**OCR-set Assignment**

**Sample Assessment Material**

OCR Level 3 Alternative Academic Qualification Cambridge Advanced Nationals in Engineering

Unit F132: Engineering in practice

Scenario Title: Angled desk lamp

Give to candidates on or after X June 20XX.  
Valid for assessment until 20XX. For use by students beginning the qualification in September 20XX and finishing by 20XX or 20XX.

This is a sample OCR-set assignment which should only be used for practice**.**

This assignment **must not** be used for live assessment of students.

The live assignments will be available on our secure website, ‘Teach Cambridge’.

**The OCR administrative codes linked to this unit are:**

* unit entry code F132
* certification code H027/H127

**The regulated qualification number linked to this unit is:**

Y/651/0635

**Duration**

About 30 hours of supervised time (GLH)

(work that **must** be completed under teacher supervised conditions)

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Information and instructions for Teachers

**Using this assignment**

This assignment provides a scenario and set of related tasks that reflect how engineers develop new products by analysing existing products to determine whether they have been successful. By analysing a product, engineers have the opportunity to understand the materials, manufacturing processes, electronic devices and aesthetic factors that need to be considered before a product can be manufactured. By understanding these decisions, engineers will be able to prototype new products and test them with potential users.

The assignment:

* Is written so that students have the opportunity to meet the requirements of all assessment criteria for the unit.
* Will tell students if their evidence must be in a specific format. If the task does not specify a format, students can choose the format to use.
* **Must** be completed under teacher supervision. Any unsupervised time allowed will be explained in the assessment guidance.
* We have estimated that this assignment will take about 30 hours of supervised time to complete.  
  Students should need approximately:
* 3 hours to complete Task 1
* 4 hours to complete Task 2
* 2 hours to complete Task 3
* 6 hours to complete Task 4
* 2 hours to complete Task 5
* 3 hours to complete Task 6
* 3 hours to complete Task 7
* 5 hours to complete Task 8
* 2 hours to complete Task 9

You **must**:

* Use an OCR-set assignment for summative assessment of students.
* Familiarise yourself with the assessment criteria and assessment guidance for the tasks. These are given at the end of each student task. They are also with the unit content in **Section 4** of the Specification.

Assessment guidance is only given where additional information is needed. There might not be assessment guidance for each criterion.

* Make sure students understand that the assessment criteria and assessment guidance tell them in detail what they need to do in each task.
* Read and understand **all** the rules and guidance in **Section 6** of the Specification **before** your students start the set assignments.
* Make sure that your students complete the tasks and that you assess the tasks fully in line with the rules and guidance in **Section 6** of the Specification.
* Make students aware of all relevant health and safety considerations before starting any practical work.
* Make sure that students are appropriately supervised during any practical work and are working safely.
* Intervene during practical work if necessary to ensure students’ safety. In such instances, staff should assist the student to ensure their safety and so that they can continue with the subsequent assessment tasks, but they cannot be credited for the criteria directly addressing the practical skills where they have had to be helped unless the assessment guidance states otherwise.
* Give your students the engineering[**Student guide to NEA assignment**](https://www.ocr.org.uk/Images/620503-student-guide-to-nea-assignments.pdf)**s** **before** they start the assignments.
* Complete the **Teacher Observation Record** for **Task 4** and **Task 8**. You **must** follow the guidance given when completing it.

You **must** **not**:

* Use live OCR-set assignments for practice or formative assessment. This sample assessment material **can** be used for practice or formative assessment.
* Use this sample assessment material for live assessment of students.
* Allow group work for **any** task in this assignment.

You **can**:

* Make modifications to this assignment, as follows:
* you can use alternative electronic components if you have them available or if components with the same model numbers are not available. The components used must be clear in the evidence provided and you must ensure the simulated and physical circuits function correctly.
* **No changes** are allowed to the:
* assessment criteria.
* complexity and demand of the requirements of the task.
* unit content that is assessed.
* the amount and detail of guidance you give your students.
* **No templates** other than those provided by OCR can be used for this assignment.

**Section 6.2** of the Specification gives you more information about what to do with modified assignments for moderation.

