

National Certificate of Educational Achievement

2012 Assessment Report

Design and Visual Communication (DVC) Level 2

- 91337 Use visual communication techniques to generate design ideas**
- 91338 Produce working drawings to communicate technical details of a design**
- 91339 Produce instrumental perspective projection drawings to communicate design ideas**

STANDARD REPORTS

91337 Use visual communication techniques to generate design ideas

ACHIEVEMENT

Candidates who were awarded Achievement for this standard demonstrated the required skills and knowledge. They typically:

- presented their design ideas to communicate their thinking using visual communication techniques; most commonly presented techniques were sketching that included 2D and 3D
- used SketchUp printouts, as a digital form of communication, along with some use of photographed mock-ups, in support of their sketching
- communicated functional qualities through visual means; most commonly this was shown using 2D and 3D sketches; these included cross sections and detailed drawings to indicate construction
- communicated aesthetic qualities that indicated shape, form and material finish, using modes that varied from pencil rendering to the use of marker pens
- demonstrated an ability to communicate ideas using techniques and principles of visual communication (e.g. basic line work, rendering, proportioning) that showed design features.

NOT ACHIEVED

Candidates who were assessed as Not Achieved for this standard lacked some or all of the skills and knowledge required for the award of Achievement. They typically:

- presented their ideas using poorly executed visual communication techniques; predominantly sketching was out of proportion and lacked identifiable design qualities
- failed to produce sufficient evidence to show how their design functioned
- displayed aesthetic qualities that were poorly applied.

ACHIEVEMENT WITH MERIT

In addition to the skills and knowledge required for the award of Achievement, candidates who were awarded Achievement with Merit typically:

- presented their ideas using techniques that were skilfully applied; most commonly presented techniques were well proportioned sketches including 2D, 3D, sectioning and exploded views
- communicated functional qualities with clarity, showing how the design was to work e.g. how the product being designed was intended to be used or how the product fitted into the hands
- communicated aesthetic qualities with clarity; generally this was limited to colour, texture, tone, shape and surface finish
- used a variety of different views to fully express the qualities of the design from different angles and internally
- demonstrated an ability to show divergent thinking producing a range of possible ideas, using different generative strategies (e.g. mock-ups, research-inspired ideas, concept generation, creative experiments with forms and shapes)

- produced diverse design ideas that clearly showed identifiable design qualities, which tended to be primarily aesthetic in nature.

ACHIEVEMENT WITH EXCELLENCE

In addition to the skills and knowledge required for the award of Achievement with Merit, candidates who were awarded Achievement with Excellence typically:

- used a range of visual communication techniques to effectively present their design idea in a clear and highly proficient manner
- explored comprehensively, the functional and aesthetic details of the design in depth and with clarity so as to demonstrate a full understanding of the inner working of the design
- extended their design thinking through an ongoing exploration and extension of their ideas through visual means, that informed the development of a possible outcome.

OTHER COMMENTS

This is a completely new standard. The old standard was based around 2D and 3D annotated sketching.

The new standard is about generating and expressing design ideas using visual communication techniques. One form of communication technique is sketching and this is predominantly what is being presented.

Generally the sketching techniques, as a form of communication, have improved. Design ideas being produced show identifiable design qualities and the functional and aesthetic qualities are being presented with more detail than in the past.

The use of SketchUp printouts as the main digital form of communication was also seen, along with some use of photographed mock-ups. While the new standard is not about using a range of techniques, there were some good examples of submissions that utilised a range of different techniques such as sketching, mock-ups and/or digital work.

Generally, evidence being presented does show improved visual communication techniques, this has showed in a greater proportion of positive grades. There were fewer candidates achieving Excellence this year, as they need to come to terms with what is required to achieve at this level. The demonstration of generating and extending design ideas is an aspect to develop further. As this area is new to being assessed in this context an improvement is expected as the understanding of this develops.

