. You can download large amounts of information in spreadsheet formats that allow you to carry out statistical tests or produce graphs and charts. Alternatively, such information is available in published reports by various organisations:

- **The Office of National Statistics (www.ons.co.uk)** – This can provide you with useful information about demographic trends and the economy. The site contains a range of different reports with detailed statistical information that you can use as evidence to support your arguments in assignments.
- **Company reports** – Public limited companies publish annual reports that contain details of their strategies and detailed financial information.
- **UK government data website (http://data.gov.uk)** – This collates links to statistics from a range of government agencies. It also contains a range of apps that have been written to use government data in forms such as heat maps.

# 3

# Completing assignments

When you start your BTEC Higher National Certificate or Diploma, you will be presented with an assignment brief by your tutor, which lays out the requirements of the coursework that you must complete. Being able to interpret these documents will be crucial to your success.

## Interpreting an assignment brief

In order to interpret an assignment, you need to identify a number of key points. You need to:

- find the **command** words in each question or task
- determine what **content** is being assessed
- establish the **context** of the assignment.

1 **Command words**
Each task in your assignment will contain a verb that indicates to you the level of the response that you are expected to give. It is important that you interpret these verbs correctly so that you fully recognise the level of demand in each task. The interpretation of command words is addressed on the following page.

2 **Content**
It is important to establish which theories and concepts must be covered in your assignment. Your tutor might provide you with a copy of the specification for the qualification; alternatively you could download this from the internet (http://www.edexcel.com/quals/highernationals10/general-eng/Pages/default.aspx). It is important to check that you have covered all of the required material to avoid needlessly resubmitting your tasks.

3 **Context**
Your assignments will relate to a particular scenario. This might be something relevant to your workplace or it might be a situation relating to a case study selected by your tutor. You should normally ensure that your assignment relates closely to this context. This is because of the nature of the qualification you are studying for: you are expected to demonstrate academic knowledge in a workplace setting.

There are some additional considerations that you must take account of. The word count on your assignment should inform how much you write and help you to structure your response. A good way to do this is to start on a blank page and divide your overall assignment into subheadings. These should usually relate to the main themes or theories you need to cover. Once you have done this, allocate a number of words to each subheading, remembering that you will need to include a brief introduction and a longer conclusion to sum up your arguments overall. Budgeting words in this way will help you to keep within your word count. It will also help you break the assignment down into more manageable pieces that you can approach step by step over a period of days or weeks.

Your assignment will have a submission deadline, set by your tutor. Finishing well before this is important. You should ensure that you plan for enough time to read through your assignment and check you have covered all of the required content. You might find what you originally thought was well written and eloquent actually lacks a degree of coherence, so you might want to make some improvements to make your arguments more sophisticated or to add a point that you had accidentally omitted.

## Types of assessment

There are two different types of assessment that you are likely to experience during your higher National course.

Formative assessment refers to activities that are designed to give you feedback and allow your improve your work. Your tutor might sit down with you and discuss your work and progress, helping you to prepare an action plan to improve your work.

Summative assessment refers to the final, formal assessment of your work that assigns you a grade. This is likely to happen at least once during each term or semester on your course. While you might get feedback from your tutor on the strengths and weaknesses of your work it is not always the case that you will be able to make further improvements to your work after these assessments.

## Understanding command words

When you read a question in your assignment brief, you should look for the verb in the sentence. This is called a command word. It tells you how you should approach the task. Identifying and understanding the command word in a question is a vital step towards producing a good response to a task.