**Information for delivering tasks**

|  |  |
| --- | --- |
| **Task** | **Requirements** |
| Task 1 | * Each centre must decide on the exact product model and type of product they purchase. It must be similar to the one given in the set assignment and it must use appropriate fixings (e.g. semi-permanent) that would permit and allow disassembly by the teacher/technician. * Ensure that the centre has appropriate manufacturing processes, as set out in the unit content, and raw materials to allow students to make their mechanical prototypes. * It is advisable for the teacher to take an audio-visual recording showing the disassembly of the product so that students can refer back to it. * During the disassembly you must not identify the materials, manufacturing processes (e.g. joints, fixings and finishes) or the function of the components. * Students must not share their photographic evidence for this task. |
| Task 2 | * Students can use a 3D CAD program for this task. |
| Tasks 1 to 5 | * There is no set process required to manufacture the mechanical prototype, this gives students flexibility to decide on the processes to use. However, students must select from the manufacturing processes listed in the unit content of the specification. * Students can use any metal or polymer to manufacture their prototype from. They can also use wood for formers and/or jigs/fixtures. * There is no requirement to make or purchase any of the electrical components for the product, for example switches or cable. |
| Task 6 to 9 | * You can use alternative electronic components if you have them available or if components with the same model numbers are not available. The components used must be clear in the evidence provided. * You must ensure the simulated and physical circuits function correctly before students attempt the set assignment. * The electronic circuit prototype must not be combined with the mechanical product prototype, which means students should produce two separate prototypes. * Students can either manufacture the electronic circuit using strip board and solder or using a printed circuit board and solder methods. |

**Pages 1-5** are for teachers only. Please do **not** give **Pages 1-5** to your students.

You can give **any** or **all** of the pages **that follow** to your students.

# **Tasks for students and assessment criteria**

**Unit F132: Engineering in Practice**

**Scenario Title: Angled desk lamp**

Give to candidates on or after X June 20XX.

Valid for assessment until 20XX. For use by students beginning the qualification in September 20XX and finishing by 20XX or 20XX.

## Scenario

You work for a lighting company that manufactures different types of lighting solution.

The product you have been asked to investigate is an **angled desk lamp**.

To ensure that a work area is well lit for different purposes, angled desk lamps need their height, angle and tilt to be adjustable.

An example of an angled desk lamp is shown below**.** The angled desk lamp you are using may look slightly different to this one.

**A pair of black desk lamps

Description automatically generated**

**Part A: Mechanical Analysis, Drawing and Prototype Manufacture**

The non-standard components in the angled desk lamp have been grouped together as shown in **Fig. 1**.

**Fig. 1**

**A pair of black desk lamps

Description automatically generated**

Prototype 3:

* Central bracket
* Lower folding arm

Prototype 1:

* Lamp shade
* Support bracket

Prototype 4:

* Lower bracket
* Base

Prototype 2:

* Upper bracket
* Upper folding arm

Each prototype (1, 2, 3 and 4) may also contain relevant standard components, such as nuts and bolts.

You will be told which **one** of these prototypes to use in your assignment.

**Note you do not need to make or include any of the electrical components from the angled desk lamp, for example the bulb holder, switches, or cable.**

## Part A: Mechanical Analysis, Drawing and Prototype Manufacture

## Task 1:

**Product Analysis**

Topic Area 1 is assessed in this task.

Your teacher will demonstrate the disassembly of an angled desk lamp similar to the one shown in the scenario.

Before you can plan for and complete the manufacture of the prototype you have been given, you need to understand what it is made from, how it works and its function within the overall product.

**The task is:**

Complete a mechanical inspection and analysis of the components for the prototypeyou have been given from the angled desk lamp.

