



Coimisiún na Scrúduithe Stáit  
State Examinations Commission

Leaving Certificate Examination 2023

# Design and Communication Graphics

Student Assignment

Ordinary level and Higher level

To be completed by Friday 20 January 2023

160 marks

## Instructions to Candidates

1. Select **one** student assignment from the assignments provided.
2. If **either** assessment component (written examination or coursework) is submitted at Ordinary Level, the subject is graded at Ordinary Level.
3. Your coursework submitted for assessment must consist of **two** components:
  1. A bound A3 design portfolio:
    - The portfolio should contain a maximum of **8 pages** at Ordinary Level and a maximum of **10 pages** at Higher Level
  2. An individual **USB flash drive** containing:
    - All of the SolidWorks files relating to the completed assignment
    - An electronic copy of the completed portfolio in PDF format.
4. All coursework submitted for assessment must be clearly identified with your examination number which will be issued to your school early in 2023.
5. It is your responsibility to ensure that all electronic materials submitted are free from viruses, so that examiners can open all required files for assessment.

**Note:** the portfolio and USB flash drive will not be returned at the end of the assessment process.
6. You must submit your original sketches for Outputs 2 and 6 – scanned images will not suffice.
7. When using research sources, including the Internet, the sources must be acknowledged. Research material copied directly from the Internet or from other sources and presented as your own work will not receive any marks.
8. The coursework presented for assessment must be displayed in an attractive manner and marks will be awarded for presentation.
9. Your **Examination Number** should be written clearly on the completed assignment.
10. The coursework must be completed by **Friday 20 January 2023**.

### Submission of electronic files:

1. The USB flash drive must contain one main folder. The name of this folder should contain your candidate examination number in the following format “**DCG SA 2023(Exam number)**”.
2. The main folder, referred to above, must contain two sub-folders. One of these sub-folders will contain all the pages of the completed assignment in **PDF format**. The other sub-folder must contain two sub-folders. One of these sub-folders must contain all of the SolidWorks electronic files associated with **Part A** of the assignment and the second subfolder must contain all of the SolidWorks electronic files associated with **Part B** of the assignment.
3. No other files should be included on the USB flash drive.
4. All CAD files must be in SolidWorks format. The version of SolidWorks used to complete your assignment should be indicated on the front cover of your design portfolio.
5. It is your responsibility to ensure that all of the required files are contained on the USB flash drive prior to submission of the work. You will **lose marks** under the relevant headings in the marking scheme if required files are omitted.  
Marks will be awarded for conforming to the filing structure outlined above.
6. For protection during transit, the USB flash drive must be placed in a protective sleeve or envelope. This should be fixed close to the bound edge on the inside cover of the design portfolio.
7. A **backup copy of the submitted files** should be retained in your school until the assessment (including appeals) process is complete.

### Authentication of coursework:

1. The coursework you submit for assessment must be **your own individual work** and must be completed in school under the supervision of your teacher.
2. Your coursework must not be removed from the school under any circumstances as doing so may result in the coursework being considered invalid and no marks will be awarded.
3. It is your responsibility, as the candidate, to comply with these instructions. If you fail to comply with these instructions, your teacher will not be able to validate and sign off on your coursework and you will not receive any marks for it.

### Note:

- *The circumstances in which the Minister for Education may withhold marks from candidates are set out in the “Rules and Programme for Secondary Schools”.*
- *Anyone who helps a candidate to break examination rules can be prosecuted under the Education Act 1998.*

## Ordinary Level Student Assignment 2023

Money boxes are designed to store and save money. The design of money boxes is influenced by their target market and they come in a variety of shapes, sizes, materials and colours. Some money boxes have innovative ways to place money in the box and features to encourage saving.

- (a) Carry out a design investigation of existing money boxes in graphic format. Your investigation should include an analysis of physical forms and shapes, features, materials etc.

*and*

- (b) Show graphically how you would physically modify a chosen money box to improve its overall design.

*or*

Develop and graphically communicate a new concept design for a money box based on a selected theme or target market.

### Allocation of marks:

The completed coursework will be assessed using the following mark allocations:

- Part **A** – Existing Artefact 110 marks
- Part **B** – Design Modification or Concept Design 50 marks

## Outline marking scheme - Ordinary Level 2023

The table below gives an outline of the marking headings that will be used to assess your completed coursework. While the general mark allocations will largely remain the same, assumptions about future mark breakdowns should be avoided.

