PROJECT LEADERSHIP SKILLS FOR QUANTUM WORKERS - MICRO-CREDENTIAL

This badging opportunity will allow students interested in joining the quantum information science (QIS) tech workforce to demonstrate skills not commonly taught in typical STEM classes: project management, professional communication, conflict management and other essential skills.

The QIS industry is expanding rapidly and will need a diverse, skilled set of "quantum-aware" and "quantum-proficient" workers that have general subject mastery but not necessarily the level of expertise and specialization provided by a graduate degree. For the students that will make up this workforce, it will be important to demonstrate proficiency with not only technical skills but with the practices, norms and culture of industry.

This badging opportunity gives students who plan to enter the workforce after completing their degree an opportunity to demonstrate proficiency with leadership skills desired by potential employers. Students who pursue badging under this opportunity will be able to demonstrate to employers their proficiency with project leadership skills such as: stakeholder identification, project scheduling and budgeting, conflict resolution and DEI leadership. Mastery of non-technical skills is essential for success in the workforce and these badges will demonstrate to potential employers not only that students are proficient in the skills, but that they understand the holistic needs of the workforce as a domain separate from academia. In short, this badging opportunity will make you a more attractive candidate in a rapidly-growing field!

Eligibility
- CU Boulder Students (including nondegree/ACCESS)
- CU Boulder Employees
- Other

Delivery Mode
In-Person

Credit Status
Noncredit

Academic Level
Undergraduate

Time to Completion
Two Semesters

Fee
No

Requirements
- Enrollment in PHYS 4700/4710 Quantum Forge I & II, or participation in an equivalent independent work-study experience with a local quantum company (e.g., an external internship, research jointly supervised by a CU professor and an industry partner, etc.).
- A letter of support from the student's sponsor (e.g., quantum tech company working with the student on their project) signifying approval of the student's efforts as sufficient for the credential.
- Attendance in at least four of the physics department's QIS-related extra-curricular seminars.

Criteria
- Students must enroll in both semesters of PHYS 4700/4710, Quantum Forge, and work with the same project group and sponsor the entire year -- or, must be enrolled for an equivalent duration in their non-course work-study experience. The key element will be to ensure that the student is engaged from start to finish on the project, rather than engaged for a specific amount of time (e.g., if a student has a summer internship, they may be eligible). It will largely be straightforward to determine whether a student has been engaged enough with a project, but in situations where there is doubt, the course instructor will confer with the project sponsor to determine whether the student's engagement is of adequate duration to demonstrate proficiency.
- Students must produce a written report on their efforts, describing their work and their project, and how their efforts demonstrate proficiency in the skill being badged. The project report should be at a level that a potential employer would be able to read it and understand the student's involvement and how it contributed to their badge, as well as that a student stepping into the credentialed student's role would be able to familiarize themselves with the student's project. To assess the student's report, the course instructors will confer with the student's project sponsor, using a simple rubric to determine the extent to which the report appropriately covers the topics relevant to the student's work for on-boarding purposes, correctly reflects the nuances of the project as determined by the project sponsor and demonstrates maturity in professional communication techniques such that the report could be used in a non-academic setting.
- Students must hold a meeting with their project sponsor and the badge administrator (at time of submission, Education and Workforce Director) for the campus to discuss their work. In this meeting, the EWD and the sponsor will converse with the student to ensure that their experiential demonstration of proficiency matches their written demonstration via the report.
- The student's sponsor must agree that the student has demonstrated proficiency with the given skill, signing off on the student's badge application. This criterion should follow naturally from successfully meeting the other three criteria; that is, it should be very rare or impossible for a student to engage on a project, do work acceptable to the sponsor, and produce an acceptable written report without receiving approval for the badge.

Skills
- Conflict resolution
- DEI leadership
- Goal setting
- Professional communication
- Project scheduling
- Project budgeting
- Resource allocation
- Stakeholder identification