Your evidence **must** include:

* A written report with annotated photographs
* The methods used and results and dimensions recorded from the inspection

**Use the assessment criteria below to tell you what you need to do in more detail.**

|  |  |  |
| --- | --- | --- |
| **Pass** | **Merit** | **Distinction** |
| **P1:** **Describe** the function of the components in the prototype, identifying the materials, type of joints and fixings and finishes used. (PO2) | **M1: Explain** how the prototype contributes to the function of the product. (PO2) |  |
| **P2:** **Measure** each component in the prototype using appropriate measurement devices and record the results.  (PO4) |  |  |

**Assessment Guidance**

This assessment guidance gives you information to meet the assessment criteria. There might not be additional assessment guidance for each criterion.  It is only given where it is needed. You must read this guidance before you complete your evidence.

|  |  |
| --- | --- |
| **Assessment Criteria** | **Assessment guidance** |
| P1 | * M1 is an extension of P1. Students need to explain how the prototype works in conjunction with other components as part of the overall function of the product |
| M1 |
| P2 | * Students must use measurement devices which can enable a suitably accurate reading for the type and size of dimension being measured. |

## Task 2:

**Produce two-dimensional (2D) Computer Aided Design (CAD) mechanical drawings**

Topic Area 2 is assessed in this task.

Having carried out your product analysis, you now need to produce 2D CAD engineering drawings of the prototype you are going to manufacture.

**The task is:**

Use a CAD software package to produce 2D CAD engineering drawings of the prototype which follow standard drawing conventions.

Your evidence **must** include:

* Annotated screenshots of CAD software being used to produce the engineering drawings.
* Final 2D CAD engineering drawings in a pdf file format.

**Use the assessment criteria below to tell you what you need to do in more detail.**

|  |  |  |
| --- | --- | --- |
| **Pass** | **Merit** | **Distinction** |
| **P3:** **Produce** an appropriate third angle orthographic projection of the non-standard component(s) in the prototype using engineering drawing standards.  (PO4) | **M2: Produce** an appropriate sectioned/detailed view of **one** non-standard component from the prototype using engineering drawing standards.  (PO4) | **D1:** **Produce** an appropriate isometric assembly projection for the prototype using engineering drawing standards.  (PO4) |

**Assessment Guidance**

This assessment guidance gives you information to meet the assessment criteria. There might not be additional assessment guidance for each criterion.  It is only given where it is needed. You must read this guidance before you complete your evidence.

|  |  |
| --- | --- |
| **Assessment Criteria** | **Assessment guidance** |
| P3 | * An appropriate third angle orthographic projection drawing of **all** the non-standard component(s) for the prototype is required. * The dimensions need to be accurate compared to the physical component. |
| M2 | * An appropriate sectioned/detailed view of **one** of the non-standard components drawn for P3 is required. * P3 and M2 combined must be sufficiently detailed to allow a competent third party to manufacture the component(s). |
| D1 | * An assembly of all components for the prototype, including standard components, is required. |

## Task 3

**Plan the safe manufacture of a mechanical prototype**

Topic Area 3 is assessed in this task.

Before you can manufacture the prototype (Task 4) you need to plan how you will do this, what materials and processes you will use and the safety considerations. It is important that you think about sustainability considerations as part of this process.

The manufacture will include standard and non-standard components.

As this is a prototype the non-standard components can be made from any suitable metal or polymer.

**The task is:**

Produce planning documentation to use when manufacturing the prototype.

Your evidence **must** include:

* Written planning documentation.

**Use the assessment criteria below to tell you what you need to do in more detail.**

|  |  |  |
| --- | --- | --- |
| **Pass** | **Merit** | **Distinction** |
| **P4: Produce** a bill of materials for manufacturing the prototype, considering sustainability.  (PO4) | **M3: Produce** a manufacturing plan for the non-standard component(s) in the prototype, including the correct sequence of operations and use of equipment/tools.  (PO4) |  |
| **P5: Produce** an appropriate risk assessment for manufacturing the prototype. (PO4) |  |

**Assessment Guidance**

This assessment guidance gives you information to meet the assessment criteria. There might not be additional assessment guidance for each criterion.  It is only given where it is needed. You must read this guidance before you complete your evidence.

|  |  |
| --- | --- |
| **Assessment Criteria** | **Assessment guidance** |
| P4 | * Students show consideration of sustainability through selection of appropriate types of material and forms of supply which minimise waste and additional processing. |

## Task 4

**Manufacturing a mechanical prototype**

Topic Area 4 is assessed in this task.

