

Cambridge TECHNICALS LEVEL 3

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ENGINEERING

Unit 25

Promoting Continuous Improvement

Model assignment

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Contents

Guidance for tutors on using this assignment	3
General	3
Before using this assignment to carry out assessment	3
When completing the assignment	4
Resources to complete the tasks	4
Tutor information to support the tasks	4
Health and Safety and the use of resources	4
Time	5
Format of evidence	5
Group work	5
After completing the assignment	6
Reworking the assignment	6
Modifying the model assignment	6
General information for learners	7
Assignment for learners Unit 25: Promoting Continuous Improvement	9
Scenario	9
The tasks	10
Task 1: Report on evaluation of previous performance	10
Task 2: Create a plan for improvement	11
Task 3: A report on the effectiveness of a plan implementation	12
Evidence Checklist	13

Please note:

You can use this assignment to provide evidence for summative assessment, which is when the learner has completed their learning for this unit and is ready to be assessed against the grading criteria.

You can use this assignment as it is, or you can modify it or write your own; we give more information in this document under Guidance for tutors.

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Guidance for tutors on using this assignment

General

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www.ocr.org.uk

The purpose of this assignment is to provide a scenario and set of tasks that are typical of how engineers would use continuous improvement to enable you to assess your learner against the requirements specified in the grading criteria. The scenario and its tasks are intended to give a work-relevant reason for applying the skills, knowledge and understanding needed to achieve the unit.

This assignment will not instruct learners how to meet the highest grade. Whether learners achieve a pass, merit or distinction will depend on what evidence they produce.

You can modify the scenario we provide in this assignment to make it more relevant to your local or regional needs. Please refer to the information under 'Modifying the model assignment' later in this section.

You don't have to use this assignment. You can use it as a guide to help you to design your own assignment, and we provide an assignment checking service. You'll find more information on these matters in section 8 of the qualification handbook.

In the tasks, we'll refer to the format of evidence. Learners are **not** required to follow that format **unless** we tell them otherwise.

It's essential that the work every learner produces is their own. Please make sure you read through the information we give on authenticity in section 8 of the qualification handbook and make sure that your learners and any staff involved in assessment understand how important authenticity is.

We provide this assignment to be used for summative assessment. You must not use it for practice or for formative assessment.

Before using this assignment to carry out assessment

Learners will need to take part in a planned learning programme that covers the knowledge, understanding and skills of the unit.

When your learners are ready to be assessed, they must be provided with a copy of the following sections of this assignment:

- General information for learners
- Assignment for learners
- Evidence Checklist

They may carry out preparation prior to undertaking the tasks and there is no time limit for this.

When completing the assignment

You should use this assignment in conjunction with the unit specification and qualification handbook.

Resources to complete the tasks

Learners will need access to their work and any feedback from previous units completed.

The resource requirements will vary depending on the activity learners choose in task 1, please see tutor information below.

Tutor information to support the tasks

To complete the tasks in this synoptic unit, learners will need to revisit an activity completed in an earlier unit(s). Tutors should ensure that learners select an appropriate activity to allow them to meet the grading criteria noting that in LO 3/task 3 they are required to implement their plan to make the improvement(s). It is not necessary to re-work a whole process/artefact rather it could be a sub-process or part of an artefact that could be improved. Learners could use feedback received when completing other units to help them choose an appropriate activity.

In task 1, learners should discuss with you their initial idea for the activity they intend to focus on for improvement. This allows you to check it is achievable in the time and resources available and that it provides sufficient scope in order to meet the grading requirements.

Activities could be those that required learners to design, create or test a system, process or artefact for example:

- The testing of electronic circuits from Unit 6 Circuit Simulation and Manufacture
- The design of components from Unit 9 Mechanical Design
- The creation of 3D assemblies from Unit 10 Computer Aided Design
- The testing of the suitability of materials from Unit 11 Materials Science.

Learners will need to be able to evaluate a previously completed activity and you may need to facilitate feedback sessions to help with this process.

In task 2, learners will need to use their evidence from task 1 to create an improvement plan; this should cover all necessary improvements to satisfy the desired outcome(s).

In task 3, learners are expected to implement an improvement plan; this will require them to undertake identified elements of the activity again using the approaches in the improvement plan.

Health and Safety and the use of resources

In task 3 learners will be implementing the plan they have created. They will complete an activity from a previous unit and the relevant health and safety precautions and procedures from that previous unit must be applied to this activity.

Time

You should plan for learners to have 18–24 hours to complete this assignment.

