

ACADEMIC COUNCIL REPORT

ACTION REQUESTED:

- Recommendation
- Decision
- Discussion/Direction
- Information

DATE: 28 November 2023

FROM: Undergraduate Studies Committee

SUBJECT: Minor Program Adjustment – Bachelor of Science in Health Physics and Radiation Science

COMMITTEE MANDATE:

In accordance with Section 1. b) of the Undergraduate Studies Committee (USC) Terms of Reference, USC has the responsibility “to approve minor program adjustments and report them to Academic Council for information.”

BACKGROUND/CONTEXT & RATIONALE:

The Faculty proposed to:

- Remove COMM 1050U: Technical Communications from Year 1, Semester 1 of and replace with CSCI 1040U: Introduction to Programming for Scientists.
- Remove ENGR 1200U: Introduction to Programming for Engineers from Year 1, Semester 2
- Remove CHEM 2020U: Introduction to Organic Chemistry from Year 2, Semester 1 and replace with PHY2030U: Mechanics I
- Remove ELEE 2790U: Electric Circuit from Year 2, Semester 1 and replace with PHY 2010U: Electricity and Magnetism
- Remove MATH 2860U: Differential Equations for Engineers from Year 2, Semester 1 and replace with MATH 2060U: Differential Equations
- Remove NUCL 2500: Introduction to Nuclear Physics from Year 2, Semester 1
- Add the new course RADI 2200U: Reactors and Radiation Machines to Year 2, Semester 1
- Remove ESNS 2140U: Problem Solving, Modelling & Simulation from Year 2, Semester 1 and replace with CSCI 2000U: Scientific Data Analysis
- Remove STAT 2800U: Statistics & Probability for Engineers from Year 2, Semester 2 and replace with STAT 2010U: Statistics and Probability for Physical Science
- Remove MATH 2810U: Advanced Engineering Mathematics/MATH 2070U: Numerical Methods from Year 2, Semester 2 and replace with MATH 2015U: Calculus III
- Remove RADI 4995U: Thesis Project I from Year 4, semester 1, and replace with Senior Engineering Science or Senior Science Elective
- Remove RADI 4999U: Thesis Project II from Year 4, semester 2, and replace with Senior Engineering Science or Senior Science Elective

- Please note that both thesis project courses (RADI 4995U and 4999U) will be added to the list of electives

These changes increase the number of physics courses needed for entry into health physics post graduate programs. Presently, students are excluded from entry to some of these programs (e.g., CAMPEP-accredited MS/MSc programs) because they are missing required physics content and cannot accumulate those credits because of prerequisite limitations – specifically a modern physics course (this course was added in AY 2022/2023 with first offering in Winter 2024). Adding the physics and math content creates opportunities for senior physics electives to be studied thereby enhancing the student's opportunities for entrance to other post graduate programs.

The creation of a strong 1st and 2nd year allows a greater range of electives in 3rd and 4th year that will enhance pathways to industrial positions.

Net decrease of 1 course.

RESOURCES REQUIRED:

No additional resources required.

TRANSITION PLAN:

- Fall 2024 (starting Year 1), and future cohorts - Follow new program map.
- Fall 2023 (starting Year 2 in Fall 2024), Follow new program map.
- Fall 2022 (starting Year 3) - NUCL 3860 and RADI 4440 will be given equivalencies. Its proposed we do the exact same for next year where one of the equivalencies is RADI 2200U and the other is something else.
- Fall 2021 (starting Year 4) – Follow new program map (Senior Engineering Science or Senior Science Elective replaced RADI 4995U/4999U)

Students currently in 2nd year (cohorts starting 2023) will follow the new program map. Students currently in 3rd year or 4th year (cohorts starting 2022 or earlier) will not see any changes in course availability because courses used by the Nuclear Engineering program will still be available even though they are removed from the HPRS map. Those needing Thesis I or II will be allowed to take the new thesis courses. The number of students in need of thesis will be small and can be accommodated by existing faculty. In an orderly transition, another minor program alteration will be needed and NUCL3860U and RADI4440 will be retired because of overlap with RADI2200U. Students needing NUCL3860U to complete their program will be allowed to take an alternate course approved by the Department Chair. Those requiring RADI4440 will be allowed to take RADI2200 in its place.

CONSULTATION AND APPROVAL:

- ✓ Engineering Curriculum Committee: 21 September 2023
- ✓ Faculty Council: 5 October 2023
- ✓ Undergraduate Studies Committee (Approval): 17 October 2023

NEXT STEPS:

- After presentation to Academic Council, this change will be included in the 2024-2025 Academic Calendar.

SUPPORTING REFERENCE MATERIALS:

- [Minor Program Adjustment Proposal](#)
- [New Course: RADI 2200U](#)
- [Course Change: RADI 4995U](#)
- [Course Change: RADI 4999U](#)