Now that you have produced your engineering drawing(s) and planning documentation, you are ready to manufacture your prototype. It is important that you think about sustainability considerations as part of this process.

You will now manufacture your prototype using your engineering drawing(s) and planning documentation.

As this is a prototype the non-standard components can be made from any suitable metal or polymer.

Your teacher will need to observe you.

**The task is:**

Manufacture the non-standard component(s) for your prototype and assemble the components into a workable prototype, following safe working practices.

Your evidence **must** include:

* A teacher observation record describing how you manufactured the prototype. This should be completed by your teacher and signed by you and your teacher.
* Annotated photographs and/or video evidence of manufacturing each non-standard component and the assembled prototype, supported by written notes where needed (e.g. covering sustainability considerations when manufacturing).

**Use the assessment criteria below to tell you what you need to do in more detail.**

|  |  |  |
| --- | --- | --- |
| **Pass** | **Merit** | **Distinction** |
| **P6:** Safely **manufacture** the non-standard component(s) of the prototype using appropriate hand and machine processes.  (PO4) | **M4: Explain** how you have consideredsustainability in your manufacture of the prototype.  (PO2) | **D2: Assemble** the components into a workable prototype and integrate it back into the product.  (PO4) |

**Assessment Guidance**

This assessment guidance gives you information to meet the assessment criteria. There might not be additional assessment guidance for each criterion.  It is only given where it is needed. You must read this guidance before you complete your evidence.

|  |  |
| --- | --- |
| **Assessment Criteria** | **Assessment guidance** |
| P6 | * Teacher observation records should describe whether the processes and equipment/tools were set-up, operated and shutdown appropriately and whether their use was appropriate to the required task. * Students must be able to perform the task safely to achieve this criterion. Staff must intervene if safe working practices are not being followed but where this happens the criteria cannot be awarded as achieved. |
| M4 | * Evidence is in the form of an explanation. Some aspects of the sustainability considerations may be things observed by the teacher in P6, so the Teacher Observation Record may act as supporting evidence as appropriate. |
| D2 | * D2 requires a demonstration that the prototype can be assembled and that it can work with other corresponding parts of the overall product. This could be shown by assembling the prototype into the original whole product, or by combining it with other prototypes to assemble a whole product prototype. |

## Task 5:

**Evaluation of the mechanical prototype**

Topic Area 5 is assessed in this task

It is good practice in industry to review the ways in which you work and the processes used as well as the end product.

You will now evaluate the mechanical prototype made in Task 4.

**The task is:**

Evaluate the prototype you have manufactured and the processes you followed.

Your evidence **must** include:

* A record of the dimensions of the non-standard components in the prototype.
* Photographic and written evidence of the visual and quantitative inspection and review of the prototype against the original product.

**Use the assessment criteria below to tell you what you need to do in more detail.**

|  |  |  |
| --- | --- | --- |
| **Pass** | **Merit** | **Distinction** |
| **P7:** **Complete** visual and quantitative inspection of the non-standard component(s) in the prototype, recording your dimensions and results. (PO4) | **M5**: **Analyse** the prototype against the engineering drawings and the original product.  (PO3) | **D3: Evaluate** your planning and manufacture of the prototype.  (PO3) |

**Assessment Guidance**

This assessment guidance gives you information to meet the assessment criteria. There might not be additional assessment guidance for each criterion.  It is only given where it is needed. You must read this guidance before you complete your evidence.

|  |  |
| --- | --- |
| **Assessment Criteria** | **Assessment guidance** |
| P7 | * Use inspection to measure and record dimensions and results. |
| M5 | * Analyse the prototype made against the original product and analysis (task 1) and the drawings produced (task 2), explaining why there are any differences. |
| D3 | * Evaluate own performance in the planning and manufacture of the prototype, how well aspects of the processes were followed, and reflect on how this influenced the quality of the final outcome. |

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## Part B: Electronic Circuit Analysis, Drawing and Prototype Manufacture

**Scenario:**

**Part B: Electronic Circuit Analysis, Drawing and Prototype Manufacture**

The lighting company want to improve the angled desk lamp by making it automatically turn the light on or off depending on the ambient light level.

