



**ADVANCED SUBSIDIARY GCE
DESIGN AND TECHNOLOGY**

F521/01/TN

ADVANCED INNOVATION CHALLENGE

TEACHER'S NOTES

To be used during the F521/01 examinations on Thursday 7 May 2009.



INSTRUCTIONS FOR TEACHERS

- The teacher script is to be read out in the examination during sessions 1 and 2, to guide the activities of candidates as they complete the workbook.

INFORMATION FOR TEACHERS

- This document consists of 16 pages. Any blank pages are indicated.

DESIGN AND TECHNOLOGY: UNIT F521 TEACHER GUIDANCE

| SESSION 1 | ORGANISATIONAL INSTRUCTIONS | MUST SAY | SAY IN YOUR OWN WORDS |
|---|---|---|---|
| <p>IMPORTANT</p> <p>180 minutes are available for Session 1 plus a 15 minute break.</p> <p>The times given in this column are ONLY suggestions and may be adapted to suit Centre needs.</p> <p>As long as the overall timings are allowed for each session.</p> | <p>Before the candidates enter the room.</p> <p>Arrange room for candidates to sit in groups of two / threes, candidates will need space for their job bag.</p> <p>Place a candidate answer booklet in each workspace.</p> <p>Ensure a wide range of appropriate materials, tools, equipment are available.</p> <p>When candidates enter the room.</p> <p>Candidates sit in working groups of 2, 3 or 4 students.</p> <p>Rules of the Innovation Challenge.</p> | <p>Session 1 – Designing / Session 2 – Modelling. Session 3 – Reflection (1 hour examination)</p> <p>Over the next two sessions you are going to be involved in a D&T activity.</p> <p>By the end of sessions 1 and 2, your sketches, notes, models, prototypes should show that your ideas would work.</p> <p>You are doing this challenge to show just how good you are at coming up with new and creative ideas under examination conditions.</p> <p>You can develop your ideas in whatever ways you think best – through sketching, writing or making models.</p> <p>Use whatever ways will help show your most creative work.</p> <p>The exam board have given you each an answer booklet to record your progress throughout the challenge.</p> <p>Although you are not working in an examination hall you must still treat this activity as an examination. You should not talk unless you are told to do so by a member of staff.</p> <p>Part of the examination requires you to explain your work and receive comments from your workgroup. The member of staff will explain this before this activity takes place.</p> | <p>Explain the meaning of working prototypes.</p> <p>Experiments with ideas – try things out to see if they work/function.</p> <p>It is important that you try your best and feel that you can try any idea out – however crazy or impossible it might seem to start with. Be creative.</p> <p>Use it to record everything. Follow instructions carefully.</p> <p>In the world of work, many companies share ideas and discuss possibilities. They are often called ‘think tanks’.</p> |

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| | | <p>Teaching staff are here to monitor health and safety and organise the running of the challenge. Staff are not allowed to give advice or guidance or assist modelling activity. However, candidates are allowed to ask for clarification if they are not sure about a task.</p> <p>We will explain everything as we move through the three sessions.</p> <div style="border: 1px solid black; padding: 5px; text-align: center;"> <p>PLEASE REMEMBER THAT THE EXAMINER WILL ONLY SEE THE WORKBOOK.</p> <p>IT IS IMPORTANT THAT EVIDENCE OF ALL THINKING, 2D DESIGNING, AND 2D/3D MODELLING, (EVIDENCED BY PHOTOGRAPHS), IS INCLUDED IN THIS WORKBOOK.</p> </div> | |
| | <p>Candidates fill in the following information on page 1 of the answer booklet:</p> <p>Candidate name, Centre number, Candidate number.</p> | <p>There will be times when you will be asked to draw or write particular things in your booklet.</p> <p>We will be taking photographs of your models as they develop. These photos will be stuck in your booklet.</p> <p>You must develop your own ideas during these sessions. The 'reflect and record' activity will allow you to take advice and suggestion from others in your group. If you think the suggestions are suitable you will be able to modify your design and incorporate their design.</p> | |

