

## Job Description

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<b>Job Title:</b>	Cleanroom Certification & Inventory Specialist
<b>Department:</b>	Institute for Quantum Computing
<b>Reports To:</b>	Director, Quantum NanoFab
<b>Jobs Reporting:</b>	None
<b>Salary Grade:</b>	USG 4
<b>Effective Date:</b>	April 1, 2017

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### **Primary Purpose**

The Cleanroom Certification & Inventory Specialist is responsible for all hands-on activities related to maintaining the professionally operated QNC cleanroom (Quantum NanoFab) to ISO 5 (class 100) certification levels. The detail-oriented and conscientious incumbent must have proven relevant experience and excellent knowledge & understanding of advanced cleanrooms and their stringent operational & cleaning protocols. This requires experience operating and interpreting the results of environmental particle counters as well as maintaining the calibration of these instruments. Incumbent is responsible for generating quarterly reports which summarize measured data and which validate cleanroom certification specifications. The Cleanroom Certification & Inventory Specialist is also responsible for keeping track of & ordering all routine cleanroom supplies & safety equipment. In addition, the incumbent is responsible for multiple safety related activities including weekly testing of safety showers, monthly fire extinguisher verifications, safe disposal of waste chemicals, etc.

### **Key Accountabilities**

*List the major responsibilities of the job, divided into 3 to 5 broad categories. These should reflect 80 - 90% of "what" the job does not the "how". Insert a category heading and in bullet form below, state specific responsibilities.*

#### **Maintaining the Cleanroom to ISO 5 Certification Standards**

- With guidance from immediate supervisor, establish and document a cleanroom cleaning & maintenance procedure which is consistent with stringent industry standards for ISO 5 (class 100) grade cleanrooms. Cleaning protocols must cover all cleanroom surfaces including ceilings, walls, floors, work surfaces, etc.
- Responsible for keeping the cleaning & maintenance standard operating procedure (SOP) up to date and consistent with industry guidelines.
- Responsible for the acquisition of calibrated cleanroom particle counters and for performing regular (quarterly) environmental particle counts of all cleanroom modules. Document test results and observations in a formal report format for internal and external auditing purposes.
- Maintaining a clean inventory of specialized, head to toe gowning materials.
- Devise and execute a protocol which ensures that industry standard laundering requirement is met.
- Coordination of laundering user-specific "in use" gowns on a regular basis and ensure users submit their outfits for laundering on a regular schedule consistent with industry standards.
- Oversee the in-house laundering facilities and ensure that these remain in an excellent state of repair. This includes initiating and scheduling servicing of the associated laundering equipment as required.
- May be called upon to take the lead on specialty initiatives which require their expertise, including participating in the wipe down activities associated with the reception of large and complex pieces of lab equipment prior to their being introduced into the cleanroom.
- May also be asked to partake in other Quantum NanoFab cleanroom cleaning and certification activities (including training others on proper maintenance protocols) which may take place outside of the QNC facility (such as in the RAC1 cleanroom).

#### **Cleanroom Inventory Control**

- With input from their peers on the Quantum NanoFab team: identify, order, and maintain a minimum stock of a wide range of routine materials needed for the facility's day-to-day operations. These include cleanroom garments (hoods, coveralls, boot covers, hair nets, cleanroom-rated gloves, etc.), cleanroom wipes,

