



Coimisiún na Scrúduithe Stáit
State Examinations Commission

Leaving Certificate Examination, 2016

Design and Communication Graphics

Student Assignment

Ordinary Level and Higher Level
160 marks

Details of the Student Assignment for the Leaving Certificate Examination, 2016 are given overleaf.

The Student Assignment must be completed by Friday 15th January, 2016.
The work should be submitted following the issue of candidate examination numbers to schools.

Design and Communication Graphics (DCG) Student Assignment Leaving Certificate 2016

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 2016. 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 2016 (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** must 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 15th January 2016**.

Ordinary Level Student Assignment - Leaving Certificate 2016

Salt and pepper shakers can be found on most tables at mealtimes. The shakers are often produced as a matching set or their design may reflect a pair of related objects. They can be made from a variety of materials, including plastic, wood, glass, metal, and ceramic. The number of holes on the shakers can differentiate between them as well as influencing the consumption of salt and pepper.

- (A) Carry out a design investigation of an existing salt and pepper shaker set in graphic format. Your investigation should include an analysis of physical shape, features, materials, colour, etc.

and

- (B) Show graphically how you would physically modify your chosen salt and pepper shaker set to improve its overall design.

or

Develop and graphically communicate a new concept design for a salt and pepper shaker set 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	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.	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, 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 2016

Taps are used to dispense a variety of liquids. Through time, tap design has developed to improve their functional and aesthetic qualities. Improvements also include increased flow and temperature control, filters to reduce contaminants, electronic control, integrated lighting, product marketing potential, etc.

(A) Carry out a design investigation of existing taps in graphic format. Your assignment should begin with a brief exploration of the development of taps over the ages. Its main focus should include an analysis of contemporary taps in relation to their physical form, shape, ergonomics, materials, features, etc.

and

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

or

Develop and graphically communicate a new concept design for a tap based on a selected theme or aimed at a particular 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, 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)	

Tasc an Dalta – An Ardteistiméireacht, 2016

Úsáidtear buacairí chun éagsúlacht leachtanna a dháilleadh amach. Tá forbairt tar éis teacht ar dhearadh buacairí in imeacht na mblianta chun a gcáilíochtaí feidhmíla agus aeistéitíúla a fheabhsú. Ar na feabhsuithe a rinneadh tá sruth níos fearr, rialú teochta, scagairí le heisíontais a laghdú, rialú leictreonach, solsiú insuite, féidearthachtaí margáiochta, etc.

(A) Déan imscrúdu dearaídh i bhformáid ghrafach ar bhuaicairí atá ann cheana féin. Ba chóir do thasc a thosú le tuairisc achomair ar fhorbairt buacairí in imeacht na mblianta. Ba chóir dirtiú go príomha ar anailís ar bhuaicairí comhaimseartha i dtaca lena bhform fhisiceach, lena gcruth, lena n-eirgeanamaiocht, leis na hábhair as a ndéantar iad, lena ngenéithe, etc.

agus

(B) Taispeáin go grafach conas a dhéanfa aithriú fisiceach ar bhuaicairí a roghnaíom tu chun an dearaídh foriomlán a fheabhsú.

no

Déan coincheap nua dearaídh do bhuaicairí a fhorbairt agus a chur in iúl go grafach. Bíodh sé bunaithe ar théama roghnaithe nó dirthe ar spríocmhargadh áirithe.

Ba chóir an struchtúr a thugtar sna nótaí marcála thíos a leanúint sa tasc.