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| 5 mins | | | <p>You must complete your own booklet and your own model. You must not move forward in the workbook until instructed to do so. You are allowed to return to previously completed sections at anytime during sessions 1 or 2 if you wish.</p> <p>Read through the challenge sheet. Select one Design Challenge from the list, which you will solve during this examination activity. Cross out the Design Challenge that you are not undertaking. You should have your 'job bag' available for session one and two of this examination.</p> | |
| THE FOLLOWING SECTION SHOULD BE DONE IN BOX 1 AND 2 IN YOUR ANSWER BOOKLET | | | | |
| 10 mins | Box 1. Initial Thoughts. | | <p>The first thing we would like you to do is to put some of your first thoughts down on paper.</p> <p>Remember, we want you to be as creative as possible, so sketch and add notes of any ideas you have, even if they seem a bit risky or outrageous at this stage.</p> <p>We really want you to feel able to 'let your mind go out to play'.</p> <p>In this box put down your initial thoughts. You have 8 minutes, so work quickly. Try and remain focused.</p> <p>Look at your initial thoughts. Think about the Design Challenge. Which of your 'initial thoughts' has the greatest potential to be taken further. Why?</p> | <p>You could show these thoughts through sketches or notes. Don't be afraid to put things down, remember this is the Advanced Innovation Challenge.</p> |
| 5 mins | Box 2 | Open your answer booklet and find box 1. | | |

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| THE FOLLOWING SECTION SHOULD BE DONE IN BOX 3, 4 AND 5 IN YOUR ANSWER BOOKLET | | | |
| 3 mins | Box 3. Decision time | Open up the last page to reveal boxes 3, 4 & 5 Complete the following in box 3 A design brief. | Think before you fill out the boxes. Consider your options. Select a design brief that you will enjoy doing. One that will show your creative ability. |
| 7 mins | Box 4. Key Points | Examine the contents of your job bag remembering your design brief. Identify 'Key Points' which will help you write your specification. | Explain that Box 3, 4 and 5 will be visible throughout the challenge and they should refer to them from time to time. |
| 12 mins | Box 5. Your design specification | Produce a detailed and justified specification. | |
| THE FOLLOWING SECTION SHOULD BE DONE IN BOX 6 IN YOUR ANSWER BOOKLET | | | |
| 35 mins | Box 6 Start Designing | In a moment you can start Designing. You can sketch, make notes, make models and use photographs. From now on you may use any of your resources at any time. Think about your job bag. Use this as a source of inspiration. If you use 2D/3D modelling, or trialling & testing to develop ideas, take photographs and stick them into box 6. Ensure these photographs are fully annotated. If there are materials you need that are not here, ask. Remember, from now on you are developing your own ideas. | |

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| THE FOLLOWING SECTION SHOULD BE DONE IN BOX 7 IN YOUR ANSWER BOOKLET | | | | |
| 10 mins | Box 7 | | Think carefully about your job bag and/or other resources. How have these resources helped with your designing? Use annotated sketches and/or annotated photos to explain how they have been used. | |
| THE FOLLOWING SECTION SHOULD BE DONE IN BOX 8 IN YOUR ANSWER BOOKLET | | | | |
| 5 mins | Box 8 | | Which is your best idea? Justify your decision. | |
| 15 mins | BREAK. Allow candidates 15 mins to have a drink, use the toilet, and get some fresh air if possible. They may stay in the same room as the challenge if supervised, but are not allowed to work in their booklets. | | Close the booklets. You now have a break of 15 minutes. You may not work on your booklet during this period. | |
| 2 mins | PRESENTATIONS. Teacher Introduction to the presentations. Same working group arrangements as before. | | You will have the opportunity to tell others what you are designing (students only). You can present drawings and/or models if it helps to communicate your idea. Students in your working group can ask you questions. Students in your working group can suggest improvements / developments to your idea. | Explain about the presentations. The value of sharing ideas. Suggesting modifications. Discussing further possibilities. |

