



# **Laser cut lampshade - FOSS staff edition**

**SLQ Wiki Fabrication Lab 2024/07/27 23:20**

~~HERO-IMAGE



~~ ~~HERO-SUBTITLE Laser Cut Lampshade~~

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## Laser cut lampshade - FOSS staff edition



This workshop builds on the previous laser cut lamp workshops:

- [Illustrator for Laser Workshop](#)
- [Corporate TeamBuilding Workshops - Laser Cut Lamps](#)

## Staff Version

This version runs in two hours (as opposed to four) for SLQ internal staff, with a focus on using algorithmic methods to extract patterns.

## Rationale

Running workshops for SLQ staff is to:

- increase awareness and knowledge of The Edge programming
- invite feedback and participation
- include an introduction to Free and Open Source Software(FOSS).

## Outcomes

- Basic bitmap image processing using GIMP.
- Bitmap to vector conversion using Inkscape.
- Preparation for Laser Cutting using Corel Draw.
- Assembly and **take-home** of a laser cut lamp.

## Tools

1. [Gimp](#) for image clean-up and processing
2. [Inkscape](#) for bitmap tracing and vector editing
3. [Corel Draw](#) for final checks and laser layout.
4. [Rayjet laser cutter](#).

## Materials and Resources

- A selection of public domain images sourced from the [metmuseum](#), found under [silhouettes](#).
- Corel Draw
  - [Lampshade](#) template for the lamp outline.
- One 720 x 430mm sheet of 3mm single ply cardboard
- One [Strala](#)
- One [Ryet](#) or similiar.