Output	Heading	Description	Suggested no. of A3 pages	Marks	
Presentation, thought process, reflection and factor of difficulty will be considered throughout.	Part A – Existing Artefact				
	1	Design research & Design feature comparison	Exploration of brief and presentation of existing artefacts in graphic format. Select 2 images and illustrate/explain the main design features. Insert the main dimensions. Compare and contrast the main design features of both using suitable freehand sketches and other presentation techniques.	1 - 2	50
	2	Freehand graphical representation	Choose one of the artefacts and make a detailed graphical presentation of this artefact. This should include a rendered freehand presentation quality drawing in 3D format.	1	
	3	SolidWorks Parts, Assembly, Drawing and eDrawing files	Detailed computer model, comprising at least 3 parts but no more than 6 parts, an Assembly, a Drawing and an eDrawing of the selected artefact. The required filing structure will be considered in the marking process.	Electronic SolidWorks files	60
	4	Hardcopy output from Solidworks	Detailed orthographic views. Pictorial Views.	1 - 2	
	Part B – Design Modification or Concept Design				
	5	Graphical exploration of design solutions	Analysis of brief and graphic illustration of possible solution(s). Justification for your chosen solution.	1 - 2	50
	6	Presentation of Modification/ Concept Design	Detailed graphical presentation of the design Modification / Concept Design. This should include a rendered freehand presentation quality drawing in 3D format.	1	
	7	Hardcopy output from Solidworks	CAD model (Part/Assembly & Drawing) and associated hardcopies to include appropriately detailed orthographic and rendered pictorial views to communicate your chosen design.	1 - 2 (plus electronic SolidWorks files)	
	Overall Total			8 pages	160

## Higher Level Student Assignment 2023

Bedside alarm clocks are primarily designed to wake people from their sleep at a particular time. They come in analogue, digital and more recently in smart form. Their shape and form is underpinned by a wide variety of geometry and they are available in a range of materials and colours. Some alarm clocks can be turned off in innovative ways. Design features of a bedside alarm clock may include time display, snooze buttons, programmable alarm options, Bluetooth, etc.

- (a) Carry out a design investigation of existing bedside alarm clocks in graphic format. Your investigation should include an analysis of physical forms and shapes, geometry, materials, innovation, etc.

*and*

- (b) Show graphically how you would physically modify a chosen bedside alarm clock to improve its overall design.

*or*

Develop and graphically communicate a new concept design for a bedside alarm clock based on a selected theme or target market.

### Allocation of marks:

The completed coursework will be assessed using the following mark allocations:

- Part **A** – Existing Artefact 100 marks
- Part **B** – Design Modification or Concept Design 60 marks

## Outline marking scheme - Higher Level 2023

The table below gives an outline of the marking headings that will be used to assess your completed coursework. While the general mark allocations will largely remain the same, assumptions about future mark breakdowns should be avoided.

Output	Heading	Description	Suggested no. of A3 pages	Marks	
Presentation, thought process, reflection and factor of difficulty will be considered throughout.	Part A – Existing Artefact				
	1	Design research & Design feature comparison	Exploration of brief and presentation of existing artefacts in graphic format. Select 2 images and illustrate/explain the main design features. Insert the main dimensions. Compare and contrast the main design features of both using suitable freehand sketches and other presentation techniques.	2 - 3	50
	2	Freehand graphical representation	Choose one of the artefacts and make a detailed graphical presentation of this artefact. This should include a rendered freehand presentation quality drawing in 3D format.	1	
	3	SolidWorks Parts, Assembly, Drawing and eDrawing files	Detailed computer model comprising at least 5 parts but no more than 10 parts, an Assembly, a Drawing and an eDrawing of the selected artefact. Economy of design, design intent and the required filing structure will be considered in the marking process.	Electronic SolidWorks files	50
	4	Hardcopy output from Solidworks	Detailed orthographic views. Pictorial View. Exploded View.	1 - 2	
	Part B – Design Modification or Concept Design				
	5	Graphical exploration of design solutions	Analysis of brief and graphic illustration of possible solutions. Justification for your chosen solution including aesthetics, functionality and sustainability.	1 - 3	60
	6	Presentation of Modification/ Concept Design	Detailed graphical presentation of the design Modification / Concept Design. This should include a rendered freehand presentation quality drawing in 3D format.	1	
	7	Hardcopy output from Solidworks	CAD model (Part/Assembly & Drawing) and associated hardcopies to include appropriately detailed orthographic, rendered pictorial and photorealistic view(s) to communicate your chosen design.	1 - 3 (plus electronic SolidWorks files)	
	Overall Total			10 pages	160