Commonly use command words include the following.

| | |
|---|---|
| **Analyse** | These tasks require you to explore the different aspects of an issue, considering the relative significance of each. You would normally need to explore causal relationships, examining how an action will lead to a particular reaction. This type of task would not normally require you to make judgements, but rather to drill down into an issue, exploring relationships in depth. |
| **Assess** | This requires you to weigh up the positive and negative aspects of something. Alternatively it might require you to explore the important and unimportant aspects of an argument. You should build these strands into a balanced argument before reaching a final balanced conclusion. |
| **Critically analyse** | This is a term you are unlikely to have seen before on your Level 3 or A level courses. This is when you have to explore the strengths and weaknesses of the ideas of a theorist or claims made by a professional body before reaching a final, balanced conclusion. You would normally begin by presenting the initial idea and arguments in favour of it, before introducing contradictory arguments. When you present the arguments, you should present their relative merits (e.g. their strengths and weaknesses) before summarising your arguments and reaching a final conclusion. |
| **Evaluate** | This type of question will require you to give an opinion on an issue, which you should support with relevant evidence. You should ensure that your response provides a balanced view of the issue, exploring points for and against your argument. This should lead to an overall conclusion where you summarise your main arguments and explain how you have come to your final decision. |
| **Justify** | This requires you to provide arguments in support of a particular interpretation of or perspective on something. This should be based on the use of theoretical justifications applied to normal business practice. |

## Accessing higher grades

You will naturally be concerned with making the most of your studies and accessing the highest grades possible. There are specific qualities that an assessor will be looking for in your assignments, such as an ability to critique theories and ideas. You should make sure you are familiar with these requirements before you start writing your assignments. There are a number of practical steps you can take to maximise your opportunities to achieve higher grades.

### Independent reading is vital

You will not be able to get the best grades by simply relying on the notes that you are given in class. You will be given a reading list for different modules that you study. This is the minimum that is expected of you in terms of independent study. You should aim to read and make notes on the relevant sections of each book on your reading list as well as following up on references highlighted by tutors during lectures, seminars and tutorials. Another way of finding further texts to study is to look at the references at the end of chapters in your course texts. This will allow you to explore the material that informed the books you have read and explore the concepts in them in greater depth. This can help you develop your understanding of key points.

### Understand the demands of your assignment brief

One of the easiest ways to lose marks is to provide a response that does not fully answer the questions set. You should take great care to read your assignment thoroughly and to clarify any points of uncertainty with your tutor. You need to make sure that your answer is well focused on answering questions. Detailed recitals of material from course textbooks might show that you have a superficial understanding of a topic but will get you, at best, a passing grade or worse. You need to demonstrate your ability to think critically and to apply theory to a range of different scenarios.

### Demonstrate originality

To achieve the very highest grades, you should demonstrate some evidence of the ability to construct original thoughts and ideas. This does not meant that you are constructing your own theories, but it might be that you find a novel application of existing ideas or offer a unique criticism of established ideas. A good way to approach this is often by using your own experiences and insights to inform your work. Basing your assignments on workplace experience or primary research can provide a source of unique insights. However, be careful to avoid long descriptions of scenarios in this case. You should ensure that your insights are relevant to the questions that you are answering and that you are not simply going off on a tangent.

### Make the most of class sessions

It might sound obvious, but regular attendance at lectures, tutorials and seminars will help you to perform better. Your tutor will regularly offer advice on assignments and you should take note of this. You are also likely to hear explanations of a range of theories and concepts that go beyond those in the material on your reading list. This will give you clues as to what to look for in the library to read around the topics studied more effectively.

### Be critical

This does not mean that you have to tear apart every concept that you write about, but it does mean that you should not simply accept ideas at face value. Just because a concept has weaknesses does not invalidate it, but if you fail to acknowledge and address these weaknesses, then it will make your arguments far less convincing and constrain you to lower grades.

## Choosing citations and sources of information

A common question that many learners ask is how many references they should include in their tasks and how do they know when to cite an author's work.

The question of when to cite work is simple to answer: whenever you write something that is based on someone else's ideas, you should acknowledge this connection. This is the simplest way of avoiding the risk of being accused of plagiarism (see page 35). It also helps you later on if you want to develop a piece of work further, because you are better able to see how you found ideas and arrived at conclusions.