A high proportion of candidates submitted visual communication techniques using sketching and rendering. Sketches were generally well proportioned, 2D and 3D and were supported with a mixture of cross-sectional and sometimes exploded views. In most cases these were rendered to show tone, texture and surface finish. Those candidates that achieved at the higher level were able to produce sketches that were well proportioned and were shown from different viewpoints, used a variety of sketching techniques which including sectional, exploded views to present their ideas and then went on to use rendering techniques with coloured pencils, pens for texture and marker pens for surface finish. This was often applied skilfully and effectively.

Functional qualities generally limited the candidate's ability to achieve at the higher levels. Sketches were limited to a few simple cross-sections, exploded views or architectural plan views showing room layouts. Those candidates who achieved at the higher levels were

able to produce well proportioned sketches which allowed them to expand their ideas to show more detail of how things worked or was to be constructed; these were often enlarged sketches that allowed functional details to be shown more comprehensively.

Candidates working in the area of architecture and wishing to achieve at the higher levels will need to explore functional qualities in more detail e.g. relationship between rooms – flow and movement, views from windows – size of windows and how the sun rise and sun set might affect the building. This needs to be communicated in both two-dimensional (plans) and three-dimensional sketching.

A good proportion of students used functional models as a form of testing the functional aspects of the design; these were generally presented as a series of photos showing what was being tested. These could be integrated into the process more readily.

Aesthetic qualities were generally applied with clarity. Candidates in many cases could apply colour, tone, texture and surface finish competently. Candidates that simply coloured their ideas or applied little in the way of aesthetics were limited in their success. Those candidates that could apply rendering techniques showing tonal change, used pens, pencils or marker pens to show texture, pattern and surface finish achieved at the higher levels.

A high proportion of candidates were able to show design ideas that showed identifiable design qualities and generally most of those showed divergent design ideas. A good number of candidates produced divergent ideas but showed them as a collection of ideas. The ideas need to be reflected on, explored and extended visually to gain the higher grades.

Some digital work was evident as a form of visual communication with mixed success. Those that used digitally based drawings effectively to explore and develop their designs, used this format to show design ideas in detail, with clarity, that supported clear and coherent design thinking. Those candidates that simply produced a lot of repetitive work were restricted to lower achievement levels.

Some Technology work was presented with mixed success. These were mainly Textiles Technology candidates. Most candidates could show design ideas but these tended to be limited to just two-dimensional sketches. Functional qualities were generally limited to just a few small two-dimensional and sometime three-dimensional sketches of how the design may be assembled. Those that achieved with success fully explored the functional aspects of their design visually and in some cases through functional modelling. The Aesthetic qualities of the design were often well presented. Candidates used a combination of pens, pencils or marker pens to show texture, pattern and surface finish.

There were many candidates that generated a range of creative and distinctly different ideas using a variety of visual approaches (e.g. research inspiration, concept generation, and visual experimenting with shapes and forms). Though in most cases, this generation of different ideas only occurred in the initial design stage. Candidates would benefit in taking this approach further into the development phase by some further exploration and extension of design possibilities later in the design process. It should be noted that the extending of divergent ideas needs to occur within a single design brief.

Candidates in some cases submitted all of their work. For this standard all that is required is the work that shows the candidate's visual communication techniques to generate ideas. Research and any non-related internal work should be removed. This includes work in

visual diaries. If work cannot be removed from visual diaries, then candidates should tape together the pages that do not apply to the assessment.

Design ideas must be candidate-generated responses to design briefs.

91338 Produce working drawings to communicate technical details of a design

ACHIEVEMENT

Candidates who were awarded Achievement for this standard demonstrated the required skills and knowledge. They typically:

- demonstrated an ability to produce a set of interconnected instrumental working drawings to show complex information; most commonly this involved a plan, elevations and an appropriate cross section
- showed the use of recognised drawing conventions appropriate to the drawings being produced.

NOT ACHIEVED

Candidates who were assessed as Not Achieved for this standard lacked some or all of the skills and knowledge required for the award of Achievement. They typically:

- produced a set of interconnected drawings that did not show complex visual information
- produced drawings that were not interconnected; in other words lacked information that connected one drawing to the next or drew drawings that were not relevant and useful in communicating details of the design
- showed that they were unable to use conventions appropriately e.g. poor dimensioning techniques, inappropriate sectioning conventions and the misuse of scales were common.