Learners must be allowed sufficient time to complete all the tasks. The amount of time may vary depending on the nature of the tasks and the ability of individual learners. To help with your planning, against each of the tasks we've given an indication of how long it should take.

Learners can produce evidence in several sessions.

Format of evidence

Learners have to produce evidence that demonstrates how they have met the grading criteria. At the very least they must produce evidence that meets **all** of the pass criteria.

Please make sure your learners realise that missing just one pass criterion means they will not pass the unit, even if they have successfully met the merit and distinction criteria.

- We don't have specific requirements for the format of evidence in this assignment. We've said what format the evidence could take for each task. For example, if we say 'You could include a report on ...', the evidence doesn't have to follow any specific reporting conventions. You can modify the format of the evidence, but you must make sure the format doesn't prevent the learner from accessing the grading criteria.
- It's possible that certain formats for evidence can naturally cover several grading criteria and avoid the need for excessive amounts of evidence. For example, a report can be a good way to pull together evidence to meet several grading criteria.

For more guidance on generation and collection of evidence, please refer to the section 8 'Internal Assessment', in the qualification handbook.

Group work

This assignment has been written to allow for group work – for example for the learners to gather feedback on their own performance and the performance of the system, process or artefact. You must be sure that each learner can produce evidence of their own contribution to each grading criterion. When learners are working in teams, you must make sure that:

- all team members have equal opportunity to evidence their skills, knowledge and understanding
- you consider the team composition, for example learners will need to work with learners or tutors they have engaged with previously for previous tasks.
- you monitor the team as work progresses so that you can be confident all learners are meeting the grading criteria and gaining the feedback they require to continue the assessment.

You can give constructive feedback to learners about working as a group and direct them on team working skills because evidence of team working skills is not required by the unit.

If witness statements are used to support learners' evidence, you have to complete an individual statement for each learner.

After completing the assignment

Once the learner has submitted their work to you to be assessed, you must judge or 'mark' the work against the grading criteria for the unit and identify one grade for the unit. For further information about assessment, please refer to section 8 of the qualification handbook.

Your assessment decisions must be quality assured across the cohort of learners in your centre who are being entered for the same unit. This must be done through an internal standardisation process. We give information on internal assessment and standardisation in the qualification handbook.

Reworking the assignment

If you and the learner feel they've not performed at their best during the assessment, the learner can, at your discretion, improve their work and resubmit it to you for assessment. If a learner is working on improving their work before it is resubmitted, you and the learner must continue to make sure the work is the learner's own.

Any feedback you give to the learner must not direct them on how to improve their work. You can identify what area of the work could be improved but you cannot give the learner any details about how they could improve it. You must follow the guidelines given in section 8 of the qualification handbook under 'Authenticity of learner work'.

Modifying the model assignment

The tasks in this assignment allow learners access to the full range of grades detailed in the grading criteria of this unit.

If you modify this assignment you must **not** change the grading criteria provided in the tasks for the learner or in the evidence checklist. These grading criteria are taken from the unit.

You can modify the scenario to suit your local or regional needs and the tasks may be contextualised to match any changes you have made to the scenario. If you supply your own drawings to support a different scenario, these must be sufficiently detailed for learners to complete the tasks.

You can modify the type of evidence and the format it takes, unless we expressly state that evidence must take a specific format.

You must also make sure that you avoid discrimination, bias and stereotyping and support equality and diversity. For more information, please see the section 'Designing your own assignments for internally assessed units' in section 8 of the qualification handbook.

If modifications are made to the model assignment, whether to the scenario alone, or to both the scenario and individual tasks, it's your responsibility to make sure that all grading criteria can still be met and that learners can access the full range of grades.

General information for learners

Q *What do I need to do to pass this assignment?*

A You need to produce evidence to meet the requirements of **all** the pass criteria for the unit this assignment relates to. If you miss just one pass criterion, you will not achieve this unit and will receive an unclassified result.

Q *What do I need to do if I want to get a merit or distinction for this assignment?*

A For a merit, you need to produce evidence to meet the requirements of **all** the pass criteria for the unit this assignment relates to **and** you need to produce evidence to meet **all** the merit criteria.

For a distinction, in addition to the above, you also need to meet **all** the distinction criteria for this unit.

Q *What help will I get?*

A Your tutor will support you when completing this assignment and will make sure that you know what resources or facilities you need and are allowed to use. We've given your tutor information about how much support they can give you.