In terms of the number of references you should include, there is no definite answer. The number of references cited will depend on the topic being addressed and on the requirements of your awarding institution. Some areas of theory will have large, well-developed bodies of literature with which you will be expected to familiarise yourself. Others might not have such a body of relevant literature and so there will be a lower expectation in terms of the number of authorities that you cite. The reading lists distributed by your tutors at the start of a module (often included with assignment briefs or in course handbooks) should give you a good idea. If the reading list for your module lists five books and five journal articles, it is reasonable to assume that this is the minimum expected of you in terms of your engagement with literature. Of course, it is possible to find further sources of material through searches of Google Scholar™ (see page 16) or through examining the references cited in these texts. This might help you to find further sources of information.

Other than selecting published resources, you may need to use your own research in your assignments. When this is the case, your tutor will normally make this clear in their explanations of your tasks. It is also likely to be stated in your assignment brief. Do not assume that writing higher-level assignments will be onerous and that you will have to spend vast amounts of time collecting hundreds of responses to surveys or carrying out interviews. That might be the case on postgraduate-level courses, but at Levels 4 and 5 you are likely to need less complex evidence. If you are in any doubt as the quantity, nature and scope of the evidence that you need to include in your assignments, you should discuss this with your tutor.

## Exemplar work

Many centres keep examples of good assignments produced by previous learners. This can be a useful starting point for you. Examining their reference lists will help you to focus your own reading and research. You can also get clues about possible approaches to gathering primary research.

While it is an appropriate strategy to benchmark your own work against that of your fellow learners, you should always make sure that you avoid directly copying their work. It is important that you do not plagiarise existing assignments, as this will result in your assignment not being accepted, or more serious consequences.

## Critical reflection

Critical reflection refers to the ability of an individual to look back at experiences such as workplace activities or discussions in a lesson and think about them in a carefully considered way, questioning the main points that you have identified in your experience. This is often seen as a means to construct knowledge through gaining experience.

As a higher-level learner, you should be developing your ability to reflect critically on your experience by using the theories that you learn in your BTEC Higher National. This will allow you to explore the effectiveness of your own practice and that of others. It also allows you to question the validity of theory – are the ideas that you learn in class practical? Can they be applied to every workplace or situation, or are they more meaningful to some than others?

When you are undertaking a period of critical reflection, it helps to structure it using a series of generic questions. These could include the following:

- **What am I reflecting on? What was my learning experience? What did I see / hear / do?**
  You should ensure you are clear about exactly what you are reflecting on and write a simple statement or short paragraph to define the experience. This might be a description of a specific event in your workplace or of a discussion you had with your tutor. This will allow you to constrain your reflection so it is clearly focused.
- **What was the context of the event on which I am reflecting?**
  You should think about what you saw and where you saw it. Was it a routine activity? Was it a normal day? It might be that you are thinking of an event that ran badly, for instance. Considering environmental factors can often explain events. For instance, if you are reflecting on your experience of chairing a meeting that went badly, you might consider the participants – if two of the attendees had an argument during their lunch break, then this might explain a reluctance to contribute to a team meeting afterwards.
- **What alternatives might exist?**
  This requires a mixture of imagination and application. You should use your creative thinking skills to suggest alternatives and your knowledge of theory to think about what kind of solutions would be recommended by noted authorities.
- **How true / correct / appropriate were the events on which I am reflecting?**
  Be sceptical! You might be able to suggest that something went wrong because it was badly planned or aimed at the wrong target customers.

This process does not have to be applied to an experience in the sense of something you have 'done'. You could apply it to your reading of a key text or range of sources such as journals. They key thing to remember is that you should ask searching questions about the nature of the issue you are considering and provide answers to those questions.

A useful way to undertake critical reflection regularly is through the use of a reflective journal or learning log. This is a document that you maintain either as a physical, handwritten journal or electronically, in a private blog or just a typed document. A useful aspect of such journals is that they can be cited as evidence in assignment writing.

Being reflective is not always easy and does not come naturally to everyone. It is something you have to learn and practise over time. A key point to remember is that you are not merely recording a narrative version of events, you are questioning their nature and purpose so that you can learn from them. That is the key differentiator of critical reflection from simple storytelling.

