

Please read the instructions printed at the end of this form. One of these sheets, suitably completed, should be attached to the assessed work of each candidate.

Unit Title	Simulate, construct and test electronic circuits	Unit Code	R114	Series Jan / June	Year	2	0		
Centre Name		Centre Number							
Candidate Name		Candidate Number							

Marking Criteria – Total Marks for this unit is 60

Mark Band 1	Mark Band 2	Mark Band 3	Teacher Comment	Page
LO1: Be able to use CAD for circuit simulation and design				
<p>Produces circuit schematic diagrams with limited accuracy using CAD software, making some appropriate use of component libraries.</p> <p>Undertakes basic testing of the circuit using circuit simulation and test features of CAD software prior to PCB design. Takes some appropriate action to modify circuit design based upon the outcome of testing.</p> <p>Understands some of the process of producing PCB layouts using CAD software. With regular assistance produces both track and component views of PCB layouts. Undertakes limited review of the PCB layout to ensure correct functionality.</p> <p style="text-align: right;">1 – 5 marks</p>	<p>Produces circuit schematic diagrams with some accuracy using CAD software, making mostly appropriate use of component libraries.</p> <p>Undertakes detailed testing of the circuit using circuit simulation and test features of CAD software prior to PCB design. Takes action to modify circuit design based upon the outcome of testing that is mostly appropriate.</p> <p>Understands most of the process of producing PCB layouts using CAD software. With little assistance produces both track and component views of PCB layouts. Undertakes detailed review of the PCB layout to ensure correct functionality.</p> <p style="text-align: right;">6 – 10 marks</p>	<p>Accurately produces circuit schematic diagrams using CAD software, making consistently appropriate use of component libraries.</p> <p>Undertakes comprehensive and detailed testing of the circuit using circuit simulation and test features of CAD software prior to PCB design. Takes appropriate action to modify circuit design based upon the outcome of testing.</p> <p>Comprehensively understands the process of producing PCB layouts using CAD software. Independently produces both track and component views of PCB layouts. Undertakes comprehensive and detailed review of the PCB layout to ensure correct functionality.</p> <p style="text-align: right;">11 – 15 marks</p>	<div style="border: 1px solid black; width: 60px; height: 60px; margin: 0 auto; display: flex; align-items: center; justify-content: center;"> Mark </div>	

LO2: Be able to construct circuits			Teacher Comment	Page
<p>With regular assistance, undertakes some of the work to construct the PCB using an appropriate method.</p> <p>On occasions takes, some appropriate precautions when using hand operated tools to ensure that the PCB is produced in a safe and appropriate manner.</p> <p>Undertakes limited testing of the constructed PCB to ensure its correct functionality.</p> <p style="text-align: right;">1 – 3 marks</p>	<p>With occasional assistance, undertakes most of the work to construct the PCB using an appropriate method.</p> <p>On most occasions, takes appropriate precautions when using hand operated tools to ensure that the PCB is produced in a safe and appropriate manner.</p> <p>Undertakes detailed and mostly appropriate testing of the constructed PCB to ensure its correct functionality.</p> <p style="text-align: right;">4 – 6 marks</p>	<p>Works independently to fully undertake the construction of the PCB using an appropriate method.</p> <p>Consistently takes appropriate precautions when using hand operated tools to ensure that the PCB is produced in a safe and appropriate manner.</p> <p>Undertakes comprehensive and appropriate testing of the constructed PCB to ensure its correct functionality.</p> <p style="text-align: right;">7 – 9 marks</p>	<div style="border: 1px solid black; width: 40px; height: 40px; margin: 0 auto; display: flex; align-items: center; justify-content: center;"> Mark </div>	
<p>Works with limited accuracy and requires regular assistance to construct the circuit following the circuit diagram. On occasions, takes some appropriate precautions to ensure that the circuit is constructed in a safe and appropriate manner.</p> <p style="text-align: right;">1 – 2 marks</p>	<p>Works with some accuracy and requires occasional assistance to construct the circuit following the circuit diagram. On most occasions, takes appropriate precautions to ensure that the circuit is constructed in a safe and appropriate manner.</p> <p style="text-align: right;">3 – 4 marks</p>	<p>Works independently to accurately construct the circuit following the circuit diagram. Consistently takes appropriate precautions to ensure that the circuit is constructed in a safe and appropriate manner.</p> <p style="text-align: right;">5 – 6 marks</p>	<div style="border: 1px solid black; width: 40px; height: 40px; margin: 0 auto; display: flex; align-items: center; justify-content: center;"> Mark </div>	
<p>Requires regular assistance to select appropriate construction techniques. Circuit construction is of a limited quality and may not be complete.</p> <p style="text-align: right;">1 – 5 marks</p>	<p>Requires occasional assistance to select appropriate construction techniques. Circuit construction is of appropriate quality with most components placed and joined appropriately.</p> <p style="text-align: right;">6 – 10 marks</p>	<p>Independently selects appropriate construction techniques. Circuit construction is of a high quality with all components placed and joined appropriately.</p> <p style="text-align: right;">11 – 15 marks</p>	<div style="border: 1px solid black; width: 40px; height: 40px; margin: 0 auto; display: flex; align-items: center; justify-content: center;"> Mark </div>	

LO3: Be able to test electronic circuits					Teacher Comment	Page
Undertakes basic testing and evaluation of the operation of the electronic circuit. On few occasions, selects test equipment and fault-finding methods with some appropriateness.	Undertakes detailed testing and evaluation of the operation of the electronic circuit. Selects appropriate test equipment and fault-finding methods on most occasions.	Undertakes thorough and detailed testing and evaluation of the operation of the electronic circuit. Consistently selects appropriate test equipment and fault-finding methods.			<div style="border: 1px solid black; padding: 5px; width: 50px; margin: 0 auto;">Mark</div>	
1 – 5 marks	6 – 10 marks	11 – 15 marks	Total/60			
If this work is a re-sit, please tick	Session and Year of previous submission	Jan / June	2	0	Please tick to indicate this work has been standardised internally	

Guidance on Completion of this Form

Please note: This form may be updated on an annual basis. The current version of this form will be available on the OCR website (www.ocr.org.uk).

Guidance on Completion of this Form

- 1 **One** sheet should be used for each candidate.
- 2 Please ensure that the appropriate boxes at the top of the form are completed.
- 3 Please enter *specific* page numbers where evidence can be found in the portfolio, and where possible, indicate to which part of the text in the mark band the evidence relates.
- 4 Circle the mark awarded for each strand of the marking criteria in the appropriate box and enter the circled mark in the final column.
- 5 Add the marks for the strands together to give a total out of 60 Enter this total in the relevant box.