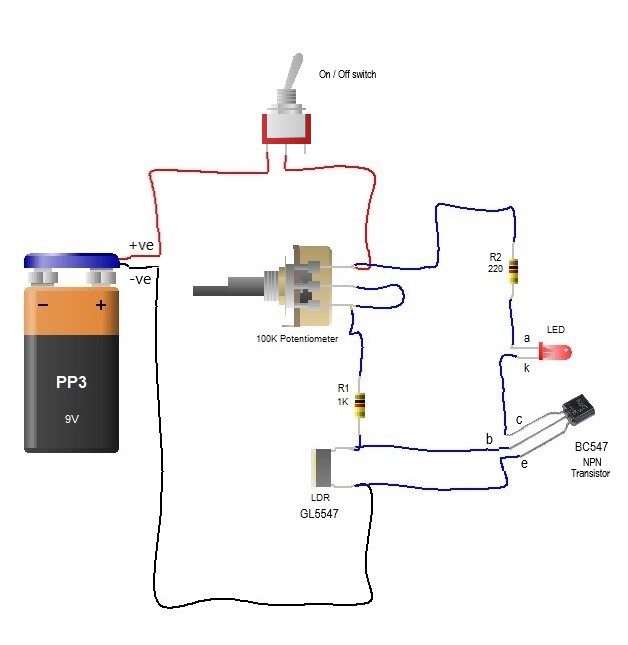
They want you to make a prototype of the electronic circuit using a Light Emitting Diode (LED).

## Task 6

**Produce a CAD drawing and simulate an electronic circuit.**

Topic Area 2 is assessed in this task.

This is a picture of the electronic circuit needed to achieve the improvement. The LED should turn on when the ambient light falls below a threshold set by the potentiometer. The LED should turn off when the ambient light goes above this threshold.

****

**The task is:**

Produce a CAD engineering drawing of the electronic circuit diagram using standard drawing conventions.

Simulate the circuit in operation so you can complete these tests. Use the test table in Appendix A to record your simulated values.

|  |  |
| --- | --- |
| **Parameter** | **Explanation** |
| VR2off | Voltage across R2 when the LED is off |
| VLDRoff | Voltage across LDR when the LED is off |
| IToff | Total current through the circuit when the LED is off |
| VR2on | Voltage across R2 when the LED is off |
| VLDRon | Voltage across LDR when the LED is off |
| ITon | Total current through the circuit when the LED is on |

Your evidence **must** include:

* Final CAD drawing of the electronic circuit diagram.
* Annotated screenshots of the simulation of the electronic circuit in operation.
* A completed test table (Appendix A) showing simulated values.
* Annotated screenshots of any simulated testing completed, including connections of virtual test equipment and readings.

**Use the assessment criteria below to tell you what you need to do in more detail.**

|  |  |  |
| --- | --- | --- |
| **Pass** | **Merit** | **Distinction** |
| **P8: Produce** a CAD drawing of the electronic circuit diagram using engineering drawing standards.  (PO4) |  |  |
| **P9: Simulate** the electronic circuit to demonstrate its correct operation.  (PO4) |  | **D4: Use** correct methods to measure appropriate values and voltages from the simulated circuit.  (PO2) |

**Assessment Guidance**

This assessment guidance gives you information to meet the assessment criteria. There might not be additional assessment guidance for each criterion.  It is only given where it is needed. You must read this guidance before you complete your evidence.

|  |  |
| --- | --- |
| **Assessment Criteria** | **Assessment guidance** |
| P8 | * The circuit diagram must be an accurate representation of the required circuit and be drawn to meet current engineering drawing standards (e.g. BS 60617). |
| P9 | * Students must use simulation to show the function of the circuit to meet the stated requirement(s). |
| D4 | * Students need to use correct testing methods and virtual test equipment to generate the results required. |

## Task 7

**Plan the safe manufacture of a prototype electronic circuit**

Topic Area 3 is assessed in this task.

