

Computer Graphics and Design

Course Code: CGD315113

Externally Assessed Folio

“A back to base marking” approach was conducted again this year for the assessment of design folios. Stronger folios were well presented as a coherent folio with all the required elements of the project presented as a single unified folio. PDF format folios or interactive based format folios using online tools such as Adobe Spark, weebly or wix were the best method as they could be opened without the need to use software specific applications and any graphics based content is optimised for efficient viewing. Folios presented as Word documents or PowerPoint based presentations would have been better to have been converted to the PDF format. In addition, some candidate’s presented folios that required examiners to open a number of files in order to view the student folio. Some student’s submitted paper based folio content which was contrary to the published TASC project guidelines that specified the submission of all project content in a digital format. It was not acceptable to submit folios that required examiners to engage in a process of compiling content to view folio content. For example, submitting folio components based on game engines that required the examiners to “compile” the content to produce an executable application for the project to be viewed.

“Contemporary design” is a key requirement for design folios. Many projects were lacking an understanding of what “contemporary design” means. For example, projects with medieval themes are not examples of “contemporary design” if there is no connection to design contexts such as interactive game environments.

Highly successful projects again illustrated a completeness in terms of the design process in addressing the folio criteria. Some candidates seem to confuse quantity over quality. It is often better to undertake a smaller and less ambitious design project and do it well rather than undertake a design project that is clearly too ambitious for the designated 50-hour design time for the folio.

The writing of a coherent and correct design brief continues to be a weakness of many folios. The design brief is the foundation of the design project and must have a reference to the context, the anticipated target audience, functional intentions and intended methods of presentation of the project outcome. Students who had a well written design brief in almost all cases paved the way for a successful design project outcome.

The research or precedents phase of the project design process is a critical step in the analysing of the project brief and as a foundation for further design development. Stronger projects had well researched precedent content that was well annotated and well connected to the design intention of the brief. Many candidates continue to not understand the importance of this phase of the design process with poorly articulated research lacking a clear connection to the design brief and an inadequate reflection of design elements and principles.

Exploration and experimentation by design sketching, be it with pencil or with digital tools, is a critical part of the design process. It provides opportunities for students to fully develop an understanding of their intentions before the production phase and to fully explore appropriate application of design principles and elements in the context of their design intention. Stronger candidates clearly demonstrated the capacity to explore and experiment with ideas. They also demonstrated a process of reflection and refinement in order to achieve a coherent final design solution in readiness for the production phase. These design sketches were well annotated, communicating effective design thinking. A significant number of candidates did not produce design sketches to the standard expected of the course. These were often poorly annotated and did not conform to visual communication standards. Design sketching is a skill that needs to be explicitly practised by candidates.

It was pleasing to see many candidates produce annotated screen grabs of their production process with appropriate annotation and commentary that communicated terms and vocabulary relating to CGI. These are critical in proving the authenticity of the students’ work. No screens grabs of production process or ones with little or no commentary do not provide the required evidence of authenticity of student work.

It is important that candidates apply correct computer graphic production processes. Some animations did not consider the playback medium well with the use of uncompressed avi format files. In addition, some candidates had project content that used incorrect aspect ratios and poor image resolution in the presentation of their design outcomes. High level projects demonstrated skilled application and production of digital content across a diversity of contexts.

The industry analysis essay was well completed by many candidates and made a connection between the design context of the project and computer graphics related design and production methods. However, there were a number of essays where this connection was absent and in some instances they were a first person commentary of the student's own design process. The industry analysis essay should be at a higher level in an academic essay format with correct referencing and of the required word count.

Most candidates applied appropriate academic integrity principles in their folios with correct referencing of content sources in both the folio design process and in the industry analysis essay. Some students did not understand correct referencing requirements. A web link without additional reference such as the source and date of access is not a correct reference nor is a reference to a Google image search result. Students with inappropriate referencing of content sources were penalised against criteria 6. This was clearly stated in the 2016 Project Guidelines document.

Many candidates produced a sound evaluation/reflection of their design outcomes in response to their design brief. This is an important step in the design process to reflect upon learning and the process. Candidates who did not provide such an evaluation/reflection had an incomplete design process.

