

Introduction:

This document has summarized the available service packages for the facility in three main categories of Microfabrication and Prototyping, Design and Consultancy, and Individual Training and Group Workshops. The price and timeline for “Microfabrication and Prototyping” and “Design and Consultancy” packages are subject to the requested project and will be defined after the initial meeting. The timeline and price for the third package can be provided upon receipt of the request.

Microfabrication prototyping:

The facility offers its microfabrication and prototyping services in two packages, which differ based on whether the customer requires fabrication of PDMS microchips. The fabrication process of the required SU-8 devices/micro-mold and consequently the PDMS microchips will define the scope of the selected package. Hence, the cost and timeline of the requested package is dependent upon the nature of the project.

- **Single Layer Photolithography of an Existing Design**

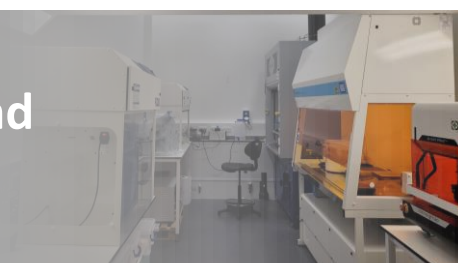
In this service, the facility will fabricate the SU-8 devices/micro-molds based on an existing photomask or 2D bitmap of an existing design. The highest resolution that the facility can guarantee is 5 μ m. The thickness accuracy is $\pm 10\%$ of the requested thickness with a minimum of 5 μ m and a maximum of 250 μ m. The agreed cost and delivery time will depend on the type of UV printing (i.e., using a photomask or maskless UV printing), the thickness, and the type of wafer you are requesting. The offered cost includes the cost of consumables.

- **Single Layer Photolithography and PDMS Microchip fabrication of an Existing Design**

In this service, the facility will fabricate the SU-8 devices/micro-mold and PDMS micro-chips based on an existing photomask or 2D bitmap of an existing design. The highest resolution that the facility can guarantee is 5 μ m. The thickness accuracy is $\pm 10\%$ of the requested thickness with a minimum of 5 μ m and a maximum of 250 μ m. The agreed cost and delivery time will directly depend on the type of UV printing (i.e., using a photomask or maskless UV printing), the thickness, and the type of wafer you request. The offered cost includes the cost of consumables.

Design and Consultancy

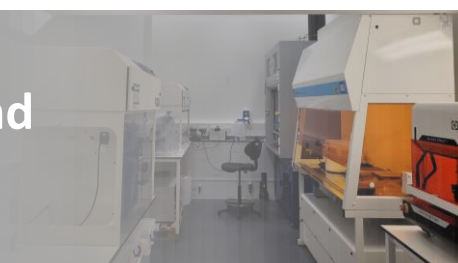
The facility offers further expertise in the field of micro/nanotechnology and biotechnology including conceptualization, modelling, device design, and device prototyping. The details of the service will be defined upon the customer request.



Individual Training and Group Workshops (up to 5 persons):

The facility offers its services for individual training or group workshop for microfabrication and prototyping. The packages are divided into one- and two-day training. The price of each package includes the cost of consumables and facility reservations.

- **One Day Hands-on Training of Photolithography:** This training covers the basics of photolithography and fabrication of a single layer SU-8 device, including:
 - ✓ Why photolithography and its principles
 - ✓ Learning about common defects in photolithography and possible ways to minimize them
 - ✓ How to fabricate SU-8 micro-chips on a silicon wafer
 - How to define the fabrication parameters using the datasheet provided by the photoresist manufacturer
 - Wafer cleaning
 - Wafer coating
 - Pre- and post-exposure bake
 - UV exposure
 - Wafer development
- **One Day Hands-on Training of PDMS Fabrication:** This training covers the basics of fabrication of PDMS chips, including
 - ✓ A general description of the technology and its applications
 - ✓ How to fabricate the PDMS chips
 - Contamination management
 - Preparing the PDMS materials, including measurement, mixing, and degassing
 - Molding the PDMS
 - Preparing the PDMS chips
 - Plasma bonding to a glass surface
- **Two Days Hands-on Training of Photolithography and PDMS Casting:** Day one training covers the basics of photolithography and fabrication of a single layer SU-8 device, including:
 - ✓ Why photolithography and its principles
 - ✓ Learning about common defects in photolithography and possible ways to minimize them
 - ✓ How to fabricate SU-8 micro-chips on a silicon wafer
 - How to define the fabrication parameters using the datasheet provided by the photoresist manufacturer