Before you can manufacture a prototype of the electronic circuit (Task 8), you need to plan how you will do this including component layout, what equipment and tools you will use and the safety considerations. It is important that you also think about sustainability considerations as part of this process.

The prototype of the electronic circuit can be made using either stripboard or a printed circuit board.

**The task is:**

Produce planning documentation to use when manufacturing the prototype of the electronic circuit.

Your evidence **must** include:

* Written planning documentation.

**Use the assessment criteria below to tell you what you need to do in more detail.**

|  |  |  |
| --- | --- | --- |
| **Pass** | **Merit** | **Distinction** |
| **P10: Produce** a layout diagram for either a strip board or a printed circuit board substrate.  (PO4) | **M6: Explain** how you have considered sustainability in your planning of the prototype electronic circuit. (PO2) |  |
| **P11: Produce** an appropriate risk assessment for manufacturing the prototype electronic circuit. (PO4) | **M7: Produce** a manufacturing plan for the prototype electronic circuit, including the correct sequence of operations and use of equipment/tools. (PO4) |  |

## Task 8

**Manufacture a prototype of an electronic circuit**

Topic Area 4 is assessed in this task.

Now that you have produced your electronic circuit diagram and planning documentation, you are ready to manufacture a prototype of the electronic circuit. It is important that you also think about sustainability considerations as part of this process.

You will now manufacture your prototype using your electronic circuit diagram and planning documentation.

Your teacher will need to observe you.

**The task is:**

To manufacture the prototype following safe working practices.

The prototype must work to the minimum level of operation:

* The LED should turn on when the ambient light falls below a threshold set by the potentiometer.
* The LED should turn off when the ambient light goes above this threshold.

Your evidence **must** include:

* A teacher observation record describing how you manufactured the prototype. This should be completed by your teacher and signed by you and your teacher.
* Annotated photographs and/or audio-visual evidence of the processes used when manufacturing the prototype electronic circuit board.
* Annotated photographs and/or audio-visual evidence to show the prototype electronic circuit working as described in the task.

**Use the assessment criteria below to tell you what you need to do in more detail.**

|  |  |  |
| --- | --- | --- |
| **Pass** | **Merit** | **Distinction** |
| **P12:** Safely **manufacture** the prototype electronic circuit on stripboard or printed circuit board substrate using appropriate processes and considering sustainability.  (PO4) |  |  |
| **P13:** **Demonstrate** that the prototype electronic circuit operates as required.  (PO3) |  |  |

**Assessment Guidance**

This assessment guidance gives you information to meet the assessment criteria. There might not be additional assessment guidance for each criterion.  It is only given where it is needed. You must read this guidance before you complete your evidence.

|  |  |
| --- | --- |
| **Assessment Criteria** | **Assessment guidance** |
| P12 | * Teacher observation records should describe whether the processes and equipment/tools were set-up, operated and shutdown appropriately and their use was appropriate to the required task, including evidence of sustainability considerations being taken into account. * Students must be able to perform the task safely to achieve this criterion. Staff must intervene if safe working practices are not being followed but where this happens the criteria cannot be awarded as achieved. |
| P13 | * It is acceptable for any faults found to be corrected in order to be able to show that the prototype electronic circuit works. |

## Task 9

**Evaluation of the prototype electronic circuit**

Topic Area 5 is assessed in this task.

It is good practice in industry to review the ways in which you work and the processes used as well as the end product.

You will now evaluate the prototype electronic circuit made in Task 8.

**The task is:**

Evaluate the prototype electronic circuit you have manufactured and the processes you followed.

Use the test table in Appendix A to record your actual values from functional testing.