Tasc an Dalta - Ardleibhéal

Taispeáin		Tairisc		Lion Ith A3		Marc	
Cuid (A) - Déantúsáin atá ann cheana féin		Cuid (B) - Aithriú Dearaidh nó Coincheap Dearaidh		160		Iomlán	
1	Taighde Dearaidh	Na teoracha dearaídh a thascáladh le taighde príomhúil agus tanaisteach, agus déantúsáin atá ann cheana féin a chur i láthair i bhformáid ghrafach.	1-2	1	2-3	50	50
2	Comparáid idir na Gnéithe Dearaidh	Roghnáigh 2 ionna agus léirigh/mingh na príomhghnéithe dearaídh. Cuir isteach na príomhthoisí. Cuir príomhghnéithe dearaídh an dá cheann i gcomparáid agus i gcodarsnacht le chéile agus úsáid á baint as sceití saorláimhe oiriúnacha agus as teicnicí cur i láthair eile.	2-3	1	1	50	50
3	Léiriú Grafach	Roghnáigh ceann amháin de na déantúsáin agus déan léiriú mionsonraithe grafach den déantúsáin sin. Ba chóir go mbeadh léiriú scáthaithe saorláimhe 3T d'ardchahighdeán san áireamh sa léiriú.	1	1	1	50	60
4	Comhaid SolidWorks Parts, Cóimeáil, Líníocht agus eDrawing	Samhail mhionsonraithe ríomhaireachta ina mbeidh 5 pháirt ar a laghad, Cóimeáil, Líníocht agus eDrawing den déantúsáin roghnaithe. Cuirfead baraiméacht maidir le dearaídh, rún an dearaídh agus an struchtúr ríachtanach comhdhúchán san áireamh sa phróiseas marcála.	4	1	2-4	50	60
5	Aschur cruachoipe SolidWorks	Cloina mionsonraithe ortagrafacha. Cio scarta. Cio scáthaithe pictiúrtha.	5	1	2-4	50	60
6	Léiriú Fótairealaíoch	Iomhá(ma) rí(h)ólairealaíoch(a) den déantúsáin a rinneadh ar ríomhaire.	6	1	1	50	60
7	Taiscéaláocht ghrafaithe ar réitigh dhearaídh	Anailís ar na teoracha dearaídh agus léiriú grafach ar réitigh fhéideartha. An réiteach/na réitigh a roghnaíodh a chosáin, aeistéitici, feidhmíúlacht agus inbhuanaitheacht imshaoil san áireamh.	7	2-4	2-4	50	60
8	Dearadh Athraithe / Coincheap Dearaidh	Cur i láthair mionsonraithe grafach ar an Dearadh Athraithe / Coincheap Dearaidh. Ba chóir go mbeadh líníocht scáthaithe saorláimhe 3T d'ardchahighdeán san áireamh sa chur i láthair.	8	1	1	50	60
9	Aschur cruachoipe SolidWorks	Samhail CAD (Páirt/Cóimeáil, Líníocht agus eDrawing) agus na cruachoipeanna a bhaineann leis, cloina ortagrafacha leis na sonraí cuí, iomhána scáthaithe pictiúrtha agus iomhána fótairealaíochta san áireamh chun do dhearadh a chur in iúl.	9	2-4	2-4	50	60

Beidh an cur i láthair, an próiseas smaointeoireachta, an machnamh & an chéim dheacrachta á mbeirniú i rith an ama.

Tasc an Dalta – Gnáthleibhéal – An Ardteistiméireacht, 2016

Bíonn sáilitéar agus plobarán le fáil ar beagnach gach tabla ag am béil. Is minic a dhéantar iad ina bpéiri ag meaitseáil a chéile nó d'fhéadfadh péire de rudaí gaolmhara a bheith le feiceáil sa dearadh orthu. Is féidir iad a dhéanamh as éagsúlacht ábhar, pláisteach, adhmaid, gloine, míotal agus cré san áireamh. Is féidir leas a bhaint as líon na bpoll iontu le haithint eatarthu agus bíonn tionchar ag líon na bpoll ar a oiread salainn agus plobair a chaitheann daoine chomh maith.

(A) Déan imscrúduithe dearaidh i bhformáid ghrafach ar sháilitéar agus ar phlobarán den saghas sin atá ann cheana féin. Ba chóir go mbeadh anailís san áireamh i d'imscrúduithe ar an gcruth fisiceach, ar na gnéithe, ar na hábhair as a ndéantar iad, ar an dath, etc.

agus

(B) Taispeáin go grafach conas a dhéanfaí athru fisiceach ar an sáilitéar agus ar an plobarán a roghaíonn tú chun an dearadh foriomlán a theabhsú.

nó

Déan coincheap nua dearaidh do sháilitéar agus do phlobarán a fhorbairt agus a chur in úil go grafach, bunaithe ar théama roghnaithe nó dirthe ar spríocmhargadh áirithe.