Q *What if I don't understand something?*

A It's your responsibility to read the assignment carefully and make sure you understand what you need to do and what you should hand in. If you are not sure, check with your tutor.

Q *I've been told I must not plagiarise. What does this mean?*

A Plagiarism is when you take someone else's work and pass this off as your own, or if you fail to acknowledge sources properly. This includes information taken from the internet.

It's not just about presenting a whole copied assignment as your own; you will also be plagiarising if you use the ideas or words of others without acknowledgement, and this is why it's important to reference your work correctly (see Q&A below for more information on referencing).

Plagiarism has serious consequences; you could lose the grade for this unit or you may not be allowed to achieve the whole qualification.

Always remember that the work you produce must be your own work. You will be asked to sign a declaration to say that it is.

Q *What is referencing and where can I find out more information about it?*

A Referencing is the process of acknowledging the work of others. If you use someone else's words and ideas in your assignment, you must acknowledge it, and this is done through referencing.

You should think about why you want to use and reference other people's work. If you need to show your own knowledge or understanding about an aspect of subject content in your assignment, then just quoting and referencing someone else's work will not show that **you** know or understand it. Make sure it's clear in your work how you are using the material you have referenced **to inform** your thoughts, ideas or conclusions.

You can find more information about how to reference in *The OCR Guide to Referencing* available on our website: <http://www.ocr.org.uk/Images/168840-the-ocr-guide-to-referencing>

Q ***Can I work in a group?***

A Yes. However, if you work in a group at any stage, you must still produce work that shows your individual contribution. Your tutor can advise you how to do this.

Q ***Does my work for each task need to be in a particular format?***

A You can present your work in a variety of ways – it can be handwritten, word-processed, on video or in digital media. What you choose should be appropriate to the task(s) and your tutor can advise you. There may be times when you need proof that you have completed the work yourself: for example, if you do something during work placement that you want to use as evidence, the tutor might ask the employer to provide a witness statement.

Make sure you check the wording in each task carefully. For each task, we'll tell you if your evidence has to be in a specific format:

- If we say use the word '**must**', for example 'You must produce a report' or 'Your evidence/work must include a diagram', then you must produce the work in the stated format.
- If we use the word '**could**', for example 'You could include sketches of your ideas' or 'You could do this by annotating your diagram', this means that you are not required to follow the format we have given, but you must make sure that the work you do produce allows you to demonstrate the requirements of the grading criteria.

If you are unsure about what evidence you need, please ask your tutor.

Q ***Can I ask my tutor for feedback on my work?***

A Yes, but they can't give you detailed feedback.

We have given your tutor instructions on what kind of feedback they can give you. For example, they are **not** allowed to tell you exactly what to do to make your work better, but they **can** remind you about what they've taught you and you can use this additional learning to try and improve your work independently. They can say what they've noticed might be wrong with your work, for example if your work is descriptive where an evaluation is required, but your tutor can't tell you specifically what you need to do to change it from a description to an evaluation – you will need to work out what you need to do and then do it for yourself.

Q ***When I have finished, what do I need to do?***

A If you have included the personal details (such as name, address or date of birth) of someone other than yourself in your work, this must be blanked out (anonymised) – your tutor will tell you how to do this. You don't need to do this for information contained in references.

You can complete the evidence checklist to show your tutor where they can find the evidence for each grading criterion in your work.

You should make sure your work is labelled, titled and in the correct order for assessing.

Hand in the work that you've completed for each task to your tutor. They might ask to see your draft work, so please keep your draft work in a safe place.

Q ***How will my work be assessed?***

A Your work will be marked by someone in your centre who has been authorised to do so. They will use the information in the grading criteria to decide which grade your work meets. The grading criteria are detailed in each unit and are also given in the tasks within this assignment. Please ask your tutor if you are unsure what the grading criteria are for this assignment.

Assignment for learners

Unit 25: Promoting Continuous Improvement

Scenario

Demonstrating continuous improvement processes

The best engineers follow the principle that they must be committed to maintaining high standards of work in every aspect. This means that engineers should continually be looking to improve the standards and quality of their work.

You are now approaching the end of your study programme for this course. You are required to reflect on a system, process or artefact you have engineered during a practical activity from one of the units you have previously completed to identify and implement an improvement.



Task 1: Report on evaluation of previous performance

(This task should take between 6 and 8 hours.)

Learning Outcome 1: ‘Be able to reflect on own performance and performance of systems, processes or artefacts’, is assessed in this task.

Your first task is to identify a suitable activity that you have completed in a previous unit(s) and identify an area for improvement. You should discuss your initial idea with your tutor before proceeding to make sure it is suitable.