Your evidence **must** include:

* Annotated photographs evidencing visual and functional inspection.
* The completed test table (Appendix A).
* A written report of your findings

**Use the assessment criteria below to tell you what you need to do in more detail.**

|  |  |  |
| --- | --- | --- |
| **Pass** | **Merit** | **Distinction** |
| **P14:** **Complete** functional testing to safely measure relevant voltages and currents from the prototype circuit in operation and record your results.  (PO4) | **M8: Evaluate** the prototype electronic circuit you have manufactured using visual inspection.  (PO3) | **D5:** **Analyse** the simulated values against the actual values recorded from the physical prototype.  (PO3) |
|  |  | **D6: Evaluate** the simulation, planning and manufacturing processes used explaining any improvements you would make.  (PO3) |

**Assessment Guidance**

This assessment guidance gives you information to meet the assessment criteria. There might not be additional assessment guidance for each criterion.  It is only given where it is needed. You must read this guidance before you complete your evidence.

|  |  |
| --- | --- |
| **Assessment Criteria** | **Assessment guidance** |
| P14 | * Students must be able to perform the task safely to achieve this criterion. Staff must intervene if safe working practices are not being followed but where this happens the criteria cannot be awarded as achieved. |
| D5 | * The analysis should include a justification of any differences between the simulated values and the actual values. |

# Appendix A

Test table for use in Tasks 6 and 9.

|  |  |  |  |
| --- | --- | --- | --- |
| **Parameter** | **Explanation** | **Simulated values**  **(Task 6)** | **Actual values**  **(Task 9)** |
| VR2off | Voltage across R2 when the LED is off |  |  |
| VLDRoff | Voltage across LDR when the LED is off |  |  |
| IToff | Total current through the circuit when the LED is off |  |  |
| VR2on | Voltage across R2 when the LED is off |  |  |
| VLDRon | Voltage across LDR when the LED is off |  |  |
| ITon | Total current through the circuit when the LED is on |  |  |

# Teacher Observation Record Form – Task 4

Use this form to record what is observed.

Read the **guidance notes** below the form **before** you complete the form.

**OCR Level 3 Alternative Academic Qualification Cambridge Advanced Nationals in Engineering (Certificate)/(Extended Certificate)**

|  |  |
| --- | --- |
| Unit number: | F132 |
| Unit title: | Engineering in Practice |
| Task number: | 4 |
| Task title: | Making a mechanical prototype |

|  |  |
| --- | --- |
| Student’s name: |  |
| Date the activity was completed: |  |

|  |  |
| --- | --- |
| What extra evidence is attached to the form? |  |

The **teacher** fills in this section:

|  |  |
| --- | --- |
| What Assessment Criteria does this activity relate to? | |
| How does the activity meet the requirements of the Assessment Criteria?  You **must** describe:   1. what the student did 2. how it relates to the relevant Assessment Criteria | |
| Teacher’s name: |  |
| Teacher’s signature: |  |
| Date: |  |

The **student** fills in this section:

|  |  |
| --- | --- |
| I agree with my teacher’s description of how I completed this activity Yes ☐ | |
| Use this space to make any extra comments. | |
| Student’s signature: |  |
| Date: |  |

## Guidance notes

**Both** the teacher **and** the student are responsible for completing this form.

The **teacher** **must**:

* use the form to describe in detail what they observed the student doing.
* give contextualised details of what the student did and how this relates to the Assessment Criteria.
* say how well the activity was completed in relation to the Assessment Criteria with reasons.
* share what they have written with the student and offer the opportunity to discuss if the student disagrees with what is written.
* reach agreement with the student before the work is submitted for moderation.
* sign and date the form as evidence of agreement.

The **student** **must**:

* reach agreement with the teacher before the work is submitted for moderation.
* use the form to show that they agree with the teacher’s record of the activity observed
* sign and date the form as evidence of agreement.

The form **must**:

* be accompanied by extra evidence, as required by the task.
* provide evidence that is individual to the student.

The form **must not**:

* contain a simple repeat of the Assessment Criteria.
* contain just a list of skills.
* be completed by anyone other than the teacher observing the activity and the student completing the activity.
* be written by the student for the teacher to sign.
* be used to evidence achievement of a whole unit or task in isolation.

# Teacher Observation Record Form – Task 8

Use this form to record what is observed.

Read the **guidance notes** below the form **before** you complete the form.

