1. analyze and solve theoretical and practical problems using learned fundamentals and applied Physics knowledge and concepts;
2. analyze and solve theoretical and practical problems using learned fundamentals and applied Mathematics knowledge and techniques;
3. apply learned fundamentals and applied Chemistry knowledge, including laboratory skills and techniques, to solve theoretical and practical problems;
4. understand and gain an appreciation for concepts of Biology as they relate to physics and technology;
5. apply the conventions and best practices of written and oral communication to effectively convey and discuss thoughts and ideas;
6. appreciate the business aspects of the technology sector and technology development;
7. choose, assemble (soldering, connecting, powering, and interfacing components), and operate laboratory equipment to perform experiments and collect data;
8. design laboratory experiments to investigate and/or validate hypotheses by utilizing the conventions and best practices of experimental research;
9. formulate or validate theoretical and/or numerical models by visualizing, analyzing, and evaluating data;
10. use, adapt, and develop software to: interface with equipment; collect, visualize and analyze data; perform numerical analysis; and model physical systems;
11. work cooperatively and effectively with peers and supervisors;
12. recognize the limits of their own knowledge and skills, identify appropriate avenues for new learning, and pursue new knowledge and skills independently;
13. develop solutions to problems by integrating facets of science, mathematics, technology, business, experience, practical skills, and communication skills.

2.3. Essential Skill Development

Both KPU and the Ministry of Advanced Education and Skills Training have lists of essential skills that KPU's programs are expected to meet. Combining these requirements leads to thirteen essential skills that students in our program should have the opportunity to learn and demonstrate:

Creative Thinking and Problem Solving Skills;
Oral Skills;
Interpersonal Skills;
Teamwork and Leadership Skills;
Personal management and Entrepreneurial Skills;
Writing Skills;
Reading and Information Skills;
Visual Literacy;
Mathematical Skills;
Technological Skills;
Intercultural Skills;
Citizenship and Global Perspective;
Independent Learning.

A number of essentials skills are inherent to an undergraduate physics degree. From reading and understanding physics lab manuals, reading graphs, writing lab reports and using algebra and calculus to solve kinematics and dynamics problems in first-year studies, to performing literature searches, analyzing data, writing term papers and solving advanced physics problems using differential equations, complex numbers and vector calculus in fourth year studies, reading, writing, visual literacy, creative thinking, problem solving and mathematical skills are developed throughout a physics degree program.

The PMT program at KPU is more than a standard physics degree and was specifically developed to emphasize practical applications of theory and hands-on experience. The use of technology is prevalent throughout the PMT program, with the introduction of microprocessors in their first year PMT course, and electronics, sensors and actuators, process control, applied optics and practical solid state physics course in the upper years, PMT students are provided many opportunities to develop their technological skills. Much of the hands-on experience comes from the labs where students work in teams to prepare equipment and perform experiments. Team learning in the labs is a common theme in the PMT program, with lab-based courses in each year of study to give students the ability to advance their teamwork, leadership and interpersonal skills. The capstone courses of the PMT program are the third- and fourth-year project courses. These one- and two-semester long projects require students to imagine creative solutions to unique problems. Working independently towards the application of the solutions, students are required to identify gaps in their knowledge base and learn independently to address those gaps.

The PMT program was also designed to facilitate employment after graduation. Public speaking is usually a weakness for most people, so to help develop good oral skills in PMT graduates, oral presentation skills are explicitly listed in the learning outcomes in three PMT program courses, in the first, third and fourth years of study. PMT students are also required to take business electives to aid in the development of their entrepreneurial skills and global perspectives. Probably one of the best mechanisms to facilitate employment after graduation is the requirement that each PMT student complete a work experience term. In addition to gaining experience in a relevant industry, PMT students also gain personal management, intercultural, citizenship and a global perspective while interacting with the world outside of academia.

Nearly all of the essential skills are explicitly addressed in the design of the PMT program and/or the learning outcomes and learning activities of the required courses. However, the KPU essential skill, "Intercultural Skills" has not been formally addressed. Even though the diversity of KPU's student population and instructional staff provides PMT students the opportunity to meet and interact with people of different cultures, it is felt that more can be done to ensure that the PMT students have an intercultural awareness, particularly with respect to Indigenous peoples.

2.4. Curriculum Assessment

The complete course requirements for the PMT program are listed in Appendix A. The full curriculum map, in which we have listed course learning outcomes (CLOs) for each course and identified which PLOs they align with, is presented in Appendix D.

As mentioned above, the program PLOs were developed for this review based on the content and desired outcomes of the program (an explicit list of PLOs did not exist prior to this program review). The curriculum mapping exercise has shown that the PLOs are appropriate and are well-covered by the program as a