ACHIEVEMENT WITH MERIT

In addition to the skills and knowledge required for the award of Achievement, candidates who were awarded Achievement with Merit typically:

- produced a set of interconnecting 2D instrumental drawings that clearly communicated details of the design
- produced drawings that were skilfully and accurately drawn
- demonstrated good skills in applying drawing conventions appropriately to the drawing type being presented.

ACHIEVEMENT WITH EXCELLENCE

In addition to the skills and knowledge required for the award of Achievement with Merit, candidates who were awarded Achievement with Excellence typically:

- produced a set of drawings that communicated the details of their design effectively and were presented to a high standard using appropriate conventions
- produced drawings that were consistently drawn accurately and included information and details so as to clearly understand the design.

OTHER COMMENTS

This is a revised standard, and although similar to the old “Produce two dimensional instrumental drawings”, it has a new intent, based on the use of working drawings.

The new standard is now looking for a set of interconnected 2D instrumental working drawings to show complex visual information. In this context, the complex visual information can be as a result of designs that are complex in form, or are communicated in detail to show internal information of construction or multiple parts. This change in focus is important to note if a candidate wishes to attain a positive outcome.

This standard is about producing a set of related two-dimensional instrumental working drawings that show one’s own design decisions. These drawings must communicate details of the design’s shape and form and must show complex visual information using conventions that are associated with the type of drawing being produced. Candidates, who did well in this standard, were encouraged to develop and use quality drawing skills, supported by the correct use of conventions.

Working drawings need to have an element of complexity. Some two-dimensional working drawings such as cabinets, desks and simple chairs showing three views, often were not complex enough. Scaled cross-sections or enlarged details of construction joints would need to be added to the set of drawings to increase the complexity of the drawings and therefore make it a more complete set of related drawings.

Architectural drawings often included a plan and two elevations. In these cases there may not have been enough information to communicate technical details of the design. Candidates needed to support these drawings with a cross section to show more clearly the details of the design. Plan views often lacked detailed information to clearly indicate how the rooms were to function and elevations often lacked material finish.

Labelling of views – ‘plan view’, ‘elevations’, ‘cross section’ were often missing. Section lines and cross referencing of views were often lacking and this made it difficult to read the drawings. Those candidates that achieved well produced a coherent set of working drawings that were accurate and showed quality drawing skills with conventions that were appropriate to the drawings.

Some packaging was evident which showed a plan, elevations and surface development. Care must be taken so as to not restrict candidates to simple design outcomes. In a number of cases these solutions were not complex enough to attain a positive result.

Some working drawings included a plan and elevations supported by component details, those that drew the components showing shape, form and included conventions were successful.

A number of candidates produced auxiliary views as a means of making their working drawings more complex. Some of these auxiliary views had no purpose, adding no extra value to the drawings. Roof plans drawn out of context used as a means of producing true shapes is also inappropriate.

Drawing auxiliary views need only be produced if they convey relevant information e.g. the true shape of a sloping surface.

CAD is starting to be used effectively by some candidates. Work submitted generally showed the correct use of conventions.

Some candidates produced plans, elevations and cross-sections. Often the cross-sections were at 1:50 scale and then the candidate imported larger details from architectural component libraries e.g. a foundation detail or window details to show clearly the construction details of their own design. This is fine and those that did this successfully usually achieved well. However often these details were imported as 'not to scale' and the cladding or materials shown in the detail did not relate to that shown on the elevations. In these cases candidates could only achieve at the lower level. Drawings and details must relate to the candidate's own design.

When producing working drawings whether using CAD or instruments, candidates should be encouraged to use standard scales e.g. 1:100, 1:50, 1:20, 1:10 or 1:5. Often candidates had just made up a scale to suit the page, which is inappropriate.

