



**FINAL ASSESSMENT REPORT
Executive Summary
Cyclical Program Review**

Degree Program:	Bachelor of Science (Honours) in Physics
Components:	<ul style="list-style-type: none"> • Comprehensive • Comprehensive, with co-op option • Astrophysics • Astrophysics, with co-op option • Nanotechnology and Clean Energy • Nanotechnology and Clean Energy, with co-op option
Dean:	Dr Greg Crawford
Date:	April 25, 2023

Under Ontario Tech University's Institutional Quality Assurance Process (IQAP) and the Ontario Quality Assurance Framework (QAF), all programs are subject to a comprehensive review at least/at minimum every eight years to ensure that they continue to meet provincial quality assurance requirements and to support their ongoing rigour and coherence.

In academic years 2020-2022 a program review was scheduled for Bachelor of Science in Physics. This is the second program review for this program. A timeline of the review is provided below.

Program Review Timeline	Date
Program Review start date:	Oct. 5, 2020
Self Study submitted/approved:	Sept. 13, 2022
Site Visit:	Dec. 8-9, 2022
External Reviewers Report received:	Jan. 10, 2023
Program Response received:	Feb. 15, 2023
Decanal Response received:	Mar. 15, 2023

The external reviewers provided evidence and recommendations in their report consistent with concerns raised by the Program in the self-study brief and during the site visit. Overall, the outcome of the program review was very productive and a clear implementation plan has been developed to ensure the highest standard of academic excellence is met within the Bachelor of Science in Physics program.

The reviewers identified the modern curriculum, the astrophysics specialization, and size of the program as significant strengths in the Physics program. The program size leads directly to a close-knit community, better individual support for students, more opportunities for students, innovative teaching in small classes, and award-winning faculty. An area of improvement for the program was noted as additional laboratory equipment to better support first year students. Areas for enhancement included maintaining social engagement and increasing opportunities for experiential learning, co-op placements and research opportunities.

The review consisted of two external reviewers. During the virtual site visit, the reviewers met with the following groups and individuals: members of the Faculty as well as key stakeholders at the University; including Dr. Langis Roy – Deputy Provost; Dr. Greg Crawford – Dean of Science; Dr. Joseph MacMilliam – Undergraduate Program Director; Stephen Thickett – Director of Planning and Operations (Student Life); Emily Tufts – Associate University Librarian; members of the internal assessment team and a number of faculty, staff, and students.

The external reviewers identified eight recommendations identifying specific steps to be taken to improve the program. A common theme in the recommendations highlighted the current efforts and continued need to improve the student experience and retention in the Physics program. The prioritized list of recommendations is available in the Implementation Plan.

A Final Assessment Report (FAR) has been prepared to synthesize the reports and recommendations resulting from the review, identifying the strengths of the program as well as the opportunities for program improvement and enhancement. The Implementation Plan (IP) presents a timeline of the follow-up and resource requirements addressing the recommendations from the external reviewers' report. Both documents, accompanied by this Executive Summary (ES), will be delivered to the appropriate standing committee of Academic Council (USC/GSC) for approval on **May 16, 2023**.

Governance	Document(s)	Type of review	Date
Faculty Council	IP	Feedback	May 2, 2023
Resource Committee	IP	Resource review	April 17, 2023
USC/GSC	FAR, ES, IP	Approval	May 16, 2023
Quality Council	FAR, ES, IP	QAF requirement	
Academic Council	ES, IP	For information	
Board of Governors	ES, IP	For information	
Corporate Website	ES, IP	QAF requirement	

Due Date for 18-Month Follow-up Report: September 17, 2024

Date of Next Cyclical Review: 2027-2029
Timeframe for associated site visit: Winter 2029

IMPLEMENTATION PLAN
April 25, 2023
Bachelor of Science (Honours) in Physics
Program Review
Dean: Dr. Greg Crawford

The Implementation Plan is a critical outcome of the Cyclical Program Review process. The Dean solicits feedback on the Implementation Plan through Faculty Council and the plan is reviewed by the Provost, through the Resource Committee, to examine resource implications and allocations. A Final Assessment Report (FAR) and Executive Summary are prepared synthesizing the program review reports and responses, following review of the Implementation Plan by the Resource Committee. The plan proceeds through Ontario Tech’s governance process and is posted on the corporate website.

