

# Micro/Nano Fabrication Center Pricing Princeton University Internal Users

Effective September 1, 2024.

<b>New User Fee</b> One-time fee to cover administrative costs to setup a new user and their initial supplies.	\$200
<b>Daily Entrance Fee</b> Once per day fee to cover lab consumables (cleanroom laundry, gloves, chemicals, etc.) and free to use tools.	
- Cleanroom	\$30
- Soft Material Processing Lab	\$20
- Packaging Lab	\$30
<b>Minimum Tool Charge</b> Minimum charge for tools that have an hourly cost. Some tools with long run times may have a larger minimum cost, as we seek to make the pricing fairly distributed.	15 minutes
<b>Staff Cost (remote work cost in addition to tool cost)</b>	\$80/hr

## Tool Charges Soft Cap

To encourage use of the facility and help faculty budget for intense use, internal users will have a “soft cap” for tool charges only. Once a given individual’s tool charges exceed \$3,000 in a 3-month period, future tool costs during that period will be discounted by 70%. The starting month of a user’s 3-month period will be determined by their first charge in NEMO (i.e., if a user starts working in the MNFC in February, their caps will be determined by 3-month intervals starting with 2/1). Only tool charges apply towards the \$3k cap, and they are the only cost discounted. Given the real costs they are designed to cover, daily entrance fees, material costs (i.e., precious metal costs on the evaporator), and stockroom purchases do not apply towards the cap, nor are they discounted. NEMO will track the user totals and cap periods automatically and will be able to be checked by staff and eventually user and grant managers as well.

## Undergraduate Discount

To help support undergraduate engagement with the facility, all undergraduates will receive a 50% discount on all daily entrance fees and tool charges (but not material costs or stockroom purchases). Due to this discount, the Soft Cap will not apply.

## Billing Transition Fee Cap

To ease the internal users into this new billing model, we are implementing a short-term billing cap. For Princeton accounts (PIs) that accrue more than \$2,000 of charges in a given month, we will calculate the bill using the previous rate structure and cap the new bill at a set amount over that.

Through the end of the calendar year (9/1 – 12/31), the bill will be capped at no more than 1.5X what would have been billed under the old charging structure.

For the rest of the fiscal year (1/1/25 – 6/30/25), the bill will be capped at no more than 1.75X what would have been billed under the old charging structure.

## Tool Charges

Tool costs will be billed hourly at the following rates.

Area	Tool	Hourly Rate
Deposition	Angstrom Covap	\$40
Deposition	Angstrom Dielectric Sputterer	\$40
Deposition	Angstrom Dual Chamber	\$40
Deposition	Angstrom Metals Sputterer 1	\$40
Deposition	Angstrom Metals Sputterer 2	\$40
Deposition	Angstrom Nexdep	\$40
Deposition	Oxford PlasmaPro100 ICP-CVD	\$40
Deposition	Savannah ALD	\$40
Deposition	SEM Sputter	\$35
Etch	Oxford PlasmaPro 80 RIE	\$40
Etch	PlasmaTherm 720 SLR RIE	\$40
Etch	SAMCO 200 IP III-V Etcher	\$40
Etch	SAMCO 800 Deep Si Etcher	\$40
Etch	Takachi Diamond Etcher	\$40
Etch	Takachi III-V	\$40
Etch	Takachi Metal Etcher	\$40
Etch	Tepla IoN 40 O2 Etcher	\$35
Etch	Versaline	\$40
Lithography	Heidelberg DWL 66+	\$40
Lithography	Litho Workstation	\$24
Lithography	Polos Cr Etch Spin Processor	\$0
Lithography	Suss MA6	\$35
Lithography	Suss MJB4	\$35
Lithography	YES Oven	\$35
Metrology	Filmetrics F40UV	\$0
Metrology	Gaertner Ellipsometer	\$0
Metrology	Hitachi SEM	\$40
Metrology	Keyence Confocal	\$35
Metrology	Keyence VHX-6000	\$24
Metrology	Nanospec	\$0
Metrology	P17 Profilometer	\$35

Metrology	Probe Station, 4200A-SCS	\$35
Metrology	Rame Hart Contact Angle Measurement	\$24
Metrology	Signatone 4-Pt Probe Station	\$35
Nanolith	Beamer	\$40
Nanolith	Cold Development Tank	\$0
Nanolith	EBPG 5150+	\$100
Nanolith	Nanonex	\$40
Nanolith	Raith eLine	\$60
Packaging Lab	ADT Dicing Saw	\$40
Packaging Lab	K&S 4124 Au Ball Bonder	\$40
Packaging Lab	K&S Manual Wire Bonder	\$40
Packaging Lab	Logitech Lapping-Polishing System	\$35
Packaging Lab	Loomis LSD-100 Scribe-Dice	\$35
Packaging Lab	Questar Automatic Wire Bonder	\$40
Packaging Lab	Tresky Flip Chip Bonder	\$35
SMP Lab	D120 Profilometer	\$24
SMP Lab	Form2 3D Printer 1	\$24
SMP Lab	Form2 3D Printer 2	\$24
SMP Lab	Form2 3D Printer 3	\$24
SMP Lab	Heidelberg $\mu$ PG	\$35
SMP Lab	Nanoscribe	\$35
SMP Lab	Parylene Coater	\$35
SMP Lab	Plasma Cleaner	\$24
SMP Lab	Shellab Vacuum Oven	\$0
Thermal	CVD 1034 Tube1-OXIDE	\$40
Thermal	CVD 1034 Tube2-METAL ANNEAL	\$24
Thermal	CVD 1034 Tube3-CLEAN ANNEAL	\$24
Thermal	CVD2 Anneal Furnace	\$24
Thermal	Solaris III-V RTP	\$40
Thermal	Solaris Silicon RTP	\$40
Wet Processing	Acid Hood - Station 1	\$0
Wet Processing	Acid Hood - Station 2	\$0
Wet Processing	Acid Hood - Station 3	\$0
Wet Processing	Base Hood	\$0
Wet Processing	Critical Point Dryer	\$24
Wet Processing	RCA Hood	\$24
Wet Processing	SemiTool Spin Rinse Dryer	\$0
Wet Processing	UV Ozone Cleaner	\$24
Wet Processing	VWR Vacuum Oven	\$0