## Thinking skills

In order to complete your assignments, you will need to employ a range of different approaches to solving problems. There are a number of approaches to solving problems which are useful in different situations. They will be of differing value to different people and while it is useful to explore these techniques, and read about them in more depth if they seem useful to you, it might be that another approach is more useful to you personally.

### Divergent and convergent thinking

These approaches are based on developing a central theme, question or idea.

- **Convergent thinking** involves focusing on a particular problem and thinking of all of the theories and concepts that might provide an answer to the problem. The idea is how existing knowledge can be applied to provide an answer. This is built on the assumption that a particular 'correct' answer is possible. This might be useful if you were producing an assignment on improving staff motivation. You might explain how theorists such as Maslow, Herzberg and Vroom would approach the problem, and select the most appropriate answer for a given context.
- **Divergent thinking** involves focusing on a specific problem and looking for a unique or novel solution. For example, you might take as your focus a specific object and try to imagine as many uses for it as possible. The idea is to find new ideas and creative solutions – to 'think outside the box'. This might be useful if you were asked to complete an assignment relating to marketing, for example, producing a promotional campaign for a product – you might think of a novel approach to attract the attention of potential customers.

These techniques can be used together. A brainstorming session for a new product idea might use divergent thinking to develop a range of ideas. You could then use convergent thinking to evaluate these ideas in terms of a specific theoretical model.

### Lateral thinking

This is an approach to problem-solving that requires you to put aside your preconceptions and use your imagination to generate original ideas. This approach is widely credited to the author Edward De Bono. The technique requires you to ignore existing structures and frameworks, and start again from scratch. Rather than thinking about the structure of a business in terms of reorganising existing job roles and activities, you would begin from a blank page, questioning the need for each role and activity, and how they are organised.

A good starting point for these skills is to complete lateral thinking exercises; you can find many of these online. This will allow you to understand how the skills can be applied in a number of situations and will help you to practise thinking in this way.

You could try solving some lateral thinking puzzles by visiting www.folj.com/lateral or www.allpuzzles.net/wordpuzzles/lateralthinking/index.htm.

### Developing creative thinking

Other than divergent and lateral thinking, there are a number of other approaches that you can use to practise and develop your creative thinking skills. Producing mind maps as a means of brainstorming is one useful approach. Getting into the habit (individually or in a group) of writing down as many answers to a question as possible helps to stimulate creative ideas. The key is not to worry about how good the ideas are until the end of the exercise. At that point you can select points with potential for further development.

## Evaluation

Evaluation refers to your ability to make a reasoned judgement. If you are evaluating something, you have to present arguments for and against something before explaining which arguments are strongest and making a final judgment.

## Justification

Justification is when you have to present the arguments for and against something before reaching a final decision. To write a well-justified argument, you have to show clear arguments for it and also demonstrate the flaws in the arguments against it.

### Choosing an appropriate format for a written assignment

You will normally find that the format in which you present your assignment is laid out in your assignment brief. If you are uncertain of how to lay out your work after you have read your assignment brief, you should consult your tutor.

Some points relating to the format of your assignment may be set out in your centre's policies – for example, the size of font that you use or the amount of line spacing. You should also be aware of requirements such as content that needs to be included in headers or footers on pages. It is common practice for information such as student registration numbers and names of tutors to be included. You should also ensure that pages are numbered. This will let you cross-reference the material in the assignment and help your tutor to provide you with feedback. It also makes it easier to spot if, for example, a page falls out of your assignment.

The most common format in which assignments are requested is a word-processed essay or report. This is quite a practical format to use. It is easier for the tutor to read, can be backed up onto portable storage media or cloud storage platforms to avoid work being lost, and it also makes it easier to make any amendments required after you receive feedback on your work.

You should aim to ensure that your work includes a contents page at the beginning and that you include a section listing your references at the end. These pages would not normally count towards the word count for your assignment.