The table below presents a timeline of the follow-up and resource requirements addressing the recommendations from the external reviewers’ report.

	Recommendation <i>(corresponding # from reviewers’ report)</i>	Action Item(s)	Specify role of person responsible	Timeline for action and monitoring	Resource Requirements
1.	(a) Invest in enough 1st year lab equipment so they do not need to be offered on a rotating basis	Work on a plan up a plan to build up the required equipment (with priorities identified)	Dean, UPD, Lab Coordinator, DPO; institutional budget approval	Meeting to discuss: Sept. 2023 (or earlier); Preliminary budget submission: Dec. 2023	Preliminary estimate: \$200K across 5 years
	(b) Additional training for 1 st year lab TAs	Physics faculty to assess feasibility (and any costs), review options and develop a plan	Physics faculty; consultation with Dean/DPO (resources needed)	Develop plan: Dec. 2023; (resources would need to be approved and allocated; implementation plan (Aug. 2024)	TBD

3.	Consider hiring a computational astrophysicist to replace retiring research faculty	Dean to consult with Physics faculty; seek approval to post for Fall 2023	Dean, Physics Faculty; Provost (hiring approval)	Dean to meet with Physics faculty (May 2023) Seek hiring approval (by September 2023)	Approval of faculty replacement posting
4.	Modify names of two 3 rd year courses	Modify names of these courses (slight variations on what was recommended)	Physics faculty (course change proposals)	Submit course change proposals (by December 2023)	N/A
5.	Support increases in physics co-op participation by: (a) Holding a broader, university-level discussion about co-op resourcing (b) contact alumni about possible co-op positions;	(a) Once the results of a recent external review of experiential learning/co-op are made available, determine how co-op resourcing may be impacted (b) Develop an approach to increase Physics alumni engagement (including possible co-op positions)	(a) Dean(s), Provost, Experiential Learning admin (b) Physics faculty, Dean, DPO, VP Advancement, Alumni Office	(a) Determine budget implications (for Science co-op), based on university response to review recommendations and assess next steps (July 2023) (b) Alumni plan developed by July 2023	(a) Budget implications pending (b) TBD
6.	Build a better relationship with the library	Engage the Science Librarian in some upper-year courses focused on research techniques	Physics faculty	At least one upper year course with a librarian presentation by April 2024	N/A
7.	Initiate a conversation with the Education Faculty to see if a collaborative program can be revitalized	Initiate conversations with the Education Faculty	Physics faculty; Dean	Initiate conversations with the Education Faculty (November 2022)	TBD

*The Dean shall be responsible for monitoring and reporting on the Implementation Plan.

Recommendations not Addressed and Rationale

#	Recommendation not Addressed	Rationale
1	c. Full-time faculty should teach first year classes	We generally aspire to have at least one full-time faculty teach at least one section of first year courses. With a limited complement of Physics faculty, we need to balance the first year, relatively generalized student experience with the specialized, upper level Physics student experience.
2	Initiate a broader discussion across the faculty about dedicated student study space	Space at the university is at a premium; we are currently focusing on trying to acquire permanent space to support student success (e.g., Science Café) which would likely also serve as Physics student study space (though not dedicated space)
8	Reduce the number of courses being taught by contract faculty by adding at least one additional full-time faculty member	A large number of situations have arisen over the past few years that have resulted in a higher percentage of sessional contracts. Upon review, the inherent teaching capacity among the Physics faculty appears to be sufficient to meet the basic programmatic needs. To better manage resources and maintain the quality of the student experience, we will both continue to monitor the number of leaves and course releases and, if necessary, revisit the breadth of course/specialization offerings.
9	Work with the Dean to ensure professional development opportunities to enhance teaching	There is already significant support for professional development: (1) Professional development can already be up to 10% of a faculty member's workload; (2) all faculty are provided a professional development allowance (currently \$2.5K / year); (3) professional development leaves are framed within the CA; (4) to date, there have been two professional development leaves requested and approved within the Faculty of Science; both came from Physics faculty.

Due Date for 18-Month Follow-up Report: September 17, 2024

Date of Next Cyclical Review: 2027-2029