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<p>chemicals, safety gear (such as personal protective equipment worn at fume hoods), materials needed for maintaining cleanroom certification, etc.</p> <ul style="list-style-type: none"> <li>Incumbent is also responsible for keeping track of 200+ active lab users and for removing the ID badges and cleanroom garments of users whom are no longer using the facility. This activity must be tied to the laundering schedule under the incumbent's responsibility. The names of these past users must be tracked by the incumbent in a format which can be easily communicated to the Quantum NanoFab's Accounting and Admin Assistant. This important responsibility serves to ensure that users whom have not used the facility in over 6 months are barred from access until such time as they have completed several safety refresher courses.</li> </ul>
<p><b>Safety</b></p> <ul style="list-style-type: none"> <li>Safely remove and transport waste chemicals and the contents of solid chemical waste bins to the on-campus Environmental Safety Facility</li> <li>Regularly empty all solid waste containers including broken glass and broken wafer bins</li> <li>Weekly testing (and documenting) of multiple emergency showers and eye wash stations located in and outside the cleanroom</li> <li>Coordination of monthly verifications of multiple fire extinguishers located in and outside the cleanroom</li> <li>Verification and replenishment of multiple first aid kits as well as specialty HF (Hydrofluoric) acid emergency treatment kits located inside and outside the cleanroom (these duties take place every 4 months).</li> <li>Act as a co-lead to new lab users on their In-Classroom orientation sessions. Up to three orientation sessions take place once every two months.</li> </ul>
<p><b>Additional General Activities</b></p> <ul style="list-style-type: none"> <li>Maintain several surrounding support labs including the entrances to the cleanroom, the Packaging Lab, the Sample Prep Lab, etc. This includes maintaining local inventories of lab and safety gear to be worn at these individual labs (safety glasses, lab coats, shoe covers, etc.).</li> <li>Occasional specialty projects such as leading the implementation of a cleanroom maintenance protocol for the RAC1 cleanroom which is part of the Quantum Nano-Fab infrastructure, including this facility's ongoing certification.</li> <li>Play a role in routine annual activities such as the inventorying and reorganizing of cleanroom supplies, lab consumables and equipment spare parts.</li> </ul>

### **Required Qualifications**

*If hiring today, what would be the required education, experience, knowledge, skills and abilities?*

<p><b>Education</b></p> <ul style="list-style-type: none"> <li>High school diploma plus a 3-year (minimum) technical certification or diploma in a field requiring attention to detail and thoroughness.</li> </ul>
<p><b>Experience</b></p> <ul style="list-style-type: none"> <li>Minimum 2 years' experience maintaining an ISO 5 (class 100) professional grade cleanroom environment to industry standards. Extensive &amp; proven experience documenting and applying cleanroom maintenance procedures. Minimum 2 years' experience working in high tech, restricted access, multi-user lab environments.</li> </ul>
<p><b>Knowledge/Skills/Abilities</b></p> <ul style="list-style-type: none"> <li>Training in the methods used by industry experts on the cleaning and certification of semiconductor cleanroom facilities is required. Training and experience in the safe handling of dangerous chemicals also required. Training in first aid procedures a definite asset.</li> <li>Excellent written and oral communication and attention to detail skills required.</li> <li>Intermediate skill level with Microsoft Office suite.</li> <li>Excellent interpersonal skills.</li> </ul>

### **Nature and Scope**

- Contacts:** External customers include academic and government users as well as private industry users. Must work superbly well with people of varying cultural and academic backgrounds as required when co-leading the "In-Cleanroom Orientation" sessions. Sessions are held every two months. This position interacts regularly with

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all members of the Fab Team and has occasion to meet with the entire team including their direct supervisor on a weekly basis during regularly scheduled team meetings.

- **Level of Responsibility:** This position is responsible for all hands-on activities related to independently maintaining the cleanroom to ISO 5 (class 100) certification standards. The position is also responsible for independently tracking and ordering cleanroom supplies, chemicals and other consumable items with little to no supervision. This position also plays a role in communicating and enforcing basic safety and cleanroom behavior standards amongst all lab users. This position is responsible for the disposal of dangerous chemicals consistent with University of Waterloo safety policies.
- **Decision-Making Authority:** Decides which environmental particle counters are best suited to the facility and decides when unit(s) should be sent for calibration. This position has the authority to decide which cleanroom consumables would best serve the facility and is also directly responsible for ordering and organizing all these materials.
- **Physical and Sensory Demands:** Most of the time is spent working in a standing position in a cleanroom environment where cleanroom gowning (head to toe) must be worn. Extended periods of time will be spent under yellow lighting conditions. Physical flexibility and strength needed for heavy lifting (up to 45 to 50 pounds).
- **Working Environment:** Most work activities take place within the cleanroom facility and in its surrounding satellite labs.