### Other forms of evidence for assignments

Your assignment may state other acceptable forms of evidence for the assignment. These will vary according to the subject studied and the context in which you are studying, i.e. work-based learning or in the classroom. Examples include logbooks, diaries, A4 print outs of PowerPoint® slides, video clips, blogs, websites, annotated photos or drawings and audio recordings of professional discussions. It is important to note that the forms of evidence used must be labelled with the student's name and the learning outcomes and assessment criteria that they relate to.

## Special requirements for specific assignment types

Some assignments might require a different format. Any requirements of those assignments would usually be listed in your assignment brief, but it is worth bearing in mind a few guidelines.

If you are asked to submit a presentation, you should ensure that any visual aids you use are provided for your tutor. You will also need to include a copy of any notes you use when completing your presentation. Alongside this, you will normally need to submit a recording of your work. This is so that the grading decisions made by your tutor can be confirmed by internal and external verifiers. You should take steps to

ensure that an appropriate recording is made of your presentation. This might be a digital video recording. In some cases this could be achieved using a smartphone, as these devices often have good-quality video cameras, although you should check that the sound quality is good enough to make what you say intelligible.

Another format you might be asked to use is be a podcast. This is when you deliver an aural presentation in the style of a radio program and record it as an MP3 file.

Regardless of the format in which you present your work, you will still need to reference your material appropriately. In a PowerPoint® presentation, you can add references on each slide and then add a list of sources at the end of your presentation. If you submit your work in another format, such as a podcast, you might need to add supporting notes that highlight the sources you have used.

## Structuring an assignment

Organising the different strands of an assignment into a coherent structure is important. Organising your thoughts coherently makes your arguments clearer. This makes it easier for you to proofread and also for you to check that you have covered all of the required content. As previously mentioned, it also helps to structure your assignments logically so that you can 'budget' the words available to you into sections to avoid exceeding your word count.

### Breaking an assignment brief into sections

Breaking an assignment into separate sections has a number of purposes. It helps you to plan your use of your word count and it also helps you to plan your reading. If you are aiming to cover a particular theory or concept this week, then you know what you need to look for when you visit the library. Similarly it helps you to plan your use of interlibrary loans or reservations at your local library. This will help to make your workload more manageable overall.

The exact type of sections that you divide your assignment into will depend on the nature of the task. You might structure it around a series of case studies, for example. Alternatively, you might organise it by positive and negative arguments. Another possibility is to structure the work into the work of key theorist or thinkers in the field you are covering.

Taking a logical approach to your assignments should help to make your overall argument more coherent. The key decision is to find a structure that complements the question that you intend to answer. There is no one right or wrong way to do this, but it is a good idea to discuss the structure of your assignment with your tutor before you begin writing it so that you can confirm that you have taken an appropriate approach.

### Building an argument

You must always remember that you are responding to a question and not simply repeating it or providing a set of theory notes. All of the material that you present must somehow address the tasks set in your assignment brief.

You would normally start your argument with a proposition (sometimes known as a claim) – this is a statement about something. You might, for example, comment on the importance of strategic planning for achieving competitive advantage. Once you have made a claim, you should then provide some supporting evidence. This should normally combine a theoretical argument with an example that can illustrate the point. This chain of logic should support your claim and have some relevance to the question you are answering. You should conclude your argument by referring back to the question you are answering – how has your logic addressed the question?

### Supporting evidence and counter-arguments

You should always include evidence from an appropriate range of sources to support your arguments and counter arguments. This might be in the form of work from a particular theorist or a case study example that shows how principles work in practice. Alternatively, you might have conducted an interview with a business manager that articulates a specific principle you want to illustrate.

It is important, as a higher-level learner, that you acknowledge and explore arguments opposed to those that you present. These points should be developed in as much detail as those that you support. This will then allow you to develop a well-reasoned conclusion.

## Structure

There are a number of key sections that you would normally be expected to include in a piece of work at higher national level.