There are clear conventions to be used when drawing two-dimensional working drawings. To gain merit or excellence these need to be applied appropriately.

91339 Produce instrumental perspective projection drawings to communicate design ideas.

ACHIEVEMENT

Candidates who were awarded Achievement for this standard demonstrated the required skills and knowledge. They typically:

- produced an instrumental perspective drawing that applied the principles of perspective projection correctly, showing the correct setting out of the picture plane, eye line, ground line, vanishing points and station point
- produced a perspective drawing from design decisions
- produced a perspective drawing that showed complexity in shape and form.

NOT ACHIEVED

Candidates who were assessed as Not Achieved for this standard lacked some or all of the skills and knowledge required for the award of Achievement. They typically:

- produced an instrumental perspective drawing where the principles were not applied correctly; the most common fault was not projecting the vanishing points correctly
- produced an instrumental perspective drawing that was simple in shape and form and lacked the complexity to be able to show any real detail.

ACHIEVEMENT WITH MERIT

In addition to the skills and knowledge required for the award of Achievement, candidates who were awarded Achievement with Merit typically:

- produced an instrumental perspective drawing that was skilfully drawn
- produced an instrumental perspective drawing that applied the principles of perspective projection correctly, showing the correct setting out of the picture plane, eye line, ground line, vanishing points and correctly used the height line to project heights on the drawing

- showed some skill in projecting detailed design features such as window frames, door frames and railings which showed thickness and depth, communicating construction or materials
- produced a perspective drawing from design decisions.

ACHIEVEMENT WITH EXCELLENCE

In addition to the skills and knowledge required for the award of Achievement with Merit, candidates who were awarded Achievement with Excellence typically:

- selected a view point that enabled the perspective drawing to communicate visual information about the design effectively and the perspective visually looked correct
- produced a perspective drawing that was accurately projected. Design features were skilfully and accurately plotted such as weatherboards, gaps in fittings, handles, guttering, flooring and decking. A high level of drawing was used to communicate this design information.

OTHER COMMENTS

This is a completely revised standard, focusing on one aspect of the old standard “Instrumental perspective drawing”.

The new standard specifically looks at the candidate’s ability to produce an instrumental perspective drawing to communicate design ideas.

A good number of candidates have understood the basic principles of this type of projection and were therefore successful.

Candidates needed to have an understanding of how to produce an instrumental perspective drawing. Those that had success understood the principles of perspective and how to apply them. Those that were able to project detail accurately were able to access higher levels of attainment.

Candidates who understood how to use the height line correctly were able to access higher levels of attainment. Height lines were often projected correctly, but the heights were not then projected around the object correctly to plot the required points.

Often perspective drawings were too small to enable the candidate to show design features with any detail. Candidates need to be encouraged to explore the best position to place the plan view in relation to the picture plane and station point so as to obtain a drawing that is of a size that they can show design features in detail. This would allow them to achieve at higher levels.

For Achievement with Excellence, candidates needed to select a viewpoint that effectively communicated their design. This means that you are looking in a direction that best illustrates your design and that the relationship between the station point, picture plane and vanishing points is chosen carefully to avoid distortion of the final view. Candidates may need to look at some set out points first or trial some ideas before deciding on the best position.

In most cases candidates chose the correct direction to view their design but not always from the most desirable height.

Some candidates used the measuring point perspective method (perspective plan method). This is an acceptable method to use. This method produced larger perspective

drawings which enabled detailed features to be plotted more accurately and therefore produced work that allowed candidates to achieve at the higher levels.

Some candidates presented CAD perspectives. They often presented two drawings, one showing the construction lines turned on, overlaying the perspective and the other showing the actual perspective. The concern was that these drawings were often quite small, line work was quite thick and the detail was lost, preventing students achieving at the higher levels.

It would be useful if candidates were to attach the plan and elevation to the perspective to justify the projection points.

Accuracy and quality drawing skills is vital if a candidate wishes to do well.

There is a need to show construction clearly, especially circles. These were often just drawn in, but to have success at the higher levels these points need to be plotted accurately.