Next you will need to reflect on your performance and that of the system, process or artefact from your chosen activity and finally recommend and justify improvements.

You should present your findings to your tutor.

Pass	Merit	Distinction
<p>P1: Describe own performance when engineering a system, process or artefact and reflect on:</p> <ul style="list-style-type: none"> • own strengths and areas for improvement • personal skills • practical skills • achievement of processes and outcomes 	<p>M1: Evaluate own performance and make recommendations for improvements to own performance when engineering a system, process or artefact.</p>	
<p>P2: Analyse performance of a system, process or artefact you have engineered with reference to:</p> <ul style="list-style-type: none"> • measures/success criteria • results and recommendations • lessons learned 	<p>M2: Recommend improvements to your system, process or artefact.</p>	<p>D1: Justify the decisions made, including reasons why any options were rejected when making recommendations for improvements to your system, process or artefact in your improvement plan.</p>
<p>Evidence</p>		
<p>You should produce a portfolio of evidence with relevant details of the chosen system, process or artefact including feedback. This should be accompanied by a written report or a presentation with detailed speaker notes referencing the portfolio evidence.</p>		

Task 2: Create a plan for improvement

(This task should take between 3 and 4 hours.)

Learning Outcome 2: 'Be able to develop a plan for improvements to a system, process or artefact' is assessed in this task.

Your task is to use your findings from task 1 to create a plan to satisfy your desired outcome.

Your plan needs to clearly state what the desired outcome is and what improvements are required to satisfy this.

Pass	Merit	Distinction
P3: Create a plan for improvements to a system, process or artefact you have engineered, with reference to: <ul style="list-style-type: none">• Performance indicators• Desired outcomes• Required actions• Skills needed to achieve outcomes		
Evidence		
Your plan could be a written document or a presentation with detailed speaker notes. Outputs from suitable planning software could also be included.		

Task 3: A report on the effectiveness of a plan implementation

(This task should take between 9 and 12 hours.)

Learning Outcome 3: 'Be able to implement a plan to make improvements' is assessed in this task.

Your first task is to follow the improvement plan you have created in task 2 to make the improvements to your chosen system, process or artefact.

Your second task is to evaluate the implementation of the plan against your stated desired outcomes and write a concluding report evaluating the effectiveness of your plan.

Pass	Merit	Distinction
P4: Follow your plan to make improvements to a system, process or artefact you have engineered.	M3: Evaluate the effectiveness of your plan against the desired outcomes to the system, process or artefact.	
Evidence		
A portfolio of evidence showing how you have followed your improvement plan, this could include a written summary, completed check lists with annotations and/or annotated photographs. Your concluding report could be a written document or a presentation with detailed speaker notes.		

Evidence Checklist

OCR Level 3 Cambridge Technicals in Engineering Unit 25: Promoting Continuous Improvement

LEARNER NAME:

For Pass have you: (as a minimum you have to show you can meet every pass criterion to complete the unit)	Where can your tutor find the evidence? Give page no(s)/digital timings, etc.
<p>Described own performance when engineering a system, process or artefact and reflected on:</p> <ul style="list-style-type: none"> • own strengths and areas for improvement • personal skills • practical skills • achievement of processes and outcomes (P1) 	
<p>Analysed performance of a system, process or artefact you have engineered with reference to:</p> <ul style="list-style-type: none"> • measures/ success criteria • results and recommendations • lessons learned (P2) 	
<p>Created a plan for improvements to a system, process or artefact you have engineered, with reference to:</p> <ul style="list-style-type: none"> • Performance indicators • Desired outcomes • Required actions • Skills needed to achieve outcomes (P3) 	
<p>Followed your plan to make improvements to a system, process or artefact you have engineered (P4)</p>	

For Merit have you:	Where can your tutor find the evidence? Give page no(s)/digital timings, etc.
<p>Evaluated own performance and make recommendations for improvements to own performance when engineering a system, process or artefact (M1)</p>	
<p>Recommended improvements to your system, process or artefact (M2)</p>	
<p>Evaluated the effectiveness of your plan against the desired outcomes to the system, process or artefact (M3)</p>	

For Distinction have you:	Where can your tutor find the evidence? Give page no(s)/digital timings, etc.
Justified the decisions made, including reasons why any options were rejected when making recommendations for improvements to your system, process or artefact in your improvement plan (D1)	

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Alternatively, you can email us on **vocational.qualifications@ocr.org.uk**



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