- **Executive summary –** This is a short overview of the main points in your assignment. This would be 100 to 200 words. You should highlight briefly the main points that you cover and give a short summary of your conclusions.
- **Body of arguments –** The majority of your assignment will be your arguments for and against different propositions. This is where you should demonstrate how your knowledge of relevant theory relates to current practice in a range of businesses.
- **Conclusion –** The final section of your assignment should summarise your main arguments and explain how they have led you to an overall judgement. You should balance points for and against a proposition, and explain why you feel that one side has a greater claim to being correct.
- **References –** You should list all of the source material that you have used alphabetically by the surnames of authors. This should follow the Harvard referencing convention outlined on page 22 unless your institution requires the use of a different system. You should take care to check that the citations in your main body of arguments match this list.

## Critical writing skills

At this level of study, your assignments should not be merely describing theories and concepts but should be demonstrating some critical insight into them. This is partly achieved through the presentation of balanced arguments, as we have already discussed, but there are a number of other points you should take into account when writing your assignments:

- Identify any aspects of theories that you need to treat with concern or caution. You might find some theories have been criticised by other authors or you might find they are based on a study of a different industry to the one on which your assignment is focused. Alternatively, you might find that the theories you are considering are a number of years old – this might be a reason to question whether they are still applicable. In each case you should acknowledge these criticisms and should comment in your conclusion about how they affect your argument overall.
- Criticise theories and concepts. Do not accept an author's work without in some way evaluating it or commenting on its relevance and accuracy. You might critique their arguments or you might critique the evidence that they use.
- You should show recognition of any limitations of your own arguments and evidence base. You are only carrying out work on a small scale. You might note

that your literature review is not exhaustive, or that you have only examined one case study of one industry. There is nothing wrong with acknowledging that your work has some limitations and it does not undermine your arguments to do so. There is no point pretending that your work is comprehensive. Such acknowledgements are often included in a section of suggestions for further research/study.

## Avoiding plagiarism

Plagiarism is one of the most common forms of academic malpractice and can have severe consequences for learners. In some cases, it is easy to commit an act of plagiarism accidentally. Unfortunately, while this might count as mitigating circumstances in your defence, it does not excuse the act – a sin of **omission** is dealt with in the same way as a sin of **commission**. As such it is important to understand what is meant by plagiarism and how you can avoid it.

### Definition and consequences of plagiarism

Plagiarism is when you represent another author's work as your own. This applies not just to directly copying pieces of text but also to using ideas and concepts without acknowledging their source.

This might include anything from deliberately copying a section of another learner's essay to copying a section from a book or a website. Furthermore, if you paraphrase an argument made in a journal article or indeed any other source, you must cite the source of the argument. Simply making small adjustments to the order of sentences or to the words used to describe an idea does not make it your own.

Most colleges and universities dealing with work by higher-level learners now routinely use anti-plagiarism software. This scans documents and compares them to a large database of both published and unpublished work, including assignments from previous cohorts of learners. This software can be extremely sensitive and will detect any similarities between pieces of work, so it is a good idea to get into the habit of citing your sources as you go along. Forgetting to add a reference at the end is not a good defence.

The consequences of being caught plagiarising work can be severe. You might find that your assignment is given a failing grade and that you have to resubmit it. In a serious case where it is proven that someone has deliberately committed an act of plagiarism, they might be suspended or even removed from a course of study. For an apprentice this is particularly serious – failing to get your professional qualifications might lead to your dismissal from your job or at the very least expose you to disciplinary procedures at work.

Before you start writing your first assignment, you should make sure that you are familiar with your institution's policy on plagiarism. This is likely to set out details of how academic malpractice is defined, how it is detected, likely penalties and rights of appeal. This might help you to clear up any uncertainties before you submit your work.

### Attributing direct quotes, ideas and arguments

Whenever you directly use someone else's work in your assignments, you should reference this as discussed on page 22. Normally, direct quotes are placed inside inverted commas. If you are giving a short quote, this can be contained in a paragraph. If you are giving a longer quote, you should present this as a separate paragraph. When you give a direct quote, you should include the page number after your citation.

While an indirect use of a source such as paraphrasing an argument does not need to be included in speech marks, you should include a citation in brackets immediately before or afterwards.