**OCR Level 3 Alternative Academic Qualification Cambridge Advanced Nationals in Engineering (Certificate)/(Extended Certificate)**

|  |  |
| --- | --- |
| Unit number: | F132 |
| Unit title: | Engineering in Practice |
| Task number: | 8 |
| Task title: | Making a prototype of an electronic circuit |

|  |  |
| --- | --- |
| Student’s name: |  |
| Date the activity was completed: |  |

|  |  |
| --- | --- |
| What extra evidence is attached to the form? |  |

The **teacher** fills in this section:

|  |  |
| --- | --- |
| What Assessment Criteria does this activity relate to? | |
| How does the activity meet the requirements of the Assessment Criteria?  You **must** describe:   1. what the student did 2. how it relates to the relevant Assessment Criteria | |
| Teacher’s name: |  |
| Teacher’s signature: |  |
| Date: |  |

The **student** fills in this section:

|  |  |
| --- | --- |
| I agree with my teacher’s description of how I completed this activity Yes ☐ | |
| Use this space to make any extra comments. | |
| Student’s signature: |  |
| Date: |  |

## Guidance notes

**Both** the teacher **and** the student are responsible for completing this form.

The **teacher** **must**:

* use the form to describe in detail what they observed the student doing.
* give contextualised details of what the student did and how this relates to the Assessment Criteria.
* say how well the activity was completed in relation to the Assessment Criteria with reasons.
* share what they have written with the student and offer the opportunity to discuss if the student disagrees with what is written.
* reach agreement with the student before the work is submitted for moderation.
* sign and date the form as evidence of agreement.

The **student** **must**:

* reach agreement with the teacher before the work is submitted for moderation.
* use the form to show that they agree with the teacher’s record of the activity observed
* sign and date the form as evidence of agreement.

The form **must**:

* be accompanied by extra evidence, as required by the task.
* provide evidence that is individual to the student.

The form **must not**:

* contain a simple repeat of the Assessment Criteria.
* contain just a list of skills.
* be completed by anyone other than the teacher observing the activity and the student completing the activity.
* be written by the student for the teacher to sign.
* be used to evidence achievement of a whole unit or task in isolation.

# NEA Command Words

The table below shows the command words that may be used in the NEA assignments and/or assessment criteria.

|  |  |
| --- | --- |
| **Command Word** | **Meaning** |
| **Adapt** | * Change to make suitable for a new use or purpose |
| **Analyse** | * Separate or break down information into parts and identify their characteristics or elements * Explain the pros and cons of a topic or argument and make reasoned comments * Explain the impacts of actions using a logical chain of reasoning |
| **Assess** | * Offer a reasoned judgement of the standard or quality of situations or skills. The reasoned judgement is informed by relevant facts |
| **Calculate** | * Get a numerical answer, showing how it has been worked out |
| **Classify** | * Arrange in categories according to shared qualities or characteristics |
| **Compare** | * Give an account of the similarities and differences between two or more items, situations or actions |
| **Conclude** | * Judge or decide something |
| **Describe** | * Give an account that includes all the relevant characteristics, qualities, or events |
| **Discuss**  (how/whether/etc) | * Present, analyse and evaluate relevant points (for example, for/against an argument) to make a reasoned judgement |
| **Evaluate** | * Make a reasoned qualitative judgement considering different factors and using available knowledge/experience |
| **Examine** | * To look at, inspect, or scrutinise carefully, or in detail |
| **Explain** | * Give reasons for and/or causes of something * Make something clear by describing and/or giving information |
| **Interpret** | * Translate information into recognisable form * Convey one’s understanding to others, e.g. in a performance |
| **Investigate** | * Inquire into (a situation or problem) |
| **Justify** | * Give valid reasons for offering an opinion or reaching a conclusion |
| **Research** | * Do detailed study in order to discover (new) information or reach a (new) understanding |
| **Summarise** | * Express the most important facts or ideas about something in a short and clear form |

We might also use other command words but these will be:

* commonly used words whose meaning will be made clear from the context in which they are used (e.g. create, improve, plan)
* subject specific words drawn from the unit content.

OCR would like to acknowledge the following: *Page 6 and 7 Table Lamp stock photo – imran kadir photography /Gettyimages.com*