

Internal Pricing Schedule for 2019 Academic Year – 9/18 to 9/19

Service Fees:

- **Maskmaking – Heidelberg DWL66**
 - Soda Lime mask – 5" X 5" X 0.09" – LR Chrome
 - Actual charges will be billed at internal labor and tool rates plus cost of mask blank
 - Heidelberg - \$75/hr
 - SL Mask Blank ~\$25 (charged at market price)
 - 4mm head – 0.8um minimum feature
 - 20mm head – 4um minimum feature size
 - No defect inspection.
 - Assumes mask design is sent in gds format
 - Quartz mask – 6" X 6" X 0.12" – LR Chrome
 - Actual charges will be billed at internal labor and tool rates plus cost of mask blank
 - Heidelberg - \$75/hr
 - QZ Mask Blank ~\$75 (charged at market price)
 - 4mm head – 0.8um minimum feature
 - 20mm head – 4um minimum feature size
 - No defect inspection.
 - Assumes mask design is sent in gds format
- **Staff Time**
 - The SMFL staff is available to perform NRE tasks on an hourly basis.

Materials Charges

- **Wafers** – Not provided/for sale by SMFL
- **Chemicals**

The SMFL provides standard photoresist and developer for use on its equipment – the cost (including disposal) is included in the price of the tool.

Chemicals brought into the SMFL by the customer will be assessed a disposal fee depending on the nature of the waste. Fees will be higher for metal etchants, solvent/acid mixtures, and others that must be sent out for disposal.

Notes

- Users are free to obtain their own supplies, but RIT carries no responsibility to supply storage space for materials stockpiles. Chemicals must be approved and properly shipped before being brought into the SMFL. Users will be charged up front for disposal fees incurred.
- Repair parts for tools and equipment above and beyond normal wear and tear may also be charged back to the user on a cost basis not including SMFL labor.
- Materials charges include but are not limited to consumable chemicals, sputter targets, evaporation sources, photographic film, and quartzware (breakage).
- Incidental materials such as aluminum targets and evaporants (Al, Cu, Cr), standard lithography chemicals, standard CVD and etch gases, bulbs for aligners are covered under the equipment fee schedule.
- The user may be asked to pay a surcharge for equipment/materials usage above and beyond normal usage. This would be negotiated before the work started.

Equipment Set

Tool charges are computed from when a user logs onto a tool to when a user logs off the tool. The tool time can and will include setup, programming, warm-ups and pumpdowns in addition to any actual process time. No distinction is made on how the tool is being used, whether process or otherwise. All time logged on the tool is charged at the tool rate.

Area	RIT Tool	Set FY19 Internal Rate
Backend	KS780 Dicing Saw	\$60.00
Backend	Strausbaugh CMP	\$40.00
CVD	AME P5000 PECVD/RIE	\$94.96
CVD	ASM 150mm LPCVD	\$95.00
CVD	SMFL Parylene Coater	\$50.00
CVD	Ultratech ALD	\$40.00
Dry Etch	GaSonics Aura 100	\$50.00
Dry Etch	LAM 4600 Metal RIE Etch	\$120.00
Dry Etch	Lam 490 Plasma Etch	\$50.00
Dry Etch	STS ASE	\$125.00
Dry Etch	Technics PE2A	\$50.00
Dry Etch	Trion Minilok RIE	\$46.52
Dry Etch	Trion Phantom RIE	\$46.52
Dry Etch	Xactics XeF2 Etcher	\$75.00
Lith	ASML Stepper	\$100.00
Lith	CEE Spin Coat Station	\$40.00
Lith	CEE 100 Coater	\$29.21
Lith	CEE 100 Developer	\$40.00
Lith	GCA Stepper	\$75.00
Lith	Heidelberg Laser Writer	\$75.00
Lith	KS MA150 Aligner	\$28.95
Lith	KS MA56 Contact Aligner	\$35.00
Lith	SCS Spin Coater	\$37.00
Lith	SVG 88 Coat/Develop Track	\$53.73
Lith	SVG 88 #2 Coat/Develop Track	\$60.00

Area	RIT Tool	Internal Price (\$/hr)
Metrology	AMRAY 1830 SEM	\$60.00
Metrology	CDE ResMap	\$25.00
Metrology	LEO SEM	\$75.00
Metrology	Prometrix SM300	\$25.00
Metrology	Rudolph Ellipsometer	\$25.00
Metrology	Tencor P2 Profilometer	\$25.00
Metrology	Woollam VASE Ellipsometer	\$35.00
Metrology	Wyko NT1100 Dynamic Profiler	\$23.20
PVD	CHA Ebeam Evaporator	\$75.00
PVD	CHA Flash Evaporator	\$50.00
PVD	CVC 601 Sputter	\$50.00
PVD	CVC Evaporator	\$50.00
PVD	Denton Au Sputter	\$50.00
PVD	PE4410 Sputter	\$70.00
Thermal	AG 610A	\$60.00
Thermal	Bruce Furnace Tubes 1 to 8	\$57.00
Thermal	Heraeus Vacuum Curing Oven	\$40.00
Thermal	Varian 350D Implanter	\$110.00
Wet	Wet Bench - Al Etch / Solvent	\$45.00
Wet	Wet Bench - General RCA	\$45.00
Wet	Wet Bench - Manual Process 2	\$45.00
Wet	Wet Bench - MOS RCA	\$45.00
Wet	Wet Bench - Nitride / KOH	\$45.00
Wet	Wet Bench - Ultrasonic	\$30.00

Approvals



Semiconductor & Microsystems Fabrication Laboratory

Internal RIT Academic Users must submit an approved Project Request Form before any work may proceed.

Users performing their own work in the SMFL are also required to go through the SMFL Safety Training on a yearly basis.

Billing Process – Internal Academic

The SMFL will bill funded researchers for their work to be performed in the SMFL. Journal entries against the researchers Oracle account are typically performed at the end of each month. Unfunded researchers will receive a statement each month with their usage levels and associated cost to the Institute.

Notes

Minimum time for the LAM4600 will be 1 hour.

An overnight pumpdown on our PVD tools (processing run occurring the following morning) is charged out at 5 hours.

ALD cost does not include the cost of the precursors.