### Adding commentary and counter-argument to citations

When you add a quote, it is good practice to comment on it. You should note how the quote is relevant to the question you are answering. Alternatively, you might present a counter-argument to an author's suggestions. Try to keep quotes as short as possible. The main point of an assignment is to demonstrate your own understanding.

### Keeping tabs on sources for citations, figures, etc.

You will find it useful to keep track of the sources of information that you use. A notebook might be a handy way to quickly jot down page references and web addresses. Alternatively, a spreadsheet with columns for details such as author and year might be helpful if you are more confident with computers.

### Avoiding plagiarism

There are a few simple steps that you can take to make sure that your work does not contain any plagiarised material:

1) **Give yourself plenty of time.**
   An easy way to plagiarise material accidentally is to rush a task because you have started it the day before the deadline. The more time you take to complete an assignment, the less risk you face of not realising that an argument is very similar to someone else's work.
2) **Start as you mean to go on.**
   Do not directly cut and paste any material that you find on websites or in journals/ebooks into your assignments. Make sure that you keep any collections of notes or sources material separate from your main assignment, just in case you get confused at a later date.
3) **Be selective in your choice of source material.**
   Make sure you are carefully only to select source material that is relevant to your assignments. Be particularly careful of sources that you do not fully understand, as these can leave you more susceptible to paraphrasing or quoting material without the right attribution.
4) **Reference as you go.**
   Make sure that you add any references and citations to your work as you go along, rather than waiting until you are ready to submit your work before starting. Recording your sources as you go along helps you avoid a last-minute rush to complete this task and reduces the chance of you making a mistake.

5) **Check your sourcing carefully.**
   Go through your assignment and ensure that you have included a reference for any direct quotes or any material you have paraphrased. You should ensure any material that you are not confident is your own is either provided with an appropriate citation or removed from your assignment. Remember: when in doubt, cite!

6) **Make use of the advice that is available to you.**
   Make sure you speak to your tutor and read the guidance that is available for your course in your student handbook. You should be able to find useful advice and guidance on how to write an academic paper.

# Reading list

## Unit 1

### Textbooks

*Engineering Study Guide* (Pearson Custom Publishing, 2011). ISBN 9780857760081.

This book covers the four learning outcomes of Mathematics for Engineers for BTEC Higher Nationals.

## Unit 2

### Textbooks

*Engineering Study Guide* (Pearson Custom Publishing, 2011). ISBN 9780857760081.

This book covers mechanical and electrical engineering science for BTEC Higher Nationals.

Bolton, W. *Engineering Science* (5th edition) (Newnes 2006). ISBN 9780750680837.

This book will complement the *Engineering Study Guide*.

Bolton, W. *Mechanical Science* (3rd edition) (Wiley-Blackwell, 2006). ISBN 9781405137942.

This book concentrates purely on the learning outcomes for mechanical science.

### Videos

YouTube has a number of videos on the subject of the effect of forced vibration, resonance and damping on suspension bridges, e.g. the London Millennium Footbridge.

http://youtu.be/eiaM_LZUsqM

## Unit 3

### Textbooks

Akao, Y. *Quality Function Deployment: Integrating Customer Requirements into Product Design* (Productivity Press, 2004). ISBN 9781563273131.

Akao offers a good explanation of concepts and methods, including quality function deployment for software development.

Cross, N. *Engineering Design Methods: Strategies for Product Design* (4th edition) (Wiley-Blackwell, 2008). ISBN 9780470519264.

Cross offers a useful guide to the overall design process.

Pugh, S. *Total Design: Integrated Methods for Successful Product Engineering* (Prentice Hall, 1990). ISBN 9780201416398.

Pugh offers an especially useful methodology for driving conceptual designs.

Terninko, J. *Step-by-Step QFD: Customer-Driven Product Design* (2nd edition) (CRC Press, 1997). ISBN 9781574441109.

A hands-on guide to implementing quality function deployment; includes a case study and workshops.

Tooley, M. and Dingle, L. *Higher National Engineering* (2nd edition) (Newnes, 2004). ISBN 9780750661775.