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SESSION 1 ORGANISATIONAL INSTRUCTIONS

MUST SAY

SAY IN YOUR OWN WORDS

THE FOLLOWING SECTION SHOULD BE DONE IN BOX 9 IN YOUR ANSWER BOOKLET

| | | | |
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| 7 mins | Box 9. Reflect and Record. | Use the space provided in Box 9 to plan your presentation. Think about your brief, specification and key factors of your design. The presentation should last no more than 5 minutes, including feedback. | |
| GROUPWORK | | | |
| 10 mins | <p>Within working groups. (2, 3 or 4 students)</p> <p>Candidates give presentations of their ideas and receive feedback.</p> <p>Staff to overview process and encourage candidates to be positive, constructive and fair with time allocation</p> | <p>You should now have completed the planning of your presentation.</p> <p>You should present your ideas to your working group.</p> | |

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THE FOLLOWING SECTION SHOULD BE DONE IN BOX 10 IN YOUR ANSWER BOOKLET

Record any suggestions made by students within your working group.
How might you modify your idea in response to feedback?

Box 10. Feedback

8 mins

THE FOLLOWING SECTION SHOULD BE DONE IN BOX 11 IN YOUR ANSWER BOOKLET

You have 35 minutes to develop your idea, you can use sketching 2D and 3D modelling and you can refer to your 'job bag'.
Use annotated sketches and/or annotated photographs to communicate your thoughts.
Make clear reference to your specification.
If you use 2D/3D modelling, or trialling & testing to develop ideas, take photographs and stick them into box 11. Ensure these photographs are fully annotated.

Box 11. Developing your idea, improvements and modifications

35 mins

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SESSION 1 ORGANISATIONAL INSTRUCTIONS

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THE FOLLOWING SECTION SHOULD BE DONE IN BOX 12 IN YOUR ANSWER BOOKLET

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| 9 mins | Box 12. Your Model. | <p>Think about your design proposal. What are the main components? What modelling materials/ ingredients are required to model your prototype product?</p> <p>What tools/equipment will be required? How will these components be joined/combined together?</p> | Think about how you will make your model/prototype. What are your choices? What would be the best? Why? |
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THE FOLLOWING SECTION SHOULD BE DONE IN BOX 13 IN YOUR ANSWER BOOKLET

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| 8 mins | <p>Box 13. Action Plan for Session 2.</p> <p>Booklets collected in and returned to exams officer. Details given of any additional modelling material available in Session 2.</p> <p>This is not a teaching opportunity. Candidates may find things out for themselves – they must not be taught at this stage</p> | <p>In session 2 of the Advanced Innovation Challenge you will be modelling your design proposal.</p> <p>Plan what you need to do in the second session.</p> | |
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| SESSION 2 | ORGANISATIONAL INSTRUCTIONS | MUST SAY | SAY IN YOUR OWN WORDS |
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| <p>IMPORTANT</p> <p>180 minutes are available for Session 2.</p> <p>The times given in this column are ONLY suggestions and may be adapted to suit Centre needs.</p> | <p>Before the candidates enter the room. Arrange room for candidates to sit in the same groups as Session 1.</p> <p>Place the candidate's booklet in each workspace. Ensure a wide range of appropriate materials, tools, equipment are available.</p> <p>When candidates enter the room. Candidates sit in the same working groups. Rules of the Challenge.</p> | <p>In Session two of the innovation challenge you will be modelling your design proposal.</p> <p>You will have longer periods of uninterrupted time so that you can model your idea.</p> <p>You will be modelling your design so that you and the examiner can see your ideas.</p> <p>Although you are not working in an examination hall you must still treat this activity as an examination. You should not talk unless you are told to do so by a member of staff.</p> <p>We will continue to explain everything as we move through each stage of this challenge.</p> <p>You will be using tools and equipment, so your normal workshop risk assessments must apply.</p> <p>Photographs will be taken at the end of each modelling session. Additional photos can be taken at any time and included in your workbook. Additional photographs should be annotated.</p> | <p>Explain if necessary the department's expectations with regard to health and safety.</p> |

