

ESSENTIAL SKILLS



ACTION BASED ACTIVITIES

TOPIC VC23 ENGINEERING DRAWING

C O M M U N I C A T I O N



LEVELS 1 & 2

ISSUED AUGUST 2007

INSTRUCTIONS

WHAT DO I DO?

Use this booklet to help you:

- plan an Action-based Activity on the topic Engineering Drawing
- carry out an investigation into the subject
- produce ALL the evidence needed for your portfolio

NOTE: Use this booklet WITH the Learner's Planner & Guide.

BY THE END OF THIS ACTION BASED ACTIVITY YOU SHOULD BE ABLE TO:

LEVEL 1

- take part in a one-to-one or group discussion
- read and obtain relevant information
- write two different types of document
- use at least one image effectively

LEVEL 2

- take part in a group discussion, helping move the discussion forward
- give a short talk of at least 4 minutes
- produce a document that summarises two 500+ word documents you have read
- write two different types of document, one being more than 500+ words long
- use at least one image effectively

COMMUNICATION

TOPIC VC23 ENGINEERING DRAWING

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Engineering Drawing is a big subject. If you want to study it for your Action-based work you will need to narrow it down. This guide will take you step by step from how to get started to writing and checking your final piece of work. Each step follows Part Two of your *Learner's Planner & Guide*, so read it alongside this booklet.



It's a good idea to follow this advice.



You must do this to get the qualification.



**STEP
A**



CHOOSING A TOPIC

Think about the topic "*Engineering Drawing*" and things about it that you might like to study. Don't rush or you may miss something. One of the best ways to start is to *mindmap*.

TASK 1 GETTING STARTED MAKING A MINDMAP

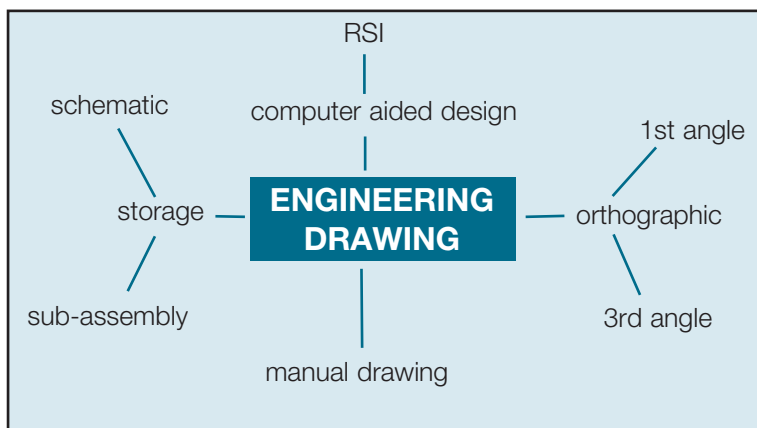
Allow about
20 minutes

On your own, or with a colleague, think about and talk about "*Engineering Drawing*" and aspects of it you might like to study.

Work together to make a **mindmap** of the subject. You can find how to do this on Page 5 of the *Learner's Planner & Guide*. You may want to think about:

- the traditional drawing office environment
- orthographic projection
- information contained on drawings
- computer aided design
- traditional methods of engineering drawing
- advice on engineering drawing

PORTFOLIO EVIDENCE – You could copy and add to the unfinished example below. This could then go into your portfolio as evidence that you have thought about your chosen subject.



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**STEP
A**



Continued

TASK 2 FRAMING A QUESTION

Allow about
15 minutes

When you have made your mindmap, focus in on one or two ideas that:

- interest you
- will be easy to research and get information about (talk to your tutor if you are unsure)

Write these ideas down and then try to turn them into **QUESTIONS**. This will help when you write up your conclusions later. The examples in the box may help you do this.



Topic: Engineering Drawing

Original Idea	Question
Orthographic projection	What is meant by 1st and 3rd angle projection?
Information on drawings	What information must a drawing always contain?
Computer aided design	How do you use it and what are its benefits?
Advice on drawing	Where can I get advice on engineering drawing methods?

In your portfolio, write down your chosen title/question.