Ba chóir an struchtúr a thugtar sna nótaí marcala thíos a leanúint sa tasc.

Tasc an Dalta - Gnáthleibhéal

	Teideal na Roinne	Tuairisc	Líon lech A3 a mholtar	Marc	
Cuid (A) - Déantúsáin atá ann cheana féin	1	Taighde Dearaidh	Na treoracha dearaidh a thaiscéaladh le taighde príomhúil agus tánaisteach, agus déantúsáin atá ann cheana féin a chur i láthair i bhformáid ghrafach.	1-2	
	2	Comparáid idir na Gnéithe Dearaidh	Roghnaigh 2 íomha agus léigh/mígh na príomhghnéithe dearaidh. Cuir isteach na príomhthoisí. Cuir príomhghnéithe dearaidh an dá cheann i gcomparáid agus i gcodarsnacht le chéile agus úsáid á baint as sceití saorláimhe oiriúnacha agus as teicnicí cur i láthair eile.	1-2	
	3	Léiriú Grafach Saorláimhe	Roghnaigh ceann amháin de na déantúsáin agus déan léiriú mionsonraithe grafach den déantúsáin sin. Ba chóir go mbeadh líocht scáthaithe saorláimhe 3T d'ardchaighdeán san áireamh sa léiriú.	1	
	4	Comhaid SolidWorks Parts, Coméil, Líocht agus eDrawing	Samhail mhionsonraithe ríomhaireachta ina mbeidh 3 pháirt ar a laghad, Coméil, Líocht agus eDrawing den déantúsáin roghnaithe. Cuirfead an struchtúr ríachtanach comhdúchán san áireamh sa phróiseas marcala.	Comhaid Leictreonacha SolidWorks	
	5	Aschur cruachoipe 6 SolidWorks	Cloina mionsonraithe ortagrafacha. Clo scáthaithe pictiúrtha. Clo scartha.	1-3	
	6	Léiriú Fótaréalaíoch	Íomha(ma) f(h)ótaréalaíoch(a) den déantúsáin a rinneadh ar ríomhaire.	1	
	Cuid (B) - Athru Dearaidh nó Coincheap Dearaidh	7	Taiscéalocht ghrafataice ar réitigh dhearaidh	Anailís ar na treoracha dearaidh agus léiriú grafach ar réitigh fhéideartha. An réiteach/na réitigh a roghnaíodh a chosaint.	1-2
		8	Dearadh Athraithe / Coincheap Dearaidh	Cur i láthair mionsonraithe grafach ar an Dearadh Athraithe / an gCoincheap Dearaidh. Ba chóir go mbeadh líocht scáthaithe saorláimhe 3T d'ardchaighdeán san áireamh sa chur i láthair.	1
		9	Aschur cruachoipe 6 SolidWorks	Samhail CAD (Páirt/Coméil, Líocht agus eDrawing) agus na cruachoipeanna a bhaineann léi, cloina ortagrafacha leis na sonraí cui agus íomhanna scáthaithe pictiúrtha san áireamh chun do dhearadh a chur in úil.	1-3 (Móide comhaid Leictreonacha SolidWorks)
50					
60					
50					
160					

Grataic Dhearaidh agus Chumarsáide Tasc an Dalta An Ardeistiméireacht, 2016

Treoracha d'iarthóirí:

1. Ní mór dhá chuid a bheith san obair chúlra a chuirtear isteach le haghaidh measúnú:
 - Fíllteán ceangailte A3 d'obair dhearaidh
 - Ní cóir níos mó ná 12 leathanach a bheith san fhíllteán ag an nGnáthleibhéal agus ní cóir níos mó ná 14 leathanach a bheith ann ag an Ardeibhéal.
 - **Dlúthdhiosca nó méaróg chuimhne (USB)** ar leith ar a mbeidh:
 - Na comhaid SolidWorks go léir a bhaineann leis an tasc críochnaithe
 - Cóip leictreonach **i bhformáid PDF** den obair go léir san fhíllteán.
- Ba chóir do scrúdúimhir, a chuirtear chug do scoil go luath in 2016, a bheith scríofa go soiléir ar an obair chúlra go léir a chuirtear isteach le haghaidh measúnú. **Orsa** atá an fhreagracht a chinntiú go bhfuil an t-ábhar leictreonach go léir saor ó víris sa chaoi gur féidir leis na scrúdaitheoirí é a oscailt lena mheasúnú. **Tugtar do d'aire nach seolfar ar ais an filteán ná an dlúthdhiosca nó an méaróg chuimhne i ndeireadh phróiseas na measúnachta.**