## Unit 4

### Textbooks

Beer, F. P. and Johnston, E. R. *Mechanics for Engineers – Dynamics* (4th edition) (McGraw-Hill 1978). ISBN 9780071001359.

Beer, F. P. and Johnston, E. R. *Mechanics for Engineers – Statics*, (5th edition) (McGraw-Hill, 2008). ISBN 9780072464788.

Hibbeler, R. C. *Engineering Mechanics – Statics and Dynamics* (Macmillan, 2004). ISBN 9780131290112.

Meriam, J. L. and Kraige, L. G. *Engineering Mechanics Statics and Dynamics* (4th edition) (John Wiley & Sons, 1998). ISBN 9780471241645.

Timoshenko, S. P. and Young, D. H. *Engineering Mechanics* (4th edition) (McGraw-Hill, 1958). ISBN 9780070616806.

## Unit 5

### Textbooks

Bird, J. *Electrical Circuit Theory and Technology* (Newnes, 2010). ISBN 9781856177702.

Bolton, W. *Electrical Circuit Principles* (Longman, 1992). ISBN 9780582088023.

### Websites

www.animations.physics.unsw.edu.au/jw/AC.html

www.electronics-tutorials.ws/attenuators/attenuator.html

## Unit 9

### Textbooks

Slack, N., Chambers, S., Harland, C., Harrison, A. and Johnston, R. *Operations Management* (Financial Times/Prentice Hall, 1997). ISBN 9780273625001.

Slack, N., Chambers, S., Johnston, R. *Operations Management* (Financial Times/Prentice Hall, 2009). ISBN 9780273730460.

A classic text for operations management, with a very good up-to-date section on planning and control.

Slack, N., Chambers, S., Harland, C., Harrison, A. and Johnston, R. *Cases in Operations Management* (3rd edition) (Financial Times/Prentice Hall, 2002). ISBN 9780273655312.

A book containing case studies as an accompaniment for Slack et al 2009.

### Journals

www.tandfonline.com/loi/tppc20: An online journal with many up-to-date articles relating to production planning and control.

### Videos

YouTube has a number of videos on the subject of production planning, e.g.

www.youtube.com/watch?v=b143Y7dTfIA

### Websites

- www.engr.sjsu.edu/sobi/Process%20Planning.htm: This website takes the reader through the manufacture of a stool and the steps in production planning.

- http://rockfordconsulting.com/the-rise-and-fall-of-mrp.htm: An article on the rise and fall of MRP.
- http://businesscasestudies.co.uk/business-theory/operations/planning-controlling-and-reporting.html#axzz2KpPy1tmD: Case studies for planning and control.

## Unit 61

### Textbooks

Cengel, Y. and Boles, M. *Thermodynamics: An Engineering Approach* (7th edition) (McGraw-Hill Higher Education, 2010). ISBN 9780071311113.

This book covers the basic principles of thermodynamics with real-world examples.

Moran, M., Shapiro, H., Boettner, D. and Bailey, M. *Principles of Engineering Thermodynamics* (7th edition) (John Wiley & Sons, 2011). ISBN 9780470918012.

A good book that covers engineering thermodynamics.

Stone, R. *Introduction to Internal Combustion Engines* (4th edition) (Palgrave Macmillan, 2012). ISBN 9780768020847.

This book covers the areas of the learning outcome to do with an internal combustion engine.

### Videos

YouTube video on heat engines and the second law of thermodynamics, covering internal and external combustion engines: www.youtube.com/watch?v=DHUwFuHuCdw

YouTube video on entropy: www.youtube.com/watch?v=z0XrbWNsSwA

YouTube video on turbine blading (impulse and reaction): www.youtube.com/watch?v=fMG2Re1Wz0M

### Website

- www.hk-phy.org/energy/power/elect_phy/flash/powerplant_e.html: This is an excellent animated website that shows the difference between a single-cycle gas turbine power plant and a dual-cycle gas turbine power plant.

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**For more information on BTEC qualifications,**
**please visit our website: www.edexcel.com**