Approximately 3.5% of candidates presented folios that would be considered exemplars that achieved the highest possible ratings. These folios were strong with the design process and illustrated a high level application of the principles and elements of design associated with the selected design context. In summary, a high level folio contains:

- A design brief that clearly articulates the design intention with a context, functional considerations and potential target audience.
- Comprehensive annotated research of precedents connected to the design brief.
- An exploration and evaluation through design sketching of a diversity of ideas to a resolved final design.
- Annotated screen grabs of the production process that communicate understanding of techniques and process.
- An industry analysis essay that makes the link between the design context and computer graphics processes that conforms to academic integrity requirements.
- An evaluation/reflection that reflects the learning and outcomes of the design intention.
- A complete and resolved project that applies a diversity of appropriate computer graphics process and conforms to industry standards of the design context.

Written Exam Paper

Essays this year were well constructed for the greater part by the overwhelming majority of students with an introduction and conclusion bookending the response. The quality of design sketching continues to be a concern in responding to Section C. An analysis of design considerations for many students is not well thought through at a higher level in this section of the paper. It should not be a commentary of what they have attempted to design. Many candidates do not effectively communicate specific understanding of appropriate design language in their responses. Candidates need to make full use of the 15 minutes reading time to fully comprehend the nature of the question they select to respond to. A number of candidates are not taking the time to fully comprehend what is being asked of in a question.

Question 1

This was a popular question that was generally answered reasonably well. Weaker answers made one or two suggestions such as "improve computer performance" or "reduce lighting use". Better answers made 3 or more

suggestions such as using render farms, polygon reduction (and removal in invisible polygons), reduce frame rate, reduce resolution settings, change reflection and shadow settings etc.

Question 2

This question was attempted by a majority of candidates to a varying degree of success. This was an excellent question for candidates to demonstrate their understanding of design visualisation techniques. The majority of answers were satisfactory, with higher end responses articulating techniques to 'make imagined ideas real', such as sketches, 3D models and renders (CG aided and hand-made) as well as the importance of showing form, textures and materials to a client. Some candidates did not fully understand the question, misunderstanding it as a "Design Process" question. Weaker responses mentioned the importance of written client feedback and the use of a design brief, which was not what the question asked for.

Question 3

This was a popular question which yielded very few high-quality answers. The majority of candidates were unable to identify the oblique representation of the object, misunderstanding it as an orthographic representation. Furthermore, most candidates misunderstood the perspective representation as a 'distortion of reality', resulting in very few candidates selecting this as the most useful representation. Higher end responses were able to accurately identify all three representations, and clearly articulate which of the three was most useful to a CG designer.

Question 4

This question was attempted by a number of candidates. The majority of candidates referred to copyright which protects intellectual property. Strong answers referred to Trademark as it applies specifically to the logo as it identifies a unique product or brand.

Question 5

This question was well answered by all candidates who answered it. Strong answers referred to data encryption so that only the person receiving it could read it. Weaker answers referred to copying to disk/USB and handing to the client or providing cloud storage with password access.

Question 6

This was a popular question by candidates but many confused design elements and design principles. Design principles are concepts such as balance, emphasis, contrast, unity, proportion rather than elements such as text, line, shape and texture. Strong answers described how creating a focal point to draw attention to the viewer in combination with principles such as contrast would achieve the intention.

Question 7

Most candidates correctly identified that adjustments to the lighting set up was required to improve the detail in the image.

Question 8

Most students identified creating camera walkthroughs and flyovers as a worthwhile suggestion. Others suggested producing a multi-media presentation that included animation, still images, voice overs tracks, music and text. A surprising number of weaker answers were based on misunderstanding the question and thinking it was about the design process (brief, research, sketches, journal, evaluation etc.). The question clearly stated that the house had already been modelled and needed an appropriate presentation format.

Question 9

Many candidates answered this question but with not a lot of detail in their explanation of why they are important to graphic designers. Basic answers referred to mouse, keyboard, and USB/hard drive. Strong answers discussed the importance of 2D/3D scanners, digitised tablets, and digital cameras and how they were used to benefit the designer.

Question 10

A good number of candidates answered this question and most produced satisfactory responses. Strong responses used the technical terms associated with image compression, such as lossy and lossless types, and provided a clear description of their application and common file conversion types. Furthermore, strong responses suggested that lossy is most common for image compression, and articulated the process of compression (data removal). Weaker responses provided a generic description of the advantages and disadvantages of compression, but lacked clear detail in their explanation of the actual process.

Question 11

This question was generally well answered by the majority of candidates who attempted it. Strong responses articulated that antialiasing uses mathematical calculations to reduce the blocky edges on rendered images when they are rasterised, with the advantage of realistic quality images, but a disadvantage of longer render times and the need of high-end equipment. Weaker responses were able to articulate the advantage and disadvantage, but did so in very little detail.

