ANU SCHOOL OF ART FURNITURE WORKSHOP
DIGITAL FABRICATION LAB
LASER CUTTING GENERAL INFORMATION

August 2014

HOURS OF OPERATION
Wednesday & Thursday 9am – 5pm.

BOOKINGS
A booking is essential. Email digfab.soa@anu.edu.au for availability and to make a booking, or by phone on ext. 53469 or 02 6125 3469 during operation hours.

**LASER CUTTING – TROTEC SPEEDY 500**

The Laser Cutter works on an RGB scale (Red, Green, Blue) and is like a giant printer. A cut line is red, a score line is blue and an engraving line is black.

**CUT LINE (RED):**
A cut line must have the following specifications:

Line Colour:
- R = 255
- G = 0
- B = 0

Line Weight: 0.1mm (Adobe Illustrator).
- Hairline (Rhino).

**SCORE LINE (BLUE):**
A score line must have the following specifications:

Line Colour:
- R = 0
- G = 0
- B = 255

Line Weight: 0.1mm (Adobe Illustrator).
- Hairline (Rhino).

**ENGRAVE LINE OR FILL (BLACK):**
For engraving, the line, shape or image must be black. The size or weight of a line will determine the engraving pattern.

Line Colour:
- R = 0
- G = 0
- B = 0

**FILE TYPE:**
Adobe Illustrator or Rhino.
SETTING UP A DRAWING – GENERAL NOTES:
- When setting up a drawing in Illustrator or Rhino, it is important that the paper space or art board is slightly larger than the component being cut. For example if a square is being cut 50x50mm, make sure the art board/paper space is set at 52x52mm.
- When setting up in Illustrator, make sure the document is set to RGB scale (not CMYK). To change this go to File > Document Colour Mode > RGB Colour.
- When setting up for cutting in Rhino, it is the print colours (not the screen colours) that must correspond to the RGB scale. This can be changed in the properties box. Double-check this in paper space.
- If using Illustrator, avoid the live trace application as this has a tendency to draw lines over the top of each other and confuses the machine.

MATERIALS THAT CANNOT BE PROCESSED:
The following materials list CANNOT be processed with the Laser Cutter:
- Polyurethane (PUR)
- Polyvinyl Chloride (PVC)
- Polyvinyl Butyral (PVB)
- Polytetrafluoroethylene (PTFE)
- Any materials containing Epoxy
- Phenolic Resins
- Vinyl

MATERIALS THAT CAN BE PROCESSED:
The following materials list CAN be processed with the Laser Cutter:

<table>
<thead>
<tr>
<th>MATERIAL</th>
<th>ENGRAVING</th>
<th>CUTTING</th>
<th>MARKING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acrylic</td>
<td>●</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td>Painted Metal</td>
<td></td>
<td></td>
<td>●</td>
</tr>
<tr>
<td>Delrin</td>
<td>●</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td>Stainless Steel</td>
<td></td>
<td></td>
<td>●</td>
</tr>
<tr>
<td>Stainless Steel (with Thermark)</td>
<td></td>
<td></td>
<td>●</td>
</tr>
<tr>
<td>Anodized Aluminium</td>
<td></td>
<td></td>
<td>●</td>
</tr>
<tr>
<td>Veneer</td>
<td>●</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td>Handicrafts</td>
<td>●</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td>Glass</td>
<td></td>
<td></td>
<td>●</td>
</tr>
<tr>
<td>Wood</td>
<td>●</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td>Gum Rubber</td>
<td>●</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td>Ceramic</td>
<td>●</td>
<td></td>
<td>●</td>
</tr>
<tr>
<td>Cork</td>
<td>●</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td>Plastics</td>
<td></td>
<td></td>
<td>●</td>
</tr>
<tr>
<td>Laser Rubber</td>
<td>●</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td>Leather</td>
<td>●</td>
<td>●</td>
<td></td>
</tr>
</tbody>
</table>
MDF & Thin Plywood | ● | ● |
Melamine | ● | ● |
Micro Porous Rubber | ● | ● |
Paper & Cardboard | ● | ● |
Olyester | ● | ● |
Stone | ● |
Polycarbonate (PC) | ● | ● |
Polypropylene (PP) | ● | ● |

Other materials maybe appropriate for process with consultation.

**CUTTING SIZE:**
Maximum Material Size: 1270 x 710mm (L x W)
Students are encouraged to supply their own material.

**COST:**
Minimum charge of $20 – setup and 5 minutes of cut time included in minimum charge (plus GST for external clients)
$2.00 per minute run time after initial 5 minutes (plus GST for external clients).
$120.00 per hour to fix or alter drawings (plus GST for external clients).

**CNC ROUTER – MULTICAM**
The CNC Router works off a standard black line. It does not need specific line weights or colours.

**CUT LINE:**
The drawing supplied must have closed shapes. It is important that all lines within a drawing are joined.

The following Router Bits are currently available:

<table>
<thead>
<tr>
<th>TOOL SPECIFICATIONS</th>
<th>DIAMETER (mm)</th>
<th>CUTTING LENGTH (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single fluted up-spiral</td>
<td>3.175</td>
<td>6.35</td>
</tr>
<tr>
<td>Single fluted up-spiral</td>
<td>4.76</td>
<td>15</td>
</tr>
<tr>
<td>Single fluted up-spiral</td>
<td>6.35</td>
<td>19</td>
</tr>
<tr>
<td>Compression Cutter</td>
<td>9.5</td>
<td>22</td>
</tr>
<tr>
<td>Compression Cutter</td>
<td>12.7</td>
<td>35</td>
</tr>
<tr>
<td>V-Cutter</td>
<td>Varies</td>
<td>Varies</td>
</tr>
</tbody>
</table>

**ENGRAVE LINE:**
The drawing supplied must have closed shapes. It is important that all lines within a drawing are joined.
The engraving is produced by a ‘V’ shape router bit (V-Cutter).

**FILE TYPE:**
DXF (Rhino, AutoCAD, etc) or Adobe Illustrator.

**MATERIALS THAT CANNOT BE PROCESSED:**
The following materials list **CANNOT** be processed with the CNC:
- Stainless Steel, etc.
- Mild Steel, etc.

**MATERIALS THAT CAN BE PROCESSED:**
The following materials list **CAN** be processed with the CNC:
- Plywood
- MDF
- Most Composites
- Alucobond
- Acrylic
- Aluminium

The CNC Router also has a knife attachment for cutting foams, etc.

**MAXIMUM MATERIAL SIZE:**
Maximum Material Size: 2400 x 1200mm (L x W)

**COST:**
- $75.00 per hour set up time (plus GST for external clients).
- $1.25 per minute cut time (plus GST for external clients).
- $120.00 per hour to fix or alter drawings (plus GST for external clients).

**IF YOU REQUIRE ASSITANCE PLEASE EMAIL**