

ArtCAM Express lights the way with creative flair

SOFTWARE manufacturer, Delcam, recently hosted webinars which illustrated how easy it is to design and manufacture a children's lamp (shown) using its entry level program, ArtCAM Express, loaded with two or three of the available modules: Vector Tools (for faster 2D design & machining preparation), Advanced 2D Machining (for superior 2D machining) and Nesting (Advanced 2D machining module functionality plus automatic nesting of parts). To watch the video of this lamp being created go to www.youtube.com/Delcamartcam where you can also watch some more of the latest videos.

As can be seen in our images, each side of the lamp has a different design, and could be created independently while at the same time ensuring they would slot together perfectly and fit with the top (with the crescent moon cut into it) and the bottom (which comes complete with a hole for the light bulb to be inserted). First, a template was created for the sides, incorporating the teeth to connect to adjoining sides and slots for the top and bottom. This was done by simply creating rectangular shaped vectors (lines) which could be aligned, moved and rotated as required. Once the rectangles were in place, one of their edges was removed and a line added to join different shapes together.

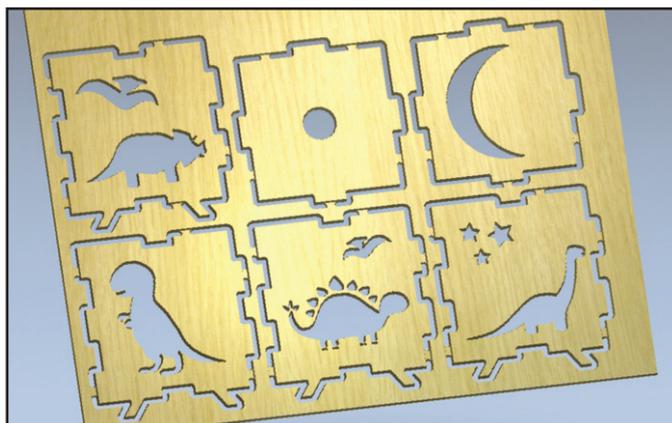
This technique was also used to create the feet: a rectangle was rotated and then aligned at the bottom, then a line parallel to the base of the work area drawn across it so it would stand flat: the bottom of the rotated rectangle was then removed, leaving flat feet for the lamp to stand on. Once the designer was happy with the design of the foot, it could simply be mirrored on the other side of the template. In this case, the alignment was done by eye, but it could just as easily have been done with mathematical precision. A separate template was then created for the top and bottom, using similar techniques.

Once the design of the templates was complete, the multiple vectors on each layer (24 for each side, 4 each for the top & bottom) could be combined into one per layer.

The designs for the dinosaurs came from imported bitmap images. After the original picture was loaded, colours were blended together to create "stencils" on a clean white background. A vector could be created around a specific colour, creating several vectors across the page: those that were required were selected and saved.



The demonstrator now had five different dinosaur images, which were placed on each side in turn. The layers containing the side could be



superimposed one on top of each other, so that, for example, it was possible to maintain consistency in the position of the feet of the dinosaur. Each dinosaur could be enlarged or reduced as required with no loss of quality. Imperfections in saved vectors, arising from the process of blending the images, could be removed by several techniques, including cutting out the flawed section and creating a new vector, while leaving the rest of the image intact. And where, as in the image above, there were spines on the dinosaur's back, it

was possible to check exactly how much space was between them and moves the spines around to ensure sufficient material width. Once each image was complete, the vectors that made it up could be merged into one, just as the vectors on each template had been.

The stars were created using the star tool, and the crescent moon for the top was created from two circles. While a lot of the creative work was positioned by eye, the option was available to position mathematically.

The Advanced 2D Machining Module was used to create and save the toolpaths: three in all. The first to remove a large amount of material with an End Mill (Area Clearance), another to provide the fine detail, and a third toolpath to create the profiles (Profiling). During the tool path set-up, different vectors could be combined within the same toolpath as required.

Within the Nesting Module, the size of the material was specified and two examples were shown: one nesting just one lamp (as illustrated above), the other nesting five lamps. Bridges were then added at half the material thickness, to ensure that the components would not move or slip when being machined, reducing the risk of damage. Finally, the CNC code was generated from the range of post processors available.

The demonstration showed the capabilities of ArtCAM Express: the designer can focus purely on the creative process, knowing that, as long as the dimensions of each component are correctly entered, everything will fit together as planned. A range of other modules are available, including Bitmap Layers, Font Creator, Texture Toolpath, Feature Machining, Raised Round Engraving, Smart Engraving and File Import.

To find out more, visit the Delcam stand at W14: 8B220.

Delcam

Tel 0121 766 5544 ● Email info@artcam.com ● www.artcam.com