# Workshop Outline

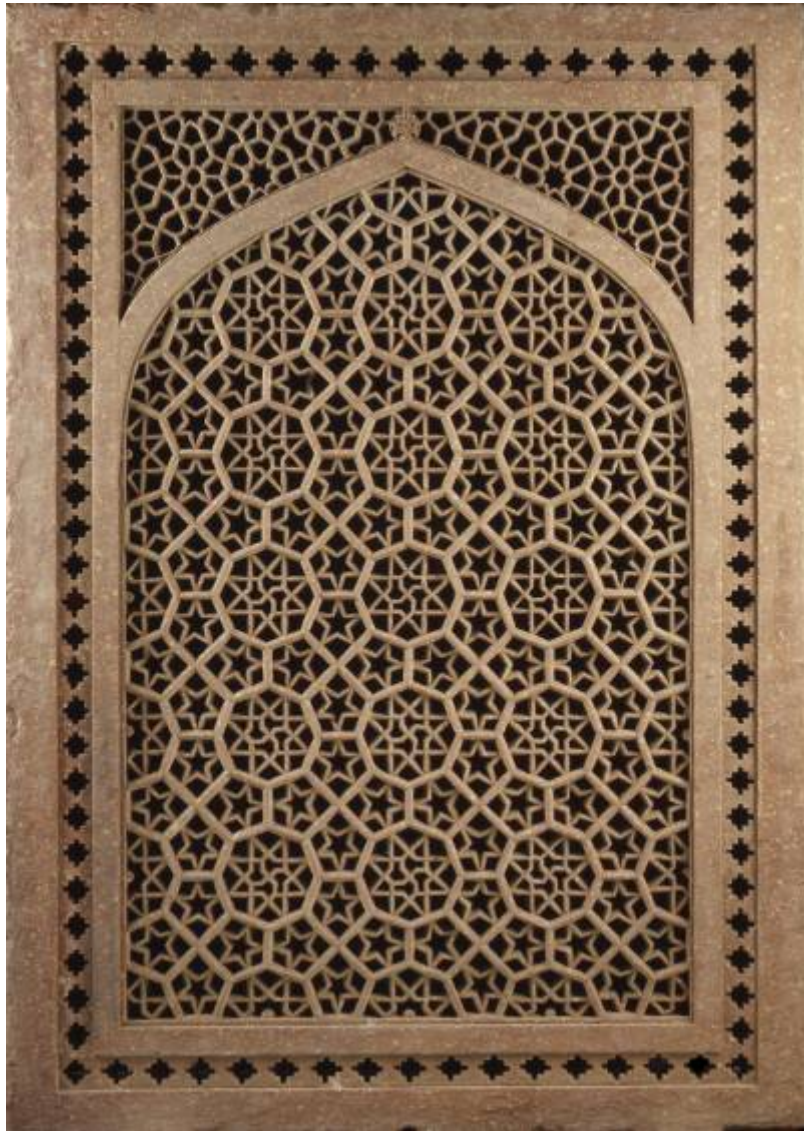
10min

- Welcome
- Demo of the laser, lamp and assembly.
- What makes a silhouette?
  - What breaks a silhouette?
- Silhouette examples..

## Is this a Silhouette?

















# FOSS

Intro to designing for Laser cutting in FOSS - *10min*

- What is FOSS.
- When to use FOSS
- When to use non-FOSS
- What is GIMP and Inkscape?
- What is Coreldraw?

## Pick a Silhouette

The workshop as a whole chooses an artwork **for all participants** to work on.

Use theses rules to inform your choice.

- 5 minutes cutting per lamp
- One feature per lamp
  - other panels can be blank or windowed





## Introduction to Gimp

*Basic bitmap processing to produce a two colour image - 15 min*

- Open chosen image in GIMP
- Selection and Navigation tools
  - crop
  - brightness and contrast
  - Blur and unsharp
  - convert to grayscale
  - posertize
  - export as a jpg.

## Introduction to Inkscape

*Import to Inkscape and Convert to Vectors - 20 min*

- Selection and Navigation tools
- Trace bitmap tool
  - select best single scan method
  - adjust options (speckles, corners and paths)
  - Process and close
- Export as PDF

## Prepare for Cut in Corel Draw

*Editing - 20min*

- Trim the fat - be ruthless
  - small shapes won't drop out
  - complex shapes will break
  - complex shapes take too long to cut

## Process

- Grab the [template](#) and open in CorelDraw.
- Import your artwork PDF
- Get familiar with the selection and navigation tools
- Scale your artwork up to reduce complexity
- Use the shaping controls to trim or cut by combining shapes
- Use the Shape tool (F10) to
  - access individual points to correct glitches
  - **reduce nodes** (in the menu bar)
  - use the curve **smoothness slider** (in the menu bar)
- Drag your artwork to a panel

## Laser Ready checks

[Check all colours are on the rayjet pallete](#)



## RGB Process Colours

The Rayjet 300 will apply cut/ etch/ score processes to 8 different RGB colours.

These are RGB Settings for each of these:

	<b>R</b>	<b>G</b>	<b>B</b>
<b>Black</b>	0	0	0
<b>Red</b>	255	0	0
<b>Blue</b>	0	0	255
<b>Desert Blue</b>	51	102	153
<b>Cyan</b>	0	255	255
<b>Green</b>	0	255	0
<b>Grass Green</b>	0	153	51
<b>Forest Green</b>	0	102	51

- Check line widths are all **hairline**
- Save your design as a CDR (CorelDraw) file onto the facilitators USB stick. **AS VERSION 17**<sup>1)</sup>

## Cutting and Assembly

1. Your facilitator will cut your design on the laser cutter
2. Remove your sheet from the laser cutter
3. Vacuum loose cardboard from the laser cutter bed
4. Weed your lamp (remove cut shapes)
5. Grab a light fitting and bulb
6. Assemble
7. Take home and enjoy!

# Files

## Pre-packed

zip

file containing raw jpgs, GIMP and Inkscape files.

## Laser settings

- Silhouette 50 Power 2 speed
- Cut 25 Power 2 Speed
- Score 15 Power 2 Speed

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## contributors

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<sup>1)</sup>

the laser cutter PC uses version 17 of Corel Draw