Physics Course Technician (TR2597)

Responsible for supporting the Department of Physics Makerspace, 339 (winter term) & 439 (fall term)

**Hours per week:** 35

**Hourly rate:** $24.17 - $26.40

**Position summary:**

Under general supervision, develops computerized physics experiments for undergraduate courses by building and modifying apparatus, installing interfaces, carrying out necessary testing and modification, writing code to run experiments as well as using commercially available software in this process. Assists students with their projects; assists in other areas of the department as the need arises; performs related duties. Maintains equipment, stocks consumables and components, and assists students in their use of the tools held in a new department makerspace.

**Job duties and responsibilities:**

1. Assists professor in the development of physics experiments, and interfacing these experiments using microcontrollers, for undergraduate courses. Initially, the emphasis will be on the developmental phase and once the courses have started, greater time will be allocated to assisting students.

2. Builds (e.g. mechanical holders for transducers, etc.) and modifies apparatus (e.g. transducers, sensors, etc.); provides machine shop with specifications to produce required parts; installs these parts.

3. Tests out existing experiments to assess needs for upgrading, repair or replacement in light of cost, equipment availability, etc.

4. Interfaces experiments with microcontrollers by obtaining appropriate electronic parts, installing these parts, testing experiments in light of desired results; carries out additional modifications and testing until experiment runs smoothly; consults with professor and/or Laboratory Supervisor.

5. Develops software using a Department designated coding language (e.g. Python) to record data, test, analyze and output acquired data for experiments; simulates data to assess feasibility of experiments.

6. Assists students with the experiments and projects; provides guidance and advice.

7. Assists with miscellaneous jobs for the department such as setting up equipment for demonstration, moving equipment or furniture, etc.

8. Maintains the design and manufacturing tools in a newly developed makerspace (e.g. 3D printers, CNC mill, etc.). Arranges for services as required.
9. Provides basic training to students in the use of the makerspace tools and design workstations (CAD, etc.)

10. Ensures student safety within the makerspace and that regulations concerning operation of machinery are obeyed with safe practices updated accordingly.

11. Advises the department on upgrade, replacement and repair of equipment in the new makerspace. Responsible for maintaining inventory of components and the ordering of consumables (e.g. 3D printer spools).

Minimum education and experience:

- CEGEP – Physics
- 4 years’ related experience

Other qualifying skills and abilities:

Demonstrated experience with electronics. Demonstrated knowledge and experience using the following equipment: 3D printers, oscilloscopes and other test equipment, computers and data acquisition systems, lasers, vacuum systems. Programming knowledge (preferably in Python). Proficiency using CAD (SolidWorks or equivalent). Strong interest in assisting students as a technician in a laboratory setting. Must be able to exercise patience and maintain composure in stressful situations. Comfortable communicating and interacting with undergraduate and graduate students with a proven ability to answer students’ questions regarding the proper usage of laboratory apparatus and its configuration. Demonstrated knowledge of the principles of laboratory safety. Demonstrated ability to work efficiently on a tight schedule and handle multiple priorities. Demonstrated ability to work in a computerized environment using word-processing software, databases, spreadsheets and presentation software. Excellent communication skills in English and French (spoken and written).

To apply:

Please send CV and cover letter by email to apo.science@mcgill.ca