- Wafer cleaning
- Wafer coating
- Pre- and post-exposure bake
- UV exposure
- Wafer development

Day two covers the basics of fabrication of PDMS chips, including

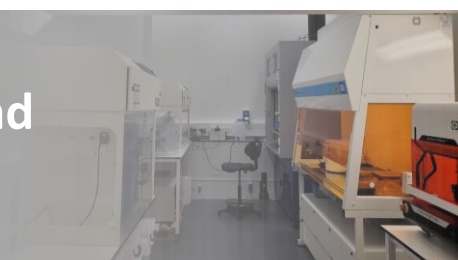
- ✓ A general description of the technology and its applications
- ✓ How to fabricate the PDMS chips
 - Contamination management
 - Preparing the PDMS materials, including measurement, mixing, and degassing
 - Molding the PDMS
 - Preparing the PDMS chips
 - Plasma bonding to a glass surface

Appendix:

The following tables show the breakdown of the cost of using the facility and reference prices for services. The price is last updated on May 12th, 2022, and it is valid until August 31st, 2022.

Table 1 shows the price breakdown of facility booking for internal/academics and external users

Service/Equipment	Category	Imperial/Academic Price GBP/h	Non-Imperial Price GBP/h
Automated dispenser (Biodot Omnia)	Stand Alone	10	40
Contact Angle Goniometer (Ossila)	Characterization	5	20
Harrick Oxygen Plasma Cleaner	PDMS Technology	5	20
PDMS Station	PDMS Technology	15	30
Plasma Wand	PDMS Technology	2.5	10
Spin Coater (Ni-Lo)	PDMS Technology	5	20
Maskless Lithography (Smart Print-UV)	Lithography	5	20
SU-8 Station (Spin coater/hotplate)	Lithography	20	80
UV-KUB 3 Mask Aligner	Lithography	10	40



Profil3D Optical Profilometer	Characterization	5	20
Wet bench	Stand Alone	NA	10
Vacuum Oven	PDMS Technology	NA	10
Inspection Microscope	Characterization	NA	10

Technical Support		NA	80 GBP/h
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Table 2 represents the individual training costs. For group workshops 5% extra fee will be added for each person.

Service Packages	Breakdown of hours	Price GBP (facility fee + instructor fee (80 GBP/h))
One Day Hands-on Training of Photolithography	Instructor time :6 hours, Facility occupation: 3 hours of SU-8 station + 2 hours of mask aligner	680
One Day Hands-on Training of PDMS Fabrication	Instructor time :4 hours, Facility occupation:4 hours of PDMS station	440
Two Days Hands-on Training of Photolithography and PDMS Molding (fix rate for a 9-hour workshop):	Instructor time :10 hours, Facility occupation: 3 hours of SU-8 station + 2 hours of mask aligner + 4 hours of PDMS station	1120

Table 3 represents the service breakdown for “Microfabrication and Prototyping” and “Desing and Consultancy” for internal/academic and external customers

Service Break Down	Internal/Academic Price per h (GBP)	External Price per h (GBP)
Design and lab labour work	40	80
SU-8 Photolithography (labour work + facility costs)	60	160
PDMS Chip Fabrication (labour work + facility costs)	55	110
UV Printing of the Design	5	20