Question 12

This was a popular question for many candidates and was very well answered for the greater part. Candidates communicated sound understanding of the idea of file corruption and the importance of ejecting a USB stick prior to removal to minimise the potential for corrupted files.

Question 13

This was a popular question for candidates and most communicated effective understanding of the difference between a raster based image and vector based image. Stronger answers explained that raster graphics have a defined resolution and the file size of such images is dependent on the number of pixels in the image. They also described that simple vector graphics may have a very small file size and complex vector graphics may be very large files.

Question 14

This question was fairly obvious. Better answers included definitions and examples of the key elements. Weaker answers did little more than paraphrase the question.

Question 15

A popular question. Stronger answers used terms such as “fused deposition” referred to specific material types, made reference to support structures and x,y,z co-ordinate geometry principles. Weaker answers simply tended to refer to laying layer upon layer of melted plastic through a nozzle.

Question 16

Very few candidates answered this question. Those who did had a good understanding of lighting and reflection in 3D modelling. Strong answers referred to ambient being a single light source that effects the scene and is usually the default setting. Diffuse being the reflection of light with the scene and Specular the reflection from shiny surfaces.

Question 17

This question was generally well answered by the majority of candidates who attempted it. In order to achieve a high result all three aspects of the question needed to be addressed. This included a discussion of appropriate design considerations, providing two alternative or different design solutions with annotation, and a discussion of relevant design principles and elements. Weaker responses did not show a strong understanding of the associated design principles, or failed to complete all three components of the question.

Question 18

This question was not well answered by many candidates. Effective flag design involves a deep understanding of the use of appropriate design elements and principles in a minimalist way. Many candidates flag designs were inappropriate with too much detail for an effective flag. The use of design language in describing the application of design elements and principles as annotations was only effectively articulated by a small number of candidates. Stronger answers communicated at a high level the required design considerations as considering the application of elements such as colour and shape, the importance of cultural context, the need for wide consultation and the need for a diversity of design experimentation.

Question 19

This question was generally well answered by the majority of candidates who attempted it. Basic solutions were over complicated in their design with too much detail that would not work well for a logo converted to a 3D model. Strong answers referred to creating orthographic images being scanned and placed in 3D software to be 3D printed or creation of 2D patterns for fabrication.

Question 20

Very few candidates answered this question. Most candidates understood the acronyms CAD and CAM. Strong answers discussed how CAD software models 3-dimensional representation of system or parts and how they can easily be modified by changing relevant parameters and the hours saved as a result. A limited number of candidates referred to how some CAD systems allow the user to test objects by simulating loads and stresses. Examples and evidence of CAD/CAM process referred to 3D printers, CNC routers and Laser Cutting machines.

Question 21

Only 7 students attempted this question. Most attempts were at a basic / satisfactory standard using simple graphs and pie charts to convey information. A high-level response to this question would, for example, have presented a rendered egg container which had been divided into colour coded sections representing the various sectors of the egg market. Several candidates used simple egg profiles of varying sizes to represent market share. Written analysis should have made reference to things such as proportion, emphasis, contrast, alignment, repetition, rhythm etc.

Question 22

This was a very popular question, with the majority of candidates producing well considered responses. Candidates were generally able to explain virtual reality (VR) and how it works, and suggest ways that this could enhance the experience of online shopping. Stronger responses were able to explain VR in great detail, using the appropriate technical terminology and providing examples of its application in modern society and the leading manufacturers of associated products. Most candidates were able to imagine VR in the online shopping environment, providing detailed examples of how users could 'interact' with products in a virtual environment before purchasing an item.

Question 23

This was a popular question that was generally fairly well answered. Emphasis on interactivity of games versus the passive nature of watching a movie was evident in the better answers. To gain a high mark, an answer needed to discuss the challenges of real time rendering with some details regarding how this can be managed. Low polygon models, simplified textures and pre-rendered backgrounds commonly addressed this issue. Use of motion capture technology to record a range of pre-recorded movements was mentioned in several answers.

Question 24

This question was well answered by a small number of candidates. Stronger answers identified the importance of scanning the photos at a high resolution for subsequent editing. They also communicated a diversity of digital editing techniques using digital imaging applications such as Photoshop, Gimp etc. In addition, stronger answers also described how cloud based photo viewing applications and social media services are an effective way for storing and sharing the photos amongst family members.