



Coimisiún na Scrúduithe Stáit
State Examinations Commission

Leaving Certificate Examination, 2019

Design and Communication Graphics

Student Assignment

Ordinary Level and Higher Level
160 marks

Details of the Student Assignment for the Leaving Certificate Examination, 2019 are given overleaf.

The Student Assignment must be completed by Friday 18th January, 2019.
The work should be submitted following the issue of candidate examination numbers to schools.

Design and Communication Graphics (DCG) Student Assignment Leaving Certificate 2019

Instructions to candidates:

1. Your coursework submitted for assessment must consist of two components:
 - A bound A3 design portfolio
 - The portfolio should contain a maximum of 12 pages at Ordinary Level and a maximum of 14 pages at Higher Level.
 - An individual **CD or USB flash drive** containing:
 - All of the SolidWorks files relating to the completed assignment
 - An electronic copy of the completed portfolio in **PDF format**

All coursework submitted for assessment must be clearly identified with your examination number which will be issued to your school early in 2019. 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. **Please note that the portfolio and CD/USB flash drive will not be returned at the end of the assessment process.**

2. The **CD/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 2019 (Exam number)”.
3. The main folder, referred to above, must contain 2 sub-folders. One of these sub-folders will contain all the pages from the completed assignment in **PDF format**. The other sub-folder must contain 2 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. No other files should be included on the **CD/USB flash drive**.
(All required 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.)
4. It is your responsibility to ensure that all of the required files are contained on the **CD/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.
A backup copy of the **submitted files** should be retained in your school until the assessment process is complete.
5. For protection during transit, the **CD/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.
6. You must submit your **original sketches** for Outputs 3 and 8 – scanned images will not suffice.
7. The coursework submitted for assessment must be **your own individual work** and must be **completed in school** under the supervision of the class teacher.
8. 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 marks.
9. The coursework presented for assessment must be displayed in an attractive manner and marks will be awarded for presentation.
10. The coursework must be completed by **Friday 18th January 2019**.

Ordinary Level Student Assignment - Leaving Certificate 2019

Aroma or vapour diffusers have become increasingly popular in recent years creating an ambient setting in living spaces, working spaces, vehicles, etc. Some work passively while others operate electronically. Many are simple in design while others are more complex in shape and form. Design features often include touch control, optional mood lighting, movement detection, audible feedback, LED clock displays, programmable timers, light indicators, etc.

(A) Carry out a design investigation of existing diffusers in graphic format. Your investigation should include an analysis of physical form and shape, features, materials etc.

and

(B) Show graphically how you would physically modify a diffuser to improve its overall design.

or

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

The assignment should follow the structure outlined in the marking considerations below.

Student Assignment - Ordinary Level

		No.	Section Heading	Description	Suggested no. of A3 Pages	Marks
Presentation, thought process, reflection and factor of difficulty will be considered throughout.	Part (A) - Existing Artefacts	1	Design Research	Exploration of brief and presentation of existing artefacts in graphic format.	1-2	50
		2	Design Feature Comparison	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	
		3	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	
		4	SolidWorks Parts, Assembly, Drawing and eDrawing files	Detailed computer model, comprising at least 3 Parts (or equivalent), an Assembly, Drawing and an eDrawing of the selected artefact. The required filing structure will be considered in the marking process.	Electronic SolidWorks files	60
		5	Hardcopy output from Solidworks	Detailed orthographic views Rendered pictorial view Exploded View	1-3	
		6	Photorealistic Representation	Computer generated photorealistic image(s) of the artefact	1	
	Part (B) Design Modification or Concept Design	7	Graphical exploration of design solutions	Analysis of brief and graphical illustration of possible solution(s) Justification for chosen solution(s)	1-2	50
		8	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	
		9	Hardcopy output from Solidworks	CAD Model (Part/Assembly, Drawing & eDrawing) and associated hardcopies to include appropriately detailed orthographic and rendered pictorial views to communicate your chosen design	1-3 (Plus electronic SolidWorks files)	
					Total	160

Higher Level Student Assignment - Leaving Certificate 2019

Drones in the form of quadcopters have become increasingly popular in recent years. As well as being used as a leisure activity, they have many other applications including surveillance, product delivery, aerial video and photography, etc. Recent advances in microelectronics have facilitated the production of affordable lightweight quadcopters with accelerometers, global positioning system, cameras, etc. They are manufactured in a variety of forms and sizes and many are novel in design.

(A) Carry out a design investigation of existing quadcopters in graphic format. Your investigation should include an analysis of physical form and shape, aerodynamics, materials, safety features, power source, etc. *(Note: you need not include the handheld controller.)*

and

(B) Show graphically how you would physically modify a chosen quadcopter to improve its overall design.

or

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

The assignment should follow the structure outlined in the marking considerations below.

Student Assignment - Higher Level

	No.	Section Heading	Description	Suggested no. of A3 Pages	Marks		
Presentation, thought process, reflection and factor of difficulty will be considered throughout.	Part (A) - Existing Artefacts	1	Design Research	Exploration of brief and presentation of existing artefacts in graphic format using primary and secondary research	1-2	50	
		2	Design Feature Comparison	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		
		3	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		
		4	SolidWorks Parts, Assembly, Drawing, and eDrawing files	Generate computer model, comprising at least 5 parts (or equivalent), an Assembly, 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
		5	Hardcopy output from Solidworks	Detailed orthographic views. Rendered pictorial view. Exploded View.	2-4		
		6	Photorealistic Representation	Computer generated photorealistic image(s) of the artefact.	1		
	Part (B) Design Modification or Concept Design	7	Graphical exploration of design solutions	Analysis of brief and graphical illustration of possible solutions. Justification for chosen solution(s) including aesthetics, functionality and environmental sustainability.	2-4	60	
		8	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		
		9	Hardcopy output from Solidworks	CAD Model (Part/Assembly, Drawing & eDrawing) and associated hardcopies to include appropriately detailed orthographic, rendered pictorial and photorealistic views to communicate your chosen design.	2-4 (Plus Electronic SolidWorks files)		
				Total	160		