Check with your tutor that it is okay. Remember, you can always change it later if necessary.

TASK 3 LOCATING RELEVANT INFORMATION

Allow about
10 minutes

Your next task is to locate relevant information for your portfolio. Check with your tutor that:

- there is enough information
- it is easily located
- it is of the right standard

TASK 4 ACTION PLANNING

Allow about
30 minutes



PLAN – It's a good idea next to draw up a plan of action. Make a table and on it write down what you intend to do and when you will do it by. Highlight key dates and deadlines (e.g. when you are giving a talk or having a discussion). Examples are located in the Learner's Planner & Guide – Level 1 Page 7, Level 2 Page 17.

COMMUNICATION

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READING TO OBTAIN INFORMATION

Reading and obtaining information are an essential part of the qualification and you must be able to show that you have collected, read and extracted relevant information. Level 2 learners must be able to summarise what was read into one document.

There are lots of ways of finding information on this subject such as:

- BS 8888 – Design Standards
- library/computer magazines
- using the Internet
- course notes from your technical certificate
- training booklets on the subject

TASK 5 READING AND FINDING OUT (to answer your question)

Allow about
1½ hours

Look for suitable documents to read. If you are studying for **Level 2** communication skills they will need to be more than 500 words long, (see Page 18 of the Learner's Planner & Guide).

TASK 6 RECORDING INFORMATION

Allow about
1½ hours

READ and MAKE NOTES from all documents that you think are helpful and relevant (the box below shows you how to write your notes).



TOPIC: Engineering Drawing

Information source: 'Training Booklet ESP/226H'

Author: EMTA

Section: Producing Engineering Drawings
Using Computer Aided Design

Main points in this section:

- personal health and safety
- computer and operating systems
- computer viruses
- starting up and closing down procedures
- storage and filing systems

Summary: You will then need to write down in your own words what you have read in this section.

For **Level 2**, you must produce a document that brings together in **one** summary at least two 500 word long documents that you have read. A good way to do this would be to construct a response to the question/title you constructed in Task 2. An example of this is on Page 19 of the Learner's Planner & Guide.



ASSESSMENT Your tutor will assess that:

- the notes you have made are relevant
- you have clearly identified key points
- you understand what you have read

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**STEP
C**



DISCUSSIONS

Taking part in discussions is an essential part of the qualification. For Level 1 you can take part in a one-to-one OR a group discussion. At Level 2, it must be a group discussion.

Your **tutor** will need to observe and assess how well you do.

TASK 7

TAKING PART IN DISCUSSIONS ABOUT YOUR TOPIC

Allow about
1 hour

1. **Invite** colleagues to join you in a discussion about your chosen topic and fix a time and date when you will meet. Make sure your tutor is also able to be there if you want to be assessed.
2. **Plan** and practise for the discussion so you are properly prepared (see the box below).



PLANNING AND TAKING PART IN DISCUSSIONS

1. Think about what you will talk about – it’s no good just having a chat! The discussion must be focused on the subject.
2. Decide on a subject and a question to discuss, e.g. “Why use Computer Aided Design?”
3. Agree a time and place for the discussion.
4. Set aside 15–20 minutes for the meeting.
5. Make sure your tutor is there to assess it.



ASSESSMENT Your tutor will assess you on:

- speaking clearly
- keeping to the point
- giving relevant information
- listening to others
- using positive body language
- keeping the discussion going

**STEP
D**



GIVING A TALK (Level 2 only)
At Level 2 you must give a short talk to an audience (see your *Learner's Planner & Guide*, Page 21 for detailed tips on how to give a good talk).

Although there are no hard and fast rules, a talk will normally follow the format given in the box below (in this case on the topic of "What is good about CAD?")



It is a good idea to prepare prompt cards and material (e.g. pictures, PowerPoint etc) to illustrate your talk.



1. Think of a **title**, e.g. "What is good about CAD?"
2. **Introduction** – What is CAD?
3. **Main section** – Explain what CAD is about and compare it to 'traditional' drawing practice.
4. **Conclusion** – "So I hope I have been able to convince you that..."
5. **Questions** – Seek comments from your audience on what you have told them.