2. Ní mór aon phríomhfhíllteán amháin a bheith ar an **dlúthdhiosca/méaróg**. Ba chóir do scrúdúimhir a bheith ina cuid dhílis d'ainm an fhíllteáin, san fhoráid seo: "DCG SA 2016 (Scrúdúimhir)".

3. Ní mór 2 fhóihíllteán a bheith sa phríomhfhíllteán a luaitear thuas. Ní mór na leathanaigh go léir ón tasc críochnaithe a bheith i gceann de na fhóihíllteáin sin i **bhformáid PDF**. Ní mór 2 fhóihíllteán a bheith san fhóihíllteán eile. Beidh gach ceann de na comhaid leictreonacha SolidWorks a bhaineann le Cuid A den tasc i gceann de na fhóihíllteáin sin agus beidh na comhaid leictreonacha SolidWorks a bhaineann le Cuid B den tasc sa dara fóihíllteán. Níor cheart comhad ar bith eile a bheith ar an **dlúthdhiosca/méaróg**.

(Ní mór na comhaid CAD go léir atá ag teastáil a bheith i bhformáid SolidWorks. Ba chóir an leagan de SolidWorks atá in úsáid a chuir in iúl ar chliúdach tosáigh d'fhíllteáin dearaidh.)

4. Is ortsa atá an fhreagracht a chinntiú go mbeidh na comhaid go léir atá ag teastáil ar an **dlúthdhiosca / méaróg** sula gcuireann tú isteach an obair. **Caillfidh tú marcanna** faoi na ceannteidil ábhartha sa scéim mharcála má bhíonn comhaid riachtanacha in easnamh. Bronnfar marcanna as cloí leis an struchtúr comhdúchán a bhfuil cur síos air thuas.
- Ba chóir cóip chúlra de na **comhaid a chuirtear isteach** a choinneáil i do scoil go dtí go mbeidh próiseas na measúnachta críochnaithe.

5. Lena chosaint le linn dó a bheith á iompar, ba chóir an **dlúthdhiosca/méaróg** a chur i gclúdach cosanta. Ba chóir an clúdach sin a bheith greannaithe den taobh istigh de chliúdach an fhíllteáin dearaidh, **gar don chiumhais cheangailte**.

6. Ní mór do chuid **bunseictsi** do na hA3schuir 3 agus 8 a chur isteach – ní leor iomhanna scanta.
7. **Do chuid oibre féin** ba chóir a bheith i ngach cuid den obair chúlra a chuirtear isteach le haghaidh measúnú agus ní mór **i a dhéanamh sa scoil** faoi threoir mhúinteoir an ranga.

8. Ní mór na foinsí taighde a úsáidtear, an tidiríon san áireamh, a admháil. Ní ghnóthófar marc ar bith as ábhar taighde a chóipeáil go díreach ón tdiríon ná as foinse ar bith eile agus a chur i láthair mar do chuid oibre féin.

9. Ní mór an obair chúlra le haghaidh measúnú a chur i láthair ar bhealach tarraingteach agus bronntar marcanna as an gcur i láthair.

10. Ní mór an obair chúlra a bheith críochnaithe faoi **Dé hAoine, 15 Eanáir 2016**.



Coimisiún na Scrúduithe Stáit
State Examinations Commission

Scrúduithe na hArdteistiméireachta, 2016

Grafaic Dhearaidh agus Chumarsáide

Tasc an Dalta

Gnáthleibhéal agus Ardleibhéal
160 marc

Tá sonraí maidir le Tasc an Dalta do Scrúduithe na hArdteistiméireachta, 2016 le fáil thall.

*Ní mór Tasc an Dalta a bheith críochnaithe faoi Dé hAoine, 15 Eanáir 2016.
Ba chóir an obair a chur isteach tar éis eisiúint scrúduithe na hArdteistiméireachta na n-Iarrthóirí do na scoileanna.*