

Job Description: Research Assistant (Microfabrication & Hardware Engineering)

Company: Semilit

Location: IIT Madras Research Park, Chennai

Role Type: Full-time (Research Assistant)

Experience Level: Fresh Graduate / Entry Level

Website - [Semilit | DUV lithography | India](#)

About Semilit

Semilit is a deep-tech startup pushing the boundaries of microfabrication. We are currently establishing a new, cutting-edge facility at the IIT Madras Research Park. Our core project involves building a state-of-the-art 1 μm -capable Maskless Lithography (MLL) system. We are dedicated to democratizing access to MEMS development and accelerating hardware prototyping.

The Opportunity

We are looking for one highly motivated, hands-on Research Assistant to join our founding technical team. You won't just be following instructions; you will be instrumental in building the lithography system from the ground up, commissioning a Class 1000 cleanroom, and eventually using these tools to fabricate functional MEMS (Micro-Electro-Mechanical Systems) devices.

This role is perfect for a recent graduate who loves troubleshooting hardware, understands optics or microfabrication, and wants to see their work translate immediately into physical technology.

Key Responsibilities

- **System Integration:** Assist in the assembly, alignment, and calibration of the optical path for our custom Maskless Lithography (MLL) system.
- **Cleanroom Infrastructure:** Participate in the setup, maintenance, and protocol development for our Class 1000 cleanroom environment.
- **Microfabrication Processes:** Develop and execute photolithography workflows, including spin coating, soft baking, pattern exposure, and development.
- **Device Fabrication:** Design and fabricate MEMS test structures and devices, documenting processes and iterating to improve yield and precision.

- **Troubleshooting & R&D:** Work closely with the leadership team to diagnose hardware bottlenecks, refine software-hardware interfaces, and solve complex fabrication challenges.
- **Documentation:** Maintain meticulous lab notebooks and standard operating procedures (SOPs) for equipment usage.

Required Skills & Qualifications

- **Education:** Bachelor's or Master's degree in Electrical Engineering, Mechanical Engineering, Physics, Nanotechnology, or related fields.
- **Hands-on Nature:** A clear track record of building things (whether through academic projects, hobbyist electronics, or internships).
- **Technical Knowledge:**
 - Familiarity with cleanroom practices (or a strong desire to learn).
 - Basic understanding of optics or lithography principles.
 - Experience in handling non-corrosive chemicals that are used inside the cleanroom.
 - Exposure to hardware interfacing (Arduino, Raspberry Pi, Python for automation) is a strong plus.
- **Soft Skills:** You are a self-starter. You are comfortable working in a startup environment where you might wear multiple hats, from fixing a pneumatic line to refining an optical alignment.

Why Join Us?

- **Impact:** You will be a founding member of the facility at IIT Madras Research Park.
- **Hands-on Learning:** You will gain deep expertise in building lithography systems—a rare and highly valuable skill set in the semiconductor and MEMS industry.
- **Mentorship:** You will work directly with experienced founders/engineers in a high-intensity, learning-focused environment.

How to Apply

If you are excited about building the future of microfabrication, please send your resume and a brief note about a hardware or research project you are particularly proud of to [here](#).

Semilit is an equal-opportunity employer. We value curiosity, grit, and the ability to solve complex problems.