



Executive Summary and Implementation Plan

Quality Assurance Cyclical Program Review

Master of Science in Physics, Department of Physics, Faculty of Science and Environmental Studies

November 2014

In accordance with the Lakehead University Institutional Quality Assurance Process (IQAP) the Department of Physics submitted a self-study in Fall 2012. Volume 1 presented the program description and outcomes, an analytical assessment of the program and the program descriptors including results from a student survey along with institutional information and statistical data. Volumes 2 and 3, respectively, provided a collection of the program course outlines and the CV's for each full-time and adjunct faculty member involved in the program.

Two external reviewers and one internal reviewer, selected by the Senate Academic Quality Assurance Sub-committee (SAC-QA) from a set of proposed reviewers, examined the materials and completed a site visit on 19-20 June 2013. The visit included meetings with the Provost and Vice-President (Academic), Acting Vice-President (Research, Economic Development and Innovation), Deputy Provost, Dean of the Faculty of Science and Environmental Studies, Dean and Manager of Faculty of Graduate Studies, University Librarian, core and adjunct faculty, Department Chair and Graduate Coordinator, technical and support staff and current students. The Review Team toured University and off-campus resources including facilities at the Thunder Bay Regional Research Institute (TBRI) and the Thunder Bay Regional Health Sciences Centre (TBRHSC).

In their report submitted August 2013, the Review Team provided feedback that describes how the MSc Physics program meets the Quality Assurance Framework evaluation criteria and is consistent with the University's mission and academic priorities. They reported that the admission standards, curriculum structure and delivery, and teaching and assessment methods are appropriate, reflect the current state of the discipline, and are effective in preparing graduates to meet defined outcomes and the University's Graduate Degree Level Expectations (DLE's).

The Review Team noted the following program strengths:

- Students appreciate the access to supervisors, high quality research equipment (both in individual and shared laboratories, e.g. LU Instrumentation Lab), computing and library facilities and excellent training opportunities.

- Students experience the transfer and assessment of research findings through both oral (minimum two presentations) and written (co-authoring peer-reviewed publications is common) formats and exposure to an external (to the University) thesis examiner.
- Faculty members publish in high quality journals and secure highly competitive funding.
- Quality indicators such as student time to completion (2 years), zero attrition rate, and experienced, tenured faculty teaching courses lead to students placing a high level of confidence in department leadership.
- Pilot project for funding international students (cost sharing and revenue return) along with strong faculty funding has begun to address this recruitment challenge.

The Review Team provided feedback and recommendations for the Department identifying the following opportunities for improvement:

- Enhanced recruitment, especially of international students, will benefit from additional funding initiatives and ensure program viability; a departmental commitment to a minimum level of funding for each student (e.g. \$20K per annum) may be helpful.
- Ensure course outlines accurately reflect student assessment plan, membership and organization of student advisory committees (e.g. frequency of meetings).
- Consider engaging adjuncts more often in teaching of existing courses and/or creation of new courses.
- Encourage faculty to investigate non-traditional funding sources.
- Consider the development of a Medical Physics program in terms of resources (e.g. library holdings, accreditation) and potential benefits.
- Explore additional ways (e.g. video-conference) to include external thesis examiners in the actual defense as well as interact with the department and students (e.g. guest lectures).

The Graduate Study Coordinator of the Department, in consultation with the Dean of Sciences and Environmental Studies, submitted a response to the Reviewers' Report (December 2013). Clarifications and corrections were presented followed by a response to each of the recommendations made by the Review Team.

While the Review Team recommended the Department consider designing and offering a degree in Medical Physics, the Department noted that they are actively offering courses and research opportunities in Medical Imaging and this is their immediate priority with respect to program development.

A Final Assessment Report (FAR) has been prepared to provide a synthesis of the external evaluation and internal response to the recommendations. This report identifies the significant strengths of the program, the opportunities for program improvement and enhancement, and sets out and prioritizes the recommendations that have been selected for implementation.

The Implementation Plan identifies who will be responsible for approving the recommendations set out in the Final Assessment Report; who will be responsible for providing any resources made necessary by those recommendations; any changes in organization, policy or governance that will be necessary to meet the recommendations; who will be responsible for acting on those recommendations; and timelines for acting on and monitoring the implementation of those recommendations.

Programs covered by this Cyclical Review:

Master of Science in Physics

Implementation Plan (Part A): Department of Physics Follow-up Responsibilities

Recommendation	Proposed Follow-up	Responsibility*	Timeline
Explore ways to increase enrolment, especially of international students	Develop a recruitment and enrolment plan that considers targets for numbers, funding and timelines and reviews policies affecting allocation of Graduate Assistantships	Physics Chair and Graduate Coordinator; Dean Faculty of Graduate Studies	Initial Actions 2014-2015; follow-up ongoing
Explore opportunities to augment course offerings and more fully engage adjunct faculty and external examiners	Continue to identify opportunities (esp. in Medical Imaging) and establish next steps	Physics Chair and Graduate Coordinator	Initial Actions 2014-2015; follow-up ongoing
Review course documentation and student advisory committees	As part of the ongoing curriculum review process, consider course outlines, committee structure and functioning	Physics Chair and Graduate Coordinator	August 2015; follow-up ongoing
Consider development of a new Medical Imaging program	Establish a task force to explore a new field/specialization in Medical Imaging including requirements (if any) for accreditation; identify next steps	Physics Chair and Graduate Coordinator; Dean Faculty of Graduate Studies	Initial Actions 2014-2015; follow-up ongoing

Implementation Plan (Part B): Decanal and Administration Follow-up Responsibilities

Recommendation	Proposed Follow-up	Responsibility*	Timeline
Explore additional funding options for research and student support	Develop a plan to review existing pilot projects, identify opportunities and establish next steps	Physics Chair and Graduate Coordinator, Dean Faculty of Graduate Studies, VP REDI	Initial Actions 2014-2015; follow-up ongoing

*The Dean of the Faculty, in consultation with the Department Chair, shall be responsible for monitoring the Implementation Plan. The details of progress made will be presented in the Dean's Annual Reports and filed in the Office of the Provost and Vice-President (Academic).