TASK 8

Allow about
2 hours

GIVING A TALK OF AT LEAST 4 MINUTES ABOUT YOUR TOPIC

Note: This task is only relevant if you are doing Level 2.

Plan and prepare for your talk. Make sure the time and date is fixed and that your tutor can be there to assess it. Practise at home – it really does help!



ASSESSMENT Your tutor will assess you on:

- speaking and making your case clearly
- keeping to the point
- giving relevant information
- being well organised
- using positive body language
- answering questions clearly

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**STEP
E**



PLANNING AND WRITING DOCUMENTS

Your portfolio must contain at least two different written or word-processed documents (see pages 12–13 in your *Learner’s Planner & Guide*). At Level 2, one of them must be over 500 words long.

TASK 9

Allow about
2 hours

PLANNING AND WRITING ONE TYPE OF DOCUMENT ON YOUR CHOSEN TOPIC

1. Check what you already have in your portfolio. You should have notes of documents you have read and information gathered. You may find that you have already written a letter or short report which you can use as evidence of writing! Level 2 learners could review the document they produced at Task 6.
2. Decide on **one** type of document you will produce. For example, you might include a report on a survey you carried out on the use of CAD in engineering companies within Northern Ireland.



EXAMPLES OF DOCUMENTS YOU MIGHT WRITE ON ‘COMPUTER AIDED DESIGN’

Short documents:

- a leaflet giving a brief description of CAD
- a short report on “What’s good about CAD”
- your answer to a CAD question from your technical certificate (in essay format)

Longer documents:

- an article on how CAD has revolutionised the Drawing Office
- a structured report on the level of use of CAD in modern engineering
- a brochure on a CAD package, for new apprentices

3. Start **WRITING** one type of document on your chosen topic. You are strongly advised to use a computer to do this as this will:
 - enable you to redraft work quickly and easily
 - make your work look more professional
 - make spell checking easy
 - provide opportunities to include images, tables, charts, graphs etc – you **MUST** include an **image**
4. **PROOF READ** your work carefully.

COMMUNICATION

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ASSESSMENT Your tutor will assess your work for:

- its relevance – sticking to the point
- its structure – it must be organised
- its style – easy to read and suited to the job

TASK 10 PLANNING AND WRITING A DIFFERENT TYPE OF DOCUMENT ON YOUR CHOSEN TOPIC

Allow about
2 hours

Repeat Task 9 for a different type of document on your chosen topic. **Level 2** learners should make sure that one of the documents is more than 500 words long. One document should contain an image you have used to illustrate a point made in your writing.



COMPILING THE FINAL PORTFOLIO

TASK 11 THE FINAL PORTFOLIO OF EVIDENCE

Gather together all your work and select from it the evidence needed to meet the requirements of the qualification. The minimum pieces of evidence you must produce are to be found on Page 3 of the Learner's Planner & Guide.

(Your tutor will help you with this task).

**ENGINEERING DRAWING
MORE ACTION BASED ACTIVITY IDEAS**

1. Convert one of your training or assessment task drawings to a CAD drawing and use the experience as the basis for your Action based Activity.
2. Carry out research into the range of drawing conventions in common use within engineering.
3. Investigate the extent to which Computer Aided Design is used by engineering companies within Northern Ireland.
4. Investigate the extent to which traditional drawing methods are still used by engineering companies within Northern Ireland
5. Gather information on drawing storage and accessibility with regard to space and cost issues, and compare CAD based systems with traditional systems.
6. Carry out a survey of your work colleagues regarding which sort of drawing they prefer, i.e. CAD or traditional.
7. Choose a fairly large company with a history in engineering and try to establish what a working day was like for a draughtsman, for example 50 years ago, including dress and drawing equipment and decide if it's better today.
8. Locate an engineering drawing produced before computers were common in the workplace (for example 1980), and compare it with a similar CAD drawing.
9. Look at both 1st and 3rd angle drawings and investigate why both are still in use and the pros and cons of each method of orthographic projection.
10. Investigate a numbering system used (or which could be used) for a series of drawings on a large piece of machinery or equipment, e.g. a marine diesel engine, aircraft body or production machine.



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