

**PRINCIPAL LEARNING LEVEL 2
ENGINEERING**

Unit 5: Construct Electronic and Electrical Systems

F552

WORK BOOK

JUNE 2011

Candidates answer on the work book.

Duration: 6 hours in three 2 hour sessions

OCR supplied materials:
None

Other materials required:

- Electronics components and equipment



Candidate forename		Candidate surname	
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Centre number						Candidate number				
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Date of challenge

Session 1

Session 3

Session 2

INSTRUCTIONS TO CANDIDATES

Please clearly write below

Design Challenge:

- Write your name, centre number and candidate number in the boxes above and on page 6. Please write clearly and in capital letters.
- Complete **all** tasks in this work book.

INFORMATION FOR CANDIDATES

- The total number of marks for this paper is **30**.
- This document consists of **12** pages. Any blank pages are indicated.

INSTRUCTIONS TO CENTRES

- It is essential that centres follow the instructions printed in the Information for Presenters booklet for the conduct for running this Design Challenge.
- The activity is designed to take place in a design room, studio or workshop (not the Centre's examination room/hall).

For Examiner's Use Only			
		Centre Mark	Mod Mark
Task 1	6		
Task 2	6		
Task 3	12		
Task 4	6		
TOTAL	30		

Session 1	Tasks 1 and 2	2 hours
<p>Task 1 In response to your 'Design Challenge' apply your knowledge of electronic and electrical principles to design possible solutions.</p>		

Task 1 (continued) In the table below describe and justify safe working procedures that are appropriate to your selected circuit designs.

	Safe Working Procedures
Tools	
Equipment	
Manufacturing Processes	

Total 6 Marks	Centre Mark	Mod Mark

Task 2 Justify your selection of appropriate components required to construct your circuits.		
Components considered	Operating Principles	Calculations

	Centre number	
Task 2 (continued)	Candidate name	
Initial Circuit Diagram	Candidate number	

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Total 6 Marks	Centre Mark	Mod Mark

Session 2	Task 3 Part 1	2 hours
Task 3 From your circuit diagram construct a prototype using at least two of the following techniques: soldering, stripboards, protoboards, breadboards, CAD.		
Circuit Diagram	Photographs of Prototype Circuits	
	Photograph 1	
	Photograph 2	
	Photograph 3	

Session 3	Task 3 Part 2	1 hour
NB. Candidates are permitted to produce a circuit board between Session 2 and 3.		
Task 3 (continued) Construct your final circuit		
Final Circuit Diagram Additional photographs can be attached to page 10		
Photographs of completed final solution		
Photograph 1 (component side)	Photograph 2 (track/connection side)	

Total 12 Marks	Centre Mark	Mod Mark

Session 3	Task 4	1 hour
Task 4 Identify and justify appropriate testing, test equipment and fault finding methods and use them to test your circuit.		
Testing Method (photographic evidence acceptable)	Justification	Outcome
Test Method 1		
Test Method 2		

Suggest modifications and use calculations to justify these

Blank area for student response.

Total 6 Marks	Centre Mark	Mod Mark

Additional photographs and other supporting material:

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