

# 3D Printing Chemical Etching Handle

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FINAL PROJECT FOR L3999 COURSE

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# Background

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For research purpose, wet etching tools for samples with different shapes, dimensions, etc. are constantly needed.

## Problems

- Limited selection
  - Usually only available for regular commercial substrates
- Long delivery period
  - e.g. 8 weeks
- High price
  - Usually above €100 for one piece

# Solution

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- 3D printing with open source softwares
- Example: jig handle design
  - Sketch the outline of the handle according to the jig dimension
  - Slect the filament: PP for higher chemical resistance
  - Print the item with 3D printer



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	3D printed jig handle	Commercial jig handle
Delivery period	Within a day for non-massive objects	8 weeks
Price	Filament cost €3 (€43/0.8kg)	€150
Shape and dimension	Free design	Mainly for commercial substrates
Chemical resistance	To be studied	Proof for specific chemicals
Cleaningness	To be studied	Cleanroom compectable tools available

# Future work

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- Printing parameter optimization
- Chemical resistance study of a variety of filaments
- Cleanroom compatibility study of the prints
- Wide-range lab ware design
- Equipment tailoring by adding 3D print accessories to maximize the tool competence

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Thank you!