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| THE FOLLOWING SECTION SHOULD BE DONE IN BOX 14 IN YOUR ANSWER BOOKLET | | | |
| 10 mins | Box 14. Review | <p>Look back over the work you did in Session 1. Do not add anything to boxes 1–13. Look carefully at Box 3, 4 and 5. Read your design brief and specification. Are you still on track? Fill out box 14 with any new thoughts about your design. Use annotated sketches and/or notes. You have 10 minutes.</p> | |
| THE FOLLOWING SECTION SHOULD BE DONE IN BOX 15 IN YOUR ANSWER BOOKLET | | | |
| 40 mins | Box 15. Modelling | <p>You have 40 minutes to start modelling your design proposal. A photograph (photo 1) will be taken by a member of staff at the end of 40 minutes to record your progress. Do not annotate this photograph. If you require additional photographs please ask. Additional annotated photographs may be placed into box 15 or additional space pages.</p> | |
| 5 mins | Box 15. Progress report 1 | <p>Fill in progress report 1. Be honest about the problems you have experienced. What decisions have you made? What were the solutions to your problems?</p> | |

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| THE FOLLOWING SECTION SHOULD BE DONE IN BOX 16 IN YOUR ANSWER BOOKLET | | | | |
| 40 mins | Box 16. Continue Modelling | <p>You have 40 minutes to continue modelling your product.</p> <p>A photograph (photo 2) will be taken by a member of staff at the end of 40 minutes to record your progress. Additional annotated photographs may be placed in box 16</p> | | |
| 5 mins | Box 16. Progress report 2 | | <p>Fill in progress report 2.</p> <p>Did your solutions work and why? Which areas have been successful? Check that your model is photographed.</p> | |
| THE FOLLOWING SECTION SHOULD BE DONE IN BOX 17 IN YOUR ANSWER BOOKLET | | | | |
| 5 mins | Box 17. Planning | | <p>Plan what you need to do in the last 50 min time allocation.</p> | |
| 50 mins | <p>Complete Modelling</p> <p>After 40 minutes tell the candidates they have 10 mins to finish their models.</p> | <p>You have 50 minutes to finish modelling your product.</p> <p>A photograph (photo 3) will be taken by a member of staff at the end of 50 minutes to record your final product.</p> | | |

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SESSION 2 ORGANISATIONAL INSTRUCTIONS

MUST SAY

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THE FOLLOWING SECTION SHOULD BE DONE IN BOX 18 IN YOUR ANSWER BOOKLET

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| 25 mins | <p>Box 18. Evaluation of Developed Design proposal.</p> <p>Regroup the candidates at their tables.</p> | <p>Describe the effectiveness of your developed design proposal and how it meets the needs of the original Design Challenge.</p> <p>Look at your original specification in box 5. Evaluate your final proposal against your original specification.</p> <p>You may use annotated sketches and/or annotated photographs.</p> <p>This session is due to finish at</p> | <p>Explain there is no more time for modelling, but they can still communicate via their booklets.</p> <p>Use sketches and notes to show how your design could be improved</p> |
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| SESSION 3 | ORGANISATIONAL INSTRUCTIONS | MUST SAY | SAY IN YOUR OWN WORDS |
|--------------------------------|-----------------------------|---|-----------------------|
| EXAMINATION SESSION 3 | | | |
| Session 3 is an hour long exam | Reflection. | <p>The challenge has now been completed. You have had time to think about what you did.</p> <p>The reflection paper Session 3 will be taken on.....</p> <p>Your work booklet will be available during this session.</p> | |

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